

7th Street Bridge Project

STANISLAUS COUNTY, CALIFORNIA

City of Modesto

BRLS 5938(167)

Draft Environmental Assessment and Section 4(f) Evaluation



Prepared by the
State of California Department of Transportation



December 2017

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans), in cooperation with Stanislaus County and the City of Modesto, has prepared this Environmental Assessment (EA) and Section 4(f) Evaluation, which examines the potential environmental impacts of the alternatives being considered for the proposed project located in the City of Modesto in Stanislaus County, California. Stanislaus County and the City of Modesto are proposing to use funds from the Federal Highway Administration (FHWA) for this local bridge project. This EA describes why the project is being proposed, the alternatives being considered for the project, the existing environment that could be affected by the project, the potential impacts from each of the project alternatives, and the proposed avoidance, minimization, and/or mitigation measures to offset the potential project impacts.

What you should do:

- Please read this document.
- Additional copies of this document, and the related technical studies, are available for review at the locations below.
 - Stanislaus County Department of Public Works
1716 Morgan Road
Modesto, CA 95358
 - Caltrans District 10
1976 East Charter Way / East Dr. Martin Luther King, Jr. Blvd.
Stockton, California 95205
- This document may be downloaded in PDF format at the following websites: <http://www.7thstreetbridge.org/> and <http://www.dot.ca.gov/d10/projects.html>.
- Attend the public meeting scheduled for February 15, 2018 at 6:00 pm at the Basement Training Room, 1010, Tenth Street, Modesto, CA 95354.

- We welcome your comments. If you have any comments about the proposed project, please attend the public meeting and/or send your written comments to the Caltrans District 10 office (address shown below) by the deadline.
- Send comments via postal mail to:
 - Caltrans District 10
Attn: Julie Myrah, Environmental Chief
1976 East Charter Way / East Dr. Martin Luther King, Jr. Blvd.
Stockton, CA 95205
- Send comments via email to: julie.myrah@dot.ca.gov
- Send comments by the deadline: February 28, 2018

What happens next:

After comments are received from the public and reviewing agencies, Caltrans will respond to comments and prepare the final environmental document. Caltrans 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 obtained, part, or all, of the project can be designed and constructed.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audio cassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Julie Myrah, Environmental Chief, 1976 East Charter Way / East Dr. Martin Luther King Jr. Blvd., Stockton, CA 95205; (209) 948-7427 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

7th Street Bridge Project in the City of Modesto, Stanislaus County, California

**DRAFT ENVIRONMENTAL ASSESSMENT
and Section 4(f) Evaluation**

Submitted Pursuant to:
(Federal) 42 USC 4332(2)(C) and 49 USC 303

The State of California
Department of Transportation

Responsible Agencies

Stanislaus County and the City of Modesto

1/16/18
Date of Approval


DENNIS T. AGAB
District 10 Director

The following persons may be contacted for more information about this document:

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Summary

The proposed 7th Street Bridge Project (project) in Modesto, Stanislaus County, California is subject to federal as well as state environmental review requirements because Stanislaus County proposes the use of federal funds from the Federal Highway Administration (FHWA). Project documentation, therefore, has been prepared in compliance with the National Environmental Policy Act (NEPA). Stanislaus County is the project proponent and the lead agency under the California Environmental Quality Act (CEQA). FHWA's responsibility for environmental review, consultation, and any other action required by applicable federal environmental laws for this project is being, or has been, carried out by the California Department of Transportation (Caltrans) pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

While this project is subject to the requirements of both NEPA and CEQA, separate environmental documents have been prepared, one that complies with NEPA and another that complies with CEQA. This Environmental Assessment (EA) and Section 4(f) Evaluation complies with the requirements of NEPA and other federal environmental laws. Compliance with CEQA and state environmental laws is provided in the Environmental Impact Report for the 7th Street Bridge Project, Modesto, California.

After receiving comments from the public and reviewing agencies, a final environmental document will be prepared. The lead agency may prepare additional environmental and/or engineering studies to address comments. The final environmental document will include responses to comments received on the Draft EA and will identify the preferred alternative. If the decision is made to approve the project, Caltrans will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) for compliance with NEPA. A Notice of Availability of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

NEPA Assignment

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 USC 327 for more than 5 years, beginning

July 1, 2007, and ending September 30, 2012. The Moving Ahead for Progress in the 21st Century Act (MAP-21) (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016 for a term of five years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 USC 326 Categorical Exclusion Assignment MOU, projects excluded by definition, and specific project exclusions.

Project Description

The purpose of the 7th Street Bridge Project is to create a structurally and functionally sufficient bridge crossing of the Tuolumne River along the 7th Street corridor.

Four alternatives are being considered to repair or replace the 7th Street Bridge. These four alternatives are summarized below, and discussed in detail (with maps and figures) in Chapter 1, Proposed Project. Alternatives 2A, 2B and 3 involve the construction of a new four-lane replacement bridge and the demolition of the existing two-lane bridge, while Alternative 4 involves construction of a new two-lane bridge in addition to a full retrofit of the existing bridge. This document also considers a No-Build Alternative under which the proposed project would not occur. At this time, a preferred alternative has not been identified; however, Stanislaus County and the City of Modesto have selected Alternative 2B as the Locally Preferred Alternative.

Alternative 2A: Existing Bridge Alignment (Arch Bridge)

This alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment, and would therefore require demolition of the existing bridge. To use the existing bridge alignment as efficiently as possible, 7th Street over the river would be closed during construction. Because this alternative does not require staged construction of the bridge, it accommodates a tied-arch structure spanning the Tuolumne River that avoids the need to install piers in the river's low-flow channel

(i.e., the active river channel that always contains water, as opposed to the floodplain which only contains water during flood events). For the portion of the bridge crossing the floodplain, a precast concrete girder structure would be used. This alternative would require approximately seven piers in the floodplain. Because of the loss of bicycle and pedestrian access across the bridge during construction, this alternative includes either a temporary pedestrian/bike bridge downstream of the construction zone or temporary transit service to accommodate access across the river.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be reconfigured to accommodate four lanes of traffic. The intersection of 7th Street with Crows Landing Road would be similar to the existing “Y” configuration, but the intersection would be signalized and would prioritize traffic flow onto and from Crows Landing Road. The modified intersections north and south of the bridge would require two full property acquisitions and 14 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 2A is estimated to be \$57.6 million.

Alternative 2B: Existing Bridge Alignment (Standard Bridge)

This alternative would be the same as Alternative 2A, except with a more standard structure type used for the portion of the bridge spanning the low-flow channel of the Tuolumne River for cost efficiency (as compared to Alternative 2A). Alternative 2B would require demolition of the existing bridge. Precast concrete girders would be used for the entire bridge superstructure, making this the lowest cost alternative. This alternative would require approximately seven piers, including one in the low-flow channel of the river, which would therefore entail greater environmental impacts than Alternative 2A. Like Alternative 2A, Alternative 2B would require two full property acquisitions and 14 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 2B is estimated to be \$37.6 million.

Alternative 3: Existing Alignment with Staged Construction

Similar to Alternatives 2A and 2B, this alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment, and would therefore require demolition of the existing bridge. However, Alternative 3 would construct the bridge in two stages so that the existing bridge could remain open while one-half of the new bridge is constructed immediately downstream of (and adjacent to) the existing bridge. Traffic would then be diverted to the new structure while the existing bridge

is demolished and the second half of the new bridge is constructed. The new bridge would be a concrete box girder structure type with approximately seven piers, including one in the low-flow channel.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be approximately the same as Alternatives 2A and 2B. The intersection of 7th Street with Crows Landing Road would be completely reconfigured. The existing configuration emphasizes northbound traffic continuity along 7th Street, with a “Y” intersection at Crows Landing Road. The new configuration would emphasize both northbound and southbound traffic continuity to the Crows Landing Road corridor, with a signalized intersection at 7th Street. This configuration would require more right-of-way acquisitions than Alternatives 2A and 2B, including five full property acquisitions and 13 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 3 is estimated to be \$42.7 million.

Alternative 4: Retrofit and New Two-Lane Bridge

This alternative is focused on a comprehensive retrofit of the existing 7th Street Bridge, with full truck carrying capacity provided and with the addition of a new, two-lane bridge (precast concrete girder) constructed 9 feet downstream of and 9 feet higher than the existing bridge. The new bridge would be constructed first, and would be used by all traffic in both directions until the retrofit is complete. When the retrofit of the 7th Street Bridge is complete, it would be opened to one-directional traffic in the northbound direction and the adjacent new bridge would be converted to only southbound traffic. Intersection improvements at B Street/Tuolumne River Boulevard would be the same as Alternatives 2A, 2B, and 3. Intersection improvements at Crows Landing Road would be the same as Alternative 3. This alternative would require approximately seven piers, including one in the low-flow channel of the river. Like Alternative 3, this alternative would require five full property acquisitions and 13 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 4 is estimated to be \$46.0 million.

Summary of Adverse Environmental Effects

Table S-1 includes a brief summary of the potential environmental effects of the proposed project, as well as a general discussion of avoidance, minimization, and/or

mitigation measures where appropriate. Chapter 2 of the EA provides detailed discussions of the existing setting, environmental effects, and Mitigation Measures (MMs); the complete text of all of the MMs is compiled in Appendix D.

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Land Use | Alternative 2A would be consistent with applicable land use plans and policies. | Alternative 2B would be consistent with applicable land use plans and policies. | Alternative 3 would be consistent with applicable land use plans and policies. | Alternative 4 would be consistent with applicable land use plans and policies. | The No-Build Alternative would not be consistent with applicable land use plans and policies, which show a 4-lane bridge. |
| Community Character and Cohesion | Alternative 2A would adversely affect community character and cohesion due to the displacement of 8 residential units within the Sunrise Village mobile home park. | Alternative 2B would adversely affect community character and cohesion due to the displacement of 8 residential units within the Sunrise Village mobile home park. | Alternative 3 would adversely affect community character and cohesion due to the displacement of 19 residential units within the Sunrise Village mobile home park and Lion's Market. | Alternative 4 would adversely affect community character and cohesion due to the displacement of 19 residential units within the Sunrise Village mobile home park and Lion's Market. | No impact. |
| Relocations and Real Property Acquisitions | Under Alternative 2A, residents and businesses would be displaced (2 full property acquisitions and 14 partial property acquisitions). Residents and businesses that would be relocated – estimated at 8 residential units and 1 business – would be made “whole” in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act). | Under Alternative 2B, residents and businesses would be displaced (2 full property acquisitions and 14 partial property acquisitions). Residents and businesses that would be relocated – estimated at 8 residential units and 1 business – would be made “whole” in accordance with the Uniform Act. | Under Alternative 3, residents and businesses would be displaced (5 full property acquisitions and 13 partial property acquisitions). Residents and businesses that would be relocated – estimated at 19 residential units and 4 business including Lion's Market – would be made “whole” in accordance with the Uniform Act. | Under Alternative 4, residents and businesses would be displaced (5 full property acquisitions and 13 partial property acquisitions). Residents and businesses that would be relocated – estimated at 19 residential units and 4 businesses including Lion's Market – would be made “whole” in accordance with the Uniform Act. | No impact. |
| Environmental Justice | No adverse effects under Alternative 2A. | No adverse effects under Alternative 2B | Adverse effects to environmental justice would occur under Alternative 3 if the Lion's Market is not relocated nearby. | Adverse effects to environmental justice would occur under Alternative 4 if the Lion's Market is not relocated nearby. | No impact. |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Traffic and Transportation | Under Alternative 2A, the existing bridge would be closed during construction, and demolished. Adverse effects are identified to both study intersections at State Route (SR) 99 in the design year condition – primarily the SR 99/Crows Landing Road intersections and to a lesser extent the southbound SR 99/Tuolumne Boulevard intersection. To mitigate this impact, Stanislaus County and the City of Modesto will improve these intersections as part of a locally sponsored project that could include signalization of the ramp intersections. This alternative includes a temporary bridge for bicycle and pedestrian use during construction, and/or increased transit service. | Under Alternative 2B, the existing bridge would be closed during construction, and demolished. Adverse effects are identified to both study intersections at SR 99 in the design year condition – primarily the SR 99/Crows Landing Road intersections and to a lesser extent the southbound SR 99/Tuolumne Boulevard intersection. To mitigate this impact, Stanislaus County and the City of Modesto will improve these intersections as part of a locally sponsored project that could include signalization of the ramp intersections. This alternative includes a temporary bridge for bicycle and pedestrian use during construction, and/or increased transit service. | Under Alternative 3, the existing bridge would remain open during construction, and then demolished once two lanes of the new downstream bridge are available to use. Adverse effects are identified to both study intersections at SR 99 in the design year condition – primarily the SR 99/Crows Landing Road intersections and to a lesser extent the southbound SR 99/Tuolumne Boulevard intersection. To mitigate this impact, Stanislaus County and the City of Modesto will improve these intersections as part of a locally sponsored project that could include signalization of the ramp intersections. | Under Alternative 4, the existing bridge would remain open during construction of the new downstream bridge, and then temporarily closed for retrofit. Adverse effects are identified to both study intersections at SR 99 in the design year condition – primarily the SR 99/Crows Landing Road intersections and to a lesser extent the southbound SR 99/Tuolumne Boulevard intersection. To mitigate this impact, Stanislaus County and the City of Modesto will improve these intersections as part of a locally sponsored project that could include signalization of the ramp intersections. | Under the No-Build Alternative, adverse impacts are identified at several study intersections including 7 th Street/B Street/Tuolumne Boulevard and 7 th Street/Crows Landing Road. |
| Visual/Aesthetics | Although there is potential for a high level of visual change associated with Alternative 2A, it does not rise to a level that would be considered an adverse effect. | Although there is potential for a high level of visual change associated with Alternative 2B, it does not rise to a level that would be considered an adverse effect. | Although there is potential for a high level of visual change associated with Alternative 3, it does not rise to a level that would be considered an adverse effect. | Although there is potential for a high level of visual change associated with Alternative 4, it does not rise to a level that would be considered an adverse effect. | No impact. |
| Cultural Resources | Alternative 2A would demolish the bridge, which would be a direct adverse effect to a historic property. The adverse effect would be resolved with implementation of Mitigation Measures (MMs). MMs under Alternative 2A would include photo documentation and | Alternative 2B would demolish the bridge, which would be a direct adverse effect to a historic property. The adverse effect would be resolved with MM implementation. MMs under Alternative 2B would include photo documentation and | Alternative 3 would demolish the bridge, which would be a direct adverse effect to a historic property. The adverse effect would be resolved with MM implementation. MMs under Alternative 3 would include photo documentation and interpretive exhibits in the | Alternative 4 would build a new bridge adjacent to and downstream from the bridge and retrofit the existing bridge, which would result in a direct adverse effect because removing the sidewalks, installing safety barriers, and replacing the floor beams would alter the historic property in ways not consistent | Indirect adverse impact from deterioration of the historic property. |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| | <p>interpretive exhibits in the adjacent pedestrian plaza. A Historic Architectural Engineering Record report will be prepared that will contain written and photo documentation.</p> | <p>interpretive exhibits in the adjacent pedestrian plaza. A Historic Architectural Engineering Record report will be prepared that will contain written and photo documentation.</p> | <p>adjacent pedestrian plaza. A Historic Architectural Engineering Record report will be prepared that will contain written and photo documentation.</p> | <p>with the Secretary of the Interior's (SOI's) standards. Alternative 4 would also result in an indirect adverse effect because the addition of a parallel new bridge would introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. Other retrofit activities, including installing a longitudinal beam, connecting mid-span joints with hanger plates, and replacing the diaphragm walls on the piers could constitute alterations of the historic property that are not consistent with the SOI's Standards and would result in a direct adverse effect. The direct adverse effects under Alternatives 2A, 2B, and 3 would be greater than the direct and indirect adverse effects under Alternative 4. The adverse effects would be resolved with MM implementation. MMs under Alternative 4 would include photo documentation and preparation of a Historic Architectural Engineering Record report. If feasible, the new downstream bridge will be redesigned and relocated to minimize the adverse effect, and the retrofit will be conducted to meet the SOI's standards as much as possible.</p> | |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Water Quality and Stormwater Runoff | Alternative 2A could result in erosion and siltation with associated water quality impacts. However, the project would follow the County's Stormwater Management Program and Caltrans standards. The project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Standard construction best management practices (BMPs) and pollution control measures will be implemented to minimize erosion and sedimentation during construction. | Alternative 2B could result in erosion and siltation with associated water quality impacts. However, the project would follow the County's Stormwater Management Program and Caltrans standards. The project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Standard construction BMPs and pollution control measures will be implemented to minimize erosion and sedimentation during construction. | Alternative 3 could result in erosion and siltation with associated water quality impacts. However, the project would follow the County's Stormwater Management Program and Caltrans standards. The project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Standard construction BMPs and pollution control measures will be implemented to minimize erosion and sedimentation during construction. | Alternative 4 could result in erosion and siltation with associated water quality impacts. However, the project would follow the County's Stormwater Management Program and Caltrans standards. The project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Standard construction BMPs and pollution control measures will be implemented to minimize erosion and sedimentation during construction. | No impact. |
| Paleontology | Alternative 2A would have the potential to disturb undiscovered subsurface paleontological resources. Standard MMs will be implemented to reduce potential effects to paleontological resources. | Alternative 2B would have the potential to disturb undiscovered subsurface paleontological resources. Standard MMs will be implemented to reduce potential effects to paleontological resources. | Alternative 3 would have the potential to disturb undiscovered subsurface paleontological resources. Standard MMs will be implemented to reduce potential effects to paleontological resources. | Alternative 4 would have the potential to disturb undiscovered subsurface paleontological resources. Standard MMs will be implemented to reduce potential effects to paleontological resources. | No impact. |
| Hazardous Waste/Materials | Potentially hazardous materials that could be released during construction include asbestos-containing bridge materials, aerially deposited lead, and soil and groundwater contaminated by prior agricultural and industrial activities (2.1 acres of disturbance). MMs will be | Potentially hazardous materials that could be released during construction include asbestos-containing bridge materials, aerially deposited lead, and soil and groundwater contaminated by prior agricultural and industrial activities (2.1 acres of disturbance). MMs will be | Potentially hazardous materials that could be released during construction include asbestos-containing bridge materials, aerially deposited lead, and soil and groundwater contaminated by prior agricultural and industrial activities (3.2 acres of disturbance). MMs will be | Potentially hazardous materials that could be released during construction include asbestos-containing bridge materials, aerially deposited lead, and soil and groundwater contaminated by prior agricultural and industrial activities (3.5 acres of disturbance). MMs will be implemented to address concerns with these materials. | No impact. |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | implemented to address concerns with these materials. | implemented to address concerns with these materials. | implemented to address concerns with these materials. | | |
| Air Quality | Alternative 2A would result in short-term construction period effects to air quality as well as long-term effects associated with increases in traffic. Standard construction BMPs and emission reduction measures will be implemented to minimize project emissions during construction, and implementation of the Regional Transportation Plan (RTP) has been found to conform to regional air quality attainment goals. | Alternative 2B would result in short-term construction period effects to air quality as well as long-term effects associated with increases in traffic. Standard construction BMPs and emission reduction measures will be implemented to minimize project emissions during construction, and implementation of the RTP has been found to conform to regional air quality attainment goals. | Alternative 3 would result in short-term construction period effects to air quality as well as long-term effects associated with increases in traffic. Standard construction BMPs and emission reduction measures will be implemented to minimize project emissions during construction, and implementation of the RTP has been found to conform to regional air quality attainment goals. | Alternative 4 would result in short-term construction period effects to air quality as well as long-term effects associated with increases in traffic. Standard construction BMPs and emission reduction measures will be implemented to minimize project emissions during construction, and implementation of the RTP has been found to conform to regional air quality attainment goals. | No short-term construction impacts. The No-Build Alternative would not be consistent with the RTP. |
| Noise | There would be adverse noise impacts to some receptors, although the main source of noise impacts is from increased traffic on SR 99. Since the traffic from SR 99 is the dominant noise source, noise barriers along 7 th Street would not be effective in abating noise in these areas. | There would be adverse noise impacts to some receptors, although the main source of noise impacts is from increased traffic on SR 99. Since the traffic from SR 99 is the dominant noise source, noise barriers along 7 th Street would not be effective in abating noise in these areas. | There would be adverse noise impacts to some receptors, although the main source of noise impacts is from increased traffic on SR 99. Since the traffic from SR 99 is the dominant noise source, noise barriers along 7 th Street would not be effective in abating noise in these areas. | There would be adverse noise impacts to some receptors, although the main source of noise impacts is from increased traffic on SR 99. Since the traffic from SR 99 is the dominant noise source, noise barriers along 7 th Street would not be effective in abating noise in these areas. | There would be adverse noise impacts to some receptors, although the main source of noise impacts is from increased traffic on SR 99. Since the traffic from SR 99 is the dominant noise source, noise barriers along 7 th Street would not be effective in abating noise in these areas. |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
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| Natural Communities | Alternative 2A could directly impact 0.65 acres of riparian vegetation and 0.42 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction. | Alternative 2B could directly impact 0.65 acres of riparian vegetation and 0.42 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction. | Alternative 3 could directly impact 0.65 acres of riparian vegetation and 0.44 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction. | Alternative 4 could directly impact 0.65 acres of riparian vegetation and 0.45 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction. | No impact. |
| Wetlands and Other Waters | Alternative 2A could have an effect on riverine and riparian habitat within the Waters of the U.S. (WOUS). Direct permanent impacts include the placement of piers in the WOUS, but the pier footprint would be smaller than the existing bridge piers. Project excavation could temporarily increase water turbidity and construction equipment has the potential to contamination to the WOUS. Standard measures will be implemented to reduce direct and indirect impacts to other waters of the U.S. during construction. No jurisdictional wetlands would be affected. | Alternative 2B could have an effect on riverine and riparian habitat within the WOUS. Direct permanent impacts include the placement of piers in the WOUS, but the pier footprint would be smaller than the existing bridge piers. Project excavation could temporarily increase water turbidity and construction equipment has the potential to contamination to the WOUS. Standard measures will be implemented to reduce direct and indirect impacts to other waters of the U.S. during construction. No jurisdictional wetlands would be affected. | Alternative 3 could have an effect on riverine and riparian habitat within the WOUS. Direct permanent impacts include the placement of piers in the WOUS, but the pier footprint would be smaller than the existing bridge piers. Project excavation could temporarily increase water turbidity and construction equipment has the potential to contamination to the WOUS. Standard measures will be implemented to reduce direct and indirect impacts to other waters of the U.S. during construction. No jurisdictional wetlands would be affected. | Alternative 4 could have an effect on riverine and riparian habitat within the WOUS. Direct permanent impacts include the placement of piers in the WOUS, which would be an increase to the existing bridge piers. Project excavation could temporarily increase water turbidity and construction equipment has the potential to contamination to the WOUS. Standard measures will be implemented to reduce direct and indirect impacts to other waters of the U.S. during construction. No jurisdictional wetlands would be affected. | No impact. |
| Animal Species | Project construction could have an adverse effect on sensitive aquatic species. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead | Project construction could have an adverse effect on sensitive aquatic species. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead | Project construction could have an adverse effect on sensitive aquatic species. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead | Project construction could have an adverse effect on sensitive aquatic species. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead (federal threatened), fall-run Chinook | No impact. |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| | (federal threatened), fall-run Chinook salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could be also be affected by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. Project construction could also affect sensitive bird and bat species. Effects to sensitive animal species would be fully offset by implementation of MMs. | (federal threatened), fall-run Chinook salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could be also be affected by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. Project construction could also affect sensitive bird and bat species. Effects to sensitive animal species would be fully offset by implementation of MMs. | (federal threatened), fall-run Chinook salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could be also be affected by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. Project construction could also affect sensitive bird and bat species. Effects to sensitive animal species would be fully offset by implementation of MMs. | salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could be also be affected by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. Project construction could also affect sensitive bird and bat species. Effects to sensitive animal species would be fully offset by implementation of MMs. | |
| Threatened and Endangered Species | Impacts to Central Valley steelhead under Alternative 2A would be adverse, but would be reduced to negligible levels with the implementation of MMs. No impact to other threatened and endangered species. | Impacts to Central Valley steelhead under Alternative 2B would be adverse, but would be reduced to negligible levels with the implementation of MMs. No impact to other threatened and endangered species. | Impacts to Central Valley steelhead under Alternative 3 would be adverse, but would be reduced to negligible levels with the implementation of MMs. No impact to other threatened and endangered species. | Impacts to Central Valley steelhead under Alternative 4 would be adverse, but would be reduced to negligible levels with the implementation of MMs. No impact to other threatened and endangered species. | No impact. |
| Invasive Species | Construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of MMs. | Construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of MMs. | Construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of MMs. | Construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of MMs. | No impact. |

Table S-1 Summary of Environmental Impacts and Mitigation Measures for the Proposed 7th Street Bridge Project

| Environmental Resource | Alternative 2A: Existing Bridge Alignment (Arch Bridge) | Alternative 2B: Existing Bridge Alignment (Standard Bridge) | Alternative 3: Existing Alignment with Staged Construction | Alternative 4: Retrofit and New Two-Lane Bridge | No-Build Alternative |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Section 4(f) | <p>Alternative 2A would have a <i>de minimis</i> impact on the Tuolumne River Regional Park.</p> <p>Alternative 2A would be implemented pursuant to the <i>Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.</i></p> | <p>Alternative 2B would have a <i>de minimis</i> impact on the Tuolumne River Regional Park.</p> <p>Alternative 2B would be implemented pursuant to the <i>Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.</i></p> | <p>Alternative 3 would have a <i>de minimis</i> impact on the Tuolumne River Regional Park.</p> <p>Alternative 3 would be implemented pursuant to the <i>Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.</i></p> | <p>Alternative 4 would have a <i>de minimis</i> impact on the Tuolumne River Regional Park.</p> <p>Alternative 4 would be implemented pursuant to the <i>Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.</i></p> | No impact. |

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans), in cooperation with the County of Stanislaus and the City of Modesto, is proposing to replace or repair the existing 7th Street Bridge across the Tuolumne River. While the proposed 7th Street Bridge Project (project) is subject to the requirements of both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), separate environmental documents have been prepared, one that complies with NEPA and another that complies with CEQA. This Environmental Assessment (EA) and Section 4(f) Evaluation complies with the requirements of NEPA and other federal environmental laws, and Caltrans is the lead agency under NEPA. Stanislaus County is the project proponent and the lead agency under CEQA. Compliance with CEQA and state environmental laws is provided in the Environmental Impact Report for the 7th Street Bridge Project.

The 7th Street corridor is one of several north-south roadways connecting downtown Modesto with areas south of the Tuolumne River. Figure 1-1 shows the location of 7th Street along with other river crossings upstream (9th Street) and downstream (State Route [SR] 99) of the existing 7th Street Bridge. Figure 1-1 also depicts the project area, which for the purposes of this EA is defined as the project footprint, i.e., the area that encompasses all direct and indirect, temporary and permanent impacts of the proposed project, including all areas of construction activity, equipment staging areas, and temporary construction easements for all of the project alternatives under consideration.

The 7th Street Bridge is listed on Caltrans' Local Agency Bridge List with an extremely low sufficiency rating (2 on a scale of 0 to 100) because of structural deficiencies (e.g., excessive deflections in the structure), functional deficiencies (inadequate width), and a load restriction of 4 tons. The structure is also potentially vulnerable to collapse during an earthquake or flood event. The 7th Street Bridge's sufficiency rating is one of the worst in California, and the structural and functional deficiencies must be corrected and load carrying capacity restored so it may continue to be used.

The 7th Street Bridge Project is listed in the financially-constrained Stanislaus Council of Governments (StanCOG) 2014 Regional Transportation Plan/Sustainable

Communities Strategy (RTP/SCS). The project is also included in StanCOG’s financially-constrained 2017 Federal Transit Improvement Program (FTIP), Appendix A, page 10, as “Seismic Bridge Replacement, 4 lane bridge with pedestrian access.”

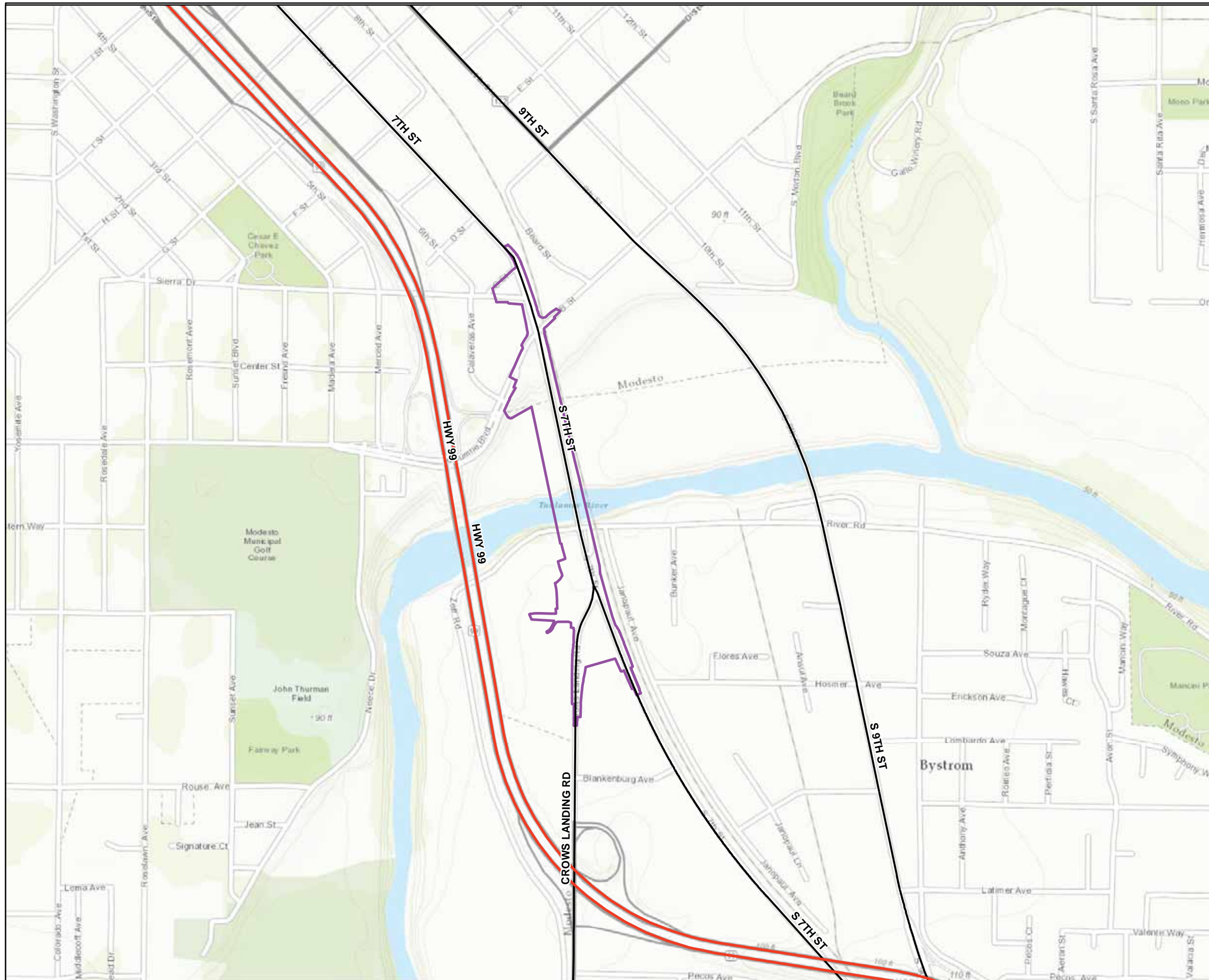
Funding for this project is from the federal Highway Bridge Program administered by the Federal Highway Administration (FHWA) and Caltrans, with local matching funds from Stanislaus County and the City of Modesto.

1.2 Purpose and Need

1.2.1 Purpose of the 7th Street Bridge Project

The purpose of the proposed 7th Street Bridge Project is to:

- Create a structurally sufficient bridge crossing of the Tuolumne River along the 7th Street corridor. A “structurally sufficient” bridge would:
 - Improve conditions for vehicular and seismic loads by meeting appropriate design criteria including the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor (LRFD) Bridge Design Specifications
 - Protect the 7th Street Bridge from flood damage by meeting hydrologic standards consistent with the AASHTO LRFD Bridge Design Specifications and as determined by the Central Valley Flood Protection Board (CVFPB)
- Create a functionally sufficient bridge crossing of the Tuolumne River along the 7th Street corridor. A “functionally sufficient” bridge would:
 - Provide adequate vehicular lanes and shoulders, on-street bike lanes, and pedestrian walkways that meet appropriate design criteria including the AASHTO Policy on Geometric Design of Highways and Streets; AASHTO Guide for the Development of Bicycle Facilities; AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities; and Caltrans standards.



LEGEND
 Project Area

Service Layer Credits: Sources:
 Esri, HERE, DeLorme, Intermap,
 increment P Corp., GEBCO,
 USGS, FAO, NPS, NRCAN,
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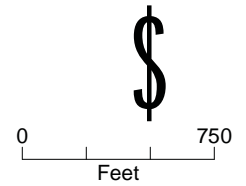


FIGURE 1-1
Project Location
 7th Street Bridge Project
 Modesto, California

- Relieve traffic congestion and provide for anticipated roadway and intersection capacity at an acceptable level of service consistent with the StanCOG 2014 RTP/SCS, Stanislaus County General Plan, and City of Modesto General Plan.

1.2.2 Need for the 7th Street Bridge Project

The existing 7th Street Bridge is listed on the Caltrans Local Agency Bridge List with a sufficiency rating of 2 on a scale of 0 (low) to 100 (high). The extremely low sufficiency rating is because of structural deficiencies associated with deteriorated structural and hydrologic conditions, and functional deficiencies due to its inadequate width and limited vehicle capacity.

Structural Deficiencies

Structural Conditions

The structural condition of the existing 7th Street Bridge was most recently evaluated in the Final Rehabilitation and Retrofit Strategy Report (2013). As identified in the report, many parts of the structure have significant cracking and concrete spalling with some exposed reinforcement or structural steel. Also, there are vertical offsets (up to 3 inches) at mid-span bridge joints, suggesting that overstressing of the steel truss has occurred. In addition to observed conditions, structural analysis using a computer model was performed to determine the extent of potential vulnerabilities. The analysis identified vehicular load vulnerabilities to the bridge deck and barriers, floor beams, arch trusses, and substructure, with additional seismic load vulnerabilities to the arch trusses and substructure.

As a result of these structural conditions, the inventory and operating load ratings are 6.5 tons and 11 tons, respectively, and the bridge is posted with a 4-ton weight limit. AASHTO load factor design standards require a load rating of 36 tons.. The bridge's substandard load rating prevents most commercial trucks from using the bridge, and also limits use by local buses and large emergency vehicles. Seismic load deficiencies indicate that the bridge is also vulnerable to collapse during an earthquake.

Hydrologic Conditions

Hydrologic conditions were most recently evaluated in the Bridge Design Hydraulic Study Report (2015). As identified in the report, the bridge is vulnerable to collapse in a flood event.

Tuolumne River flood flows have degraded river bed conditions around the bridge piers – a condition known as *scour*. The maximum potential scour depths are

significant and well below the bottom of all bridge footings. Due to the magnitude of the scour depths relative to the piers, the footings could be severely compromised in both a 100-year and 200-year flood. Thus, retrofit or replacement of the footings is necessary to ensure stability of the bridge.

The existing bridge deck is also too low to pass a 100-year flood flow without impairment – i.e., there is no *freeboard* (clearance space between the maximum water level and the bridge), as the 100-year flood water surface elevation is at the same height as the bridge deck (75.1 feet). The controlling design standard for passing flood flows is from the CVFPB, which requires 3 feet of freeboard above the 100-year flood water surface elevation.

Functional Deficiencies

Improved Conditions for Vehicles, Pedestrians, and Bicyclists

The current vehicle lanes do not comply with the guidelines specified in the Caltrans Highway Design Manual and the AASHTO Policy on Geometric Design of Highways and Streets. Collectively, these documents recommend 12-foot-wide lanes with 8-foot-wide shoulders for this urban arterial street. On the existing bridge, travel lanes are 12 feet wide but there are no shoulders.

The 7th Street Bridge has narrow, substandard sidewalks that place pedestrians very close to vehicular traffic. The Caltrans Highway Design Manual requires 6-foot-wide sidewalks along bridges and recommends 8-foot-wide sidewalks for pedestrian comfort, but the current sidewalks are only 4 feet wide. In addition, the approaches to these sidewalks are not Americans with Disabilities Act (ADA) compliant, forcing some wheelchair traffic to use the vehicle lanes.

The bridge does not provide dedicated bicycle infrastructure; vehicles and bicycles must share a single, narrow travel lane with no shoulder, which increases vehicle/bicycle conflicts. The lack of bicycle infrastructure is inconsistent with the City of Modesto Non-Motorized Transportation Master Plan, which calls for a complete network of bikeways, walkways, trails, and paths that serve all non-motorized groups. The Modesto Non-Motorized Transportation Master Plan designates a Class II Bike Lane along the 7th Street Bridge corridor, where a Class II Bike Lane is defined in the Master Plan as a “striped and stenciled lane for one-way travel on a street or highway.” The StanCOG Non-Motorized Transportation Plan recommends a 6-foot width for a Class II Bike Lane, with a required minimum width of 5 feet.

Capacity and Transportation Demand

7th Street is an important two-lane arterial roadway that carries traffic to and from downtown Modesto and the surrounding neighborhoods and communities. Traffic conditions were most recently evaluated in the Final Traffic Report for the 7th Street Bridge Project (2015). As identified in the report, the bridge carries 15,900 vehicles per day, and the intersection north of the bridge (Tuolumne Boulevard/B Street) operates at level of service (LOS) C in the AM peak hour and LOS D in the PM peak hour.¹ Lengthy vehicle queues occur on the bridge during peak travel conditions and when train crossings at B Street cause traffic signal preemptions. With no improvements, traffic volumes on the 7th Street Bridge are anticipated to increase by 82 percent to 29,000 vehicles per day and the Tuolumne Boulevard/B Street intersection would operate at an unacceptable LOS “F” (Design Year = 2040).

The StanCOG 2014 RTP/SCS has identified the need to increase the 7th Street Bridge vehicular capacity from two lanes to four lanes. Both the City of Modesto General Plan and the Stanislaus County General Plan also identify the future 7th Street Bridge as a four-lane structure.

Logical Termini and Independent Utility

A project supported by FHWA and Caltrans must have (1) logical termini, and (2) independent utility. Logical termini refer to the end points – a project must connect two logical points and be of sufficient length to address environmental matters on a broad scope. Independent utility requires that the project stand on its own – that it must be a reasonable expenditure even if no other transportation improvements in the area are made. A project that does not have logical termini and independent utility is at risk for *segmentation*, or a piece-by-piece approach to transportation improvements.

The 7th Street Bridge Project is focused on the existing Tuolumne River bridge crossing along 7th Street, which connects downtown Modesto along 7th Street with areas south of the Tuolumne River, primarily along Crows Landing Road. The bridge project requires improvements to the bridge approaches: north of the bridge, the intersection of 7th Street with Tuolumne Boulevard/B Street needs to be reconfigured to accommodate the new bridge alignment and increased capacity. South of the bridge, a similar reconfiguration is required to the intersection of 7th Street with

¹ Level of Service is a letter grade (A to F) based on comfort and convenience associated with driving. LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions.

Crows Landing Road. Beyond these intersections north and south of the bridge, the changes in traffic patterns caused by the bridge project are dissipated throughout the existing local streets, which make the intersections rational end points. The extent of construction activities between these points (inclusive of the intersections) was the basis for determining the rational study area for environmental review, as this would be the area most affected by the project. Therefore, the project definition between these two intersections shows that the project has logical termini.

Improvements to the intersections north of the bridge will allow northbound travelers to enter Modesto either along 7th Street, Tuolumne Boulevard, or B Street, and improvements south of the bridge will allow travelers to continue along 7th Street or access the more heavily traveled Crows Landing Road. The project would provide reconfigured, four-lane intersections to accommodate four lanes of bridge traffic. Beyond these intersections, traffic would dissipate throughout the existing local streets, which are adequate to accommodate future traffic conditions. Attempting to limit the project scope would not provide adequate intersections that could accommodate four lanes of bridge traffic. Attempting to broaden the project scope would be inconsistent with the programmed funding source – the federal Highway Bridge Program requires that the focus remain on the bridge itself, and its immediate approaches.

1.3 Project Description

The 7th Street Bridge is an existing, two-lane roadway crossing of the Tuolumne River, connecting downtown Modesto with unincorporated Stanislaus County and the City of Ceres. The purpose of the proposed 7th Street Bridge Project is to create a structurally and functionally sufficient bridge crossing of the Tuolumne River along the 7th Street corridor. The project is needed to address existing structural and functional deficiencies.

This section describes the proposed action and the project alternatives that were developed to meet the project purpose and need while avoiding or minimizing environmental impacts. The alternatives are Alternative 2A, Alternative 2B, Alternative 3, Alternative 4 (these are collectively referred to as the Build Alternatives), and the No-Build Alternative under which the proposed project would not occur.

1.3.1 Build Alternatives

This section describes the Build Alternatives developed to meet the purpose and need of the project.

1.3.1.1 COMMON DESIGN FEATURES OF BUILD ALTERNATIVES

All Build Alternatives share common elements, including closure of the existing roadway connection from 7th Street to Zeff Road/River Road, scour protection at bridge abutments, and access improvements (for example, new driveways) for affected properties. All four alternatives would increase the 7th Street Bridge corridor from two lanes to four lanes; Alternatives 2A, 2B and 3 involve the construction of a new four-lane replacement bridge and the demolition of the existing two-lane bridge, while Alternative 4 involves construction of a new two-lane bridge in addition to a full retrofit of the existing bridge. Architectural details, such as visual character (for example, color and texture) and lighting, have not yet been developed, but can be equally applied to all Build Alternatives.

All Build Alternatives would be designed consistent with the Caltrans Highway Design Guidelines, various AASHTO design guidelines, and local standards. Under all Build Alternatives, the new bridge would have a design life of 75 years, based on the AASHTO LRFD Bridge Design Specifications.

1.3.1.2 UNIQUE FEATURES OF THE BUILD ALTERNATIVES

This section describes the unique features of each of the four Build Alternatives. Activities such as utility relocations, designated optional borrow/fill sites, staging areas, and proposed access are discussed below in Section 1.3.3, Construction Activities and Phasing.

Alternative 2A: Existing Bridge Alignment (Arch Bridge)

This alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment, and would therefore require demolition of the existing bridge (see Figures 1-2A, 1-2B, and 1-2C). To use the existing bridge alignment as efficiently as possible, 7th Street over the river would be closed during construction. Because this alternative does not require staged construction of the bridge, it accommodates a tied-arch structure spanning the Tuolumne River that avoids piers in the river's low-flow channel (i.e., the active river channel that always contains water, as opposed to the surrounding floodplain which only contains water during flood events). For the portion of the bridge that crosses the river, a concrete arch would be used. The bridge deck (also concrete) would be supported by the arch using metal cables (hangers) arranged in a diamond pattern and connected by a series of beams and stringers. For

the portion of the bridge that crosses the floodplain, a precast concrete girder structure would be used. Figure 1-3 shows the bridge elevation view and a typical cross section; see Figure 2.1.4-3 in Section 2.1.4 (Visual/Aesthetics) for a photo simulation of the Alternative 2A bridge crossing. This alternative would require approximately seven piers in the floodplain.

Because of the loss of bicycle and pedestrian access across the bridge during construction, this alternative includes either a temporary pedestrian/bike bridge downstream of the construction zone or temporary transit service to accommodate access across the river. The temporary bicycle/pedestrian bridge is described below in Section 1.3.3.3.

Alternative 2A would have 12-foot-wide vehicle lanes, 6-foot-8-inch-wide sidewalks, and 5-foot-wide shoulders on each side that also would serve as Class II bicycle lanes.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be reconfigured to accommodate four lanes of traffic. The intersection of 7th Street with Crows Landing Road would be similar to the existing “Y” configuration, but the intersection would be signalized and would prioritize traffic flow onto and from Crows Landing Road. The modified intersections north and south of the bridge would require two full property acquisitions and 14 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 2A is estimated to be \$55.6 million.

Alternative 2B: Existing Bridge Alignment (Standard Bridge)

This alternative would be the same as Alternative 2A, except with a more standard structure type used for the portion of the bridge spanning the low-flow channel of the Tuolumne River for cost efficiency (as compared to Alternative 2A). Like Alternative 2A, Alternative 2B would require demolition of the existing bridge. Precast concrete girders would be used for the entire bridge superstructure. This alternative would require approximately seven piers, including one in the low-flow channel of the river. The alignment would be the same as shown on Figures 1-2A through 1-2C, but with the cross-section shown on Figure 1-4. See Figure 2.1.4-4 in Section 2.1.4 (Visual/Aesthetics) for a photo simulation of the Alternative 2A bridge crossing.



- LEGEND**
- Construction Disturbance Area
 - Curb, Gutter, & Sidewalk
 - Cut and Fill
 - Pavement Marker

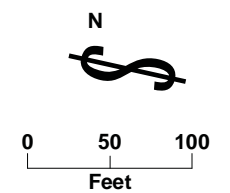
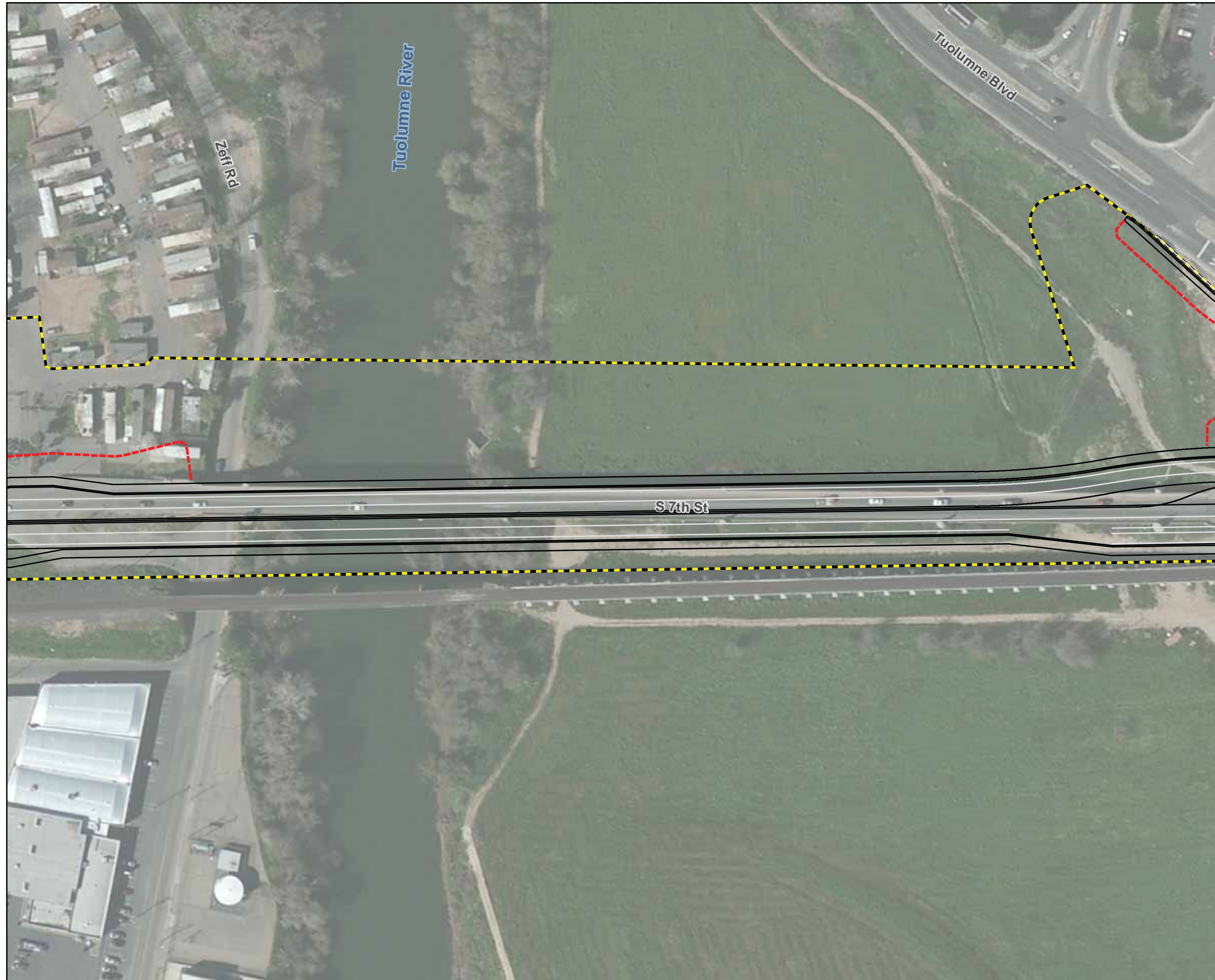


FIGURE 1- 2A
Alternatives 2A and 2B - Plan View
 7th Street Bridge Project
 Modesto, California



- LEGEND**
- Construction Disturbance Area
 - Curb, Gutter, & Sidewalk
 - Cut and Fill
 - Pavement Marker

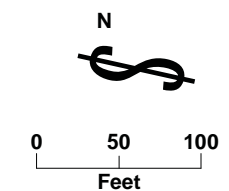


FIGURE 1- 2B
Alternatives 2A and 2B - Plan View
7th Street Bridge Project
Modesto, California



LEGEND

- Construction Disturbance Area
- Curb, Gutter, & Sidewalk
- Cut and Fill
- Pavement Marker

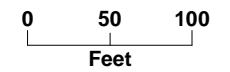
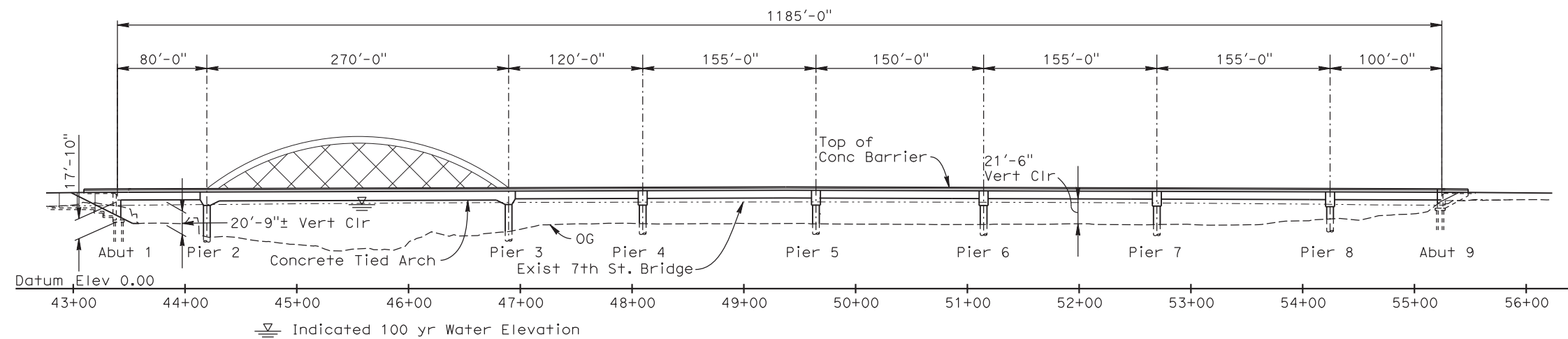
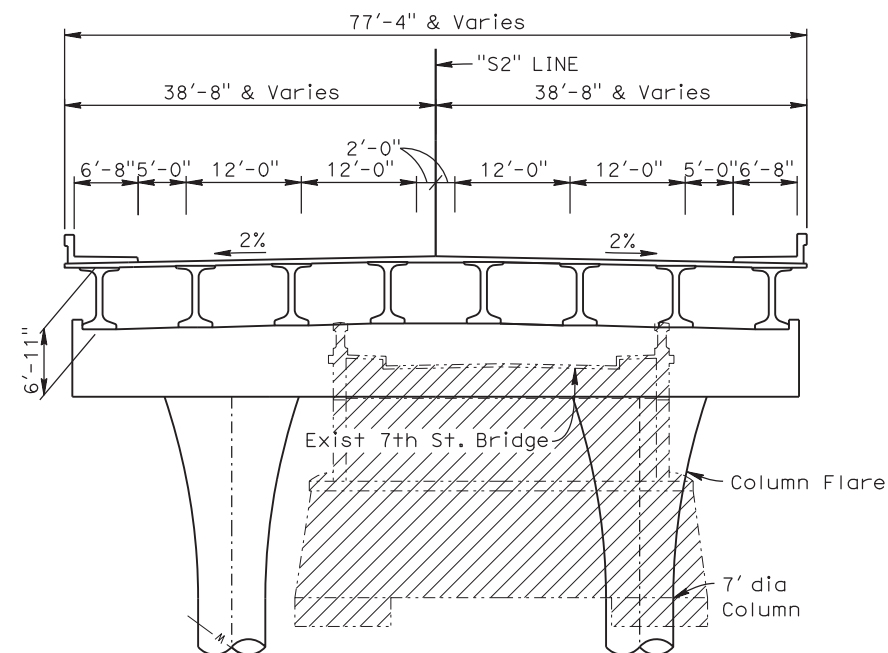


FIGURE 1- 2C
Alternatives 2A and 2B - Plan View
7th Street Bridge Project
Modesto, California

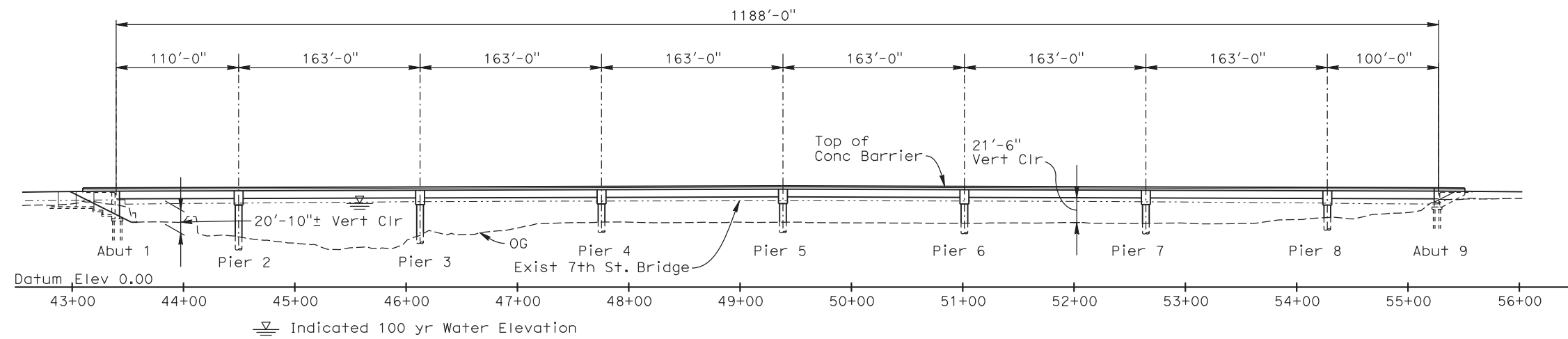


ELEVATION
1"=60'

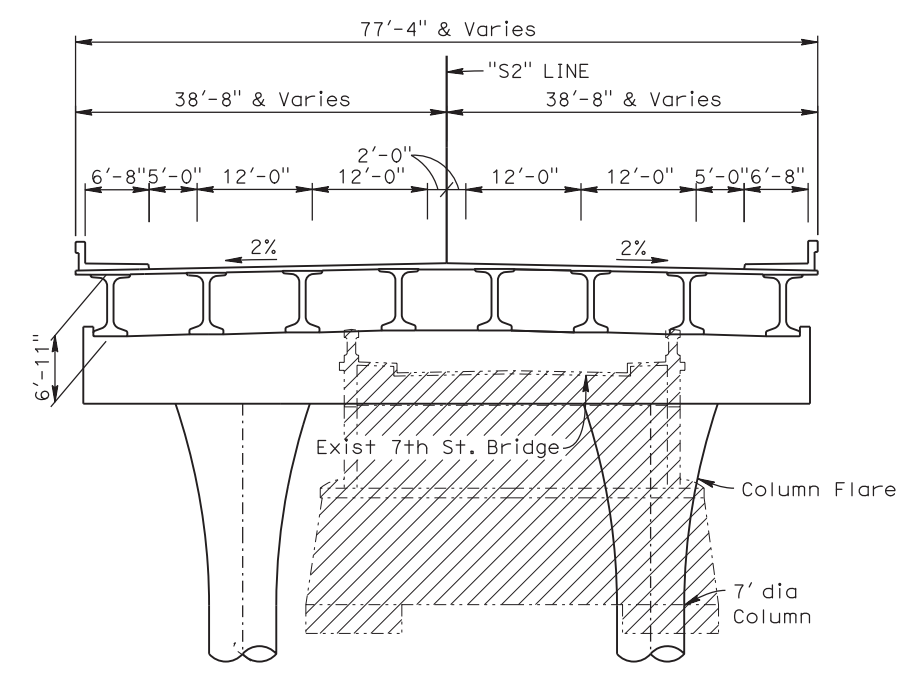


TYPICAL SECTION
1"=10'

FIGURE 1-3
Alternative 2A –
Elevation and Typical Section
7th Street Bridge Project
Modesto, California



ELEVATION
1"=60'



TYPICAL SECTION
1"=10'

FIGURE 1-4
Alternative 2B –
Elevation and Typical Section
7th Street Bridge Project
Modesto, California

Alternative 2B would have 12-foot-wide vehicle lanes, 6-foot-8-inch-wide sidewalks, and 5-foot-wide shoulders on each side that also would serve as Class II bicycle lanes. Like Alternative 2A, Alternative 2B would require two full property acquisitions and 14 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 2B is estimated to be \$36.9 million, making this the lowest cost alternative.

Alternative 3: Existing Alignment with Staged Construction

Similar to Alternatives 2A and 2B, this alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment, and would therefore require demolition of the existing bridge (Figure 1-5A, 1-5B, and 1-5C). However, Alternative 3 would construct the bridge in two stages so that the existing bridge could remain open while one-half of the new bridge is constructed immediately downstream of (and adjacent to) the existing bridge. Traffic would then be diverted to the new structure while the existing bridge is demolished and the second half of the new bridge is constructed. The new bridge would be a concrete box girder structure type with approximately seven piers, including one in the low-flow channel (Figure 1-6). See Figure 2.1.4-5 in Section 2.1.4 (Visual/Aesthetics) for a photo simulation of the Alternative 3 bridge crossing.

Alternative 3 would have 12-foot-wide vehicle lanes, 10-foot-wide sidewalks, and 6-foot-wide shoulders on each side that also would serve as Class II bicycle lanes.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be approximately the same as Alternatives 2A and 2B. The intersection of 7th Street with Crows Landing Road would be completely reconfigured. The existing configuration emphasizes northbound traffic continuity along 7th Street, with a “Y” intersection at Crows Landing Road. The new configuration would emphasize both northbound and southbound traffic continuity to the Crows Landing Road corridor, with a signalized intersection at 7th Street. This configuration would require the acquisition of more right-of-way than Alternatives 2A and 2B, including five full property acquisitions and 13 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 3 is estimated to be \$42.5 million.

Alternative 4: Retrofit and New Two-Lane Bridge

This alternative is focused on a comprehensive retrofit of the existing 7th Street Bridge, with full truck carrying capacity provided and with the addition of a new, two-lane bridge (precast concrete girder) constructed 9 feet downstream of and 9 feet higher than the existing bridge (Figures 1-7A, 1-7B, and 1-7C). The new bridge would be constructed first, and would be used by all traffic in both directions until the retrofit is complete. When the retrofit of the 7th Street Bridge is complete, it would be opened to one-directional traffic in the northbound direction and the adjacent new bridge would be converted to only southbound traffic.

Figure 1-8 shows the bridge elevation view and a typical cross section, and see Figure 2.1.4-6 in Section 2.1.4 (Visual/Aesthetics) for a photo simulation of the Alternative 4 bridge crossing. The new southbound bridge would have 12-foot-wide vehicle lanes, a 10-foot-wide shared use (bicycle and pedestrian) path, and a 6-foot-wide shoulder that also would be used as a Class II bicycle lane. The retrofitted northbound bridge would have 11-foot-wide vehicle lanes and a 6-foot-2-inch-wide shoulder that also would be used as a Class II bicycle lane.

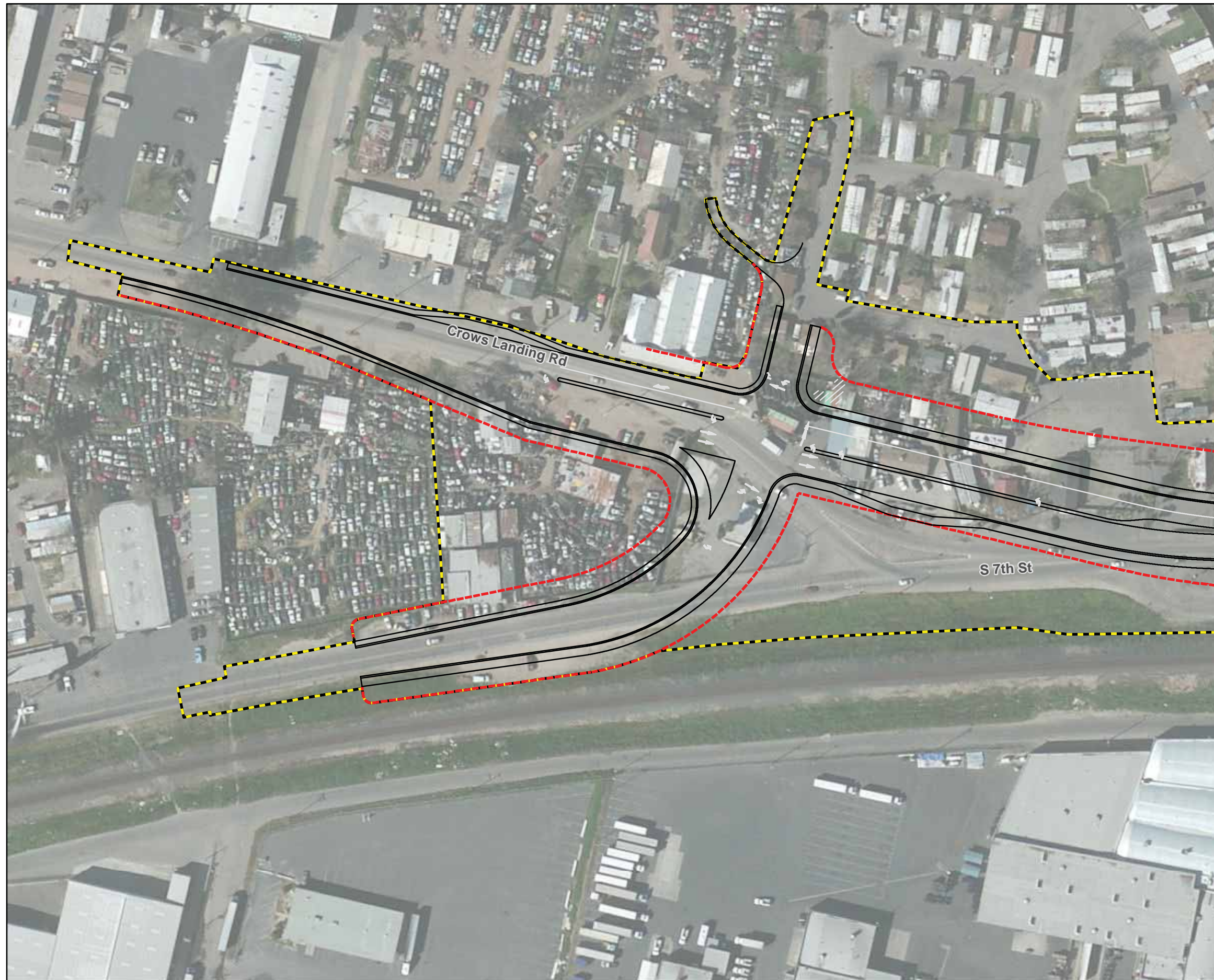
Intersection improvements at B Street/Tuolumne River Boulevard would be the same as in Alternatives 2A, 2B, and 3. Intersection improvements at Crows Landing Road would be the same as in Alternative 3. This alternative would require approximately seven piers, including one in the low-flow channel of the river. Like Alternative 3, this alternative would require five full property acquisitions and 13 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 4 is estimated to be \$43.9 million.

1.3.1.3 No-BUILD ALTERNATIVE

In addition to the four Build Alternatives described above, under NEPA, environmental review must consider the effects of not implementing the proposed project. Under the No-Build Alternative, none of the project features described above would be constructed. The 7th Street Bridge would remain as it is currently. Under NEPA, the no-build alternative can be used as the baseline for comparing environmental impacts of the proposed build alternatives.

Under the No-Build Alternative, the adverse environmental effects of the Build Alternatives would not occur. As presented throughout Chapter 2, these adverse effects include residential and business relocations, loss of the existing bridge



- LEGEND**
- Construction Disturbance Area
 - Curb, Gutter, & Sidewalk
 - Cut and Fill
 - Pavement Marker

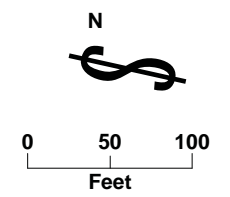






FIGURE 1-5A
Alternative 3 - Plan View
 7th Street Bridge Project
 Modesto, California



LEGEND

-  Construction Disturbance Area
-  Curb, Gutter, & Sidewalk
-  Cut and Fill
-  Pavement Marker

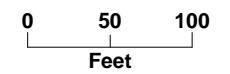






FIGURE 1-5B
Alternative 3 - Plan View
 7th Street Bridge Project
 Modesto, California



LEGEND

-  Construction Disturbance Area
-  Curb, Gutter, & Sidewalk
-  Cut and Fill
-  Pavement Marker

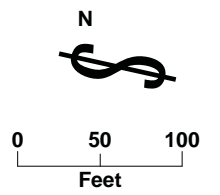
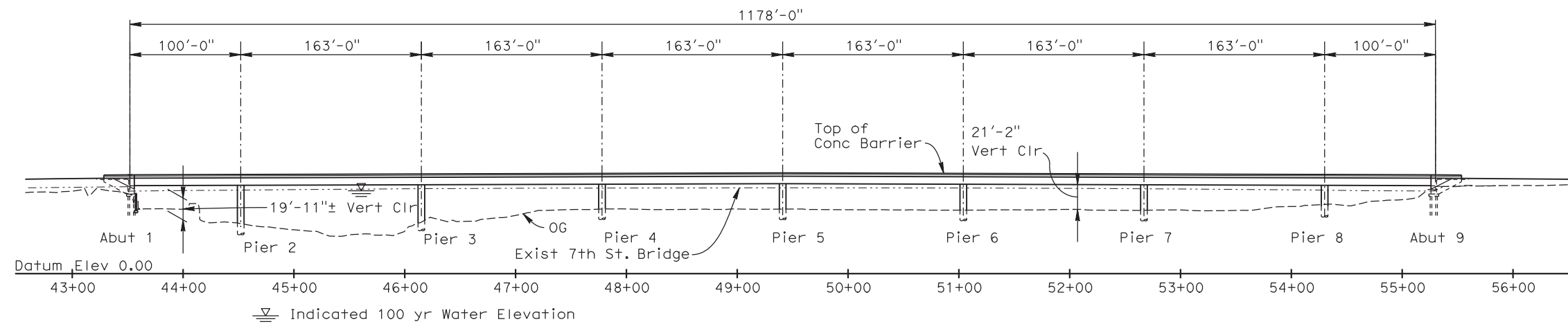
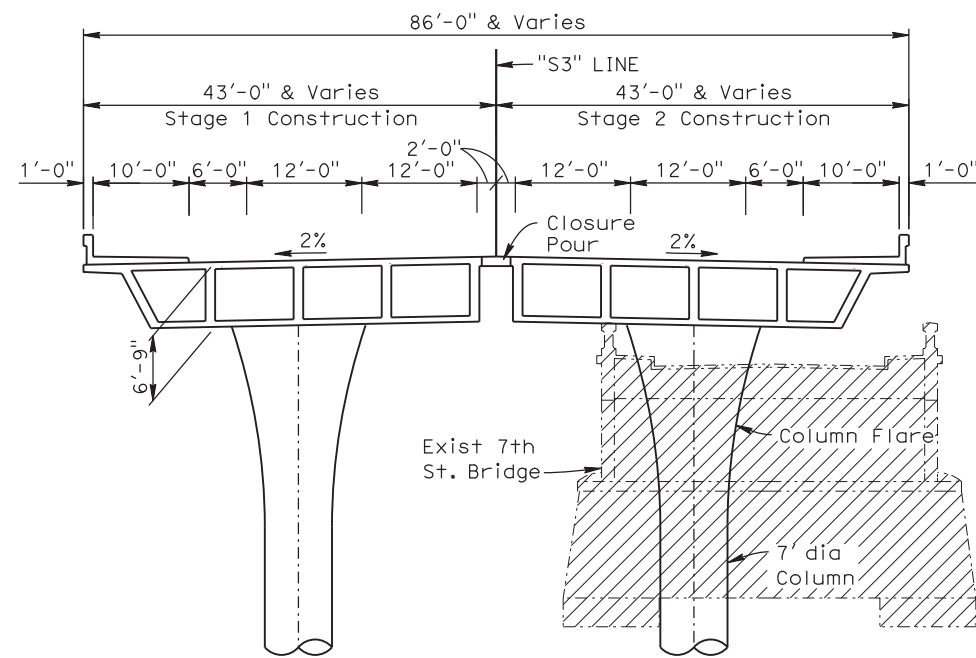


FIGURE 1-5C
Alternative 3 - Plan View
 7th Street Bridge Project
 Modesto, California



ELEVATION
1"=60'



TYPICAL SECTION
1"=10'

FIGURE 1-6
Alternative 3 –
Elevation and Typical Section
7th Street Bridge Project
Modesto, California



- LEGEND**
- Construction Disturbance Area
 - Curb, Gutter, & Sidewalk
 - Cut and Fill
 - Pavement Marker

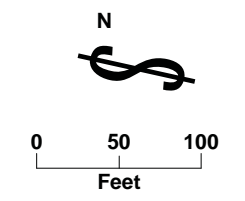
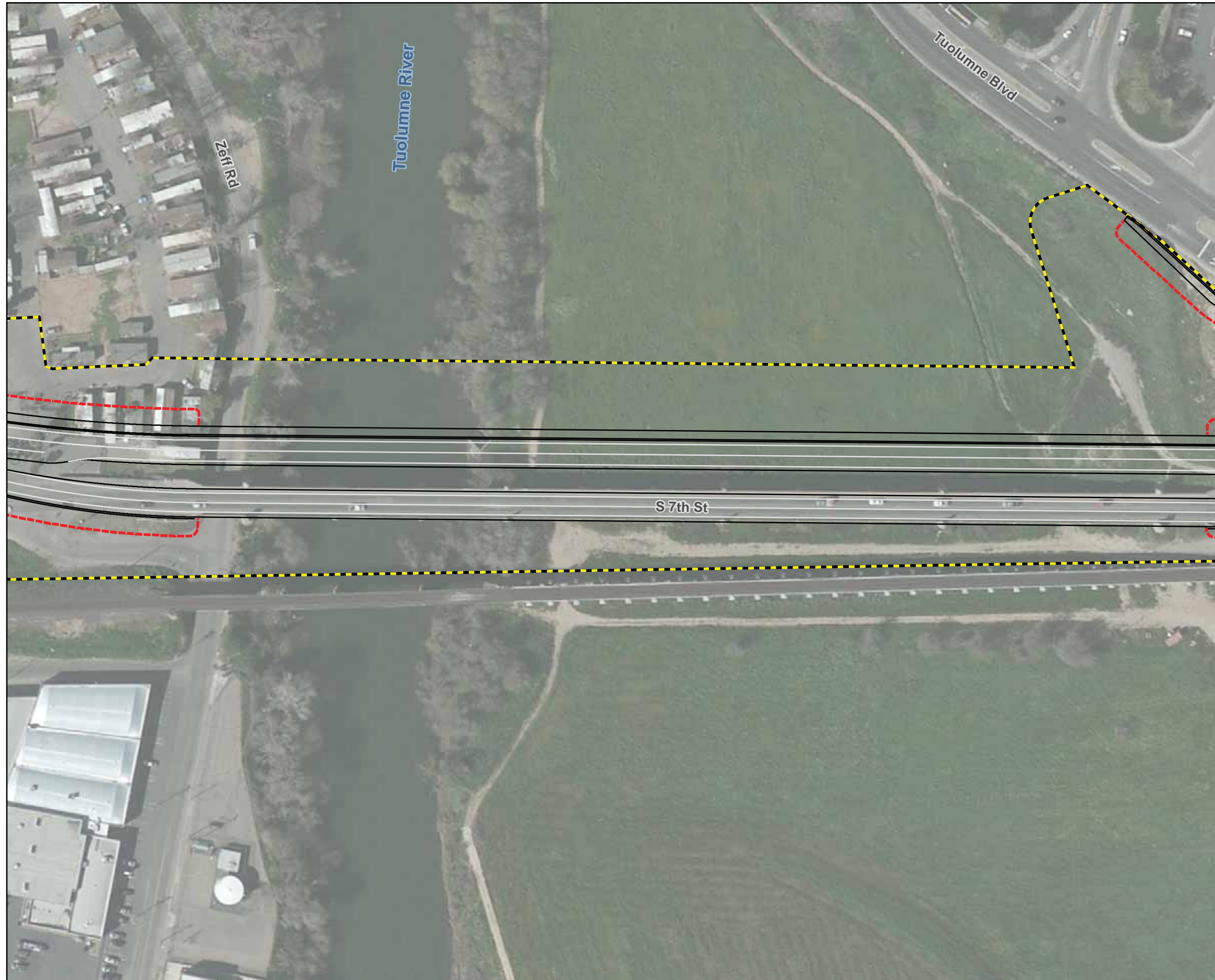


FIGURE 1-7A
Alternative 4 - Plan View
 7th Street Bridge Project
 Modesto, California



- LEGEND**
- Construction Disturbance Area
 - Curb, Gutter, & Sidewalk
 - Cut and Fill
 - Pavement Marker

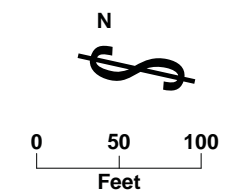


FIGURE 1-7B
Alternative 4 - Plan View
 7th Street Bridge Project
 Modesto, California



- LEGEND**
- Construction Disturbance Area
 - Curb, Gutter, & Sidewalk
 - Cut and Fill
 - Pavement Marker

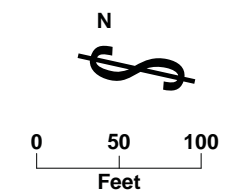
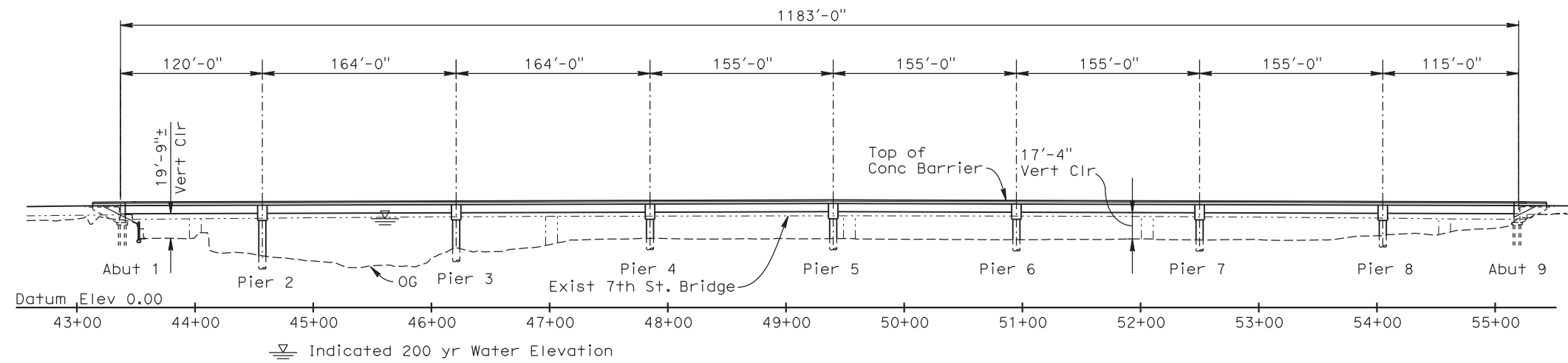
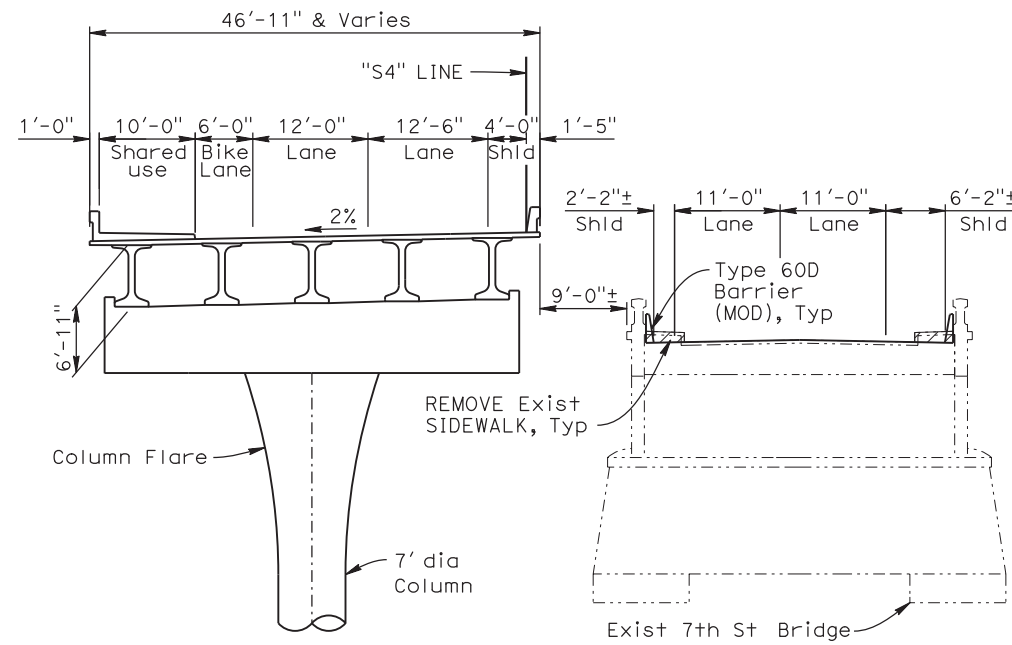


FIGURE 1-7C
Alternative 4 - Plan View
 7th Street Bridge Project
 Modesto, California



ELEVATION
1"=60'



TYPICAL SECTION
1"=10'

FIGURE 1-8
Alternative 4 –
Elevation and Typical Section
7th Street Bridge Project
Modesto, California

(a historic property), disruption of the natural environment, and temporary construction impacts including increased dust and noise. However, the No-Build Alternative also would prolong the existing bridge's structural and functional deficiencies. Load restrictions would remain in place, and structural conditions in general would continue to decline as the existing deficiencies worsen. The bridge would continue to be susceptible to seismic and hydrologic vulnerabilities. Capacity deficiencies would continue to deteriorate as traffic on the bridge increases to 29,000 vehicles per day by 2040. Not widening the bridge to four lanes in order to relieve traffic congestion would be inconsistent with the 2014 StanCOG RTP/STS, the Stanislaus County General Plan, and the City of Modesto General Plan.

1.3.1.4 COMPARISON OF ALTERNATIVES

All of the Build Alternatives would correct the structural and functional deficiencies of the existing 7th Street Bridge. Five key differences help to distinguish the alternatives:

- The existing 7th Street Bridge would remain under Alternative 4, whereas it would be demolished under the other alternatives. Although the historic bridge would not be demolished, Alternative 4 would still have adverse effects on the historic bridge. This is because the extensive retrofit work would change many of its historic features, and because the new downstream bridge would change its historic context by blocking views of the existing bridge (see detailed discussion in Section 2.1.5.3).
- Traffic detours would be required during bridge construction activities under Alternatives 2A and 2B, with detours required for over 1 year.
- Because of differences in the new 7th Street/Crows Landing Road intersection, disruptions to communities on the south side of the Tuolumne River would be greater under Alternatives 3 and 4 than under Alternatives 2A and 2B.
- Alternative 2A would not require piers in the Tuolumne River low-flow channel. There would be piers adjacent to the channel, but the other alternatives all require one pier in the channel. In-stream piers require more extensive construction in the river channel with long-term hydraulic consequences.
- Although all Build Alternatives would have minor aesthetic effects, the distinctive arch bridge construction under Alternative 2A would provide an enhanced visual appearance compared to the other alternatives.

In addition, there is a substantial cost difference between the lowest-cost alternative (Alternative 2B – \$36.9 million) and the highest-cost alternative (Alternative 2A – \$55.6 million).

1.3.1.5 LOCALLY PREFERRED ALTERNATIVE

Stanislaus County is recommending the selection of Alternative 2B, Existing Bridge Alignment (Standard Bridge), to be carried forward as the Locally Preferred Alternative. Alternative 2B is the lowest cost alternative. Given competing local priorities, Stanislaus County and the City of Modesto cannot support fully funding the Alternative 2A arch bridge. In addition, Alternative 2B requires the least amount of property acquisition and displacement, and therefore is expected to cause the least disruption to nearby property owners, businesses, and residents.

After the public circulation period of this Draft Environmental Assessment, during which time the public has the opportunity to submit their comments on the EA and the proposed project, all comments will be considered, and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. If it is determined that the action would not significantly affect the environment, a Finding of No Significant Impact (FONSI) in accordance with NEPA will be issued.

1.3.2 Alternatives Considered but Eliminated from Further Discussion

1.3.2.1 ALTERNATIVE 1: NEW DOWNSTREAM BRIDGE

This alternative would provide a new, four-lane bridge downstream of the existing bridge. The new bridge would be either a concrete box girder or precast concrete girder structure type, with approximately seven piers in the Tuolumne River floodplain and one pier in the low-flow channel of the river itself. When the new bridge is operational, the existing bridge would be demolished. The intersection of 7th Street with B Street/Tuolumne River Boulevard would be reconfigured to accommodate four lanes of traffic, and the intersection of 7th Street with Crows Landing Road would be reconfigured to emphasize traffic continuity to the more heavily used Crows Landing Road corridor. Both intersections would be shifted to the west because of the downstream location of the new bridge. Based on the design concept, the total cost of Alternative 1 is estimated to be \$43.7 million.

Alternative 1 allows for a very simple construction process: the existing bridge would be used until the new, four-lane bridge was fully operational. There would be no phased construction, and no need to consider major traffic detours. However, the downstream location of the new bridge would require greater encroachment into

private property, including 22 residential relocations at Sunrise Village Mobile Home Park (three more than Alternative 4) and encroachment into an existing commercial building (Wille Electric) that would not occur under the other Build Alternatives. Impacts to the historic 7th Street Bridge would not be avoided under this alternative.

At the time the alternative was developed, it was thought that the constructability advantages may outweigh the greater right-of-way acquisition costs such that Alternative 1 would be the lowest-cost alternative. However, a more detailed examination showed that other alternatives also have a high degree of constructability, and also that Alternative 2B would be the lowest-cost alternative. With the increased level of property acquisition (and associated social and economic effects), no avoidance of the historic 7th Street Bridge, and with no other reason to select a high-cost alternative, it was determined that Alternative 1 should be eliminated from further consideration.

1.3.2.2 NEW DOWNSTREAM BRIDGE WITH RETROFIT OF EXISTING BRIDGE FOR BICYCLE/PEDESTRIAN USE

During the scoping phase of the project, several commenters suggested maintaining the existing 7th Street Bridge for bicycle and pedestrian use. This alternative would require construction of a new downstream bridge for vehicle traffic only. All bicycles and pedestrians would use the existing 7th Street Bridge. The new four-lane bridge would be similar to Alternative 1, but further downstream (approximately 20 feet from the existing bridge) for appropriate vehicle travel lane configuration that avoids interference with the existing bridge. However, it would be narrower than Alternative 1 because sidewalks would not be needed. Overall, this alternative would have the roughly the same footprint as Alternative 1. Like Alternative 1, the downstream location of the new bridge would require greater encroachment into private property, including 22 residential relocations at Sunrise Village Mobile Home Park and encroachment into an existing commercial building (Wille Electric) that would not occur under the other Build Alternatives.

To ensure structural integrity, retrofit of the existing bridge similar to Alternative 4 would be required. Although vehicles would not use the existing bridge, a similar amount of structural retrofit would be required in order to correct its seismic deficiencies.

Based on the design concept, the total cost of this alternative is estimated to be \$53.2 million.

This alternative was eliminated from detailed consideration for several reasons. The new downstream bridge would be slightly narrower than in Alternative 1, but not enough to obviate the high level of property acquisition that would occur under Alternative 1. Also, retrofit of the existing bridge would not provide increased flood flow capacity as the existing bridge would remain within the Tuolumne River floodway. Furthermore, because of the required retrofit of the existing bridge similar to Alternative 4, this alternative would likely cause an adverse effect to the historic character of the 7th Street Bridge (see Section 2.1.4.3 for discussion regarding Alternative 4's effect). An important additional consideration is financial. The 7th Street Bridge Project is supported by federal transportation funding administered by Caltrans, but use of the funds is limited: FHWA would not fund a retrofit of the existing bridge for only non-vehicular use. Local funding is not sufficient to pay for the retrofit without federal support.

This alternative also would have financial constraints associated with maintenance. As a non-vehicular bridge in the Tuolumne River Parkway, maintenance would be the responsibility of a local parks agency (for example, the Stanislaus County Parks and Recreation Department). The maintenance needs of such a large structure would greatly exceed the current budgeted capacity of local parks agencies for maintenance of fixed assets, and would require additional resources to be diverted from other parks needs in future budgets. For these reasons, this alternative was eliminated from further consideration.

1.3.3 Construction Activities and Phasing

This section discusses the best estimate of how and when construction activities would occur. These estimates are based on the professional opinion of design engineers and constructors, but it should be noted that the exact details will depend on the methods used by the construction contractor selected to perform the work.

1.3.3.1 CONSTRUCTION SCHEDULE

All Build Alternatives would be anticipated to advertise for construction in late 2018 and begin construction in spring 2019. Table 1-1 shows the expected construction durations and completion dates.

Table 1-1 Construction Schedule by Alternative

| Alternative | Bridge Description | Traffic Management | Completion Date (Duration) |
|-------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------|
| 2A | 4-lane bridge with a concrete tied-arch river span and precast concrete girder approaches | No staging and closure of 7 th Street for the duration of construction | October 2021 (2.5 years) |
| 2B | 4-lane bridge constructed using precast girders | No staging and closure of 7 th Street for the duration of the construction | December 2020 (1.75 years) |
| 3 | 4-lane bridge utilizing a cast-in-place post-tensioned concrete box girder | Staged in two halves to maintain traffic | October 2021 (2.5 years) |
| 4 | Retrofit/rehabilitate the existing 2-lane bridge and construct a parallel 2-lane, full length precast girder bridge | Must complete the new bridge before beginning retrofit of existing bridge to maintain traffic | March 2022 (3 years) |

1.3.3.2 ROAD CONSTRUCTION***Grading***

The grading and excavation work would be similar for all the Build Alternatives and mostly involves removing existing pavements and subbase at the intersections north and south of the bridge, and also bringing in imported borrow material to construct the approach embankments. Approximately 28,000 cubic yards of excavation is anticipated for each of the four alternatives. Fill material would also have to be brought in to construct the approach embankments on either end of the bridge. For Alternatives 2A, 2B and 3, approximately 11,000 cubic yards of imported borrow material are anticipated, while Alternative 4 would have slightly less at 8,500 cubic yards because the existing bridge would be retained.

Typically, excavation in preparation for the roadway subbase and paving is on the order of 18 inches deep. Excavations to prepare for embankment construction can be slightly deeper as necessary to remove top soils or unsuitable materials.

Maintenance of Access

For Alternatives 2A or 2B, 7th Street would be closed for the duration of construction. Due to the length of the required detour for pedestrians, some accommodations would need to be made. There are two options for maintaining pedestrian access during the closure of 7th Street. The first is an increased level of bus service or “dial-a-ride” type of transit operations that could be implemented by the City and the County. The second is to provide a temporary bicycle and pedestrian bridge crossing the Tuolumne River that connects to the trail system that will be constructed by the City as a part of

the Tuolumne River Regional Park's (TRRP's) Gateway Parcel project. Motorists would need to use a parallel route, such as SR 99 or the 9th Street Bridge. The majority of the diverted traffic is expected to shift to SR 99.

For Alternative 3, staged construction of the replacement bridge would be used to maintain traffic. During the first stage, one lane of traffic in each direction would be maintained on the existing bridge while half of the new bridge is built downstream of and parallel to the existing bridge. After the first half of the new bridge is completed and open to one lane of traffic in each direction, the existing bridge would be demolished. That allows construction of the second half of the new bridge which, once completed, would add an additional lane of traffic in each direction.

In Alternative 4, a new two-lane bridge would be built parallel to and downstream of the existing bridge. Once this bridge is in operation with two-way traffic, the existing 7th Street Bridge would be closed so that the rehabilitation and retrofit can be completed. After repairs to the existing bridge are complete, it would be opened to one-directional traffic in the northbound direction and the adjacent new bridge would be converted to only southbound traffic.

Some modifications to driveway accesses along 7th Street and Crows Landing Road would be necessary for all the alternatives. However, access would be maintained during construction and closures because of construction activities would be limited.

Utility Relocations

There are no utilities on the existing bridge. A large number of underground and some overhead utilities are located at each of the intersections north and south of the bridge. Some of these would need to be relocated or modified during the course of the construction or before construction starts, depending on the utility. For the utilities that are not City-owned, the utility owners would likely perform the relocation work themselves. Utility relocation design will not happen until the final design phase of the project is started with a selected alternative, but all anticipated utility relocations would occur within the project construction footprint. The project would be designed to protect and avoid the wastewater pipeline that passes along the north bank of the Tuolumne River, parallel to and just south of B Street.

In addition, the City of Modesto would install a 16-inch water line in the new bridge to improve overall system reliability. The new water line would connect to existing water lines at the intersections north and south of the bridge.

Paving and Striping

Paving and striping would be done in stages. Some short-term closures are likely during these operations.

1.3.3.3 BRIDGE CONSTRUCTION

Alternatives 2A, 2B, and 3 all require demolition of the existing bridge, with demolition occurring before new bridge construction under Alternatives 2A and 2B, and after new bridge construction under Alternative 3. In Alternative 4, portions of the existing bridge would be removed as necessary to perform the retrofit, but the outward appearance of the bridge would remain unchanged. Waste streams would be separated to ensure that as much material as possible is recycled or reused. The majority of debris would be concrete and structural steel from the existing bridge, both of which have a value above that of other demolition debris.

Demolition – Alternatives 2A, 2B, and 3

Under Alternatives 2A, 2B, or 3, complete demolition of the existing bridge would likely be accomplished by using excavators equipped with concrete breakers and hydraulic steel shears to attack the midpoints of the connected spans, then the continuous top of pier locations. In this way, the cantilevered spans would collapse onto the floodplain for further break-up by excavators and other equipment.

Demolition of the spans over the low-flow channel would likely be done in the reverse order that the spans were constructed. The concrete would be removed from the steel trusses with debris being caught on an underslung work platform or by constructing a temporary work trestle under the bridge that crosses the river. Once the steel trusses are exposed, cranes would likely be used to lift the spans off the piers and onto land for further demolition. Complete removal of the existing bridge is expected to proceed very rapidly. For all but the three spans near the low-flow channel, the work could likely proceed at any time of year. The demolition work on the spans in the low-flow channel area would occur during the allowable in-water work window from June to October because of the need to catch debris from falling into the river and potentially use a work trestle in the river.

The existing abutments, including the footings, would likely be completely removed. Where the old abutment piles interfere with the placement of new abutment piles, old piles would be extracted. Otherwise, existing piles would be left in place below grade.

The existing piers would be removed to 3 feet below finished grade in accordance with CVFPB requirements. The piles and footings would remain in the ground unless

they interfered with construction of the new piers. Piers K and L of the existing bridge are at the edge of the low-flow channel in shallow water on the river side and “in the dry” on the non-river sides. Demolition of these two piers could be accomplished by placing a gravel berm around each and then using excavator-mounted hydraulic breakers to break up the piers. The debris would be collected and removed. At this time, it is unknown whether complete removal of the concrete footing and the piles would be required by any of the reviewing agencies. If the removal is completed only to the existing ground line, scour might later expose the remains and create dangerous underwater obstacles for river users. If complete removal of the Pier K and L footings and piles is required, cofferdams would likely be needed to allow this work to proceed without disturbing the river. Each pier footing is approximately 14 feet by 45 feet in plan. A cofferdam approximately 18 feet wide by 50 feet long could be used to allow removal of the piers. This might involve the installation of approximately 40 sheet piles per pier location. The sheet piling could be vibrated into place to avoid using pile driving. Because the existing footings at Piers K and L are already exposed, it is likely that the sheet piling required for the cofferdam will be short, perhaps 10 to 15 feet long. Water inside the cofferdams would be pumped to a settling pond located on the floodplain while the footings and piles are removed. After removal of the footing and extraction of the piles, the sheet piles would be vibrated out and the area backfilled with clean, washed gravel.

For Alternatives 2A, 2B, and 3, except for Piers K and L, it is anticipated that complete removal of the existing bridge could proceed at any time of year except when the river is in a flood condition and the floodplain is underwater. Removal of Piers K and L, and the span between, would only be allowed during the allowable in-water work window between June and October.

Demolition – Alternative 4

In Alternative 4, portions of the bridge would be removed as necessary to perform the retrofit, but the outward appearance of the existing bridge would remain unchanged. Waste streams would be separated to ensure that as much material as possible is recycled or reused. Both concrete and structural steel from the existing bridge would have a value above that of other demolition debris.

Demolition of the existing concrete deck and pier diaphragm walls would be required for the retrofit. This would be accomplished using small concrete breakers operating from the existing deck or larger machines operating from the ground. Concrete and

asphalt debris and reinforcing steel bars would fall to the ground below the bridge for collection and later disposal. Above the low-flow channel, removal debris would be caught using either an underslung work platform or by constructing a work trestle under the bridge that crosses the river. The demolition work over the low-flow channel would occur during the allowable work window from June to October.

Abutments

For all Build Alternatives, abutments would be constructed by first excavating the footings, installing piles, and then placing concrete footings. The stem, wingwalls, and backwalls of the abutments will be constructed next. All abutments are proposed to be supported on cast-in-drilled-hole (CIDH) concrete piling. If the hydraulic analysis suggests scour would be a problem at the abutments, rock rip-rap may be placed on the sides and in front of the abutments to protect them from the high flows during flooding.

Cast-in-Drilled-Hole Concrete Piles and Columns

All alternatives are proposed to be supported on large-diameter CIDH concrete piles at the piers. CIDH piles, also known as drilled shafts, are typically high-capacity cast-in-place deep foundation elements constructed using an auger. A hole with the design diameter of the planned shaft is first drilled to the design depth. If the hole requires assistance to remain open, a steel casing or a slurry is used. A full-length reinforcing steel cage is then lowered into the hole and the hole is filled with concrete. Typically, the casing is installed in pieces that are connected as the drilled shaft advances deeper by using an auger or clamshell type excavation tool attached to a crane. When a casing is used, the casing is withdrawn as the concrete is placed. When a slurry is used, it is often collected in Baker tanks and recycled for use on the next shaft. The typical allowable slurries are non-toxic to the environment.

Construction of the CIDH concrete piles is anticipated to be done outside of the low-flow channel because the proposed spans for all alternatives are outside of the normal low-flow channel. The current low-flow channel is between Piers K and L of the existing bridge. The length of the span between Piers K and L is 100 feet.

Alternatives 2B, 3, and 4 all have spans that are 163 feet long or greater between Piers 2 and 3; thus it is likely that the CIDH concrete piles for Piers 2 and 3 could be constructed in the dry. If it is a very wet year before the summer of the Pier 2 and 3 CIDH concrete pile construction and agricultural releases are greater than they have been in the last few years, it is possible that the low-flow channel will be wider and some sort of cofferdam or gravel berm will have to be installed to allow the drilling

rig to access the CIDH piles. A cofferdam would consist of sheet piles vibrated or driven into the ground from the bank outwards into the river. The area inside the cofferdam would be filled with gravel which allows access for the CIDH pile construction equipment. Any dewatering and disposal of water associated with a cofferdam would be done in a manner consistent with regulatory standards. Because the side of the cofferdam is higher than the water level, all construction debris is contained inside the cofferdam. On other similar projects, when the flows are not very strong and as allowed by the California Department of Fish and Wildlife (CDFW), use of a gravel berm to provide access for the drilling equipment has been approved. After construction is complete, the gravel would be allowed to become part of the streambed for fish spawning habitat.

Because drilled shafts are deep foundations, they can tolerate scour well and no rip-rap or armoring is required. Scour is expected at this site and the columns would be in a park setting; therefore Type I CIDH concrete piles are proposed so that the scoured piles will have the same diameter as the columns if scour occurs.

Columns for all alternatives would be formed concrete with a Type 2 one-way flare. Steel column forms would be used to form the columns; such forms are usually guyed for stability and the bottom of the form rests on the top of the CIDH concrete pile that has already been placed. For the alternatives that use precast girders, a concrete drop cap would be constructed on top of the columns to connect them to each other. The rectangular shaped drop caps would be constructed using ground-supported falsework.

For Alternative 4, CIDH concrete piles would also be added to the existing piers as a part of the retrofit. They would be constructed in the same way as the other piles except that a work platform may be required at each existing pier to allow the drill rig to drill down into the pier from above. At Piers K and L, the work platform would need to be supported on piles driven into the riverbed. The work at Piers K and L would be done during the allowable work windows from June to October. The platform piles would be extracted before the close of the allowable work window.

Bridge Superstructure

Alternative 2A. Alternative 2A combines approach spans of wide flanged precast prestressed bulb-T girders with a 272-foot-long concrete tied-arch span over the low-flow channel of the Tuolumne River. Using two large cranes, the precast girders would be set atop the drop caps on the approach spans. The precast girders would be

delivered to the site on long trailers that would drive into the floodplain to where the cranes are positioned. Because the cranes are mobile, erecting the girders could likely be done year-round except during periods of flooding when the flows are outside of the low-flow channel. After the girders have been placed, forms and reinforcement for the concrete deck would be lifted onto the top of the girders by smaller cranes also positioned in the floodplain. The concrete for the deck would be placed by concrete pump trucks positioned at various locations in the floodplain. Standard concrete placement best management practices (BMPs) would be adequate to prevent concrete from entering the river.

Construction of the tied arch would likely be done on falsework supported on piling driven into the riverbed. Once the two arches and their ties are constructed, precast cross ties and floor beams would connect the two arches and the falsework would be removed. Forms would be then placed and a concrete deck placed. It is likely that a work trestle would be used by the contractor to allow cranes to deliver material across the river during construction of the arch span. The trestle would be supported on piling driven into the river bed. Depending on CVFPB requirements, the work trestle might be allowed to remain during the winter months provided the deck portion of the trestle is removable in case of a flood event. It is also possible that CVFPB might require the work trestle superstructure and possibly the piles to be removed during the winter months. Alternately, the contractor might consider building the tied-arch span on land within the floodplain and then lifting and sliding it into place instead of using falsework. This approach has been used on several recent arches of a similar length. Deck construction for Alternative 2A is likely to be year-round except when flood flows go into the floodplain.

Alternative 2B. This alternative would be constructed in the same way as Alternative 2A except that two precast girder spans would replace the longer tied-arch span. A work trestle across the river would likely be needed for cranes to set the precast girders and to deliver materials for the deck construction.

Alternative 3. Alternative 3 has a cast-in-place post-tensioned box girder superstructure. This type of superstructure is constructed on falsework. Typically, the flood control agencies will not allow falsework to remain in the floodplain during winter months, so the superstructure would be built between June and October. Superstructure construction is broken into two stages: (1) placement of the bridge soffit and girder stems, and (2) a second pour to place the bridge deck. All of the concrete would be delivered using concrete pump trucks positioned in the floodplain.

Cranes traveling in the floodplain would be used to deliver formwork and reinforcements for the construction of the superstructure. A work trestle in the Tuolumne River would be required to allow the cranes to lift materials for the construction of the spans over the water. The first stage of the bridge would be completed before the closing of the in-water work window in October. Because Alternative 3 is staged, after removal of the existing bridge, another set of falsework would be required to build the second half of the bridge. This would occur in the second construction season from June to October.

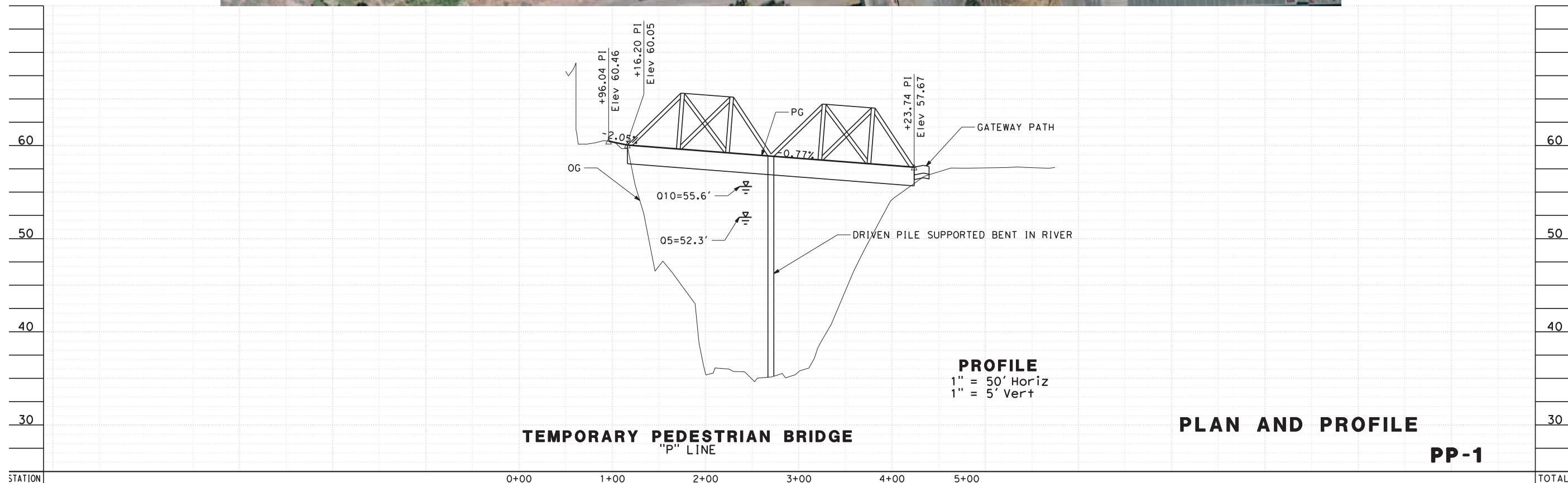
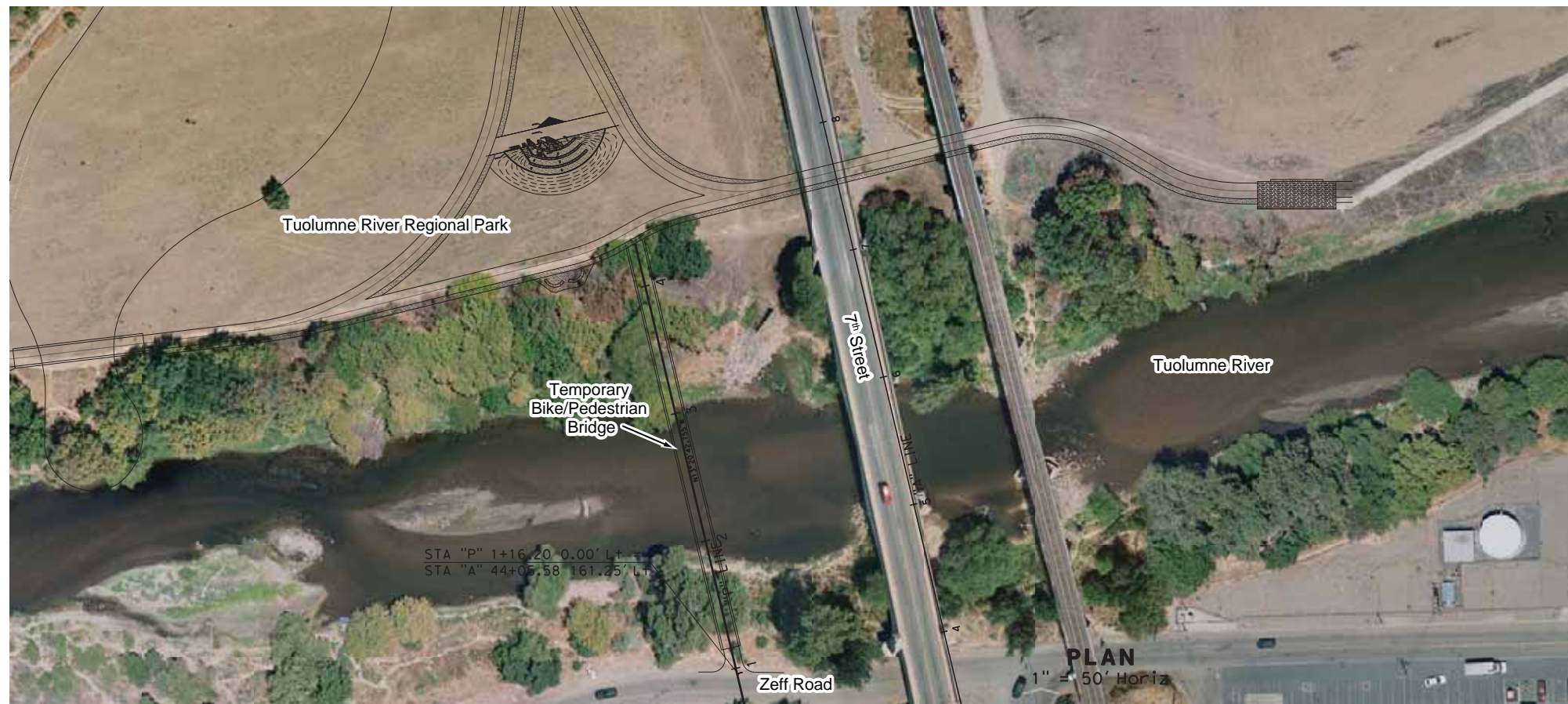
Alternative 4. In this alternative, a bridge using wide flanged precast prestressed bulb-T girders would be built parallel to the existing bridge. The general construction approach would be similar to Alternative 2B, adapted for a two-lane rather than a four-lane structure. The retrofit of the existing bridge would proceed after the new parallel bridge is put into service. The retrofit of the existing bridge would involve forming and placing a new reinforced concrete girder line between the two existing girders. This girder would likely be constructed while supported on falsework. Over the river spans, falsework under the existing bridge would be supported on piling driven into the riverbed. Once the center girder is in place, a new deck would be formed and placed on top of the girders. After the deck is in place, concrete safety shape barriers would be cast up against the existing barriers.

Temporary Bicycle/Pedestrian Bridge

A temporary bridge for bicycle and pedestrian use would be constructed under Alternatives 2A and 2B, in order to compensate for loss of access across the river during bridge closure during the 1.75- to 2.5-year construction period. The bridge would be installed within the project footprint, downstream of the new bridge construction site, and would connect Zeff Road to the planned trail system within the TRRP Gateway Parcel (Figure 1-9). Because the temporary bridge would be within the Tuolumne River floodplain, it would be designed for short-term removal prior to expected flood events. Following completion of the new bridge, the temporary bicycle/pedestrian bridge would be removed.

Pedestrian Plaza

Alternatives 2A, 2B, and 3 include the development of a new pedestrian plaza that would connect the new bridge with the proposed TRRP Gateway Parcel and to the Tuolumne River itself (Figure 1-10). The pedestrian plaza would include interpretive displays and selected features that would be preserved from the existing bridge such as one or more concrete lions, railing/bench segments, bronze plaques, and other

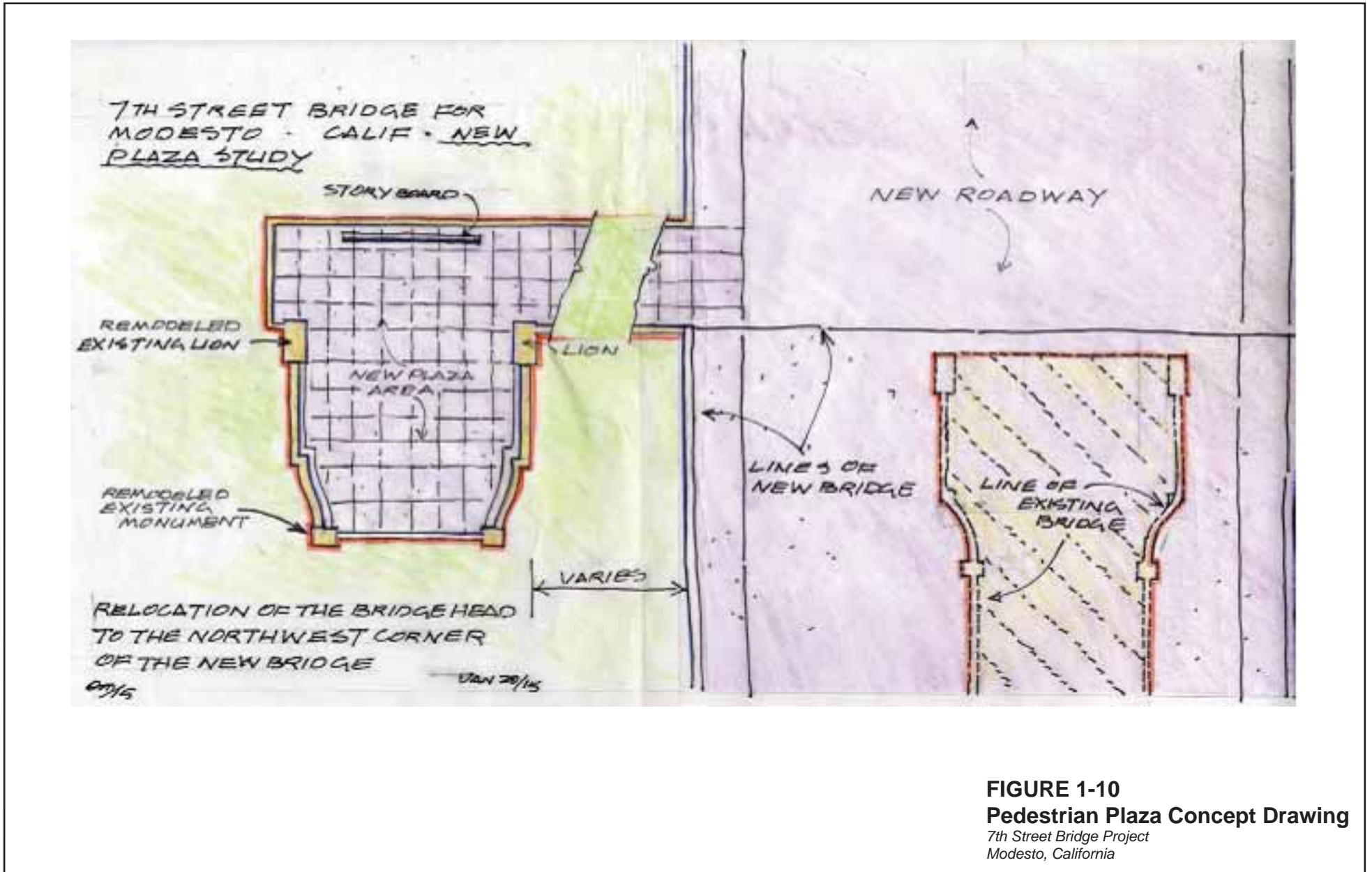


TEMPORARY PEDESTRIAN BRIDGE
"P" LINE

PLAN AND PROFILE

PP-1

FIGURE 1-9
Temporary Bicycle and Pedestrian Bridge
7th Street Bridge Project
Modesto, California



features such as an obelisk as feasible. Development of the plaza is a key part of the package of historic property mitigation that is intended to help resolve the loss of the historic 7th Street Bridge under Alternatives 2A, 2B, and 3.

Architectural Treatments

Architectural treatments will be determined during final design. Possible treatments envisioned at this time include see-through concrete barriers, custom light poles and fixtures, formliners for exposed column and abutment surfaces, belvederes, and stained or patterned concrete.

1.3.4 Permits and Approvals Needed

The permits, reviews, and approvals that would be required for project construction are summarized in Table 1-2.

Table 1-2 Permits, Reviews, and Approvals Required for Project Construction

| Agency | Permit/Approval | Status |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| California Department of Fish and Wildlife (CDFW) | CDFW Streambed Alteration Agreement for work within the banks of the Tuolumne River California Endangered Species Act Authorization for projects that could result in the take of listed species (2081 Permit and 2080.1 Consistency Determination). | Will be completed during final design phase. Will be completed during final design phase. |
| Central Valley Flood Protection Board (CVFPB) | Encroachment permit for work within or adjacent to the Tuolumne River | Several preliminary meetings with CVFPB staff. Will be completed during final design phase. |
| State Lands Commission | Land use lease | Will be completed during final design phase. |
| Central Valley Regional Water Quality Control Board (RWQCB) | Federal Clean Water Act Section 401 Permit | Will be completed during final design phase. |
| U.S. Army Corps of Engineers (USACE) | Federal Clean Water Act Section 404 Permit for filling and dredging waters of the United States (Nationwide Permit 14) | Wetland delineation report approved by USACE on March 25, 2015. Authorization expected prior to NEPA completion. |
| National Marine Fisheries Service (NMFS) | Consultation with NMFS | Consultation is underway. Authorization expected prior to NEPA completion. |

Table 1-2 Permits, Reviews, and Approvals Required for Project Construction

| Agency | Permit/Approval | Status |
|-------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| State Historic Preservation Office (SHPO) | Formal review and documentation pursuant to National Historic Preservation Act | Preliminary reports approved and consultation is underway. Authorization expected prior to NEPA completion. |

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

This chapter explains the impacts that the project would have on the human and physical environments in the project area. It describes the existing environment that could be affected by the project, potential direct and indirect impacts from each of the alternatives, and proposed avoidance, minimization and/or mitigation measures.

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

Land Use/Coastal Zone – The Build Alternatives are not located in the Coastal Zone, which is located approximately 53 miles west of the project site. As such, no coastal resources would be directly affected by construction or operation of the Build Alternatives.

Land Use/Wild and Scenic Rivers – The Build Alternatives are not located on a stretch of the Tuolumne River designated as part of the National Wild and Scenic Rivers System. In 1984, 83 miles of the Tuolumne River were designated as part of the National Wild and Scenic Rivers System (47 miles were designated as Wild, 23 as Scenic, and 13 as Recreational). The designation extends from the headwaters in the Sierra Nevada to the Don Pedro Reservoir in Stanislaus County, 32 miles east of the project site. As such, the project site is downstream of the designated portion of the river and no stretch of National Wild or Scenic Rivers would be directly or indirectly affected by construction or operation of the Build Alternatives.

Land Use/Parks and Recreation – The project would be constructed across the TRRP, which is currently undeveloped but is expected to be improved prior to and during construction of the project. Project planning and development of both projects has been occurring together, with extensive collaboration to ensure that potential conflicts are avoided. The park is a Section 4(f) resource under the U.S. Department of Transportation Act of 1966 (see Appendix A), but park use has been determined to

be *de minimis* in accordance with 23 CFR 774.7(b). For additional information about the TRRP see Section 2.4.2, Cumulative Impacts.

Growth – No aspect of the project has any identified potential to cause or contribute to growth inducement if implemented. The project would help meet future traffic needs and ensure that planned growth can be accommodated, but it would not induce changes considered to be growth-inducing in terms of land use, economic vitality, or population density. The project would change traffic patterns within the study area, but would not result in an overall increase in traffic (as measured by vehicle miles traveled). Without the project, the bridge would eventually be closed at some point, which could negatively affect planned growth in the area, especially in the Redevelopment Planning District zone within the City of Modesto, as congestion worsens and vehicles take other routes and avoid the area.

Project construction would result in a temporary increase in construction jobs. However, it is anticipated that these jobs would be filled by workers in Modesto and Stanislaus County who would commute daily to the project site. Operation of the project would not result in any changes in employment related to maintenance, repair, and inspection of the roads and bridge because these activities would occur as a part of the County's and State's regular maintenance activities. Therefore, the project would result in no increased short-term or long-term demands for housing or public services.

Farmlands/Timberlands – The project area contains Urban and Built-Up Land and Vacant and Disturbed Land as mapped by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). Because the project area does not contain FMMP important farmlands, there would be no impact on this resource.

Utilities/Emergency Services – Utilities in the project area are typical of urban areas, including water, wastewater, and stormwater infrastructure as well as overhead power and communications utilities. Coordination with utility providers has occurred, and only minor utility relocations within the study area will be required prior to construction. By correcting the structural and functional deficiencies that prevent use of the 7th Street Bridge by emergency service providers (see discussion in Section 1.2.2, Need for the 7th Street Bridge Project), emergency services will improve because emergency vehicles would be able to use the new bridge. Impacts to emergency services during construction are addressed in Section 2.1.3, Traffic and Transportation/Pedestrian and Bicycle Facilities.

Archaeological Resources – An Archaeological Survey Report (ASR, 2015) was prepared to address potential direct and indirect impacts on cultural resources associated with construction of the project. Archival research, Native American consultation, and the pedestrian survey failed to indicate the presence of archaeological resources at the project site. Further research indicated that adverse effects to archaeological deposits are unlikely. The project area is located in an urban environment and much of the area is paved or landscaped. Older archaeological deposits are unlikely to be present based on geological studies. Recent archaeological deposits, although considered moderately likely to exist in the project area based on soil and regional settlement information, are unlikely to occur at the project site. Thus, adverse effects on archaeological resources within the project area are unlikely. In addition, the following standard measures apply:

- 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 shall stop in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, who, pursuant to Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendent. Further provisions of PRC 5097.98 are to be followed as applicable.

Hydrology and Floodplains – A Location Hydraulics Study (2015) was prepared to address potential hydrologic and floodplain impacts associated with the project. The project would not cause an increase in floodwater elevation or flooding under 100-year and 200-year frequency flooding conditions because there would be no negative impacts to the base flood conveyance of Tuolumne River. The project would result in a small increase of impervious surfaces because the new bridge would be wider than the existing bridge, but total added impervious surface area for the proposed project would have negligible effects on the watershed runoff given that the total watershed area of Tuolumne River at the project location is approximately 1,884 square miles.

Geology/Soils/Seismic/Topography – Environmental issues associated with soils/geology/seismic/topography focus on the potential for a project to expose people or structures to risks associated with rupture of a known earthquake fault or other seismic activity, loss of soil integrity such as liquefaction or subsidence, and other

geologic and soils risks such as expansive soils. In addition, issues of erosion and sediment control are relevant; however, these topics are studied in detail in Section 2.2.1, Water Quality and Stormwater Runoff.

Risks associated with geology and soils conditions have been studied as part of preliminary engineering design work for the proposed project, and will continue to be studied using standard industry practices such as geotechnical investigations. All final design and other pre-construction engineering design work will follow the Caltrans Highway Design Manual and engineering reference standards published by AASHTO including the Policy on Geometric Design of Highways and Streets and LRFD Bridge Design Specifications. By following standard industry practices, all geology and soils risks will be minimized such that no adverse impacts would occur.

Plant Species – A Natural Environment Study (2016) was prepared to address biological resources impacts of the project, including potential impacts on plant species. Special-status botanical surveys were completed for the project, following California Native Plant Society (CNPS) guidelines, CDFW protocols for surveying special-status plants, and U.S. Fish and Wildlife Service (USFWS) botanical survey guidelines for federally listed, proposed, and candidate plants. Surveyors did not identify any special-status plant species (including federal and state listed plant species and CNPS species ranked as California Rare Plant Rank 1 or 2) during the botanical surveys. Special-status plant species are unlikely to occur in the project area. To confirm, an additional survey will be required prior to construction.

2.1 Human Environment

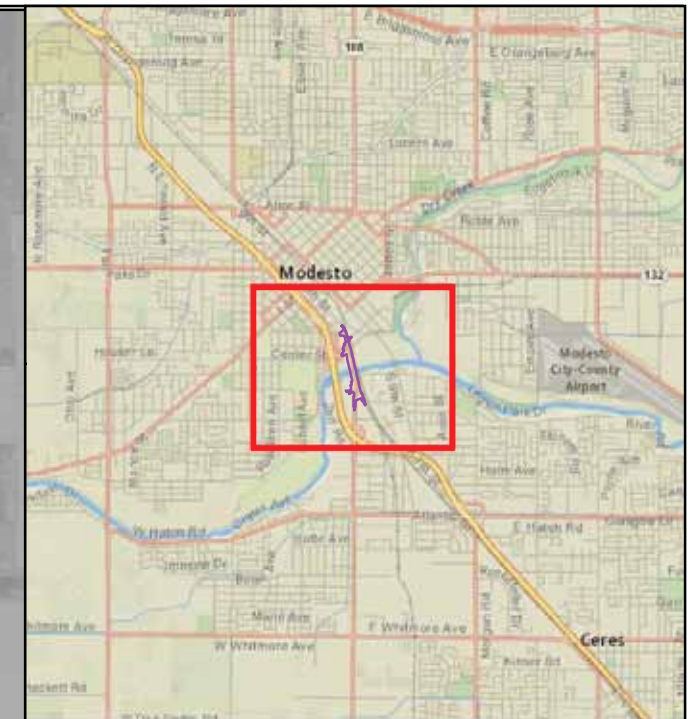
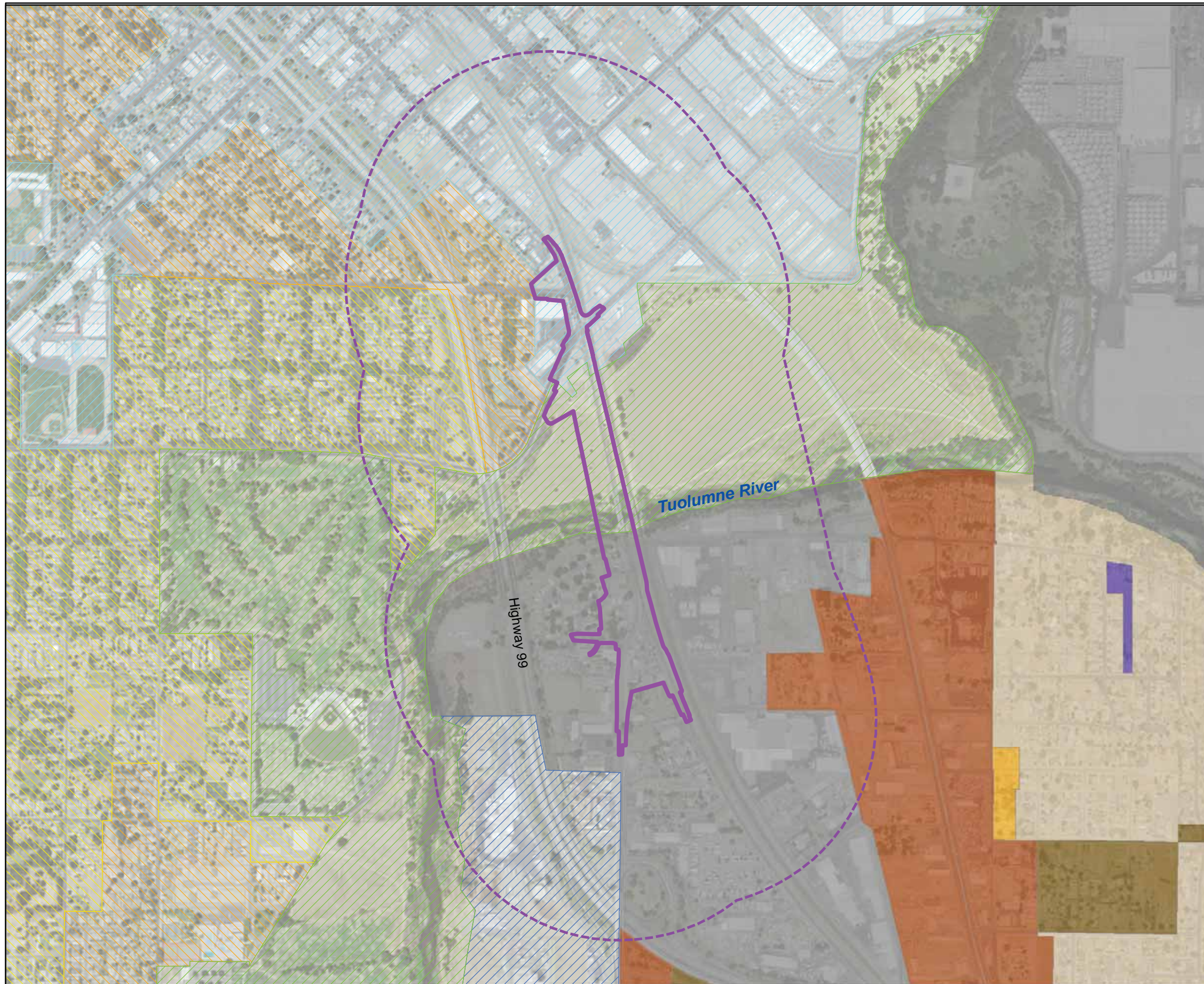
2.1.1 Land Use

This section describes and evaluates potential land use effects relevant to the project, specifically focusing on existing and future land use and consistency with state, regional, and local plans and programs.















2.1.1.1 EXISTING AND FUTURE LAND USE

Information in this section is based on the Community Impact Assessment for the project that was approved on February 15, 2016.

The 7th Street Bridge is located partially within the City of Modesto (northern portion of the project) and partially in unincorporated Stanislaus County (southern portion of the project), but it is within the sphere of influence for the City. The study area for Land Use includes the construction footprint of the Build Alternatives plus a 0.25-mile buffer (see Figure 2.1.1-1). South of the Tuolumne River, the study area



LEGEND

-  Project Footprint
-  Land Use Study Area
- City of Modesto Land Use**
-  I - Industrial
-  MU - Mixed Use
-  OS - Open Space
-  R - Residential
-  RPD - Redevelopment Planning District
- County Land Use**
-  COM - Commercial
-  IND - Industrial
-  IT - Industrial Transition
-  LDR - Residential - Low Density
-  MDR - Residential - Medium Density
-  MHD - Residential - Medium/High Density
-  UT - Urban Transition

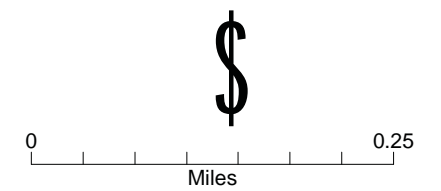


FIGURE 2.1.1-1
Land Uses
 7th Street Bridge Project
 Modesto, California

land uses include a number of automobile-related uses including auto wreckers and auto repair, distribution warehouses, mobile home parks, and scattered single-family homes. North of the river, the existing uses include open space and industrial-related business with single-family residential located in the northwest portion of the study area. Residential development in the area is isolated from the larger community by the existing land uses and the other major transportation corridors in the area. Residential development is discussed in greater detail in Section 2.1.2.1, Community Impacts, and demographics are discussed in greater detail in Section 2.1.2.3, Environmental Justice.

A review of geographic information system (GIS) data for the City of Modesto and Stanislaus County indicates that the portion of the project that would be located north of the Tuolumne River is designated Redevelopment Planning District, Mixed Use, and Open Space. The portion of the project that would cross over the Tuolumne River and the adjacent park land is designed as Open Space and Tuolumne River Comprehensive Planning District. The portion of the project that would be located south of the Tuolumne River is designated Industrial. The Redevelopment Planning District has been identified as the focal point of the community life and the social, cultural, business, governmental, and entertainment center of the northern San Joaquin Valley. The City of Modesto also has a Proposed Land Use Diagram, which proposes changes to designated land uses including changing the designation of the northern area from Redevelopment Planning District to Downtown, and changing Mixed Use to Residential.

2.1.1.2 CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS

The following plans, goals, and policies were reviewed for consistency with the project:

- Stanislaus County General Plan
- City of Modesto General Plan

In addition to the local plans above, the StanCOG RTP/SCS identifies the 7th Street Bridge as a future four-lane facility.

Table 2.1.1-1 provides information on applicable goals and policies and the project's consistency with them for all Build Alternatives. As noted in the table, the project is consistent with all applicable goals and policies.

Table 2.1.1-1 Consistency with Land Use Plans and Programs

| Goal/Policy | Consistency with all Build Alternatives | Consistency with No-Build Alternative |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stanislaus County General Plan | | |
| Circulation Element | | |
| <p>Goal 1: Provide a system of roads and roads throughout the County that meet land use needs.</p> <p>Policy 2: Circulation systems shall be designed and maintained to promote safety and minimize traffic congestion.</p> | <p><u>Consistent</u>. The bridge and roadway improvements would minimize traffic congestion and improve conditions because of the increase from two to four lanes, wider lanes, improved pedestrian/bicycle facilities, optimized intersection configurations, and elimination of the structural deficiencies that currently limit the types of vehicles that can use the bridge.</p> | <p><u>Not consistent</u>. The No-Build Alternative would maintain the existing substandard, structurally deficient, load-restricted bridge which promotes congestion and does not address structural deficiencies.</p> |
| <p>Goal 3: Maintain a balanced and efficient transportation system that facilitates inter-city and interregional travel and goods movement.</p> <p>Policy 9: The County shall promote the development of inter-city and interregional transportation facilities that more efficiently move goods and freight within and through the region.</p> | <p><u>Consistent</u>. The proposed project would replace a structurally deficient bridge and remove weight limitations, which would allow for the movement of goods and freight previously unable to use the bridge.</p> | <p><u>Not consistent</u>. The No-Build Alternative would maintain the existing structurally deficient bridge with weight restriction limits for the type of vehicles and freight that can use it.</p> |
| Safety Element | | |
| <p>Goal 1: Prevent loss of life and reduce property damage as a result of natural disasters.</p> <p>Policy 5: Stanislaus County shall support efforts to identify and rehabilitate structures that are not earthquake resistant.</p> | <p><u>Consistent</u>. The project would replace a structurally deficient bridge that has been determined to be vulnerable to damage or collapse in a strong earthquake or flood. The project includes alternatives that would either replace the structurally deficient bridge with a new structure or correct the deficiencies, which would greatly improve the resistance of the structure to natural disasters.</p> | <p><u>Not consistent</u>. The current bridge is known to be vulnerable to earthquakes and floods.</p> |
| City of Modesto General Plan | | |
| Community Services and Facilities | | |
| <p>Circulation and Transportation Policies:</p> <p>6h. The City's circulation system shall facilitate a rapid response by emergency vehicles and shall accommodate school buses. Factors shall include adequate road widths and corner radii in street designs to ensure that the appropriate fire equipment and school buses can negotiate City streets.</p> | <p><u>Consistent</u>. The proposed project would eliminate structural deficiencies and weight restrictions and improve conditions for all vehicles, and would allow emergency vehicles and school buses to resume using the bridge.</p> | <p><u>Not consistent</u>. The No-Build Alternative would maintain the existing structurally deficient bridge with weight restriction limits for the type of vehicles that can use it, which at present preclude school buses and emergency vehicles.</p> |

Information on existing and future planned land uses in the study area were collected using information from the City of Modesto General Plan, the Stanislaus County General Plan, and GIS data. Existing land uses were characterized based on a site visit. The project study area was overlain on a GIS map, along with land use designations for the City and County, to determine the land use designations of the parcels that would be affected by construction and operation of the proposed project. The analysis includes identifying the existing land uses that would be converted to a transportation-related use and determining whether the conversion could result in any land use impacts in either the City of Modesto or Stanislaus County. The analysis also includes a review of relevant planning documents and identification of goals and policies and the consistency of the project with those goals/policies.

2.1.1.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would avoid all direct and indirect effects to land use.

Build Alternatives

The project is consistent with all applicable goals and policies and the project is not located within the plan area of any adopted Habitat Conservation Plan. Therefore there would be no adverse environmental effects to land use as a result of this project for any Build Alternative during construction or operation.

2.1.1.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No adverse effects on land use were found; therefore, no Mitigation Measures are required.

2.1.2 Community Impacts

2.1.2.1 COMMUNITY CHARACTER AND COHESION

Regulatory Setting

NEPA established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). FHWA, in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Affected Environment

Information in this section is based on the Community Impact Assessment approved on February 15, 2016 and the Draft Relocation Impact Report that is an appendix to the Community Impact Assessment.

The study area for Community Character and Cohesion is the same as that for Land Use and includes the construction footprint of the Build Alternatives plus a 0.25-mile buffer (see Figure 2.1.1-1, Land Uses). The study area is mostly open space around the Tuolumne River associated with the undeveloped TRRP Gateway Parcel and commercial/industrial land. The commercial/industrial zones are mostly occupied by distribution centers and auto-related businesses such as auto dismantling, tire services, and auto repair. The majority of the businesses are not dependent on pass-by traffic. They provide services to regional customers more than to local residents.

South of the Tuolumne River, in unincorporated Stanislaus County, three mobile home parks and some single-family residences are interspersed with commercial/industrial parcels. The closest mobile home park to the project site, on 7th Street at Zeff Road, is Sunrise Mobile Home, Cottage and RV Park (Sunrise Village). Sunrise Village contains 136 units including cottages and mobile homes, approximately half of which are occupied by owners and half by renters. The single-family homes in the study area are mostly concentrated on Blankenburg Avenue. Residences in the study area are cut off from large neighborhoods to the south by Highway 99 and to the east by a large industrial zone. Lion's Market, adjacent to Sunrise Village on 7th Street, is one of the few businesses in the study area that provides goods and services (check cashing) to local residents. Other than Lion's Market, the nearest markets are located about 0.5 mile to the east and south of Sunrise Village.

North of the project site is a small neighborhood of approximately 30 single-family homes within the city limits of Modesto. This neighborhood contains mature vegetation and a private preschool. It is cut off from residential areas to the west by Highway 99, to the north and east by a large industrial zone, and to the south by open space associated with the TRRP Gateway Parcel.

No formal meeting areas, public facilities, or non-profit organizations occur within the study area. Community facilities, services, and utilities are provided to residents in the study area by various providers. The nearest public schools are Modesto High School, located about 0.6 mile west of the study area, and Shackelford Elementary

School, located about 0.75 mile south. Only the high school students from the southern portion of the study area cross the 7th Street bridge to attend school. Elementary and middle school students in the portion of the study area north of the Tuolumne attend schools north of the project site within city limits. Elementary and middle school students in the portion of the study area south of the Tuolumne attend schools to the south and east in unincorporated Stanislaus County. A public school bus stop is located in front of Sunrise Village and is used by local children to reach Shackelford Elementary.

Bus service in the study area is provided by Modesto Area Express. There is one route in the study area, Route 29, that travels north along Crows Landing Road and south along S. 7th Street. The route crosses the Tuolumne River via S. 9th Street and connects riders to the Downtown Transportation Center in downtown Modesto. Route 29 provides daily service.

Demographic information presented in the Community Impact Assessment is summarized below (Table 2.1.2-1). The demographic data are from the U.S. Census. There are 48 Census Blocks located within or that intersect with the study area. Of the 48 Blocks, 35 contain no population. Of the 13 Census Blocks with population, the majority of the population is located within 3 Census Blocks south of the Tuolumne River in the southern part of the study area. The demographic data for this project's study area was obtained by compiling the data for the 13 populated Blocks.

Table 2.1.2-1 Demographic Information

| Category | Study Area | Modesto | Stanislaus County |
|------------------------------|------------|---------|-------------------|
| Over Age 65 (%) | 6.2 | 11.7 | 10.7 |
| Minority (% Non-White) | 63.1 | 50.6 | 53.3 |
| Hispanic/Latino (%) | 53.8 | 35.5 | 41.9 |
| Householder Living Alone (%) | 46.4 | 23.0 | 19.3 |
| Poverty (%) | 38.7 | 19.5 | 19.2 |
| Renter-Occupied Housing (%) | 65.7 | 43.0 | 39.8 |

The percentage of elderly residents in the study area is low, at 6 percent above the age of 65. Racial minority populations constitute over 60 percent of the residents in the study area, with the highest ethnic minority concentration being Hispanic or Latino (54 percent). In the study area, 46 percent of the households contain a single resident compared to 23 percent in Modesto and 19 percent in Stanislaus County. 39 percent

of households are below the poverty level and 65 percent of households are rented rather than owned, compared to approximately 40 percent rented in Modesto and Stanislaus County.

Community cohesion is defined as the degree to which residents have a sense of belonging to their neighborhood, a level of commitment to the community, or a strong attachment to neighbors, groups and institutions, usually as a result of continued association over time. Potential indicators of cohesion include:

- Long average residency
- High percentage of households of two or more people
- The percentage of home ownership over rentals, and single-family homes over higher density housing (although this is subject to debate and dependent upon the geographic location and other social factors)
- Frequent interpersonal contact among neighbors
- Ethnic homogeneity
- Lots of community activity
- High percentage of stay-at-home parents because they may be more active in their community
- High percentage of elderly residents because they may be more active in their community

The demographic data for the study area indicates that there is a high occurrence of single-resident households—about twice as many as that of the surrounding area. The percentage of home ownership (34 percent) is lower than the percentage of rental. The percentage of elderly residents is low (6 percent). The concentration of Latinos (54 percent) is substantially higher than that of the Modesto (35 percent) or Stanislaus County (45 percent). Based on the criteria above, there are indicators both for and against community cohesion in the project study area, and therefore community cohesion in the study area is considered to be moderate.

Environmental Consequences

No-Build Alternative

Under the No-Build Alternative the proposed project would not be constructed and community character and cohesion would not be adversely affected.

Build Alternatives

Construction

Project construction would result in temporary increases in noise, dust, and potential traffic delays to the study area depending on the alternative chosen. Within Sunrise Village, these impacts have the potential to negatively affect community character and cohesion, because construction would occur within Sunrise Village under all Build Alternatives. In addition to increased noise and dust, residents are likely to experience restrictions in access to their community and visual impacts associated with having views of construction equipment from their windows and doors. Though these effects would be adverse, they would be minor and temporary. The estimated duration of these effects would be up to 2.5 years for Alternative 2A and Alternative 3, 1.75 years for Alternative 2B, and 3 years for Alternative 4. Noise effects on residents is discussed in detail in Section 2.2.5, Noise. Dust effects are discussed in Section 2.2.4, Air Quality.

Project construction is not anticipated to have negative effects on transit services because the bus route within the study area, Route 29 along Crows Landing and S. 7th Street south of the bridge, crosses the Tuolumne River via S. 9th Street and would remain open during construction of any Build Alternative. However, transit stops may be temporarily relocated during construction.

Alternatives 2A and 2B would close the 7th Street Bridge during construction and would include either a temporary bike bridge downstream of the construction zone or temporary transit service to accommodate access across the river. The temporary closure of the bridge would require the development of detours that could result in increases to travel times for motorists and for public service providers. Detours would be coordinated with public service providers to minimize any potential impacts. Bridge closure could result in longer travel times for high school students that cross the bridge to reach their school. As discussed in Section 2.1.3, Traffic and Transportation/Pedestrian and Bicycle Facilities, this would be a short-term adverse effect associated with Alternative 2A and 2B. It may be possible to mitigate this effect to some degree by traffic management and detour signage.

Under Alternatives 3 and 4, a crossing of the river would remain open during construction for motorized and non-motorized use. Residents and service providers would not be negatively affected by detours under Alternatives 3 and 4.

Under all Build Alternatives, the elementary school bus stop located near Sunrise Village may be moved during construction, requiring children to take a longer route to reach the stop. Moving the bus stop has the potential to affect but is not likely to adversely affect local families.

Operation

After project completion when the new and/or retrofitted bridge is opened for service, none of the Build Alternatives would affect community character and cohesion in the study area except for in Sunrise Village. The project is outside the boundaries of other residential areas and would not bisect or isolate them. Though Sunrise Village would not be bisected or isolated by the project, all Build Alternatives would reduce the size of the Sunrise Village community (currently 136 units) and remove residences. This would occur to a lesser extent with Alternatives 2A and 2B and to a greater extent with Alternatives 3 and 4. Alternatives 2A and 2B would remove 8 units (5 cottages and 3 mobile homes). Alternatives 3 and 4 would remove 19 units (9 cottages and 10 mobile homes). The loss of residents may affect community cohesion if they are not able to relocate within Sunrise Village.

The demographics of Sunrise Village are assumed to be similar to that of the study area as a whole, or approximately 63 percent ethnic minorities, many of whom may be transit-dependent. The displacement of Lion's Market, which provides food and services such as check cashing to local residents, under Alternatives 3 and 4 could also adversely affect community character and cohesiveness, particularly for transit-dependent residents, since the next closest markets are 0.5 mile away. This adverse effect would not occur under Alternatives 2A and 2B because Lion's Market would not be displaced.

The project would provide potential beneficial effects to communities in the study area including new sidewalks and bicycle lanes that would improve connectivity to the larger region. The removal of weight restrictions on the bridge would provide the potential for the bridge to be used for transit service in the future, potentially improving transportation options for local residents. However, under all Build Alternatives, the closure of the existing roadway connection from S. 7th Street to Zeff Road/River Road would remove an access point and crossing of the Union Pacific

Railroad (UPRR) rail corridor, and create a new barrier for residents. The closure of this roadway access would require residents in the study area who want to travel to areas east of the UPRR to take a more circuitous route to reach their destination—including travel north over the Tuolumne River and back down S. 9th Street, or south along S. 7th Street under SR 99—because of the limited connections as a result of the railway corridor.

Avoidance, Minimization, and/or Mitigation Measures

Alternatives 2A and 2B are avoidance alternatives because they would minimize the displacement of residents and preserve Lion’s Market. For unavoidable displacement impacts, compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as described in Section 2.1.2.2, Relocations and Real Property Acquisition, could minimize this impact if it assists residents to relocate to the same or nearby community. The adverse effects to community cohesion may remain adverse if residents are not able to relocate in Sunrise Village or nearby.

2.1.2.2 RELOCATIONS AND REAL PROPERTY ACQUISITION

Regulatory Setting

Caltrans’ Relocation Assistance Program is based on the federal Uniform Act and Title 49 CFR Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the Relocation Assistance Program.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix B for a copy of Caltrans’ Title VI Policy Statement.

Affected Environment

Information in this section is based on the Community Impact Assessment approved on February 15, 2016 and the Draft Relocation Impact Report that is an appendix to the Community Impact Assessment.

The study area for Relocations and Real Property Acquisition is defined roughly as having an eastern boundary of 7th Street, a northern boundary of C Street/Sierra Drive, a western boundary of Highway 99, and a southern boundary of Blankenburg

Avenue. The portion of the study area in which displacements would occur as a result of all Build Alternatives is called the displacement area (see Figure 2.1.2-1). The replacement area is the 5-mile-radius area around the project footprint that was examined for potential replacement housing for residents displaced by the project and includes most of the City of Modesto, all of the City of Ceres, and parts of unincorporated Stanislaus County) (see Figure 2.1.2-1). Most of the study area contains commercial and industrial land and open space associated with the undeveloped TRRP Gateway Parcel. This commercial/industrial area includes distribution centers and auto-related business such as auto wreckers and auto and tire services. Residential portions of the study area and community facilities are described in detail in Section 2.1.2.1, Community Character and Cohesion.

Environmental Consequences

No-Build Alternative

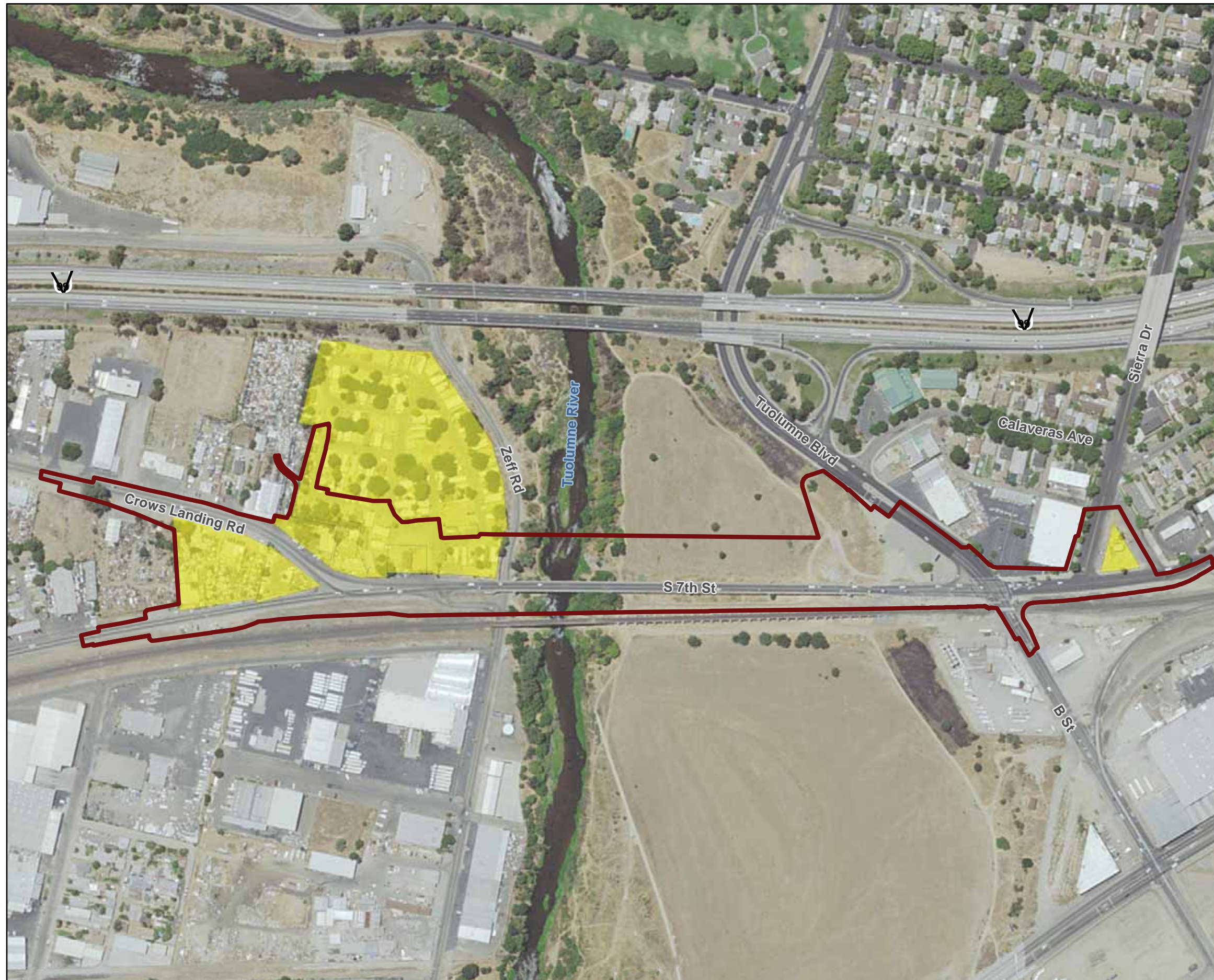
No temporary or permanent acquisition of parcels or relocations would occur under the No-Build Alternative.

Build Alternatives

All Build Alternatives would require displacement of residences and businesses. Permanent displacement would result in a permanent change of the use of the affected properties (e.g., commercial use to roadway or right-of-way).

Residential Displacements

All Build Alternatives would create residential displacements. Alternatives 3 and 4 would result in the largest number of displacements, 19 units. Alternatives 2A and 2B would displace 8 units (see Table 2.1.2-2). The majority of displacements would occur in Sunrise Village. Alternatives 3 and 4 would displace residents in 9 cottages and 10 mobile homes in Sunrise Village and would displace residents in a single-family home outside of Sunrise Village. Alternatives 2A and 2B would displace residents in 5 cottages and 3 mobile homes within Sunrise Village. Of the displacements in Alternatives 3 and 4, approximately half of the units (9) are owned and half are rented (see Table 2.1.2-3). Of the 8 displaced units under Alternatives 2A and 2B, 3 are owned and 5 are rented. The number of persons that would be displaced per unit is assumed to be consistent with the average of Stanislaus County (3.06 persons per household), resulting in a total of approximately 24 displaced persons



LEGEND
 [Red Outline] Project Area
 [Yellow Shading] Displacement Area
 [Dashed Circle] Replacement Area (5 miles)

Note:
 The Displacement Area includes parcels with at least one displaced residence or business. While whole parcels are identified and included in the Displacement Area, not all residences or businesses on the parcels identified will necessarily be displaced.

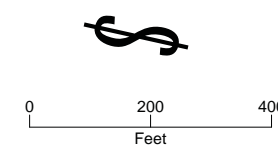


Figure 2.1.2-1
Displacement Area and
Replacement Area
 7th Street Bridge Project
 Stanislaus County, California

under Alternatives 2A and 2B and 58 under Alternatives 3 and 4 (Table 2.1.2-3). Relocation within Sunrise Village may be an option for some displaced people because there may be vacancies elsewhere in Sunrise Village that could accommodate them.

Table 2.1.2-2 Number of Residential Displacements

| Type of Residence | Alternative 2A/2B | Alternative 3 | Alternative 4 |
|--------------------------|-------------------|---------------|---------------|
| Single-Family Residences | 5 | 9 | 9 |
| Mobile Homes | 3 | 10 | 10 |
| Total | 8 | 19 | 19 |

Table 2.1.2-3 Type of Ownership of Residential Displacements

| Type of Occupant/Residence | Number of Displaced Residential Units | | |
|---------------------------------------------------------------------------------|---------------------------------------|-------------------------|-------------------------|
| | Alternative 2A/2B | Alternative 3 | Alternative 4 |
| Owner Occupants of Single-Family Residences | 2 | 4 | 4 |
| Tenant Occupants of Single-Family Residences | 3 | 5 | 5 |
| Owner Occupants of Mobile Homes | 1 | 5 | 5 |
| Tenant Occupants of Mobile Homes | 2 | 5 | 5 |
| Total Residential Units | 8 | 19 | 19 |
| Owner/Tenant Impact Ratio* | 45% Owner 55% Tenant | 45% Owner 55% Tenant | 45% Owner 55% Tenant |
| Average No. of Persons per Unit/ Approximate Total Persons Displaced | 3.06/24.48 | 3.06/58.14 | 3.06/58.14 |

Notes:

* Tenant and owner occupancy based on LoopNet listing of Sunrise Village and discussions with the manager (136 total units/spaces; approximately one-half are owned by park; ratio for mobile homes was also applied to cottages (single-family residence).

The demographic characteristics of the displaced residents are assumed to be similar to those of the study area. Demographic data for the Relocations and Real Property Acquisition study area were derived from the 13 U.S. Census Blocks encompassing the study area as described in Section 2.1.2.1, Community Character and Cohesion. The percentage of children, 29 percent, is average for the City of Modesto and Stanislaus County and the percentage of elderly residents in the study area is low, 6 percent, compared to these areas (see Table 2.1.2-4). Almost 40 percent of households are below the poverty level (see Table 2.1.2-9 in Section 2.1.2.3, Environmental Justice, below). Minority populations constitute over 60 percent of

population, with the highest-percentage minority being Hispanic or Latino (54 percent) (see Table 2.1.2-8 in Section 2.1.2.3).

Table 2.1.2-4 Age Characteristics within the Study Area, City, and County

| Area | Total Population | Under 18 (%) | Over 65 (%) | Median Age |
|-------------------|------------------|--------------|-------------|------------|
| Study Area | 951 | 28.8 | 6.2 | 35.9 |
| Modesto | 201,165 | 26.8 | 11.7 | 34.2 |
| Stanislaus County | 514,453 | 28.6 | 10.7 | 32.9 |

The replacement area was determined to contain an adequate supply of decent, safe, and sanitary available housing units that could accommodate displacees (see Table 2.1.2-5). An assessment conducted in 2014 found 209 units available in the replacement area for sale or rent, as summarized below:

- Single-family residences: 122 (102 for rent; 20 for sale)
- Multiple-family units: 73 (65 for rent; 8 for sale)
- Mobile homes: 14 (0 for rent, 14 for sale)
- Total housing units (single-family, multiple-family, and mobile homes): 209

Table 2.1.2-5 Housing Available for Displacees

| Housing Category | Maximum Housing Displacements | Housing Available in Replacement Area |
|------------------------|-------------------------------|---------------------------------------|
| Total Housing Units | 19 | 209 |
| Estimated Vacancy Rate | TBD | 7% ^a |
| Housing Units For Sale | TBD | 44 ^b |
| Housing Units for Rent | TBD | 167 ^c |
| Persons Per Household | 3.06 | 3.06 ^d |
| Median Housing Value | TBD | \$62,200 |

Notes:

TBD = to be determined

^a U.S. Census data for Modesto Metro Area

^b Includes single-family residences, condos, and mobile homes for sale

^c Includes single-family and multi-family residences for rent

^d U.S. Census data for Stanislaus County

The maximum number of displaced units is approximately 9 percent of the total available housing units in this area at the time of the assessment. The Draft Relocation Impact Report identified no mobile homes available for rent but identified 14 mobile homes for sale in the replacement area (see Table 2.1.2-6).

Table 2.1.2-6 Mobile Homes for Sale in the Replacement Area

| | Number of Bedrooms | | | | |
|-----------------|--------------------|-----------------|-----------------|----------------|----------------|
| | One | Two | Three | Four | Five or More |
| Number of units | 0 | 8 | 6 | 0 | 0 |
| Price Range | Not applicable | \$15,000–44,900 | \$29,500–96,000 | Not applicable | Not applicable |
| Median Price | Not applicable | \$29,950 | \$62,750 | Not applicable | Not applicable |

Therefore, phasing or segmenting of the project to avoid a competitive market for replacement housing would not be necessary.

Business Displacements

Alternatives 2A and 2B would result in the displacement of one business, a used car dealership (see Table 2.12-7). Alternatives 3 and 4 would result in the displacement of the Lion’s Market, a used car dealership, and four other automotive service businesses (e.g., auto wreckers, dismantling, tire service, and repair). The majority of businesses that would be displaced appear to have been in operation for more than 4 years. Three of the six that would be displaced by Alternatives 3 and 4 have been in operation for more than 15 years. The businesses potentially affected are considered small retail or service sector employers and have 1 to 20 employees on staff. Alternatives 3 and 4 are assumed to result in the displacement of up to 24 employees.

Table 2.1.2-7 Business Type Impacted by the Project

| Business Type | Alternative 2A/2B | Alternative 3 | Alternative 4 |
|-------------------------------------------------------------------------|-------------------|---------------|---------------|
| Retail: market | 0 | 1 | 1 |
| Retail: used cars | 1 | 1 | 1 |
| Service (auto wreckers/dismantling, auto body shop, auto repair, tires) | 0 | 4 | 4 |
| Total | 1 | 6 | 6 |

The Modesto Metropolitan Area (including Modesto, Ceres, and parts of unincorporated Stanislaus County) was determined to contain an adequate supply of commercial and industrial space that is comparable in size, type, and price to those of the displaced businesses. However, requirements of automotive-related businesses, such high visibility from busy roadways, may necessitate additional coordination with relocation specialists.

Avoidance, Minimization, and/or Mitigation Measures

In accordance with the Uniform Act, as amended, residents and businesses would be relocated to make these businesses “whole.” Those displaced are offered benefits under the Uniform Act including advisory services and payment for housing costs, moving expenses, and closing costs. The effects on Relocations and Real Property Acquisition would not be significant with the implementation of the Uniform Act.

2.1.2.3 ENVIRONMENTAL JUSTICE

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2015, this was \$24,250 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans’ commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

Affected Environment

Information in this section is based on the Community Impact Assessment and its Draft Relocation Impact Report appendix, approved on February 15, 2016.

The study area for Environmental Justice includes the construction footprint of the Build Alternatives plus a 0.25-mile buffer (see Figure 2.1.1-1). This area is generally bounded by SR 99 to the west and the UPRR and S. 9th Avenue to the east. Land uses in the study area are predominately related to regional commercial use, including a

number of auto wreckers and distribution facilities. The study area contains residential development that is described in Section 2.1.2.1, Community Character and Cohesion.

Demographic data for the Environmental Justice study area were derived from the 13 U.S. Census Blocks encompassing this area as described in Section 2.1.2.1, Community Character and Cohesion. The study area has a predominately minority population and a greater percentage of minority residents than the surrounding City of Modesto and Stanislaus County (Table 2.1.2-8). Minority populations constitute over 60 percent of study area residents, the majority of which are Hispanic or Latino (54 percent). The study area has a higher percentage of Limited English proficiency residents than greater Modesto and Stanislaus County which generally indicates the presence of minority populations. The primary language other than English is Spanish.

Table 2.1.2-8 Minority Populations

| Area | Non-Minority Population (%) | Minority Population (%) | | | | Limited English Proficiency (%) |
|-------------------|-----------------------------|-------------------------|------------------|-------|--------|---------------------------------|
| | White Alone | Hispanic or Latino | African American | Asian | Others | |
| Study Area | 36.9 | 53.8 | 2.5 | 1.1 | 5.7 | 12.1 |
| Modesto | 49.4 | 35.5 | 3.7 | 6.4 | 5.0 | 7.8 |
| Stanislaus County | 46.7 | 41.9 | 2.5 | 4.8 | 4.1 | 10.3 |

Almost 40 percent of the households in the study are at or below the poverty level. Compared to the larger areas of Modesto and Stanislaus County, the study area has a much lower median household income and is more transit-dependent (Table 2.1.2-9). Almost 20 percent of households have no available vehicle.

Table 2.1.2-9 Household Income and Poverty Status

| Area | Median Household Income | Poverty Level (%) | Households with No Vehicle Available (%) |
|-------------------|-------------------------|-------------------|------------------------------------------|
| Study Area | \$18,422 | 38.7 | 17.6 |
| Modesto | \$49,205 | 19.5 | 8.2 |
| Stanislaus County | \$49,866 | 19.2 | 6.9 |

Most residents of the study area drive alone to work (70 percent), 8 percent walk to work, and 4 percent use transit. The travel time to work for the majority of residents (77.1 percent) in the study area was between 0 and 29 minutes. Bus service in the study area is provided by Modesto Area Express. There is one route in the study area, Route 29, that travels north along Crows Landing Road and south along S. 7th Street. The route crosses the Tuolumne River via S. 9th Street and connects riders to the Downtown Transportation Center in downtown Modesto. Route 29 provides daily service.

Environmental Consequences

This section describes the potential for the proposed project to result in adverse impacts to minority and/or low-income populations that would result in disproportionately high and adverse impacts to these populations.

No-Build Alternative

No disproportionately high and adverse impacts would occur to minority and/or low-income populations under the No-Build Alternative.

Build Alternatives

Construction

Project construction would result in temporary increases in noise, dust, and potential traffic delays that have the potential to disproportionately affect minority and low-income residents of the study area. Residents of Sunrise Village have the greatest potential to be affected by construction impacts given their proximity to the project. The duration of these effects would be up to 2.5 years for Alternatives 2A and 3, 1.75 years for Alternative 2B, and 3 years for Alternative 4.

Potential noise effects on residents are discussed in Section 2.2.5, Noise. No adverse noise effects from construction of the project are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 7-1.01I and applicable local noise standards. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Potential dust and airborne pollutants are discussed in Section 2.2.4, Air Quality.

Transit is not anticipated to be negatively affected during construction, but those who are dependent on transit, including low-income populations, may experience longer

travel times because of detours or road closures. However, these impacts would also affect non-transit dependent populations.

Measures would be implemented to reduce temporary construction-related adverse effects to Noise and Air Quality. Therefore, construction of the project is not anticipated to result in disproportionately high and adverse impacts on minority and/or low-income populations.

Operation

Displacements under the project have the potential to result in adverse environmental justice effects. As discussed above in Section 2.1.2.2, Relocations and Real Property Acquisition, all Build Alternatives would create residential displacements with Alternatives 2A and 2B displacing 8 units and Alternatives 3 and 4 displacing 19 units (see Table 2.1.2-2). The majority of displacements would occur in Sunrise Village. Alternatives 2A and 2B would displace residents in 5 cottages and 3 mobile homes within Sunrise Village. Alternatives 3 and 4 would displace residents in 8 cottages and 10 mobile homes in Sunrise Village and would displace residents in a single-family home outside of Sunrise Village. Because the study area has high concentrations of minority and low-income populations compared to the surrounding area, the displaced population may be disproportionately minority and/or low-income. The adverse effects would be mitigated under the Uniform Act, which may reduce the impact to negligible levels.

The project would result in an adverse effect to Environmental Justice under Alternatives 3 and 4 if the Lion's Market is not relocated within the immediate area. Transit-dependent residents, who may be disproportionately minority and low-income, would be required to travel further to reach a store, the closest of which is 0.5 mile away. Alternatives 2A and 2B would not displace Lion's Market and so would not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice.

As discussed in Section 2.1.2.1, Community Character and Cohesion, the project would provide potential beneficial effects to communities in the study area including new sidewalks and bicycle lanes that would improve connectivity to the larger region. The removal of weight restrictions on the bridge would provide the potential for the bridge to be used for transit service in the future, potentially improving transportation options for local residents. However, under all Build Alternatives, the closure of the existing roadway connection from S. 7th Street to Zeff Road/River Road would

remove an access point and crossing of the UPRR, and create a new movement barrier for residences. The closure of this roadway access would require residents in the study area who travel to areas east of the UPRR to take a more circuitous route to reach their destination—including travel north over the Tuolumne River and back down S. 9th Street or south along S. 7th Street under SR 99 to make a connection because of the limited connections as a result of the railway corridor.

Avoidance, Minimization, and/or Mitigation Measures

All Build Alternatives would cause disproportionate impacts on protected populations due to residential displacements, but compliance with the Uniform Act would make displaced residents “whole” by providing advisory services and payment for housing costs, moving expenses, and closing costs.

2.1.3 Traffic and Transportation/Pedestrian and Bicycle Facilities

This section discusses the project’s impacts on traffic and circulation, both during construction (construction impacts) and after completion of the project (long-term or operational impacts).

2.1.3.1 REGULATORY SETTING

Caltrans, as assigned by the FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 USC 794). FHWA has enacted regulations for the implementation of the ADA, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

2.1.3.2 AFFECTED ENVIRONMENT

A *Final Traffic Report for the 7th Street Bridge Project in Stanislaus County* (2015) was prepared to evaluate the alternatives for the replacement or retrofit of the existing 7th Street Bridge. The following information is based on the analysis and findings contained in the Traffic Report.

The existing 7th Street Bridge crosses over the Tuolumne River, with the northern portion located in the City of Modesto and the southern portion located in unincorporated Stanislaus County. The Traffic Report studies intersections and roadway segments along 7th Street from downtown Modesto southward across the Tuolumne River to Crows Landing Road. In addition, the parallel segments of SR 99 and 9th Street across the Tuolumne River were studied.

The Traffic Report presents three analysis scenarios with and without the project: Existing Conditions, Opening Day (2020) Conditions, and Design Year (2040) Conditions. In total, 11 intersections were studied during weekday AM and PM peak hours.

The following section describes the existing regional and local roadways, the study intersection operations and queuing analysis, and truck data.

Regional and Local Roadways

The key roadways within the study area include:

- 7th Street: A two-lane undivided roadway (classified as an arterial) with a posted speed limit of 25 miles per hour (mph). The 7th Street Bridge over the Tuolumne River currently carries 15,900 vehicles per day. North of B Street, the amount of traffic on 7th Street decreases by nearly half, with this segment of the roadway carrying 7,900 vehicles per day. The 7th Street Bridge has narrow sidewalks (3 feet 11 inches) on both sides of the bridge structure. Dedicated bicycle facilities are not present.
- 9th Street: Parallels 7th Street to the east, and is a four-lane divided arterial across the Tuolumne River. It carries 22,900 vehicles per day and has a posted speed limit of 40 mph.
- B Street: An east/west undivided arterial roadway at the northern end of the bridge that carries 16,500 vehicles per day (east of 7th Street) and has a posted

speed limit of 25 mph. West of 7th Street, B Street becomes Tuolumne Boulevard and features an interchange with SR 99.

- Crows Landing Road: Intersects 7th Street south of the Tuolumne River. Most traffic on the 7th Street Bridge uses Crows Landing Road, which is a two-lane roadway with an interchange with SR 99. Crows Landing Road carries 12,500 daily trips, whereas 7th Street continuing southerly carries 3,600 daily trips.
- SR 99: Has a parallel crossing of the Tuolumne River located to the west of the 7th Street Bridge. This segment of the freeway has three travel lanes in each direction with a posted speed limit of 65 mph. Immediately north of the Tuolumne Boulevard interchange, a partial interchange provides a northbound off-ramp from SR 99 to 6th Street, and a southbound on-ramp from 5th Street to SR 99. These ramps are located in close proximity to the Tuolumne Boulevard interchange, and auxiliary (weaving) lanes are provided in both directions. The resulting weaving distances are 600 feet in the northbound direction and 625 feet in the southbound direction.

Existing Intersection Level of Service

A SIMtraffic microsimulation model was built for the study area and used to analyze 11 study intersections. This software program applies the methodologies contained in the *2010 Highway Capacity Manual* for calculating delay at intersections. It considers lane utilization, turn pocket storage lengths, upstream/downstream queue spillbacks, and coordinated signal timings on intersection queuing and delays.

The SIMtraffic model was validated against measured traffic volumes and observed queues. Reported results provided herein are based on the average of 10 runs. Output includes average delay, 95th percentile vehicle queues at critical movements, and level of service (LOS) for all intersections.

LOS is a qualitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions.

The existing AM and PM intersection LOS is presented in Table 2.1.3-1.

Table 2.1.3-1 Intersection Analysis – Existing Conditions

| Intersection | Control | AM Peak Hour LOS* | PM Peak Hour LOS* |
|---------------------------------------|------------------|-------------------|-------------------|
| 1. 7th St / H St | Traffic Signal | B | B |
| 2. 7th St / G St | Traffic Signal | B | B |
| 3. SR 99 SB Ramps / Tuolumne Blvd | All-Way Stop | D | C |
| 4. SR 99 NB Ramps / Tuolumne Blvd | Side Street Stop | A (C) | A (D) |
| 5. 7th St / Sierra Dr | Side Street Stop | A (A) | A (D) |
| 6. 7th St / Tuolumne Blvd/B St | Traffic Signal | C | D |
| 7. 9th St / B St | Traffic Signal | D | D |
| 8. 7th St / River Rd. | Side Street Stop | A (C) | A (F) |
| 9. 7th St / Crows Landing Rd | Side Street Stop | A (B) | A (C) |
| 10. SR 99 NB Ramps / Crows Landing Rd | Side Street Stop | A (C) | A (E) |
| 11. SR 99 SB Ramps / Crows Landing Rd | Yield/Free | A (B) | A (B) |

Notes:

* The Level of Service (LOS) grade is for the overall intersection; for side-street stop controlled intersections, the delay for the worst-case movement is shown in parentheses next to the overall delay.

NB = northbound; SB = southbound

As shown in Table 2.1.3-1, all of the study intersections currently operate at LOS D or better overall. The side-street movements at 7th Street/ River Road and SR 99 Southbound Ramps/Crows Landing Road operate at a LOS E or F in the PM peak hour because of a lack of gaps in through traffic. However, most motorists traveling through these intersections experience little or no delay.

The highest overall intersection delays occur at the signalized 7th Street/Tuolumne Boulevard/B Street and 9th Street/B Street intersections, both located at the northern end of Tuolumne River crossings. Northbound and southbound left-turn movements at each of these locations have permissive signal phasing, requiring drivers to find gaps in the opposing through vehicle flows. The northbound left turn pocket at each of these locations provides 150 feet of storage. Additionally, both of these intersections operate on east/west split-phase signal timing. A right-turn overlap arrow (phase) is provided in the northbound direction at the 7th Street/Tuolumne Boulevard/B Street intersection. Detailed freeway ramp terminal intersection analyses showing the delay by turning movement were also conducted for all of the freeway ramps (intersections #3, 4, 10, and 11). The results are presented in the Traffic Report.

Queuing Analysis

Table 2.1.3-2 displays vehicular queuing results by movement for study intersections along the 7th and 9th Street corridors in the AM and PM peak hours. For each movement, the available storage and modeled (via SIMtraffic) 95th percentile vehicle queue is reported. Table 2.1.3-3 shows similar information at the four study intersections within the state right-of-way.

Table 2.1.3-2 Queuing Analysis for Intersections on 7th and 9th Street Corridors – Existing Conditions

| Intersection | Movement | Available Storage (ft) | AM Peak Hour 95th Percentile Queue (ft) | PM Peak Hour 95th Percentile Queue (ft) |
|---------------------------------------------------|-------------|------------------------|-----------------------------------------|-----------------------------------------|
| 7th Street/H Street | NB LT/TH/RT | 400 | 200 | 200 |
| | SB LT/TH/RT | 400 | 125 | 150 |
| | WB LT/TH | 300 | 175 | 250 |
| | WB TH/RT | 300 | 225 | <u>325</u> |
| 7th Street/G Street | NB LT/TH/RT | - | 250 | 275 |
| | SB LT/TH/RT | 400 | 200 | 250 |
| | EB LT/TH | 300 | 175 | 175 |
| | EB TH/RT | 300 | 175 | 175 |
| 7th Street/Sierra Drive | NB LT/TH | 200 | 50 | 50 |
| | SB TH/RT | - | 25 | 175 |
| | EB LT/RT | - | 50 | 125 |
| 7th Street/ Tuolumne Boulevard/ B Street | NB LT | 150 | 150 | <u>225</u> |
| | NB TH | - | 375 | 1,275 |
| | NB RT | 250 | 175 | 350 |
| | SB LT | 100 | 100 | 100 |
| | SB TH | - | 200 | 250 |
| | SB RT | 125 | 50 | 100 |
| | WB LT/TH | 900 | 350 | 525 |
| | WB TH/RT | 900 | 375 | 550 |
| | EB LT/TH | - | 250 | 250 |
| EB TH/RT | - | 275 | 325 | |
| 9th Street/B Street | NB LT | 150 | <u>200</u> | <u>250</u> |
| | NB TH/RT | - | 700 | 375 |
| | SB LT | 150 | 50 | 75 |
| | SB TH | 875 | 250 | 850 |
| | SB RT | 225 | 175 | <u>325</u> |
| | WB LT/TH | - | 100 | 225 |
| | WB TH/RT | - | 75 | 125 |
| | EB LT/TH | 900 | 375 | 400 |
| EB TH/RT | 900 | 325 | 300 | |

Table 2.1.3-2 Queuing Analysis for Intersections on 7th and 9th Street Corridors – Existing Conditions

| Intersection | Movement | Available Storage (ft) | AM Peak Hour 95th Percentile Queue (ft) | PM Peak Hour 95th Percentile Queue (ft) |
|-------------------------------|-------------|------------------------|-----------------------------------------|-----------------------------------------|
| 7th Street/River Road | NB LT/TH/RT | - | 25 | 125 |
| | SB TH/RT | - | 25 | 100 |
| | SB LT | 75 | 50 | 75 |
| | WB LT/TH/RT | 200 | 75 | 150 |
| | EB LT/TH/RT | 100 | 50 | 50 |
| 7th Street/Crows Landing Road | NB TH | - | 100 | 150 |
| | SB TH | - | 75 | 125 |
| | SB RT | - | - | 50 |
| | EB LT | - | 25 | 150 |
| | EB RT | - | 50 | 50 |

Notes:

Modeled results based on 95th percentile queue length reported from SIMtraffic.

Queue lengths are rounded to 25-ft increments based on an average car length of 25 ft.

Bolded and underlined cells represent observed queue that exceeds available storage.

EB = eastbound; LT = left turn; NB = northbound; RT = right turn; SB = southbound; TH = through; WB = westbound

Table 2.1.3-3 Detailed Freeway Ramp Terminal Intersection Queuing Analysis – Existing Conditions

| Intersection | Control | Movement | AM Peak Hour | | PM Peak Hour | |
|---------------------------------------------|------------------|----------|----------------------------|---------------------|----------------------------|---------------------|
| | | | 95th Percentile Queue (ft) | Storage Length (ft) | 95th Percentile Queue (ft) | Storage Length (ft) |
| 3. SR 99 SB Ramps/ Tuolumne Boulevard | All-way Stop | EB LT | 50 | 230 | 75 | 230 |
| | | EB TH | 50 | 230 | 75 | 230 |
| | | SB LT/RT | 325 | 1,000 | 100 | 1,000 |
| | | WB TH/RT | 50 | 700 | 75 | 700 |
| | | WB TH | 125 | 700 | 250 | 700 |
| 4. SR 99 NB Ramps/ Tuolumne Boulevard | Side-Street Stop | EB LT | 25 | 630 | 25 | 630 |
| | | EB RT | 25 | 60 | 75 | 60 |
| | | SB TH/RT | - | 100 | - | 100 |
| | | SB TH | - | 100 | - | 100 |
| | | NB LT | 25 | 170 | 25 | 170 |
| | | NB TH | - | 700 | - | 700 |

Table 2.1.3-3 Detailed Freeway Ramp Terminal Intersection Queuing Analysis – Existing Conditions

| Intersection | Control | Movement | AM Peak Hour | | PM Peak Hour | |
|----------------------------------------------|---------------------|----------|----------------------------|---------------------|----------------------------|---------------------|
| | | | 95th Percentile Queue (ft) | Storage Length (ft) | 95th Percentile Queue (ft) | Storage Length (ft) |
| 10. SR 99 NB Ramps/ Crows Landing Road | Side-Street Stop | SB LT/TH | 25 | 300 | 25 | 300 |
| | | NB TH | - | 680 | - | 680 |
| | | NB RT | - | 120 | - | 120 |
| | | WB LT/RT | 25 | 1,300 | 50 | 1,300 |
| 11. SR 99 SB Ramps/Crows Landing Road | Yield/Free | SB LT | 25 | 100 | 25 | 100 |
| | | SB TH | - | 680 | - | 680 |
| | | EB RT | - | 950 | - | 950 |
| | | NB TH | - | 340 | - | 340 |
| | | NB RT | - | 170 | - | 170 |

Notes:

Available storage length measured as length of turn lane, distance to upstream intersection, or distance to freeway off-ramp gore; “-“ indicates that movement has right-of-way and no queue occurs. Modeled results based on 95th percentile queue length reported from Synchro.

Queue lengths are rounded to 25-ft increments based on an average car length of 25 ft.

Bolded and underlined cells represent observed queue that exceeds available storage.

EB = eastbound; LT = left turn; NB = northbound; RT = right turn; SB = southbound; TH = through; WB = westbound

During the PM peak hour, SIMtraffic predicts that the 95th percentile northbound queue approaching the 7th Street/Tuolumne Boulevard/B Street intersection stretches 1,275 feet back from the signal, across the majority of the bridge structure. This finding is consistent with field observations.

Truck Traffic

Vehicle classification surveys were conducted as part of the counts within the study area. A heavy vehicle (truck) is defined using the *Highway Capacity Manual* definition of any vehicle with more than four wheels on the ground during normal operation. The surveys revealed that heavy vehicle travel patterns are similar during both peak hours, with the heaviest truck flows in the study area occurring on Crows Landing Road south of SR 99 and along 9th Street. Vehicles weighing over 4 tons are prohibited from using the 7th Street Bridge (by signage on both bridge approaches), while the parallel 9th Street Bridge has no such restriction in place.

Daily, trucks account for less than 1 percent of the 15,900 vehicles traveling on the 7th Street Bridge. Approximately 7 percent of the 22,900 vehicles on the 9th Street Bridge

were trucks. This equates to 1,630 daily trucks, of which about half were five- or six-axle, and half were two- or three-axle. This finding indicates that most (but not all) trucks traveling across the Tuolumne River comply with the 7th Street Bridge weight restriction.

2.1.3.3 ENVIRONMENTAL CONSEQUENCES

This section presents the traffic operations analysis results for the No-Build and Build Alternatives under Opening Day (2020) and Design Year (2040) Conditions. The environmental consequences of the project are evaluated based on anticipated changes to intersection LOS, queuing, changes in average daily traffic, and vehicle hours of delay. Improvements to circulation, potential impacts to traffic patterns for residents and business, compliance with the ADA, and potential short-term impacts during construction are also discussed.

Opening Day (2020) Conditions

The Opening Day Conditions represent anticipated travel conditions based on the new bridge being open to traffic in 2020.

Opening Day Intersection Level of Service

Table 2.1.3-4 shows the projected average delay and LOS for each study intersection during the AM and PM peak hours under Opening Day No-Build and Plus Project conditions.

Table 2.1.3-4 Intersection Operations – Opening Day (2020) Conditions

| Intersection | Control | Peak Hour | Existing Conditions | Opening Day (2020) Conditions | |
|--------------------------------------------|----------------|-----------|-------------------------------------|-------------------------------|-------------------------------|
| | | | Existing Peak Hour LOS ¹ | No-Build ² LOS | Plus Project ³ LOS |
| 1. 7 th St / H St | Traffic Signal | AM | B | B | B |
| | | PM | B | B | B |
| 2. 7 th St / G St | Traffic Signal | AM | B | B | B |
| | | PM | B | B | B |
| 3. SR 99 SB Ramps / Tuolumne Blvd | Traffic Signal | AM | D | D | D |
| | | PM | C | E | E |
| 4. SR 99 NB Ramps / Tuolumne Blvd | Traffic Signal | AM | A (C) | A (F) | A (D) |
| | | PM | A (D) | F (F) | F (F) |
| 5. 7 th St / Sierra Dr | SSSC | AM | A (A) | C (F) | Does Not Exist ⁴ |
| | | PM | A (D) | C (F) | |
| 6. 7 th St / Tuolumne Blvd/B St | Traffic Signal | AM | C | D | D |
| | | PM | D | F | D |
| 7. 9 th St / B St | Traffic Signal | AM | D | D | D |
| | | PM | D | E | E |

Table 2.1.3-4 Intersection Operations – Opening Day (2020) Conditions

| Intersection | Control | Peak Hour | Existing Conditions | Opening Day (2020) Conditions | |
|------------------------------------------|--------------------------|-----------|-------------------------------------|-------------------------------|-------------------------------|
| | | | Existing Peak Hour LOS ¹ | No-Build ² LOS | Plus Project ³ LOS |
| 8. 7 th St / River Rd. | SSSC | AM PM | A (C) A (F) | A (F) E (F) | Does Not Exist ⁵ |
| 9. 7 th St / Crows Landing Rd | SSSC/Signal ⁶ | AM PM | A (B) A (C) | A (C) F (F) | B B |
| 10. SR 99 NB Ramps / Crows Landing Rd | Traffic Signal | AM PM | A (C) A (E) | A (D) A (F) | B (E) C (F) |
| 11. SR 99 SB Ramps / Crows Landing Rd | Traffic Signal | AM PM | A (B) A (B) | A (B) A (B) | A (B) A (C) |

Notes:

- ¹ The LOS grade is for the overall intersection; for side-street stop controlled intersections, the delay for the worst-case movement is shown in parentheses next to the overall delay.
 - ² “No-Build” represents conditions with the existing two-lane bridge and existing lanes and traffic controls at 7th/B Streets and 7th/Crows Landing Road intersections remaining in place.
 - ³ “Plus Project” represents conditions with a four-lane bridge and proposed improvements at 7th/B Streets and 7th/Crows Landing Road intersections.
 - ⁴ Sierra Drive becomes a cul-de-sac at 7th Street, with traffic diverting to the 7th/C Streets intersection.
 - ⁵ Project would eliminate roadway connection between 7th Street and River Road/Zeff Road.
 - ⁶ Intersection features side street stop control under No-Build conditions, and signalized operations under Plus Project conditions. Reported Plus Project results are based on the right-of-way minimization option.
- NB = northbound; SB = southbound; SSSC = side street stop control

This table reveals the following important conclusions:

- PM peak hour operations at the 7th Street/B Street/Tuolumne Boulevard intersection will degrade from an existing LOS D to LOS F under Opening Day No-Build conditions. Implementation of the project would restore operations to LOS D.
- PM peak hour operations on the stop-controlled 7th Street approaching the 7th Street/Crows Landing Road intersection will degrade from an existing LOS C to LOS F under Opening Day No-Build conditions. Implementation of the project would signalize this intersection and restore operations to LOS B.
- The project would eliminate the 7th Street/Sierra Drive and 7th Street/River Road intersections, which would operate at LOS F under No-Build conditions.
- PM peak hour operations at the SR 99 NB Ramps/Tuolumne Boulevard and SR 99 NB Ramps/Crows Landing Road intersections would be at LOS F for the

worst side-street movement, both without and with the proposed project. The project would cause a net decrease in the delay at the former intersection, and increase in delay at the latter intersection.

Under the No-Build condition, the intersections of SR 99 Southbound Ramps/Tuolumne Boulevard, 7th Street/Tuolumne Boulevard/B St, and 7th Street/Crows Landing Road would deteriorate to LOS F levels in the PM peak hour. All other intersections under the No-Build Alternative would remain the same or would not deteriorate below LOS D. With the construction of any of the four Build Alternatives under Opening Day (2020) Conditions, the SR 99 Southbound Ramps/Tuolumne Boulevard intersection would remain at LOS F in the PM peak hour although delays would slightly decrease. The intersections at 7th Street/Tuolumne Boulevard/B Street and 7th Street/Crows Landing Road would improve relative to the No-Build conditions, such that the LOS D standard is met. Other study intersections would remain at or below LOS D. There would be no adverse effects on LOS for the Opening Day (2020) Conditions with the proposed project.

Queuing Analysis

Table 2.1.3-5 displays the 95th percentile queue lengths by movement at the four study intersections within the state right-of-way for each scenario. The eastbound right-turn movement at the SR 99 Northbound Ramps/Tuolumne Boulevard intersection (off-ramp movement to travel westbound on Tuolumne Blvd.) would have a 95th percentile queue that exceeds the available storage, both without and with the proposed project. The proposed project would add an additional 25 feet of queuing, equivalent to approximately one car length. This is a negligible increase compared to the No-Build conditions.

Table 2.1.3-5 Detailed Freeway Ramp Terminal Intersection Queuing Analysis – Opening Day (2020) Conditions

| Intersection | Control | Movement | Peak Hour | No-Build ¹ | | Plus Project ² | |
|-------------------------------------------|------------------|----------|-----------|----------------------------|---------------------|----------------------------|---------------------|
| | | | | 95th Percentile Queue (ft) | Storage Length (ft) | 95th Percentile Queue (ft) | Storage Length (ft) |
| 3. SR 99 SB Ramps/ Tuolumne Boulevard | All-way Stop | EB LT | AM | 75 | 230 | 75 | 230 |
| | | | PM | 175 | | 225 | |
| | | EB TH | AM | 50 | 230 | 50 | 230 |
| | | | PM | 100 | | 75 | |
| | | SB LT/RT | AM | 325 | 1,000 | 325 | 1,000 |
| PM | 150 | | 150 | | | | |
| WB TH/RT | AM | 125 | 700 | 125 | 700 | | |
| | PM | 325 | | 325 | | | |
| WB TH | AM | 125 | 700 | 125 | 700 | | |
| | PM | 325 | | 325 | | | |
| 4. SR 99 NB Ramps/ Tuolumne Boulevard | Side-Street Stop | EB LT | AM | 125 | 630 | 50 | 630 |
| | | | PM | 625 | | 550 | |
| | | EB RT | AM | 25 | 60 | 50 | 60 |
| | | | PM | <u>125</u> | | <u>150</u> | |
| | | SB TH/RT | AM | - | 100 | - | 100 |
| | | | PM | - | | - | |
| SB TH | AM | - | 100 | - | 100 | | |
| | PM | - | | - | | | |
| NB LT | AM | 25 | 300 | 25 | 300 | | |
| | PM | 25 | | 25 | | | |
| NB TH | AM | - | 700 | - | 700 | | |
| | PM | - | | - | | | |
| 10. SR 99 NB Ramps/ Crows Landing Road | Side-Street Stop | SB LT/TH | AM | 25 | 300 | 25 | 300 |
| | | | PM | 25 | | 25 | |
| | | NB TH | AM | - | 680 | - | 680 |
| | | | PM | - | | - | |
| NB RT | AM | - | 120 | - | 120 | | |
| | PM | - | | - | | | |
| WB LT/RT | AM | 150 | 1,300 | 200 | 1,300 | | |
| | PM | 150 | | 325 | | | |
| 11. SR 99 SB Ramps/ Crows Landing Road | Yield/Free | SB LT | AM | 25 | 100 | 25 | 100 |
| | | | PM | 25 | | 50 | |
| | | SB TH | AM | - | 680 | - | 680 |
| | | | PM | - | | - | |
| EB RT | AM | - | 950 | - | 950 | | |
| | PM | - | | - | | | |
| NB TH | AM | - | 340 | - | 340 | | |
| | PM | - | | - | | | |

Table 2.1.3-5 Detailed Freeway Ramp Terminal Intersection Queuing Analysis – Opening Day (2020) Conditions

| Intersection | Control | Movement | Peak Hour | No-Build ¹ | | Plus Project ² | |
|--------------|---------|----------|-----------|----------------------------|---------------------|----------------------------|---------------------|
| | | | | 95th Percentile Queue (ft) | Storage Length (ft) | 95th Percentile Queue (ft) | Storage Length (ft) |
| | | | | | | PM | - |
| | | NB RT | AM | - | 170 | - | 170 |
| | | | PM | - | | - | |

Notes:

¹ Available storage length measured as length of turn lane, distance to upstream intersection, or distance to freeway off-ramp gore. "-" indicates that movement has right-of-way and no queue occurs.

² Modeled results based on 95th percentile queue length reported from Synchro.

Queue lengths are rounded to 25-ft increments based on an average car length of 25 ft.

Bolded and underlined cells represent observed queue that exceeds available storage.

EB = eastbound; LT = left turn; NB = northbound; RT = right turn; SB = southbound; TH = through; WB = westbound

Average Daily Traffic

Implementation of any of the Build Alternatives would cause the average daily traffic on the parallel segment of SR 99 to decrease from 150,700 to 148,200. A review of forecasts at the SR 99/Crows Landing Road interchange shows modest increases in traffic for movements to/from the south as a result of the bridge widening. There would be no adverse effects.

For future year scenarios, roadway LOS was not calculated because analyses demonstrated that improvements (or lack thereof) at intersections were a better indicator of system performance than segment analysis.

Vehicle Hours of Delay

Table 2.13-6 provides system-wide performance measures that compare No-Build and Plus Project operations. Results are particularly noteworthy during the PM peak hour, in which the Build Alternative results in 21 percent less vehicle hours of delay. Therefore, the proposed project would have a positive effect (benefit) on vehicle hours of delay.

Table 2.1.3-6 Network Summary – Opening Day (2020) Conditions

| Measure of Effectiveness | No-Build ¹ | | Plus Project ² | |
|-------------------------------------------|-----------------------|--------|---------------------------|--------|
| | AM | PM | AM | PM |
| Vehicle Hours of Delay (VHD) ³ | 125 | 303 | 108 | 240 |
| Total Vehicles Served ⁴ | 9,276 | 10,219 | 9,299 | 10,503 |

Notes:

All results above based on SIMtraffic report output.

¹ “No-Build” represents conditions with the existing two-lane bridge and existing lanes/traffic controls at 7th/B St. and 7th/Crows Landing Rd. intersections remaining in place.

² “Plus Project” represents conditions with a four-lane bridge and proposed improvements at 7th/B St. and 7th/Crows Landing Road intersections.

³ Vehicle Hours of Delay is the amount of vehicle-hours of delay caused by traffic control devices.

⁴ Total Vehicles Served is the total number of vehicles that exited the area (network) during the peak hour.

Design Year (2040) Conditions

The Design Year Conditions represent anticipated travel conditions 20 years after the Opening Day (2020) Condition (i.e., 2040). Traffic forecasts were developed using the StanCOG regional travel demand model. The traffic forecasting procedure known as the “difference method” was used to develop the Design Year traffic forecasts.

Design Year Intersection Level of Service

Table 2.1.3-7 displays the average delay and LOS for each study intersection during the AM and PM peak hours under Design Year No-Build and Plus Project conditions.

Table 2.1.3-7 Intersection Operations – Design Year (2040) Conditions

| Intersection | Control | Peak Hour | Existing Conditions | Design Year (2040) Conditions | |
|-----------------------------------|----------------|-----------|----------------------------------|-------------------------------|-------------------------------|
| | | | AM/PM Peak Hour LOS ¹ | No-Build ² LOS | Plus Project ³ LOS |
| 1. 7 th St / H St | Traffic Signal | AM | B | B | B |
| | | PM | B | C | D |
| 2. 7 th St / G St | Traffic Signal | AM | B | C | C |
| | | PM | B | B | B |
| 3. SR 99 SB Ramps / Tuolumne Blvd | All-Way Stop | AM | D | C | C |
| | | PM | C | F | F |
| 4. SR 99 NB Ramps / Tuolumne Blvd | SSSC | AM | A (C) | C (F) | A (D) |
| | | PM | A (D) | F (F) | F (F) |
| 5. 7 th St / Sierra Dr | SSSC | AM | A (A) | F (F) | Does Not Exist ⁴ |
| | | PM | A (D) | F (F) | |

Table 2.1.3-7 Intersection Operations – Design Year (2040) Conditions

| Intersection | Control | Peak Hour | Existing Conditions | Design Year (2040) Conditions | |
|--------------------------------------------|--------------------------|-----------|----------------------------------|-------------------------------|-------------------------------|
| | | | AM/PM Peak Hour LOS ¹ | No-Build ² LOS | Plus Project ³ LOS |
| 6. 7 th St / Tuolumne Blvd/B St | Traffic Signal | AM | C | F | D |
| | | PM | D | F | E |
| 7. 9 th St / B St | Traffic Signal | AM | D | F | F |
| | | PM | D | F | F |
| 8. 7 th St / River Rd. | SSSC | AM | A (C) | E (F) | Does Not Exist ⁵ |
| | | PM | A (F) | F (F) | |
| 9. 7 th St / Crows Landing Rd | SSSC/Signal ⁶ | AM | A (B) | B (F) | B |
| | | PM | A (C) | F (F) | B |
| 10. SR 99 NB Ramps / Crows Landing Rd | Traffic Signal | AM | A (C) | F (F) | F (F) |
| | | PM | A (E) | F (F) | F (F) |
| 11. SR 99 SB Ramps / Crows Landing Rd | Free/Yield | AM | A (B) | A (C) | A (D) |
| | | PM | A (B) | A (C) | D (F) |

Notes:

- ¹ The LOS grade is for the overall intersection; for side-street stop controlled intersections, the delay for the worst-case movement is shown in parentheses next to the overall delay.
- ² No-Build represents conditions with the existing two-lane bridge and existing lanes/traffic controls at 7th/B Streets and 7th Street/Crows Landing Road intersections remaining in place.
- ³ Plus Project represents conditions with a four-lane bridge and proposed improvements at 7th/B Streets and 7th Street/Crows Landing Road intersections.
- ⁴ Sierra Drive becomes a cul-de-sac at 7th Street, with traffic diverting to the 7th/C Streets intersection.
- ⁵ Project would eliminate roadway connection between 7th Street and River Road/Zeff Road.
- ⁶ Intersection features side-street stop control under No-Build conditions, and signalized operations under Plus Project conditions. Reported Plus Project results are based on the right-of-way minimization option.

NB = northbound; SB = southbound; SSSC = side street stop control

This table reveals the following important conclusions:

- The 7th Street/B Street/Tuolumne Boulevard intersection would improve from LOS F during the AM and PM peak hours under No-Build conditions to LOS D during the AM peak hour and LOS E during the PM peak hour under Plus Project conditions.
- The 7th Street/Crows Landing Road intersection would improve from LOS F (for side-street stop-control movements) during the AM and PM peak hours under

No-Build conditions to LOS B with a traffic signal during the AM and PM peak hours under Plus Project conditions.

- The project would eliminate the 7th Street/Sierra Drive and 7th Street/River Road intersections, which would otherwise operate at LOS F under No-Build conditions.
- Operations at the SR 99 Southbound Ramps/Tuolumne Boulevard, SR 99 Northbound Ramps/Tuolumne Boulevard, and SR 99 Northbound Ramps/Crows Landing Road intersections would be at LOS F for the worst side-street movement, both without and with the proposed project. In some instances, the project would cause a net decrease in the delay. In other instances, it would cause an increase in delay.
- The project would cause increases in traffic on certain portions of 7th Street (north of B Street), Tuolumne Boulevard (west of 7th Street), B Street (east of 7th Street), and Crows Landing Road (south of 7th Street). This added traffic causes several noteworthy degradations in LOS including:
 - 7th Street/H Street – PM peak hour operations worsen from LOS C to D; however, LOS D operations are considered acceptable in the City of Modesto.
 - SR 99 Southbound Ramps/Tuolumne Boulevard – PM peak hour operations worsen from LOS C to F.
 - 9th Street/B Street – Project would degrade LOS F operations by increasing average delay per vehicle by 8 seconds during the AM peak hour and 24 seconds during the PM peak hour.

Under the Opening Day/No-Build condition, the intersections of SR 99 Southbound Ramps/Tuolumne Boulevard, 7th Street/Tuolumne Boulevard/B Street, and 7th Street/Crows Landing Road deteriorate to LOS F levels in the PM peak hour. All other intersections under the Opening Day/No-Build condition would remain the same or would not deteriorate below LOS D. With the construction of any of the four alternatives under Design Year (2040) Conditions, both SR 99 ramps (northbound and southbound) at Tuolumne Boulevard, the SR 99 Northbound Ramp/Crows Landing Road intersection, and the 9th Street/B Street intersection would remain at LOS F in the PM peak hour although delays would increase. In addition, the SR 99 Southbound Ramps/Crows Landing Road intersection would decrease to LOS F for

the worst-case turning movement (the southbound left-turn lane). For these intersections, project impacts would be potentially adverse. All other study intersections would either have improved traffic flows, or intersection movements would not fall below LOS D. For these intersections, there would be no adverse effects as a result of the project.

Queuing Analysis

Table 2.1.3-8 displays the 95th percentile queue lengths by movement at the four study intersections within the state right-of-way for the No-Build and Plus Project scenarios. Certain turn movements would experience vehicle queues that exceed the available storage, both without and with the proposed project. This occurs as a result of background traffic growth, combined with no improvements assumed at either interchange. The Traffic Report discusses planned improvements at the SR 99/Tuolumne Boulevard and SR 99/Crows Landing Road interchanges to address these operational issues.

Table 2.1.3-8 Detailed Freeway Ramp Terminal Intersection Queuing Analysis – Design Year (2040) Conditions

| Intersection | Control | Movement | Peak Hour | No-Build ¹ | | Plus Project ² | |
|------------------------------------------|------------------|----------|-----------|----------------------------|---------------------|----------------------------|---------------------|
| | | | | 95th Percentile Queue (ft) | Storage Length (ft) | 95th Percentile Queue (ft) | Storage Length (ft) |
| 3. SR 99 SB Ramps/ Tuolumne Boulevard | All-way Stop | EB LT | AM | 75 | 230 | 100 | 230 |
| | | | PM | 300 | | 325 | |
| | | EB TH | AM | 25 | 230 | 25 | 230 |
| | | | PM | 75 | | 75 | |
| | | SB LT/RT | AM | 175 | 1,000 | 725 | 1,000 |
| PM | 150 | | | 300 | | | |
| WB TH/RT | AM | 50 | 700 | 50 | 700 | | |
| | PM | 325 | | 325 | | | |
| WB TH | AM | 100 | 700 | 100 | 700 | | |
| | PM | 325 | | 300 | | | |
| 4. SR 99 NB Ramps/ Tuolumne Boulevard | Side-Street Stop | EB LT | AM | 275 | 630 | 75 | 630 |
| | | | PM | 1,550 | | 1,425 | |
| | | EB RT | AM | 25 | 60 | 25 | 60 |
| | | | PM | 150 | | 425 | |
| SB TH/RT | AM | - | 100 | - | 100 | | |
| | PM | - | | - | | | |
| SB TH | AM | - | 100 | - | 100 | | |
| | PM | - | | - | | | |

Table 2.1.3-8 Detailed Freeway Ramp Terminal Intersection Queuing Analysis – Design Year (2040) Conditions

| Intersection | Control | Movement | Peak Hour | No-Build ¹ | | Plus Project ² | |
|----------------------------------------------|---------------------|----------|-----------|----------------------------|---------------------|----------------------------|---------------------|
| | | | | 95th Percentile Queue (ft) | Storage Length (ft) | 95th Percentile Queue (ft) | Storage Length (ft) |
| | | NB LT | AM | 25 | 170 | 25 | 170 |
| | | | PM | 25 | | 25 | |
| | | NB TH | AM | - | 700 | - | |
| | | | PM | - | | - | |
| 10. SR 99 NB Ramps/ Crows Landing Road | Side-Street Stop | SB LT/TH | AM | 25 | 300 | 25 | 300 |
| | | | PM | 25 | | 25 | |
| | | NB TH | AM | - | 680 | - | |
| | | | PM | - | | - | |
| NB RT | AM | - | 120 | - | | | |
| | PM | - | | - | | | |
| WB LT/RT | AM | 775 | 1,300 | <u>1,550</u> | 1,300 | | |
| | PM | 500 | | 1,300 | | | |
| 11. SR 99 SB Ramps/ Crows Landing Road | Yield/Free | SB LT | AM | 50 | 100 | 100 | 100 |
| | | | PM | 25 | | <u>525</u> | |
| | | SB TH | AM | - | 680 | - | |
| | | | PM | - | | - | |
| | | EB RT | AM | - | 950 | - | |
| PM | - | | - | | | | |
| NB TH | AM | - | 340 | - | | | |
| | PM | - | | - | | | |
| NB RT | AM | - | 170 | - | | | |
| | PM | - | | - | | | |

Notes:

¹ Available storage length measured as length of turn lane, distance to upstream intersection, or distance to freeway off-ramp gore. "-" indicates that movement has right-of-way and no queue occurs.

² Modeled results based on 95th percentile queue length reported from Synchro.

Queue lengths are rounded to 25-ft increments based on an average car length of 25 ft.

Bolded and underlined cells represent observed queue that exceeds available storage.

EB = eastbound; LT = left turn; NB = northbound; RT = right turn; SB = southbound; TH = through; WB = westbound

Table 2.1.3-9 displays the 95th percentile vehicle queues on the northbound 7th Street approach to Tuolumne Boulevard/B Street under Design Year No-Build and Plus Project conditions. Queuing on this approach is particularly important because adequate vehicle storage should be provided as part of the bridge design. (This table

presents the results for Alternatives 2A, 2B and 3 only. Alternative 4 is designed with shorter turn pockets).

As shown, Alternatives 2A, 2B and 3 would provide adequate storage in the northbound left- and right-turn lanes to accommodate the 95th percentile vehicle queues under Design Year (2040) Conditions. There would be no adverse effects to queuing under these alternatives.

Table 2.1.3-9 Vehicle Queuing at 7th Street/B Street Intersection – Design Year (2040) Conditions

| Intersection | Movement | Available Storage (No-Build/Plus Project) | 95th Percentile Queue (ft) | | | |
|------------------------|----------|----------------------------------------------|----------------------------|-------------------|---------------------------|-----|
| | | | No-Build ¹ | | Plus Project ² | |
| | | | AM | PM | AM | PM |
| 7th St / Tuolumne Blvd | NBR | 150 ft./250 ft. per lane | <u>175</u> | <u>200</u> | 150 | 250 |
| | NBL | 240 ft./450 ft. per lane | <u>375</u> | <u>475</u> | 425 | 275 |

Notes:

- ¹ “No-Build” represents conditions with the existing two-lane bridge and existing lanes/traffic controls at 7th/B St. and 7th/Crows Landing Rd. intersections remaining in place.
- ² “Plus Project” represents conditions with a four-lane bridge and proposed improvements at 7th/B St. and 7th/Crows Landing Road intersections. These results are applicable for Alternatives 2 and 3 only as Alternative 4 has shorter lane lengths.

Modeled results based on 95th percentile queue length reported from SIMtraffic. Queue lengths are rounded to 25-ft increments.

Bolded and underlined cells represent 95th percentile queue that exceeds available storage.

NBL = northbound left turn; NBR = northbound right turn

It should be noted that vehicle queues are not shown on the other approaches for several reasons. First, it was not reasonable to design this intersection to operate at LOS D or better under Design Year (2040) Conditions given that the planned SR 132 Connectivity Project would reduce traffic flows in this corridor. Second, right-of-way constraints at the intersection limit widening opportunities. Third, since the project’s primary purpose is a bridge replacement or retrofit, it is not reasonable to include major widening of roads perpendicular to the bridge as part of the project.

Vehicle Hours of Delay

Table 2.1.3-10 provides system-wide performance measures that compare No-Build and Plus Project operations. Results are particularly noteworthy during the PM peak hour, in which the Build Alternative can accommodate 13 percent more travel demand, while resulting in 35 percent less vehicle hours of delay. Thus, while delays may have increased at certain intersections listed above, overall system operations are

much improved with the four-lane bridge widening. Therefore, the proposed project would have a positive effect (benefit) on vehicle hours of delay.

Table 2.1.3-10 Network Summary – Design Year (2040) Conditions

| Measure of Effectiveness | No-Build ¹ | | Plus Project ² | |
|-------------------------------------------|-----------------------|--------|---------------------------|--------|
| | AM | PM | AM | PM |
| Vehicle Hours of Delay (VHD) ³ | 323 | 830 | 281 | 544 |
| Total Vehicles Served ⁴ | 11,625 | 12,135 | 12,140 | 13,686 |

Notes:

All results above based on SIMtraffic report output.

¹ “No-Build” represents conditions with the existing two-lane bridge and existing lanes/traffic controls at 7th/B St. and 7th/Crows Landing Rd. intersections remaining in place.

² “Plus Project” represents conditions with a four-lane bridge and proposed improvements at 7th/B St. and 7th/Crows Landing Road intersections.

³ Vehicle Hours of Delay is the amount of vehicle-hours of delay caused by traffic control devices.

⁴ Total Vehicles Served is the total number of vehicles that exited the area (network) during the peak hour.

Vehicular, Transit, Bicycle, and Pedestrian Circulation Improvements

The 7th Street Bridge is not currently used for public transit, due in part to its low load carrying capacity. The 7th Street Bridge currently has a narrow, substandard pedestrian walkway along each side of the bridge that places pedestrians very close to vehicular traffic. The sidewalk widths and approaches do not comply with the ADA. The bridge does not provide dedicated bicycle facilities so vehicles and bicycles have to share a single narrow travel lane with no shoulder, increasing vehicle/bicycle conflicts.

The new bridge (under all alternatives) aims to not only remove load restrictions, but also to improve circulation for vehicles, bicyclists, and pedestrians. Construction of any of the alternatives would allow for public transit use of the new bridge. All Build Alternatives include bus turnouts on both sides of 7th Street directly north of Crows Landing Road. These stops would serve fixed-route bus service operated by Stanislaus Regional Transit (StaRT) and Modesto Area Express (MAX), which currently stops in the area.

Additionally, all alternatives would improve bicycle circulation in the area by adding Class II bicycle lanes on the 7th Street Bridge. Sidewalks and crosswalks throughout the corridor would be implemented to help better accommodate pedestrian travel by providing ADA compliant widths and approaches as well as a buffer between pedestrians and vehicles.

Finally, as previously described, the proposed project results in overall system-wide performance improvements. The proposed project will accommodate 13 percent more travel demand, while resulting in 35 percent less vehicle hours of delay.

Access to Local Businesses and Residences

All Build Alternatives would require access modifications to several properties along 7th Street, most of which are located near the B Street and Crows Landing Road intersections. Although final plans have not been approved, draft drawings show new driveway alignments and other access provisions to serve these properties. Potential effects relating to right-of-way acquisition and loss of access to the Sunrise Village Mobile Home Park and the adjacent Lion's Market have been reduced by eliminating the connector road that would potentially have passed through those properties. Additionally, a new configuration of the 7th Street/Crows Landing Road intersection was developed, which has reduced right-of-way needs.

ADA Compliance

The project has been designed in compliance with Federal and State laws and guidance regarding pedestrian accessibility design, including the 2010 ADA Standards. The proposed sidewalks, curbs, and crosswalks have been designed to ensure wheelchair accessibility. In addition, the small road that currently connects 7th Street with River Road/Zeff Road will be eliminated for several reasons, including the fact that the connector road could not vertically conform with ADA standards as a result of the bridge design.

Temporary Impacts during Construction

Alternatives 2A and 2B would require the closure of the existing 7th Street Bridge for a 21- to 30-month duration. This closure would cause a variety of travel disruptions. In contrast, Alternatives 3 and 4 would not require a complete and lengthy bridge closure. Thus, additional temporary construction impacts would occur under Alternatives 2A and 2B, but there would be no additional impact under Alternatives 3 and 4.

For Alternatives 2A and 2B, motorists would need to use a parallel route, such as SR 99 or the 9th Street Bridge. The majority of the diverted traffic would shift to SR 99. Analysis of SR 99 shows that this added traffic would cause the SB SR 99 mainline segment between Tuolumne Boulevard and Crows Landing Road to worsen from LOS D to E during the PM peak hour. Since a LOS D threshold is the minimum acceptable operation on this segment of SR 99, this would be a short-term adverse

effect associated with Alternative 2A and 2B. It may be possible to mitigate this effect to some degree by traffic management and detour signage.

Alternatives 2A and 2B would also preclude bicycle and pedestrian travel across the Tuolumne River (via 7th Street) during the bridge construction. Although pedestrian and bicycle facilities are provided on the parallel 9th Street Bridge, it would be a considerable detour (especially for pedestrians) to use that facility. To mitigate the adverse effects of loss of bicycle and pedestrian circulation, the project includes a temporary bicycle/pedestrian bridge across the Tuolumne River downstream of the existing bridge, and expanded transit service (i.e., a new loop route that uses the 9th Street Bridge) to transport people across the river. With the inclusion of these project features, there would be no adverse effects on pedestrian and bicycle accessibility.

2.1.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above analysis, Mitigation Measures (MMs) for project effects to traffic and transportation are required. The following traffic-related MMs have been incorporated into the project:

- **MM TRANS-1:** Adverse effects are identified at both SR 99 study intersections in the Design Year (2040) Condition – primarily the SR 99/Crows Landing Road intersections and to a lesser extent the southbound SR 99/Tuolumne Boulevard intersection. To mitigate this impact, Stanislaus County and the City of Modesto will program future improvements to these intersections into the 2018 StanCOG RTP/SCS. Intersection improvements could include signalization of the ramp intersections.
- **MM TRANS-2:** A temporary short-term impact is identified on the SR 99 SB mainline segment between Tuolumne Boulevard and Crows Landing Road during the PM peak hour as a result of the potential full closure of the existing 7th Street Bridge. To mitigate this impact, a Traffic Management Plan (TMP) will be implemented before construction begins. As part of the TMP, public information will be distributed by using local news television and radio broadcasts, informational flyers and mailers, Web sites, and other outreach options. Signs will be installed and public notices will be distributed regarding construction work before disruptions occur; the notifications will identify detours to maintain access. The TMP will also include procedures to do the following:
 - Notify and coordinate with emergency responders prior to construction concerning potential road closures.

- Ensure access for emergency vehicles to and around the project site.
- Notify and coordinate with transit operators prior to construction concerning potential road closures.

2.1.4 Visual/Aesthetics

2.1.4.1 REGULATORY SETTING

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, FHWA, in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental effects, including among others, the destruction or disruption of aesthetic values.

2.1.4.2 AFFECTED ENVIRONMENT

This discussion is based on the Visual Impact Assessment approved on April 28, 2015.

The project corridor is located on and in the immediate vicinity of 7th Street, on land that is partially within the jurisdiction of the City of Modesto and partially within Stanislaus County jurisdiction. Most of the corridor traverses the undeveloped Gateway parcel and a stretch of the Tuolumne River, and encompasses a small, urbanized area nearby.

The project area is characterized by a mix of land uses that include light industrial, commercial, single-family residential, and institutional uses. With a few exceptions, the built environment consists of industrial structures that are two or three stories high and have large footprints. This industrial development pattern contrasts with a collection of small- to medium-sized, middle- to late-twentieth-century residential structures on streets lined with mature trees. The 7th Street Bridge right-of-way corridor is composed of relatively flat, riverfront land within the Tuolumne River's 100-year floodplain, known as the Gateway Parcel. The Gateway Parcel was previously a walnut orchard but is no longer in agricultural use. Four bridges traverse the Gateway Parcel, including the SR 99 bridge on the western portion of the area, the 7th and 9th street vehicular bridges, and the UPRR steel, brick and wood trestle. Aside from the bridges, the Gateway Parcel is in a relatively undeveloped state, aside from the roadway and railroad structures. The City of Modesto, on behalf of the TRRP Commission (comprising the City of Modesto, the City of Ceres, and Stanislaus

County), proposes to implement the Gateway Precise Plan, which would establish a park on the Gateway Parcel.

Visual Assessment Units and Key Views

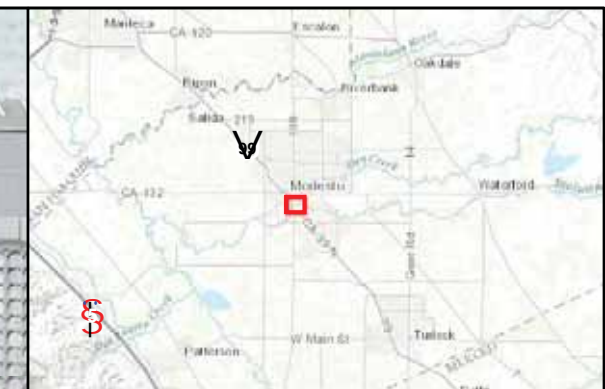
The project corridor was divided into a series of “outdoor rooms” or visual assessment units (VAUs) (see Figure 2.1.4-1). Each VAU has its own visual character and visual quality. The VAU is typically defined by the limits of a particular viewshed. Because it is not feasible to analyze all the views in which the proposed project would be seen, it is necessary to select a set of key views (KVs) that would most clearly display the visual effects of the project. The KVs are identified through an examination of the existing landscape and existing views from each of the VAUs. A view that is representative of that VAU is then chosen for the visual analysis. KVs from each viewpoint represent views seen by the primary viewer groups that would potentially be affected by the project. In addition, the selected views were chosen to assess the project’s potential visual effects on the landscape of the Gateway Parcel because it will be developed into a park. For this project, three VAUs and their associated KVs were identified; these are discussed below.

North of Gateway Visual Assessment Unit

The North of Gateway VAU encompasses the area immediately north of the undeveloped Gateway Parcel, bounded by SR 99 to the west, D Street to the north, 9th Street to the east, and B Street and Tuolumne Boulevard to the south.

This area is relatively flat, ranging in elevation from about 85 to 100 feet above mean sea level, and is more urbanized than the undeveloped Gateway VAU immediately to the south. A mix of large warehouse and industrial buildings with flat facades sit on paved and unpaved parcels throughout the area. The western portion of the area from Calaveras Avenue to SR 99 is heavily landscaped with mature trees and lawn surfaces. This portion includes a small neighborhood of single-family homes, a church, and associated preschool. The eastern portion of the VAU is predominantly unpaved and relatively free of landscaping.

Views from the western area of this VAU are limited by the somewhat dense development. Because the eastern portion of the VAU is less developed, the views from that area are more expansive.



- LEGEND**
- (Key Views
 - Alternative 2a/2b Footprint
 - Alternative 3 Footprint
 - Alternative 4 Footprint
 - Visual Assessment Units
 - North of Gateway
 - Gateway
 - South of Gateway

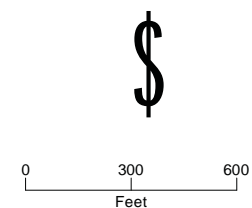


FIGURE 2.1.4-1
Visual Assessment Units and
Key Views
 7th Street Bridge Project
 Modesto, California

The following KV is representative of views from the North of Gateway VAU:

- KV 1: View from Tuolumne Boulevard toward the east

Gateway Visual Assessment Unit

The Gateway VAU consists of an area that is proposed for development as the Gateway portion of the preschool. The area is bounded by SR 99 to the west, Tuolumne Boulevard and B Street to the north, 9th Street to the east, and the Tuolumne River waterway to the south.

The area is composed of relatively flat, riverfront land within the Tuolumne River's 100-year floodplain. The area was previously used as a walnut orchard but currently consists of disked open land and is no longer used for agriculture. Little native vegetation exists on the site, except for a stand of valley oaks near the confluence of Dry Creek and the Tuolumne River and a narrow strip of riparian vegetation along both waterways. Four bridges traverse the site, including SR 99 in the western portion of the area, the 7th and 9th street vehicular bridges, and UPRR wooden trestle. Views from this VAU are mostly unobstructed, given that it is in a relatively undeveloped state, aside from the roadway and railroad structures that exist on it.

The following KVs are representative of views from the Gateway VAU:

- KV 2: View from southbound approach to 7th Street Bridge
- KV 3: View toward 7th Street Bridge from Riverwalk in proposed Gateway Parcel of Tuolumne River

South of Gateway Visual Assessment Unit

The South of Gateway VAU encompasses an area bounded to the west by SR 99, to the north by the southern bank of the Tuolumne River, to the east by South 9th Street, and to the south by Blankenburg Avenue and its imaginary western extension connecting to SR 99 and imaginary eastern connection to South 9th Street.

The topography of this area is mostly flat, with elevations ranging from about 65 to 90 feet above mean sea level. The built environment dominates the visual character of the area, even though substantial natural landscape features such as the Tuolumne River and its heavily vegetated banks are very close by. For the most part, constructed features obstruct views of the river, except in cases where viewers are located in the immediate vicinity of the river, such as along Zeff Road. Commercial urban development in the southern part of the VAU consists mostly of low one- or two-

story commercial buildings and associated at-grade car lots owned by auto-wrecking businesses, as well as various large-footprint light-industrial buildings. The southern part of this VAU also includes a few small pockets of single-family residential units interspersed among the more prevalent commercial and industrial uses. The northern area is dominated by a mobile-home park. Other than along the riverbank, most of the vegetation in this unit can be found in the mobile home park where a fair number of tall, mature street trees are interspersed among the residential units.

Views from this area toward distant landscape features are limited by constructed features that obstruct sight lines. The existing railroad track berm that bisects this VAU from north to south creates a substantial visual barrier that partially or completely obstructs views, especially in the area where it rises on its approach to the river.

No KVs were selected for this VAU. In large areas within this VAU, there would be no view of project-related visual change. In areas where project features may be visible, the most dramatic changes brought on by the project, such as the proposed bridge span over the Tuolumne River, would not be visible. For the most part, the changes visible from this area would include only the less dramatic non-bridge-span project features such as surface road improvements.

Visual Resources and Resource Change

Visual resources relative to the project setting are defined and identified below by assessing visual character and visual quality in the project corridor. Resource change is assessed by evaluating the visual character and the visual quality of the resources that comprise the project corridor before and after the construction of the proposed project. Resource change is one of the two major variables in the equation that determine visual impacts (the other is viewer response, discussed as follows).

Existing Visual Character

Visual character includes attributes such as form, line, color, and texture and is used to describe not evaluate; that is, these attributes are considered neither good nor bad. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing condition by using visual character attributes as an indicator. For this project, the following attributes were considered:

- Form: visual mass or shape

- Line: edges or linear definition
- Color: reflective brightness (light, dark) and hue (for example red, green)
- Texture: surface coarseness
- Dominance: position, size, or contrast
- Scale: apparent size as it relates to the surroundings
- Diversity: a variety of visual patterns
- Continuity: uninterrupted flow of form, line, color, or textural pattern

The visual character of the project corridor is that of a two-lane bridge that crosses over a river, as well as the northern and southern approaches to the bridge that consist of flat, asphalt-paved street surfaces and a small group of residential and non-residential buildings. The corridor's character is highlighted by the off-white concrete and dark-grey, asphalt-colored construction materials of the bridge and its approaches, but is most noteworthy because of the iconic design of the bridge structure, its architectural details, and motifs.

Existing Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the project corridor. Public attitudes validate the assessed level of quality and predict how changes to the project corridor can affect these attitudes. This process helps identify specific methods for addressing each visual impact that may occur as a result of the project. The three criteria for evaluating visual quality are defined as follows:

- Vividness is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- Intactness is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions.
- Unity is the extent to which visual elements combine to form a coherent, harmonious visual pattern.

The project corridor contains a mix of land uses that include transportation, industrial, institutional, and residential structures as well as natural and recreational space. Though the corridor contains some elements that are moderately high in visual quality, the overall interaction between these structures and spaces is not always harmonious or compatible.

The corridor is dominated by the open space of the Gateway Parcel, the Tuolumne River waterway, the existing 7th Street Bridge structure, and UPRR trestle that span the open space and the river. In terms of natural features, though the river water way is for the most part obscured for viewers throughout the corridor, and is generally only visible from very close range, the thick mature vegetation along the riverbank is a visually pleasing feature that can be seen from a farther distance. However, the landform of the adjacent flat dirt open space area known as the Gateway Parcel is not particularly vivid.

In terms of human made structures in the corridor, the existing bridge has an overall moderately high vividness, because of the interesting arching lines of its support structure, and its visually pleasing design details. Other human made structures in the corridor, and directly adjacent to it, include a variety of transportation, industrial, institutional, and residential structures that are laid out in a manner that is not entirely harmonious or vivid. For example, it is unusual to see such a close interaction between two such differently designed structures as the 7th Street Bridge and the UPRR trestle. Although each is visually interesting in its own right, their close interaction and mutual intrusion lends the area only a moderate level of intactness. The view would appear more intact if each of these structures could be seen on its own, and not in juxtaposition, as is now the case. Similarly, the haphazard and incompatible physical interaction between different types of land uses such as automobile wrecking yards adjacent to mobile home parks and schools translate into a visual composition that is not highly unified. The area would appear more unified if there were less comingling of the incompatible variety of land uses that currently exist in the project corridor.

Viewers and Viewer Response

The population affected by the project is composed of *viewers*. Viewers are people whose views of the landscape may be altered by the proposed project—either because the landscape itself has changed or their perception of the landscape has changed.

Viewers, or more specifically, the response viewers have to changes in their visual environment, are one of two variables that determine the extent of visual impacts that will be caused by the construction and operation of the proposed project. The other variable is the change to visual resources discussed earlier.

There are two major types of viewer groups for highway projects: highway neighbors and highway users. Each viewer group has their own particular level of *viewer*

exposure and *viewer sensitivity*, resulting in distinct and predictable visual concerns for each group that help to predict their responses to visual changes.

Highway Neighbors (Views to the Road)

Highway neighbors are people who have views *to* the road. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate highway neighbors or viewer groups with distinct reasons for being in the corridor; therefore, they would have distinct responses to changes in visual resources. For this project, the following highway neighbors were considered:

- Local Residents
- Commercial/Industrial/Institutional Uses
- Recreationists
- City Street Bicyclists and Pedestrians
- SR 99 Motorists
- Workers on Trains Using UPRR Right-of-Way

Highway Users (Views from the Road)

Highway users are people who have views *from* the road. They can be subdivided into different viewer groups in two different ways—by mode of travel or by reason for travel. For example, subdividing highway users by mode of travel may yield pedestrians, bicyclists, transit riders, car drivers and passengers, and truck drivers. Dividing highway users or viewer groups by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category like *bicycling tourists*, for example. For this project, the following highway users were considered:

- Motorists
- Pedestrians and Bicyclists

Viewer Exposure

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. *Location* relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the more exposure. *Quantity* refers to how many people see the object. The more people who can see an object or the greater frequency an object is seen, the more exposure the object has to viewers. *Duration* refers to how

long a viewer is able to keep an object in view. The longer an object can be kept in view, the more exposure. High viewer exposure helps predict that viewers will have a response to a visual change.

Viewer Sensitivity

Viewer sensitivity is a measure of the viewer’s recognition of a particular object. It has three attributes: activity, awareness, and local values. *Activity* relates to the preoccupation of viewers—are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings. The more they are actually observing their surroundings, the more sensitivity viewers will have of changes to visual resources. *Awareness* relates to the focus of view—the focus is wide and the view general or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. *Local values* and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, it is likely that viewers will be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

Group Viewer Response

The descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group. These descriptions are summarized in Table 2.1.4-1.

Table 2.1.4-1 Group Viewer Response

| Types of Viewers | Viewer Exposure | Viewer Sensitivity | Overall Viewer Response |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------|
| Highway Neighbors | | | |
| Local Residents | Location: close Quantity: few residences and many motorists Duration: long to short | Activity: routine Awareness: specific Local values: high sensitivity to views from residential areas | High |
| Commercial/Industrial/Institutional Uses | Location: close Quantity: moderate amount of people Duration: short | Activity: routine Awareness: specific Local values: moderate sensitivity | Moderate |
| Recreationists | Location: close Quantity: moderate amount of people Duration: short for views during hikes bicycling, to long for passive recreation such as fishing | Activity: not necessarily routine Awareness: specific Local values: high sensitivity | High |

Table 2.1.4-1 Group Viewer Response

| Types of Viewers | Viewer Exposure | Viewer Sensitivity | Overall Viewer Response |
|-------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------|
| City Street Bicyclists and Pedestrians | Location: close Quantity: low to moderate amount of people Duration: moderate | Activity: routine Awareness: specific Local values: high sensitivity | High |
| SR 99 motorists | Location: far Quantity: many people Duration: short | Activity: routine Awareness: general Local Values: low sensitivity | Low |
| Workers on trains using UPRR right-of-way | Location: close Quantity: few people Duration: short | Activity: routine Awareness: specific Local Values: moderate sensitivity | Low |
| Highway Users | | | |
| Motorists | Location: close Quantity: many people Duration: short | Activity: routine Awareness: specific Local values: high sensitivity | High |
| Pedestrians and Bicyclists | Location: close Quantity: low to moderate amount of people Duration: short to moderate | Activity: routine Awareness: specific Local values: high sensitivity | High |

KV 1 Existing Conditions

KV 1 – from Tuolumne Boulevard, between SR 99 and 7th Street Bridge, looking southeast

KV 1 is a view looking southeast into the Gateway VAU from a point on Tuolumne Boulevard between SR 99 and the 7th Street Bridge. The existing view from this viewpoint is documented in Figure 2.1.4-2. This view is now characterized primarily by the open horizontal plane of the Gateway Parcel, the meandering Tuolumne River waterway, and the existing 7th Street Bridge structure and the UPRR trestle that span the open space and the river. In terms of natural features, the river waterway is obscured, for the most part, for viewers throughout the corridor and is generally only visible from very close range. However, the thick mature vegetation along the riverbank is a visually pleasing feature that can be seen from a farther distance.



Figure 2.1.4-2 KV 1 – Existing Condition

The solid materials that make up the bridge and the trestle contrast with the softer composition of the surrounding vegetation and open space. The existing bridge has an overall moderately high vividness because of the interesting arching lines of its support structure and its visually pleasing design details. However, the bridge's interaction with other constructed structures is not entirely harmonious or vivid. For example, it is unusual to see such a close interaction between two such differently designed structures as the 7th Street Bridge and the UPRR trestle. Although each is visually interesting in its own right, their close interaction and the juxtaposition of these two contrasting structures reduces the area's intactness and unity to levels that are only moderate.

Viewer Response

Viewers of KV 1 are primarily highway neighbors, including motorists (local residents traveling on Tuolumne Boulevard to or from their homes, people traveling to or from nearby commercial, industrial, and institutional facilities), and pedestrians and bicyclists engaging in recreation or commuting. Tuolumne Boulevard is a major thoroughfare and therefore a location from which a large number of people view the project corridor. The levels of exposure and sensitivity toward this view vary according to the different types of viewers that pass through this location.

In terms of motorists, local residents would likely tend to have a high level of sensitivity, because they would see the corridor frequently so would likely be more invested in their neighborhood than other viewers are. Users of the nearby commercial, industrial, and institutional facilities would see the corridor frequently as

well, but would only have a moderate level of sensitivity because they are not as likely to be invested in the community as local residents are.

Pedestrians and bicyclists have the longest exposure to the project corridor given that their speed of travel is slower than that of motorists. Whether they are local residents, people who work in the area, or are engaged in recreational activities, their sensitivity to changes would likely be high.

Assessment Methods

The VIA prepared for this project generally follows the VIA methodology developed by the FHWA that is documented in the FHWA publication *Visual Impact Assessment for Highway Projects*.

Simulation Modeling

Although three KVs were identified, KV 1 (the Tuolumne Boulevard KV) emerged as the best lens through which the project's changes to the visual character and quality of the project corridor could be measured. A high number of viewers from a variety of distinct viewer groups traverse the location of KV 1, and the project's alterations to the project corridor would be most dramatically evident from this viewpoint. Therefore, simulations were prepared only for KV 1. In-depth analysis of the project's visual impacts was performed only for KV 1.

Visual simulations of the view from KV 1 were prepared for Alternatives 2A, 2B, 3, and 4 using computer modeling techniques to depict the view as it would appear with the project completed. A combination of computer-aided drafting, GIS, and rendering programs were used to produce the images of the project facilities that are superimposed on photographs. To produce the simulations, a digital site model was created using topographic and site data. Next, three-dimensional models of project features were prepared and superimposed on the digital site model. For each simulation, viewer location was digitized from topographic maps, using 1.5 meters (5 feet) as the assumed eye level. The images that resulted from this process provide realistic and highly accurate portrayals of what the view would look like with each of the project alternatives in place.

2.1.4.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would not change existing conditions in the project area; therefore it would not affect visual resources.

Build Alternatives

None of the Build Alternatives would affect views within a state scenic highway because the project is not located on or within view of a state scenic highway. The project has no potential to affect shoreline and inland coastal visual resources.

Construction

All Build Alternatives would require removing vegetation along the riparian areas for construction access. This area would be revegetated and resume a natural setting in approximately 10 to 20 years. Avoidance measures would include protecting mature trees with fences directly below the tree crown to protect roots. Shrubs could be extracted and replaced following construction.

Each of the Alternatives would require detouring the planned trailway during construction and replacing the trail following construction. Detours would maintain a continuous path and be shifted to maintain scenic walkways to the extent possible. The trailway would provide enhanced visual access to the proposed project and therefore the trailway viewer's experience is considered in this analysis.

Operation

Viewer Response

Viewers of KV 1 are primarily highway neighbors, including motorists (local residents traveling on Tuolumne Boulevard to or from their homes, people traveling to or from nearby commercial, industrial, and institutional facilities), and pedestrians and bicyclists engaging in recreation or commuting. Tuolumne Boulevard is a major thoroughfare and therefore a location from which a large number of people view the project corridor. The levels of exposure and sensitivity toward this view vary according to the different types of viewers that pass through this location.

In terms of motorists, local residents would likely tend to have a high level of sensitivity because they would see the corridor frequently and also would likely be more invested in their neighborhood than other viewers are. Users of the nearby commercial, industrial, and institutional facilities would see the corridor frequently as well but would only have a moderate level of sensitivity because they are not as invested in the community as local residents are.

Pedestrians and bicyclists have the longest exposure to the project corridor given that their speed of travel is slower than that of motorists. Whether they are local residents,

people who work in the area, or are engaged in recreational activities, their sensitivity to changes would likely be high.

Alternative 2A: Existing Bridge Alignment (Arch Bridge)

Figure 2.1.4-3 is a simulation of the view from KV 1 as it would appear with development of Alternative 2A. This alternative would use the existing 7th Street Bridge alignment as part of the new alignment. It features a tied-arch structure over the Tuolumne River that avoids piers in the river's low-flow channel. In the floodplain, a precast-concrete-girder structure would be used.



Figure 2.1.4-3 KV 1 – Simulated View of Alternative 2A

The visual character of Alternative 2A as depicted in Figure 2.1.4-3 is noticeably different from that of the existing view seen in Figure 2.1.4-2. Though no changes to the natural setting would occur as far as landform modifications or vegetation removal, the form and lines of the new bridge would contrast with those of the current bridge. The bridge's combination of massive, gently arching supports and interesting design details would be replaced by a new more streamlined bridge. The character of the new bridge would be highlighted by the inclusion of a graceful iconic arch spanning the Tuolumne River, while the form and lines of the remainder of the span would be reminiscent of a typical freeway overpass.

In terms of visual quality, the vividness of the existing bridge is moderately high, and its removal would have a negative effect on the overall vividness of the project corridor. However, the arch feature included in the Alternative 2A design would catch a viewer's eye and would add interest. However, the remainder of the Alternative 2A

design would not necessarily have the same effect. Overall, the gain in vividness associated with the arch span would be offset by the loss of vividness resulting from removal of the existing bridge. In terms of unity, the existing bridge is more harmonious with its setting compared to Alternative 2A. Overall, the new structure would have a harder, less elegant aesthetic compared to the existing bridge's softer-looking, wide, elegant arches and interesting design details.

In terms of intactness, though the 7th Street Bridge and the UPRR trestle would still be in proximity to each other, under this alternative, the interesting design details of the existing bridge would no longer be present. This alternative would present a less unified view than the existing view because the new bridge would not be as visually compatible with its surroundings compared to the existing bridge.

Under Alternative 2A, the aesthetic benefit that the existing bridge brings to the corridor would be lost, though it would be partially offset by this alternative's arch design feature. Overall visual quality in the corridor would decrease. The degree of resource change (change in visual character combined with change in visual quality) produced by this alternative would be moderate-low.

The overall visual impact (resource change combined with viewer response) would be moderate.

Alternative 2B: Existing Bridge Alignment (Standard Bridge)

Figure 2.1.4-4 is a simulation of the view from KV 1 as it would appear with development of Alternative 2B. Alternative 2B would be the same as Alternative 2A, using the existing bridge alignment, but with a more standard structure type used for the low-flow crossing of the Tuolumne River. Precast concrete girders would be used for the entire bridge superstructure. This alternative would require approximately seven piers, including one in the low-flow channel of the river.

The visual character of Alternative 2B depicted in Figure 2.1.4-4 is noticeably different from that of the existing view seen in Figure 2.1.4-2. Though no changes to the natural setting would occur as far as landform modifications or vegetation removal, the form and lines of the new bridge would contrast with those of the current bridge. The Alternative 2B design does not incorporate an iconic design feature such as an arch. In this case, the entirety of the design is reminiscent of a standard freeway overpass; therefore, the vividness level of this alternative would not offset the reduction in vividness resulting from the loss of the existing bridge.



Figure 2.1.4-4 KV 1 – Simulated View of Alternative 2B

In terms of intactness, though the 7th Street Bridge and the UPRR trestle would still be in proximity to each other, the interesting design details of the existing bridge would no longer be present. Alternative 2B would also have a less unified view than the existing view because the new bridge would not be as visually compatible with its surroundings compared to the existing bridge.

For Alternative 2B, the aesthetic benefit of the existing bridge would be lost and would not be offset by the new bridge because of the lack of an iconic design feature under this alternative. Overall visual quality in the corridor would decrease, and the degree of resource change (change in visual character combined with visual quality) produced by this alternative would be moderate-high.

The overall visual impact (resource change combined with viewer response) for Alternative 2B would be moderate-high.

Alternative 3: Existing Alignment with Staged Construction

Figure 2.1.4-5 is a simulation of the view from KV 1 as it would appear with development of Alternative 3. This alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment. However, Alternative 3 would construct the bridge in two stages so that the existing bridge could remain open while one-half of the new bridge is constructed immediately downstream of (adjacent to) the existing bridge. Traffic would then be diverted to the new structure while the existing bridge is demolished and the second half of the new bridge is constructed.

The new bridge would be a concrete-box-girder structure type with approximately seven piers, including one in the low-flow channel.



Figure 2.1.4-5 KV 1 – Simulated View of Alternative 3

The visual character of Alternative 3 depicted in Figure 2.1.4-5 is noticeably different from that of the existing view seen in Figure 2.1.4-2. Again, though no changes to the natural setting would occur as far as landform modifications or vegetation removal, the form and lines of the new bridge would contrast with those of the current bridge. This design does not incorporate an iconic design feature such as an arch, but the piers supporting the new bridge would have a thinner and lighter aspect compared to the existing bridge. However, this design's lack of an iconic feature means that its expected level of vividness would not offset the reduction in vividness associated with removal of the existing bridge.

This alternative would present a less unified and intact view than the existing view, because the new bridge would not be as visually compatible with its surroundings compared to the existing bridge.

For Alternative 3, the aesthetic benefit of the existing bridge would be lost and would not be offset by the new bridge because of the absence of an iconic design feature. Overall visual quality in the corridor would decrease, and the degree of resource change (change in visual character combined with change in visual quality) produced by this alternative would be moderate.

The overall visual impact (resource change combined with viewer response) for Alternative 3 is moderate-high.

Alternative 4: Retrofit and New Two-Lane Bridge

Figure 2.1.4-6 is a simulation of the view from KV 1 as it would appear with development of Alternative 4. This alternative entails a comprehensive retrofit of the existing 7th Street Bridge, with full truck-carrying capacity provided and the addition of a new, two-lane bridge (precast concrete girder) constructed downstream of the existing bridge. The new bridge would be constructed first and would be used by all traffic until the retrofit of the existing bridge is complete.



Figure 2.1.4-6 KV 1 – Simulated View of Alternative 4

The alternative depicted in Figure 2.1.4-6 would not be highly vivid because it also lacks an iconic design feature. Although the existing bridge would remain, it would be sandwiched between the UPRR trestle and the new downstream bridge. The vividness of the project corridor would be diminished because the iconic design of the existing bridge would be partially obscured by the new downstream bridge. This would have a commensurately negative effect on the intactness and unity of the project corridor.

Under Alternative 4, the existing bridge would remain, but it would be sandwiched between the UPRR trestle and a new bridge span built adjacent to and downstream of the existing bridge. Though the elements of the existing bridge that contribute to the visual quality of the project corridor would remain in place, their context would be negatively affected because the existing bridge would be substantially obscured by the new downstream bridge. Overall visual quality in the corridor would decrease, and the degree of resource change (change in visual character combined with change in visual quality) produced by this alternative would be high.

The overall visual impact (resource change combined with viewer response) for Alternative 4 would be high.

2.1.4.4 CONCLUSION

Table 2.1.4-2 summarizes and compares the narrative ratings for viewer response, visual resource change, and visual impacts for KV 1 among the various alternatives.

Table 2.1.4-2 Summary of Key View 1 Narrative Ratings

| Visual Assessment Unit | Alternative | Viewer Response | Resource Change | Visual Impact |
|------------------------|-------------|-----------------|-----------------|---------------|
| Gateway | 2A | Medium-High | Medium-Low | Medium |
| Gateway | 2B | Medium-High | Medium-High | Medium-High |
| Gateway | 3 | Medium-High | Medium | Medium-High |
| Gateway | 4 | Medium-High | High | High |

Project implementation could degrade visual character and quality of the project site and its surroundings. This is due primarily to the project’s effect on the iconic 7th Street Bridge. The existing bridge is a historic structure whose inherent visual qualities reflect interesting design characteristics. Implementation of three of the four alternatives would result in permanent removal of the existing bridge, while the fourth (Alternative 4) would leave the bridge in place, sandwiching it between the existing UPRR trestle and a new bridge immediately adjacent to and downstream of the existing bridge. Under that alternative, though the existing bridge would remain, from some vantage points it would be mostly obstructed from view. However, though there would be a high level of visual change associated all Build Alternatives, it would not rise to a level that would be considered a substantial degradation of the existing visual character or quality of the site and its surroundings. Given this, and because the project corridor is not located in a visually pristine or highly scenic area, project-related changes to the corridor’s visual character and quality would be minor.

2.1.4.5 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above analysis, MMs for visual/aesthetic effects are required. The following MMs have been incorporated into the project:

- **MM VIS-1:** Make strategic plantings of aesthetically and ecologically appropriate shrubs where possible along the project corridor.

- **MM VIS-2:** Refine the bridge span design to include interesting design features, while still conforming to safety standards, incorporating design elements that would make the bridge more visually engaging and that would better relate to its setting.
- **MM VIS-3:** New vertical surfaces of concrete that are created by the project will be textured and/or tinted to reduce the bridge’s visual contrast with its setting and reduce or eliminate the possibility of producing glare.

2.1.5 Cultural Resources

This section describes the existing cultural resources within the study area and evaluates potential impacts that may occur on cultural resources relevant to the project.

2.1.5.1 REGULATORY SETTING

The term “cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (prehistoric and historic), regardless of significance. Relevant laws and regulations include:

The National Historic Preservation Act (NHPA) 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 the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (Advisory Council) the opportunity to comment on those undertakings, following regulations issued by the Advisory Council (36 CFR 800). To satisfy the NHPA, a Section 106 Programmatic Agreement (PA) was adopted to implement the Advisory Council’s regulations, streamline the Section 106 process, and delegate certain responsibilities to Caltrans. The current version of the PA is the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, and 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*. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 USC 327).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See Appendix A for specific information about Section 4(f).

2.1.5.2 AFFECTED ENVIRONMENT

A Historical Resources Evaluation Report (HRER, 2015) was prepared to identify historic properties. The HRER provided historical and cultural context and identified nine properties within the established architectural Area of Potential Effects (APE) that required formal evaluation. The architectural APE encompasses parcels that may be directly or indirectly affected by the project. The 7th Street Bridge was previously determined eligible for listing in the NRHP and is listed in the California Register of Historical Resources (CRHR). A Finding of Adverse Effect (FAE, 2015) was prepared to address impacts to historic properties in the APE, applying the Criteria of Adverse Effect, as established in 36 CFR 800.5, concluding that the project would cause an adverse effect to the 7th Street Bridge.

Results from the HRER concluded that the 7th Street Bridge, also known as the “Lion Bridge,” is the sole historic property located in the architectural APE. All other properties in the architectural APE were determined not NRHP/CRHR eligible. Caltrans received concurrence from the State Historic Preservation Officer (SHPO) regarding the determinations of eligibility on May 12, 2015 (Reference: FHWA_2015_0410_001).

The 7th Street Bridge was determined eligible for listing in the NRHP as a result of the Caltrans Historic Bridge Inventory conducted in 1986, a conclusion the SHPO concurred with on January 12, 1987. The determination was reaffirmed in the Caltrans Historic Bridge Inventory of the early 2000s. The structure is also listed in the CRHR, based on the formal determination of eligibility to be listed in the NRHP. Additionally, the bridge was designated a Modesto Landmark Preservation Site by the Modesto City Council in 1992.

The 7th Street Bridge is eligible under NRHP Criterion A and CRHR Criterion 1 for important associations with the City Beautiful movement in the San Joaquin Valley. It is eligible under these criteria at the local level of significance, and the period of significance is the date of construction, 1916 to 1917. During the early twentieth century, Modesto joined the nationwide City Beautiful movement by opening new parks, adding landscaped settings, and building aesthetically pleasing buildings and structures. Of the latter, the 7th Street Bridge was the largest and most prominent. The 1,170-foot-long bridge was the only crossing of the Tuolumne River into Modesto

from the south, and thus functioned as a gateway into the city. The lighting fixtures, recumbent lions, benches, curved railing, and arches all added to the attractiveness and monumentality of the bridge, helping make it one of the best examples of the City Beautiful movement civic engineering in the San Joaquin Valley. Photographs of representative architectural features are presented in Figure 2.1.5-1.



Figure 2.1.5-1 Representative Architectural Features

The bridge is also eligible under NRHP Criterion C and CRHR Criterion 3 as an important example of a type, period, and method of construction. Specifically, it is a large and impressive example of the rare “canticrete” bridge type (i.e., having cantilevered steel trusses encased in concrete). The bridge is also eligible under NRHP Criterion C and CRHR Criterion 3 as an important example of the work of a

master engineer. Specifically, this bridge is one of the largest and most impressive cantcrete bridges designed by John B. Leonard during the 7-year phase of his career when he appears to have designed only cantcrete bridges. Under these criteria, the bridge is significant at the state level, and the period of significance is 1916 to 1917.

The bridge retains a high degree of historic integrity. The only known changes to the original construction are the replacement of light fixtures, repaving, and addition of reinforcements under the northernmost span. Although the bridge shows signs of deterioration, it retains the physical features that convey its historic significance. While deterioration can lead to a loss of historic integrity if it is severe enough, the deterioration on the 7th Street Bridge does not substantially diminish the bridge's important features. This is a rare surviving example of cantcrete bridges within the state of California; only two others are known to exist.

The boundaries of this historic property include the bridge from its approach at the northern end, south of Tuolumne Boulevard, to its approach at the southern end, near Zeff Road. The character-defining features of this bridge include the concrete arches encasing steel trusses; eight utilitarian piers, three obelisk-topped piers, and two pedestal-topped piers; distressed quoins and scored concrete featured on the obelisk and pedestal pier types; arch-window guardrails; four concrete lions at the bridge approaches; concrete benches behind the lions; two-lane road width; and scored concrete sidewalks.

The FAE concluded that the project would cause an adverse effect to the 7th Street Bridge. This direct adverse effect would be the result of demolishing the historic structure or altering the historic structure, as proposed in the Build Alternatives, and an indirect adverse effect would be the result of deterioration of the 7th Street Bridge that would likely occur in the No-Build Alternative (discussed below). The FAE was sent for review to SHPO in May 2016, and concurrence is pending. To resolve the adverse effect, Caltrans and SHPO will enter into a Memorandum of Agreement (MOA) that will stipulate mitigation measures. Caltrans and SHPO are currently preparing the MOA.

2.1.5.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

Under the No-Build Alternative no bridge would be constructed and the existing bridge would not be retrofitted. Routine maintenance of the bridge would continue to occur and would address issues including road surfacing, minor damage and deterioration, and cleanliness. However, major structural issues would remain

unaddressed and could eventually result in failure of key elements of the bridge. Significant structural failure or the cumulative effects of multiple minor structural failures would result in extensive deterioration of the bridge's historic integrity. Thus, the No-Build Alternative could cause an indirect adverse effect.

Build Alternatives

All four of the remedial alternatives under consideration would have an adverse effect on the 7th Street Bridge. Alternatives 2A, 2B, and 3 would demolish the bridge, which would be a direct adverse effect to a historic property. Alternative 4 would build a new bridge adjacent to and downstream from the 7th Street Bridge and retrofit the existing bridge. This alternative would result in a direct adverse effect because removing the sidewalks, installing safety barriers, and replacing the floor beams would alter the historic property in ways not consistent with the Secretary of the Interior's (SOI) standards. Alternative 4 would also result in an indirect adverse effect because the addition of a parallel new bridge would introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. Other retrofit activities, including installing a longitudinal beam, connecting mid-span joints with hanger plates, and replacing the diaphragm walls on the piers could constitute alterations of the historic property that are not consistent with the SOI Standards and would result in a direct adverse effect. For these reasons, there would be adverse effects under all alternatives. However, the direct adverse effect under Alternatives 2A, 2B, and 3, in which the historic property is demolished, would be greater than the direct and indirect adverse effects under Alternative 4, which would alter, but retain, the historic property. Resolution of the adverse effect under Alternatives 2A, 2B, and 3 would occur with the implementation of MM CUL-1a and 1b (presented below). Resolution of the adverse effect under Alternative 4 would occur with implementation of MMs CUL-1a, CUL-2, and CUL-3.

2.1.5.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Only one historic property eligible for the NRHP was found to be present within the project area: the 7th Street Bridge. Based on the above analysis, all Build Alternatives would result in an adverse effect to this property. Implementation of mitigation measures MM CUL-1a and MM CUL-1b would resolve the adverse effect to the 7th Street Bridge caused by Alternatives 2A, 2B, and 3. Implementation of mitigation measures MM CUL-1a, CUL-2, and CUL-3 would resolve the adverse effect to the 7th Street Bridge caused by Alternative 4.

- **MM CUL-1a:** Prior to the start of any work under Alternative 2A, 2B, 3, or 4 that could adversely affect characteristics that qualify the 7th Street Bridge as a historic property, Stanislaus County shall ensure that the bridge shall be the subject of recordation by photography and drawing following the standards of the Historic American Engineering Record (HAER) prior to the start of the undertaking.
 - The appropriate level of documentation shall specifically follow HAER criteria at the level specified by the National Park Service (NPS) Regional HAER coordinator. Documentation shall be completed by a qualified professional who meets the standards for History, Architectural History, or Architecture (as appropriate) set forth by the Secretary of the Interior’s Professional Qualification Standards (36 CFR, Part 61).
 - Upon completion of the documentation prescribed above and review and approval of such documentation by the Caltrans Professionally Qualified Staff (PQS) and the SHPO, Stanislaus County will provide the documentation meeting current archival quality standards established by the NPS Heritage Documentation Programs to Caltrans District 10 and the Caltrans Transportation History Library in Sacramento. Stanislaus County will also offer copies of the documentation and provide copies upon request to, at a minimum, the California Office of Historic Preservation; City of Modesto Landmark Preservation Committee; Stanislaus County Public Library, Modesto Branch; McHenry Museum & Historical Society; and California State University, Stanislaus, Special Collections.
- **MM CUL-1b:** Under Alternative 2A, 2B, or 3, Stanislaus County will implement measures to interpret the 7th Street Bridge’s historic significance for the public. A Caltrans Architectural Historian or Principal Architectural Historian will review and approve the format, text, photographs, and visual simulations/animations of the measures listed below. All interpretive materials will also be made available for review and approval by the SHPO prior to fabrication, installation, or publication.
 - Stanislaus County will install an interpretive display within the pedestrian plaza. The display will include historical data taken from the HAER documentation and/or other cited archival sources and will also include photographs. Displayed photographs will include information about the subject, the date of the photograph, and photo credit/photo collection credit.

The interpretive display installed in the pedestrian plaza will be sufficiently durable to withstand typical Modesto weather conditions for at least ten years, like fiberglass embedment panels that meet NPS, or similar, signage standards. The interpretive display will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.

- Stanislaus County will investigate the feasibility of removing historic elements from the 7th Street Bridge prior to its demolition. If feasible, Stanislaus County will remove the selected features and install them within the pedestrian plaza. These features may include one or more of the concrete lions, railing/bench segments, an obelisk, and one or more of the bridge's bronze plaques. The concrete lion(s) installed in the pedestrian plaza may be replicated from an original if it is determined that the historic lions are too deteriorated. The plaza also will include a salvaged cutaway portion of the existing bridge that shows the underlying steel structure supporting the "canticrete" bridge design. This salvaged cutaway will be selected to show how the original bridge design featured an internal steel structure encased in concrete. Interpretation of the cutaway should include images of the original bridge design drawings, if those images are available, and otherwise will follow the requirements for interpretive exhibits described above. Stanislaus County will ensure that the selected features are adequately stored and protected during the interim between their removal and installation in the pedestrian plaza. The selected features will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.
- Stanislaus County will place historical information from the HAER report on a County or City of Modesto website, with a link provided on a public library website. The historical information will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years. The text will be written for popular consumption, but also be properly cited following historical documentation standards. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.
- Stanislaus County will provide visual simulations and/or animations of the 7th Street Bridge on the website. The simulations and/or animations will be based on the LIDAR (light/radar) data collected of the structure and may

- include still images, flythrough images, and point cloud(s). These images are intended to supplement the photographs included in the HAER report. The visual simulations and/or animations will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years.
- **MM CUL-2:** Under Alternative 4, if feasible, the new downstream bridge will be redesigned and relocated to minimize the adverse effect, and the retrofit will be conducted to meet SOI standards as much as possible.
 - The retrofit of 7th Street Bridge will meet the SOI Standards to the extent possible. A qualified Architectural Historian will ensure the retrofit design of 7th Street Bridge meets SOI Standards. Reference will be made to *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, National Park Service Preservation Briefs, and other relevant documents.
 - The qualified Architectural Historian will ensure that SOI Standards requirements for the project are clearly described and illustrated in the plans, specifications, and estimates (PS&E). A Caltrans Architectural Historian will review for approval the PS&E package to ensure that SOI's requirements for the project are clearly described and illustrated in the PS&E package. Changes to the PS&E will be reviewed by the qualified Architectural Historian and reviewed and approved by a Caltrans Architectural Historian.
 - The Caltrans Architectural Historian must be a PQS Principal Architectural Historian. The qualified Architectural Historian must meet the SOI's Professional Qualification Standards for Architectural History or Historic Architecture set forth by the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61).
 - **MM CUL-3:** Under Alternative 4, Stanislaus County will implement measures to interpret the 7th Street Bridge's historic significance for the public. A Caltrans Architectural Historian or Principal Architectural Historian will review and approve the format, text, photographs, and visual simulations/animations of the measures listed below. All interpretive materials will also be made available for review and approval by the SHPO prior to fabrication, installation, or publication.
 - Stanislaus County will install an interpretive display within the pedestrian plaza. The display will include historical data taken from the HAER

documentation and/or other cited archival sources and will also include photographs. Displayed photographs will include information about the subject, the date of the photograph, and photo credit/photo collection credit. The interpretive display installed in the pedestrian plaza will be sufficiently durable to withstand typical Modesto weather conditions for at least 10 years, like fiberglass embedment panels that meet NPS, or similar, signage standards. The interpretive display will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.

- Stanislaus County will place historical information from the HAER report on a County or City of Modesto website, with a link provided on a public library website. The historical information will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years. The text will be written for popular consumption, but also be properly cited following historical documentation standards. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.
- Stanislaus County will provide visual simulations and/or animations of the 7th Street Bridge on the website. The simulations and/or animations will be based on the LIDAR data collected of the structure and may include still images, flythrough images, and point cloud(s). These images are intended to supplement the photographs included in the HAER report. The visual simulations and/or animations will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years.

2.2 Physical Environment

2.2.1 Water Quality and Stormwater Runoff

2.2.1.1 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 United States (U.S.), from any point source² unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). 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 NPDES permit scheme. The following are important CWA sections for water pollution control:

- 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.
- Section 402 establishes the NPDES, 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 (RWQCB) 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 (MS4s).
- 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 (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE 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

² A point source is any discrete conveyance such as a pipe or a man-made ditch.

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 USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, 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 which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) 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 effluent³ 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 USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA 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 CWA 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. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and

³ The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, 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 RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these 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 SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA 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 controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs 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 SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQB's 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 (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4s)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including MS4s. An MS4 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 SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans’ MS4 permit covers all Caltrans rights-of-way,

properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015) has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
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 (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP 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 SWMP 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 BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 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 one acre or greater, and/or are 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 one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one 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 RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 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 turbidity 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 (SWPPP).

Section 401 Permitting

Under Section 401 of the CWA, 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 be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the U.S. Army Corps of Engineers (USACE). The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

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

2.2.1.2 AFFECTED ENVIRONMENT

The information in this section is based on the Water Quality Assessment Report (2016).

The portion of the Tuolumne River within the Project limits is characterized by a mix of substrates including sand, gravel, cobbles, and rocks below the water surface elevation (WSE) with little to no undergrowth vegetation. Vegetation in the area had been greatly altered because by land development. Within the project limits, the Tuolumne River averages approximately 103 feet wide. The groundwater table is located approximately 2 to 8 feet below ground surface (bgs) at the project site.

The Tuolumne River is currently designated as an Impaired Water Body by the SWRCB under Section 303(d) of the CWA. Table 2.2.1-1 lists pollutants that occur within the river from the 2010 303(d) list, the pollutant category and the possible sources of the pollutant.

Table 2.2.1-1 Pollutants Occurring in the Tuolumne River

| Pollutants | Pollutant Category | Pollutant Sources |
|--------------------|---------------------------|--------------------------|
| Chlorpyrifos | Pesticides | Agriculture |
| Diazinon | Pesticides | Agriculture |
| Group A Pesticides | Pesticides | Agriculture |
| Mercury | Metals/Metalloids | Resource Extraction |
| Temperature, water | Miscellaneous | Unknown |
| Unknown Toxicity | Toxicity | Unknown |

2.2.1.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would not result in any change to 7th Street bridge and associated storm water treatment systems and groundwater would remain unchanged.

Build Alternatives

Operation

The project may require existing culverts to be extended and/or replaced to accommodate a wider roadway, but the existing drainage pattern is not expected to change. The river channel would not be altered such that substantial erosion or siltation would be expected to result for any Build Alternatives.

The implementation of the proposed project would result in an increase of impervious areas because it would be wider than the existing bridge, which would decrease the area available for runoff to infiltrate into the soil. Table 2.2.1-2 shows the net change in impervious surface coverage under all project alternatives, and the overall disturbance area in the context of the Tuolumne River watershed. The increased impervious area would reduce the volume of water previously recharging local aquifers, and would cause a reduction in groundwater volumes. The impact on the aquifers and groundwater volumes may consequently impact the beneficial uses of the groundwater basins. However, the impact is expected to be minimal because of the small amount of added impervious area relative to the existing watershed.

Table 2.2.1-2 Added Impervious Area and Total Disturbed Area

| Alternative | Impervious Area | | Total Disturbed Area (acres) | Tuolumne River Watershed (acres) |
|-------------|------------------|---------------|------------------------------|----------------------------------|
| | Existing (acres) | Added (acres) | | |
| 2A | 22.90 | 3.37 | 18.15 | 1,253,120 |
| 2B | 22.90 | 3.37 | 18.15 | 1,253,120 |
| 3 | 22.90 | 3.20 | 18.71 | 1,253,120 |
| 4 | 22.90 | 3.01 | 18.38 | 1,253,120 |

Source:
Water Quality Assessment Report (WRECO, 2016)

As shown in Table 2.2.1-2, all alternatives would have a similar increase in impervious surface coverage. Potential impacts from increased stormwater runoff include increased pollutant loading into the Tuolumne River, both directly from the new bridge and indirectly through discharges to the local drainage system. For roadway and bridge projects such as this one, key pollutants of concern include heavy metals from vehicle tire and brake wear, oil and grease, and exhaust emissions. To minimize the potential increase in pollutant loading, the final project design will incorporate low-impact development concepts that promote infiltration and protect water quality. Consistent with the County’s Stormwater Management Program (SWMP) and contemporary highway design practices, these measures may include biofiltration or bioretention swales, underground detention, and/or continuous deflective separation technology.

Construction

Construction of the project would include earth moving activities such as grading and excavation that could cause minor erosion of topsoil and runoff into drainage systems along the project corridor, temporarily affecting water quality in the Tuolumne River.

Total disturbed soil areas are anticipated to be 18.15 acres for Alternatives 2A and 2B, 18.38 acres for Alternative 4, and 18.71 acres for Alternative 3. Sediment-laden water can enter storm drainage facilities or receiving water bodies, increasing turbidity and decreasing the clarity of the receiving waterbody. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered stockpiles, unstabilized slopes, and construction staging areas.

Fueling or maintenance of construction vehicles could also occur within the project site during construction, so there would be a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter storm drains, open channels, or surface water receiving bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled. In addition, construction equipment that is not properly maintained could also cause contaminated runoff to Tuolumne River.

A spill on the roadway would trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a Hazardous Materials Incident Contingency Plan that provides a program for response to spills involving hazardous materials. The plan designates a chain of command for notification, evacuation, response, and cleanup of spills. The County also has spill contingency procedures and response crews.

The Tuolumne River is identified as having the beneficial uses of fish migration, wildlife habitat, warm freshwater habitat, and spawning. Work within or near the river may impact these beneficial uses. Disturbed soil areas created from grading, equipment mobilization and other construction activities can result in increases in sediment and pollutant load, damaging the habitat and impacting the species present within these water bodies. The permanent increase in impervious area may result in a permanent increase in pollutant loading, plus hydromodification impacts can result in localized or downstream alterations to water body characteristics including erosion and loss of habitat due to increased velocities and volumes. Temporary impacts to riparian and riverine habitat resulting from the construction of access roads and staging areas would be considered adverse and are discussed in Section 2.3.1.2, Environmental Consequences, in the Natural Communities section. For impacts to jurisdictional waters of the U.S. see Section 2.3.2.3, Environmental Consequences, in the Wetlands and Other Waters section.

During construction, compliance with the provisions in the County's SWMP and the City's Stormwater Quality Control Measures Plan (SQCMP), SWPPP, and Section 404 and 401 permits would minimize discharges to stormwater or water runoff.

2.2.1.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Effects on Water Quality and Stormwater Runoff would be reduced to a negligible level by following the Caltrans Highway Design Manual and with the implementation of County and City provisions listed below; therefore, no additional Mitigation Measures are required for these effects.

The County's SWMP consists of six minimum control measures that contain BMPs for proper stormwater management. The control measures include: public outreach and education, public participation and involvement, illicit discharge elimination, construction site BMPs (1 acre or more), post-construction BMPs, and municipal activities. Implementation of these control measures are expected to result in reductions of pollutants discharged into receiving water bodies.

The City's Municipal Regional Permit (NPDES Permit No. CAS083526) required the city to develop a Stormwater Management Program, which was approved by the Central Valley Water Board as an enforceable component of the City's permit. The City's NPDES permit contains provisions to reduce, to the maximum extent practicable, pollutant loadings from a facility once construction is complete. The permit stipulates that permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities. The measures would be incorporated into the final engineering design or landscape design of the proposed project and would take into account expected runoff from the roadway. The objective of the drainage design would be to limit the design WSEs and velocities to no greater than the existing conditions, or to what can be handled by the existing conditions, at the boundary of the proposed project. Long-term erosion and sediment controls would be addressed with permanent treatment BMPs that are traditionally part of highway, drainage, and landscape design. These BMPs would be implemented to ensure that sediment potential does not increase and would include measures such as:

- Underground detention
- Permanent biofiltration swales to capture and treat stormwater runoff from impervious areas

- Continuous deflective separation technology

The Stormwater Management Program includes provisions for the City to review a project proponent's SQCMP as well as the contractor's SWPPP before construction commences. The project's SQCMP would be required to conform to the content and format requirements indicated in Appendix E of the 2011 Guidance Manual for Development Stormwater Quality Control Measures. The SWPPP would include BMPs to control erosion from disturbed areas and reduce runoff. Compliance with engineering and construction specifications and adhering to proper material handling procedures would minimize short-term impacts.

In addition, because site disturbance would be over one acre, the construction contractor would be required to obtain a Construction General Permit (CGP) for stormwater discharge from construction activities from the Central Valley Water Board before any ground disturbing activities taking place. In addition, the County would obtain and comply with provisions set forth in the USACE 404 Permit and RWQCB Section 401 Water Quality certification.

2.2.2 Paleontology

2.2.2.1 REGULATORY SETTING

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

- 23 USC 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.
- 23 USC 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

2.2.2.2 AFFECTED ENVIRONMENT

The project corridor is located in the northeastern portion of the San Joaquin Valley, the southern part of the Great Valley. The Great Valley physiographic province includes two elongated northwest- to southeast-trending basins: the Sacramento Valley basin to the northwest and the San Joaquin Valley basin to the southeast.⁴ The

⁴ Fenneman, Nevin M. 1931. *Physiography of the Western United States*. New York: McGraw-Hill.

Great Valley is a long-lived structural trough 435 miles long and 44 to 56 miles wide. The present-day basin evolved from a late Jurassic to late Cretaceous (170 to 85 million years ago [Ma]) marine basin. During the early Cenozoic era, marine sediments continued to accumulate in this basin until, in the middle Tertiary (25 to 30 Ma), a change in the motion between the Pacific and North American plates resulted in the gradual uplift of the Coast Ranges and the eventual isolation of the basin from the ocean. More recent Miocene and lower Pliocene sediments were derived from the neighboring Coast Ranges and the Sierra Nevada. By the late Pliocene (2 to 3 Ma), deposition was no longer occurring in water, and Sierra Nevada-derived sediments were deposited in the basin east of the valley axis.⁵ The size and elevation of the Sierra Nevada to the east, relative to the Coast Ranges to the west, dictate that the alluvial fans from the Sierra are vastly larger than those from the Coast Range and, therefore, they dominate the geology of the San Joaquin Valley.

The project corridor lies on the broad Tuolumne River alluvial fan that extends west from the Sierra Nevada foothills, about 35 miles to the east, to the floodplain of the San Joaquin River, approximately 10 miles downstream to the west-southwest. In the project vicinity, the lower Tuolumne River has carved a channel into its alluvial fan. Immediately upstream of the project corridor lies the confluence of Tuolumne River and Dry Creek which, despite its name, has also carved a relatively deep channel in this area.

The project corridor crosses four geomorphically distinct land surfaces:

- The terraces above the river channel to the north and south, which represent the original surface of the Tuolumne River alluvial fan before the river cut into it
- The sides of the river channel, or the bluffs, which are eroded cliffs of soft sediment up to 60 feet high
- The Tuolumne River floodplain, or the floor of the river channel
- The low-flow, or normal river channel, which is relatively small compared to the width of the Tuolumne River floodplain

Sediments in the project corridor are categorized based on their age and stratigraphic position as: Fill and Disturbance Soils, Holocene and Recent Alluvium and

⁵ Wahrhaftig, Clyde and J.H. Birman. 1965. "The Quaternary of the Pacific Mountain System in California." In *The Quaternary of the United States*. Princeton, New Jersey: Princeton University Press.

Colluvium, Modesto Formation, and Riverbank Formation. To assess the paleontological sensitivity of these sediments, geological maps, satellite and aerial photography, scientific literature, and the University of California Museum of Paleontology (UCMP) database were consulted.⁶

The 7th Street Bridge spans the Tuolumne River channel from bluff to bluff. All sediments exposed at the surface, or in the immediate subsurface (top 100 feet of sediment), are Quaternary alluvium, including gravels, sands, and silts deposited by the Tuolumne River. At this distance from the Sierra Nevada, the sediment comprising the alluvial fan is fine grained (gravel to silt size) and dominated by coarse to fine sands. These sediments have been categorized based on their age and stratigraphic position, as listed below from youngest to oldest. The following descriptions are based on previous studies of the Quaternary geology and geohydrology of this portion of the San Joaquin Valley:⁷

- **Fill and Disturbed Surface Soils**— The terrace surfaces above the river channel are developed and covered by fill (sediment transported from elsewhere) to at least 3 feet bgs. The floodplain sediment has been disturbed by landscaping and harrowing for weed control. Bluff sediment has been churned by animal burrowing. Fossil material may be present in fill and previously disturbed sediment, but these sediments lack stratigraphic context so are considered to be of low paleontological sensitivity.
- **Holocene and Recent Alluvium and Colluvium**— The river channel is flooded with fluvial sediments from the Holocene more recent times. Similarly, the terraces above the river supported a mantle of Holocene sediment before historic development. These sediments are less than 10,000 years old (before present) and

⁶ University of California Museum of Paleontology at Berkeley (UCMP). 2014. Locality Search. Available at: <http://www.ucmp.berkeley.edu/>. Accessed September 2014.

⁷ Atwater, B. F., D. P. Adam, J. P. Bradbury, R. M. Forester, R. K. Mark, et al. 1986. "A fan dam for Tulare Lake, California, and implications for the Wisconsin glacial history of the Sierra Nevada." *Geological Society of America Bulletin* 97: 97-109.

Burow, K. R., J. L. Shelton, J. A. Hevesi, and G. S. Weissmann. 2004. *Hydrogeologic Characterization of the Modesto Area, San Joaquin Valley, California*. U. S. Geological Survey, Scientific Investigations Report 2004-5232. Boulder, CO.

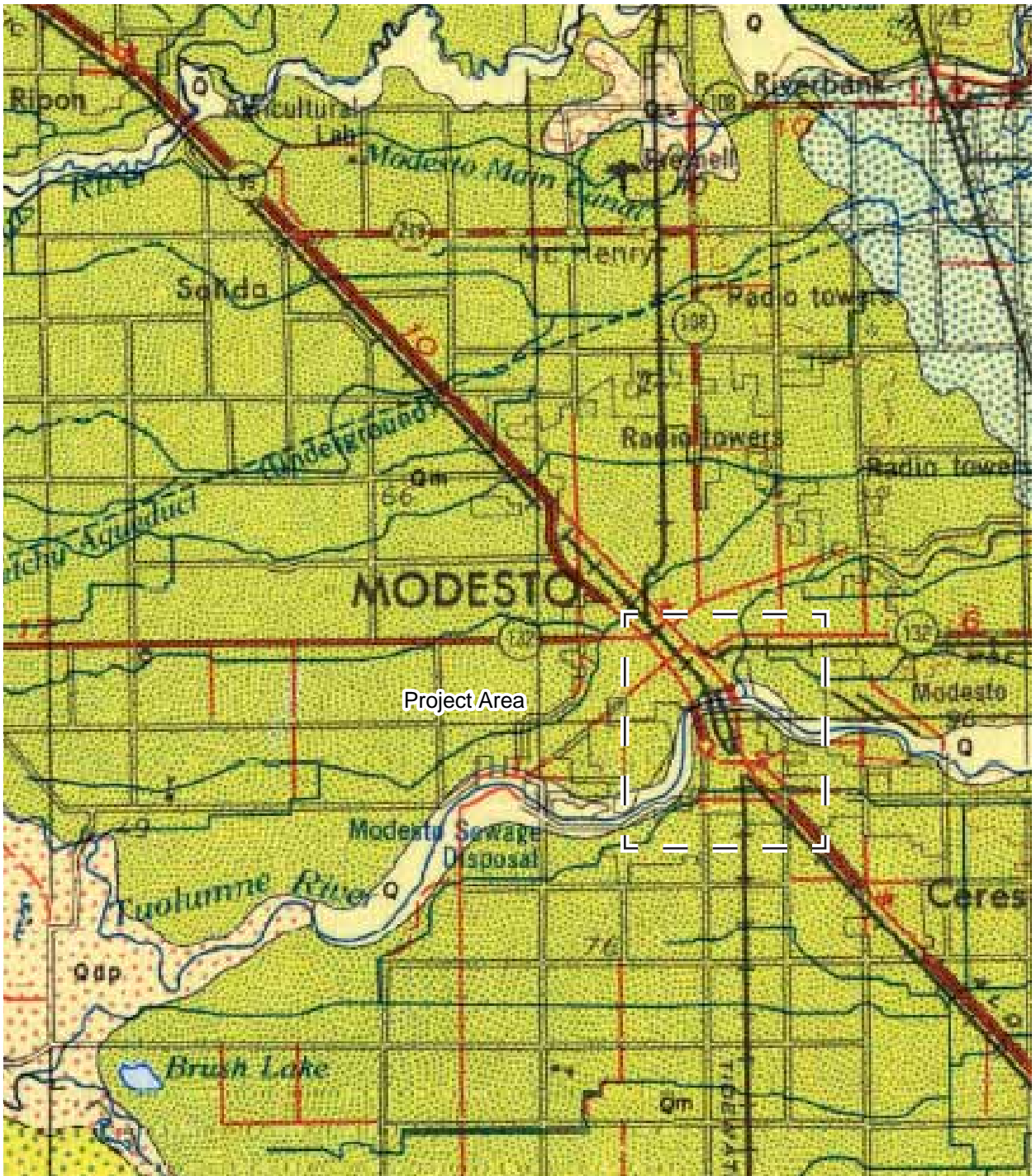
Lettis, W.R., and J.R. Unruh, 1991. "Quaternary Geology of the Great Valley, California." In *The Geology of North America, Volume K-2, Quaternary Non-Glacial Geology: Conterminous U. S.*, edited by R.B. Morrison, pp. 164-176. Geological Society of America, Boulder, CO.

Marchand, D.E., and A. Allwardt. 1980. Late Cenozoic Stratigraphic Units, Northeastern San Joaquin Valley, California. U.S. Geological Survey Bulletin 1470. 70 pp.

generally contain little fossil material. They are generally considered to be of low paleontological sensitivity.

- **Modesto Formation**— Sediments of the Modesto Formation are present at depths that exceed 4 feet bgs on the river terraces and bluffs. Under some circumstances, Modesto Formation sediments are highly fossiliferous. Modesto Formation sediments are thought to date to the last glacial age (the Rancholabrean Land Mammal Age). The UCMP database has records of three vertebrate fossils or fossil assemblages within 1 mile of the project corridor. The exact location of these finds was not recorded, but all three came from the banks of the Tuolumne River or Dry Creek, near their confluence. Two are mammoth skulls and one is an extinct horse (*Equus*) dentary. The first two were collected in the 1870s, and the latter in 1939. It is assumed that these specimens came from exposures of the Modesto Formation along the bluffs of the river. Accordingly, the Modesto Formation sediments in the project vicinity are considered to be of high paleontological sensitivity.
- **Riverbank Formation**— This unit occurs at depths exceeding 20 to 40 feet bgs and may extend to 150 feet bgs. The paleosol that caps the Riverbank Formation is a thick clay which overlies a thick sequence of relatively clay-free, red-stained, coarse-grained fluvial sands and gravels. The paleosol has yielded scattered Pleistocene vertebrate fossils on the Tuolumne River alluvial fan in the vicinity of Turlock, Hilmar, and elsewhere in the San Joaquin Valley. Fossils yielded include a modest, early Rancholabrean or late Irvingtonian mammalian assemblage, including the extinct North American camel (*Camelops*), mammoth (*Mammuthus*), ground sloth (*Megalonyx*), and bison (*Bison*). Accordingly, Riverbank Formation sediments may be of high paleontological sensitivity.

Key geologic formations are shown on Figure 2.2.2-1, which shows the Modesto Formation as the primary geologic feature in the project area.



LEGEND

- Qm Modesto Formation
- Q Alluvium
- Qr Riverbank Formation
- Qdp Dos Palos Alluvium

FIGURE 2.2.2-1
Geological Formations
 7th Street Bridge Project
 Modesto, California

2.2.2.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would not create ground disturbance so there would be no adverse effects to paleontological resources.

Build Alternatives

Adverse impacts would not result from excavations and grading of less than 4 feet bgs anywhere in the project corridor. The upper 3 to 4 feet of sediment consist of fill, previously disturbed sediment, and Holocene alluvium and colluvium that have little or no paleontological sensitivity. However, subsurface excavations extending onto the Modesto and Riverbank Formations have the potential to result in adverse impacts on paleontological resources unless mitigated. All of the Build Alternatives have the same potential for subsurface excavations into the Modesto and Riverbank Formations, primarily from augering for the cast-in-place pier foundations.

Modesto Formation: Subsurface excavations that exceed 4 feet bgs are likely to affect the Modesto Formation. Fossils of scientific significance may occur in the Modesto Formation. In the absence of mitigation, adverse impacts to paleontological resources could occur from excavation in these sediments.

Riverbank Formation: Subsurface excavations exceeding 10 feet bgs may affect the Riverbank Formation. Fossils of scientific significance may occur in the Riverbank Formation. In the absence of mitigation, adverse impacts to paleontological resources could occur from excavation in these sediments.

2.2.2.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Mitigation is required to reduce potential adverse effects on paleontological resources resulting from project construction. The following MM would reduce to an acceptable level the adverse effects on paleontological resources that might result from project construction:

- **MM PAL-1:** The following will be implemented to avoid and minimize project effects to paleontological resources:
 - Prior to working on the site, all personnel involved in earth-moving activities will receive Paleontological Resources Awareness Training. Workers will be informed that fossils may be encountered during deeper excavations, are of scientific importance, and need to be reported immediately if they are encountered. The training will provide information on the appearance of

fossils, their scientific importance, the role of paleontological monitors, and proper notification procedures.

- A Paleontological Resources Monitoring and Mitigation Program (PRMMP) will be developed during final design to assess the need for construction monitoring. The PRMMP will be prepared by a qualified principal paleontologist (M.S. or Ph.D. in paleontology) once adequate project design information regarding subsurface disturbance location, depth, and lateral extent is available. Project design plans will be reviewed to determine whether sensitive geologic units will be disturbed. If monitoring is determined to be necessary, the program will include monitoring and coordination protocols; emergency discovery procedures; and provisions for museum storage of any specimens recovered. For example, the PRMMP may require that the qualified principal paleontologist will be present at pre-construction meetings to confer with contractors who will be performing ground-disturbing activities, and paleontological monitors, under the direction of the qualified principal paleontologist, may be required to be on site during original ground disturbance. The PRMMP should specify that fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged, and prepared fossils, along with copies of all pertinent field notes, photos, and maps, should be deposited in a scientific institution with paleontological collections. Provisions will be made to suspend monitoring should construction activities be restricted to previously disturbed fill and to adjust monitoring protocols based on updated evaluations of sensitivity subsequent to initial excavations.

No permits are required as a result of paleontological mitigation for this project.

2.2.3 Hazardous Waste/Materials

This section describes the hazards and hazardous materials within the study area and assesses the impacts of the project.

2.2.3.1 REGULATORY SETTING

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

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

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Section 121(d) of CERCLA requires that remedial action plans include consideration of more stringent state environmental “Applicable or Relevant and Appropriate Requirements” (ARARs). The 1990 National Oil and Hazardous Substances Pollution Contingency Plan (NCP) also requires compliance with ARARs during remedial actions and during removal actions to the extent practicable. As a result state laws pertaining to hazardous waste management and cleanup of contamination are also pertinent.

In addition to the acts listed above, EO 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.

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 is vital if it is found, disturbed, or generated during project construction.

2.2.3.2 AFFECTED ENVIRONMENT

An Initial Site Assessment (2015) was prepared to identify the presence or likely presence of hazardous substances or petroleum products within the study area – known as recognized environmental conditions (RECs). An Initial Site Assessment

Addendum was prepared in 2017. RECs could affect the feasibility or cost of the proposed project or result in potential worker safety issues if unknown substances were to be encountered during project construction activities.

Naturally Occurring Hazardous Materials

Surficial geologic mapping indicates that the overall area is Quaternary alluvial (young alluvial deposits). The young alluvial deposits consist of arkosic alluvial sand, gravel, and silt terraces and distributary fans. The channel and abutment areas are mapped as young alluvial deposits, and outside the floodplain the adjacent area is mapped as Modesto Formation. Materials observed at the site were similar to the materials described in the available mapping. The potential for naturally occurring asbestos to be found in the study area was evaluated by performing field reconnaissance and reviewing published geologic mapping. Published geologic mapping does not indicate that ultramafic rocks or faults are present within the study area. Ultramafic rock outcrops or ultramafic rock fragments were not observed in the study area during field investigations. The potential for naturally occurring asbestos in the study area is considered generally low.

Bridge Materials and Aerially Deposited Lead

Older bridge structures frequently include asbestos-containing materials (ACM) such as concrete, bridge joint seals, bearing pads, shims, deck drains, or other less obvious materials such as pipe conduits for utilities. Although the original 7th Street Bridge was constructed before the time when asbestos was added to concrete mixes, it is possible that some of the newer concrete used (for example, for patches) contains asbestos. In accordance with federal and state laws and regulations, a Certified Asbestos Consultant must make definitive conclusions regarding the presence of ACM. Projects in which structures are demolished or renovated within Stanislaus County are required to provide written notification to the San Joaquin Valley Unified Air Pollution Control District at least 10 business days before conducting the work, regardless of the presence or absence of ACM.

In addition, white and yellow road striping paint is used on the 7th Street Bridge. Road striping paint has the potential to be considered hazardous waste by the California Department of Toxic Substances Control (DTSC).

Aerially deposited lead (ADL) from the historical use of leaded gasoline exists along roadways throughout California. There is the likely presence of soils with elevated concentrations of lead as a result of ADL on the state highway system right-of-way

within the limits of the project alternatives. Soil determined to contain lead concentrations exceeding stipulated thresholds must be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.

Soil and Groundwater Contamination from Agricultural and Industrial Activities

The study area and adjacent parcels are located in an area that was historically an important industrial and commercial corridor, with businesses that have high potential for environmental impacts to soil and groundwater. The area north of the 7th Street Bridge was a locus for transportation of cargo via railway and roadway. South of the 7th Street Bridge, in particular along the northern section of Crows Landing Road, automotive salvage businesses have been in operation since the 1960s. At 541 Crows Landing Road, there is a long-term agricultural supply business. Such businesses in other locations in California have been known to affect soil and groundwater with fertilizers and pesticides as a result of spills and by allowing tank rinsate to discharge directly to the ground. To the east of the study area south of the 7th Street Bridge, commercial operations have used underground storage tanks (USTs), aboveground storage tanks, and sludge ponds, which could have affected the study area.

The following locations could have affected soils and groundwater within and adjacent to the study area:

- **241 7th Street:** The configuration of building improvements is indicative of a former gas station. The current businesses are Levi's Tobacco & More and Espinosa Bail Bonds.
- **610-624 10th Street and 1201 8th Street:** Known tetrachloroethene plumes upgradient or cross gradient in groundwater of the study area were evaluated at 610-624 10th Street and 1201 8th Street. Monitoring data show that these plumes attenuate outside of the study area; therefore, these plumes have low potential to affect groundwater in the study area.
- **320 9th Street:** The Berberian Company Property is listed in the Environmental Data Resources, Inc. (EDR) documents as a former gas manufacturing plant. This location is approximately 800 feet north of the intersection of 7th and B Streets. No file regarding this location was provided during file review at the Stanislaus County Health Department Division of Environmental Health

(SCHDDEH), and the location has been inactive since 2003. Manufactured gas sites were used in the United States from the 1800s to the 1950s to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced high levels of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and nonvolatile chemicals), sludges, oils, and other compounds are potentially hazardous to human health and the environment. This location has potential to affect soil and groundwater; however, no public records of soil and groundwater assessment are readily available for this location. The former location of Pacific Gas and Electric Company in the C, D, H, and F blocks between 8th Street and 10th Street was remediated by soil excavation, and diesel, naphthalene, and cyanide were left in place as residual soil impacts. It is likely that the materials used to manufacture gas were similar to those used on 8th and 10th Streets, indicating that potential soil impacts and limited groundwater impacts could be expected. Because the property at 320 9th Street has an existing building, is approximately 800 feet from the study area, and is likely a soil-only affected site, effects on worker health and safety and right-of-way are not anticipated.

- **Historical Orchards:** To the east and west of the 7th Street Bridge on the lower terrace of the Tuolumne River, the parcels were used for orchards from before 1957 until after 1987. According to the DTSC, during this time period, it was common to use metals, such as lead arsenate, organochlorine pesticides (OCPs), and organophosphates. Over time, these substances can accumulate in the soil, potentially reaching concentrations that are considered hazardous by the DTSC. Because of the time the orchards were in place, there is a REC in this location for soil impacts.
- **520, 531, 540, and 547 Crows Landing Road:** Based on aerial photography, the EDR historical records, and SCHDDEH records, auto wrecking and storage of wrecked autos has been occurring at these locations for many years. Historical practices regarding wrecked autos, such as using fork lifts to move vehicles containing vehicle fluids, could give rise to spills and releases of petroleum hydrocarbon compounds such as gasoline, diesel and motor oil, automatic transmission fluid, and hydraulic fluid to the soil. Where noted, specific soil assessment was conducted relative to UST removal; however, no site assessments were conducted to discern impacts on soil and groundwater outside

of the UST operations. These locations are RECs because these operations present a high potential for impacts on soil and groundwater.

- According to the EDR US Hist Auto Stat database, **520 Crows Landing Road** was in business as Modesto Auto Wreckers in 2011 and 2012. No files were available at SCHDDEH regarding this location; however, in the 1967 aerial photograph, rows of cars were stored in this location.
- According to the EDR US Hist Auto Stat database, **531 Crows Landing Road** was in business as MS Special Auto Repair in 2001 and 2002. Based on SCHDDEH records, one 10,000 gallon and two 2,000 gallon gasoline USTs were removed in 1989 while D&W Autowreckers inhabited the location; however, soil samples collected near the USTs contained low or below laboratory detection limits for petroleum hydrocarbon compounds, and the site was closed to further regulatory oversight in 1990. However, on August 6, 1997, SCHDDEH responded to a public complaint about conditions at this location and spills of petroleum hydrocarbon compounds such as oil. A SCHDDEH inspector noted that the location was “OK” (without further elaboration), but no soil, groundwater, or vapor conditions were assessed. On January 1, 2006, a Notice and Order to Abate was served to D&W Autowreckers for debris, refuse, rubbish, and vehicle storage and stacking. No soil, groundwater, or vapor conditions were assessed.
- According to the EDR US Hist Auto Stat database, **540 Crows Landing Road** was in business as All Foreign Auto Dismantling Bonanza in 2012. Based on SCHDDEH records, the following conditions were noted:
 - On October 12, 1988, the inspector noted that cars were crushed and waste fluids were allowed to spill on the ground; the inspector also noted a hydrocarbon odor.
 - On January 18, 1989, the inspector observed diesel, oil, and automatic transmission fluid spilled on the ground, although there were waste containers.
 - On December 6, 1989, a gas spill was reported, and the gas was allowed to settle onto the ground.
 - On April 17, 1990, the SCHDDEH matter was resolved via a fine. No soils or groundwater assessment was recorded in the SCHDDEH files.

- On January 24, 2006, SCHDDEH served a Notice and Order to Abate based on junk cars and rubbish at this location.
- According to SCHDDEH records, **547 Crows Landing Road** was in business as Farriesters Auto Wreckers. On August 6, 1996, the SCHDDEH inspector noted poor housekeeping and oil on the ground.
- **541 Crows Landing Road:** According to EDR records and SCHDDEH records, an agricultural products facility has been in this location since the late 1950s. From the late 1950s through the present day, the site has been used for retail distribution of agricultural products under various operators, including Cal Spray Chemical Corporation, Ortho Chemical Company, Chevron Chemical Company, United Agricultural Products (UAP), and Crop Production Services. In 1994, the RWQCB requested site improvements, which UAP performed, as documented in a letter from UAP. A 500-gallon UST was removed in 1996 and closed by Stanislaus County Health Department on January 23, 1997. In 2009, Crop Production Services removed stained soils within the aboveground tank secondary containment area. In 2010, a limited soil investigation was conducted in areas where soil staining was observed. It has not been determined whether groundwater has been affected by past activities at the site.

Some pesticides and fertilizers are mobile and persistent, and have the potential to affect groundwater under the study area. Historical practices for similar locations include rinsing mixing tanks and storage tanks at a distribution center, allowing rinsate to fall directly to the ground. Substances in soil and groundwater observed at other cleanup sites involving pesticide and fertilizer distributors include ammonia, nitrate, dichlorodiphenyltrichloroethane, 2-4D, fumigants, and chlorinated herbicides. This 541 Crows Landing Road location is a REC because no site assessment regarding groundwater impacts has been performed at this location.

- **638 Crows Landing Road:** According to EDR records and aerial photographs, A 1 Auto Towing & Wrecking has been in business at this location from at least 1999 to the present day. This location is immediately south of the study area and possibly upgradient for groundwater. Based on practices observed at neighboring auto wrecking businesses, there is the potential for soil and groundwater impacts on the study area from this location.

2.2.3.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would not disturb the ground surface so there would be no construction-related release of hazardous waste or materials.

Build Alternatives

The potential for releasing hazardous materials is proportionate to the extent of right-of-way acquisition required for each of the Build Alternatives. Overall, acquisition of properties that may contain hazardous materials (described above) is similar among the alternatives, ranging from 2.1 acres (Alternatives 2A/2B) to 3.5 acres (Alternative 4). Potential hazardous materials that could be released during construction include asbestos-containing bridge materials, ADL, and soil and groundwater contaminated by prior agricultural and industrial activities. For ACMs and ADL, preconstruction testing has proven effective in ensuring that proper construction practices are used where necessary to contain these hazardous materials.

There is direct or indirect evidence of RECs with respect to spills or releases of petroleum hydrocarbon compounds within the study area. South of the 7th Street Bridge along Crows Landing Road, numerous auto wrecking and dismantling businesses were present, which had been noted by the SCHDDEH as having poor housekeeping practices, such as allowing petroleum hydrocarbon compounds to spill onto the ground. Several of the businesses were given Order to Abate notices, and at least one business was fined. However, no site assessment of these properties was conducted to discern potential impacts on soil and groundwater. An additional REC was identified with respect to UAP. A soil assessment was conducted with regard to petroleum hydrocarbon compounds related to a UST at this location; nevertheless, these types of businesses have a high potential for releases of mobile and persistent pesticides and fertilizers to groundwater. For soils and groundwater contamination associated with petroleum hydrocarbons, preconstruction testing has proven effective in ensuring that proper construction practices are used where necessary to contain these hazardous materials, so that workers and the environment are protected.

2.2.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above analysis, mitigation for potential project effects related to hazardous waste and materials is required. To minimize costs and reduce potential construction delay, consideration should be given to selecting the Build Alternative that minimizes right-of-way acquisition of parcels associated with identified areas of potential concern. For each alternative, consideration should further be given to

minimizing the size of partial parcel takes and avoidance of full parcel takes of identified potentially contaminated properties. For all Build Alternatives, the following MM has been incorporated into the project to address these potential effects:

- **MM HAZ-1:** As recommended by the ISA and ISA Addendum, the following investigations will be performed for the preferred alternative during final design (prior to right-of-way acquisition).
 - A Certified Asbestos Consultant will be retained to conduct an evaluation regarding ACM in the building materials of the bridge. Depending on the results of the evaluation, avoidance measures may include not removing or disturbing the ACM. Minimization measures may include identifying areas or materials that contain asbestos requiring removal, separately removing this material, and segregating the removed material from all other debris to minimize the quantity generated. Mitigation measures include the removal and disposal of ACM.
 - The white and yellow road striping paint will be characterized for Pb in the white road striping paint and for Pb and chromium in the yellow road striping paint. If found, hazardous materials would be selectively removed and properly disposed of at a permitted landfill according to Caltrans guidance.
 - Soils contaminated with ADL will be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. An evaluation to define the concentration of ADL in soil as a means to determine the areal extent of soil requiring management is required. Minimization and/or mitigation will be accomplished by selectively excavating soil containing ADL at regulated concentrations with the remaining soil being reused or disposed of without restriction. Mitigation of soil requiring management will be accomplished by reuse on the project with placement restrictions, reuse at an industrial facility, or in certain instances disposal at a landfill.
 - The former orchard soils will be assessed for metals such as Pb and arsenic, OCPs, and organophosphates. Depending on the results of the assessment, selective excavation and appropriate disposal of contaminated soil by the project proponents will be required.

- In the Crows Landing Road and 7th Street vicinity locations where right-of-way will be acquired, the properties will be assessed for soil and groundwater impacts from petroleum hydrocarbon compounds such as gasoline and gasoline additives, diesel, motor oil, automatic transmission fluid, and hydraulic fluid. If contamination is present that cannot be mitigated, the limits of acquisition may be adjusted to avoid the residual contamination. If acquisition limits cannot be adjusted, minimization measures also may include indemnification, reduction in price, or acquisition as highway easement instead of in fee.
- Where right-of-way is being acquired adjacent to the agricultural products business, a limited assessment of groundwater impacts from pesticides and fertilizers will be conducted to determine possible effects on the study area. If contamination is present that cannot be mitigated, the limits of acquisition may be adjusted to avoid the residual contamination. If acquisition limits cannot be adjusted, minimization measures also may include indemnification, reduction in price, or acquisition as highway easement instead of in fee.

Site-specific avoidance, minimization, and/or mitigation measures will be determined for the preferred alternative following these detailed investigations. In addition, federal, state, and local regulations and ordinances will be followed for hazardous material handling and disposal if other, unknown hazardous materials are found.

2.2.4 Air Quality

This section discusses the regulatory and environmental setting of the project, and evaluates the short-term and long-term impacts of project construction and operation emissions on air quality. The discussions are based on the analyses in the Air Quality Technical Report for the 7th Street Bridge Project (2015).

2.2.4.1 REGULATORY SETTING

The federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO),

nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}), and sulfur dioxide (SO₂). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (TACs); some criteria pollutants are also TACs or may include certain TACs in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional—or planning and programming—level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. USEPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO₂, O₃, PM₁₀, PM_{2.5}, and in some areas (although not in California), SO₂. California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for Pb; however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP, and 4 years for the

FTIP. RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the project has a design concept and scope⁸ that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.4.2 AFFECTED ENVIRONMENT

The discussions are based on the analyses in the Air Quality Technical Report for the 7th Street Bridge Project.

Climate and Meteorological Conditions

Air quality is affected by both the rate and location of pollutant emissions, and by meteorological conditions that influence movement and dispersal of pollutants in the atmosphere. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and local air quality concentrations.

Elevation and topography can affect localized air quality. The project is located in the SJVAB, in the southern half of California’s Central Valley, in an area approximately 250 miles long and averaging 35 miles wide that is shaped like a narrow bowl. The SJVAB is bordered by the Sierra Nevada Mountains in the east (8,000 to 14,491 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and

⁸ "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

the Tehachapi Mountains in the south (6,000 to 7,981 feet in elevation). There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the valley opens to the San Francisco Bay at the Carquinez Strait.

The SJVAB is in a Mediterranean climate zone. The SJVAB is typically arid in the summer months with cool temperatures and prevalent tule fog (such as a dense ground fog) in the winter and fall. The average high temperature in the summer months is in the mid-90s degrees Fahrenheit (°F) and the average low in the winter is in the high 40s °F. January is typically the wettest month of the year with an average of about 2 inches of rain. Wind direction is typically from the northwest with speeds around 30 mph. The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the valley. Winter-time high pressure events can often last many weeks with surface temperatures often lowering into the 30s °F. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

Existing Air Quality Conditions

Study Areas and Attainment Status

USEPA and ARB designate each county (or portions of counties) within California as attainment, maintenance, or nonattainment based on the area's ability to meet ambient air quality standards. Regions are designated as attainment for a criteria pollutant when the monitored concentration of that pollutant is consistently below the ambient air standard. If a criteria pollutant concentration does not meet the ambient air standard, the area is in nonattainment for that pollutant. Areas previously designated as nonattainment that subsequently demonstrated compliance with the ambient air quality standards are designated as maintenance areas. The project is located in Modesto in Stanislaus County. Table 2.2.4-1 summarizes the federal and state attainment status in Modesto for the NAAQS and the CAAQS, respectively.

Under the federal criteria, Modesto is currently designated as nonattainment for the 8-hour O₃ standard, the 1997 PM_{2.5} standards (the annual standard of 15 micrograms per cubic meter (µg/m³) and the 24-hour standard of 65 µg/m³), and the 2006 24-hour PM_{2.5} standard (35 µg/m³). The area is in maintenance for PM₁₀ and CO, and is in attainment or unclassified for the NAAQS for NO₂, SO₂, and Pb.

Table 2.2.4-1 Federal and State Attainment Status for Modesto

| Pollutant | Federal Classification for the NAAQS (as of June 20, 2017) | State Classification for the CAAQS (as of April 17, 2017) |
|-------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| O ₃ | Nonattainment (Extreme) | Nonattainment |
| PM ₁₀ | Maintenance | Nonattainment |
| PM _{2.5} | Nonattainment (Moderate for 2012 standard; Serious for 1997 and 2006 standards) | Nonattainment |
| CO | Maintenance | Attainment |
| NO ₂ | Attainment | Attainment |
| SO ₂ | Attainment | Attainment |

Under the state criteria, the area is currently designated as nonattainment for the 1-hour O₃, 8-hour O₃, PM₁₀, and PM_{2.5} standards. The area is in attainment or unclassified for the state CO, SO₂, NO₂, and Pb standards. The SJVAB is an unclassified area for the state hydrogen sulfide standard and the visibility reducing particle standard, and is classified as an attainment area for sulfates and vinyl chloride.

Air Quality Plans

Planning documents for the pollutants for which the study area is classified as a federal nonattainment or maintenance area are developed by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and ARB and approved by USEPA. The following are relevant SIP documents for the SJVAB:

- 2016 8-hour Ozone Plan for the 2008 8-Hour Ozone Standard
- 2016 Moderate Area Plan for the 2012 PM_{2.5} Standard
- Request for redesignation for the 1-hour O₃ NAAQS
- 2014 Reasonably Attainable Control Technology SIP
- 2013 Ozone Plan for the Revoked 1-hour O₃ standard (the plan was submitted to USEPA for approval on March 4, 2014)
- 2007 Ozone Attainment Plan (USEPA approved the 2007 SJVAPCD 8-hour Ozone Plan on March 1, 2012)
- 2012 Particulate Matter (PM) plan

- 2008 PM_{2.5} Plan
- 2007 PM₁₀ Maintenance Plan and Request for Redesignations
- 2004 Carbon Monoxide SIP

Monitored Air Quality

The ambient air monitoring station closest to the project area is located at 818 14th Street in Modesto, approximately 1 mile north of the project area. The Modesto monitoring station measures CO, O₃, PM₁₀, and PM_{2.5} concentrations. Monitoring data for NO₂ is not available at the Modesto station. Therefore, NO₂ data from the 1034 South Minaret Street station in Turlock were used to supplement data from the Modesto monitoring station and define the existing ambient air quality at the project site. Turlock station is approximately 13 miles southeast of the project area.

Table 2.2.4-2 contains the maximum pollutant levels measured and the number of days each year that the ambient air concentrations were above the NAAQS and CAAQS from 2011 to 2015. As shown in Table 2.2.5-2, O₃ concentrations exceeded the 8-hour CAAQS and NAAQS during each of the past 5 years. PM₁₀ concentrations exceeded the 24-hour CAAQS in all 5 years. However, the PM₁₀ NAAQS were not exceeded. PM_{2.5} concentrations exceeded the 24-hour NAAQS during each of the past 5 years. The annual PM_{2.5} NAAQS and CAAQS were not exceeded. CO and NO₂ did not exceed the NAAQS or CAAQS.

Naturally-occurring Asbestos and Structural Asbestos

Asbestos minerals occur in rock and soil as the result of natural geologic processes, often in veins near earthquake faults in the coastal ranges and the foothills of the Sierra Nevada and other areas of California. Naturally occurring asbestos (NOA) takes the form of long, thin, flexible, separable fibers. Natural weathering or human disturbance can break down NOA to microscopic fibers, which are easily suspended in air. When inhaled, these thin fibers irritate tissues and resist the body's natural defenses. In addition, asbestos-containing materials were formerly used in constructing some buildings and other structures, and demolition of such structures without taking the proper precautionary measures can release asbestos particles into the air that are dangerous to human health if inhaled.

Asbestos is a known human carcinogen. It causes cancers of the lung and the lining of internal organs, as well as asbestosis and pleural disease, which inhibit lung function.

USEPA is addressing concerns about potential effects of NOA in a number of areas in California.

Table 2.2.4-2 Ambient Criteria Pollutant Concentration Data at Air Quality Monitoring Stations Closest to the Project

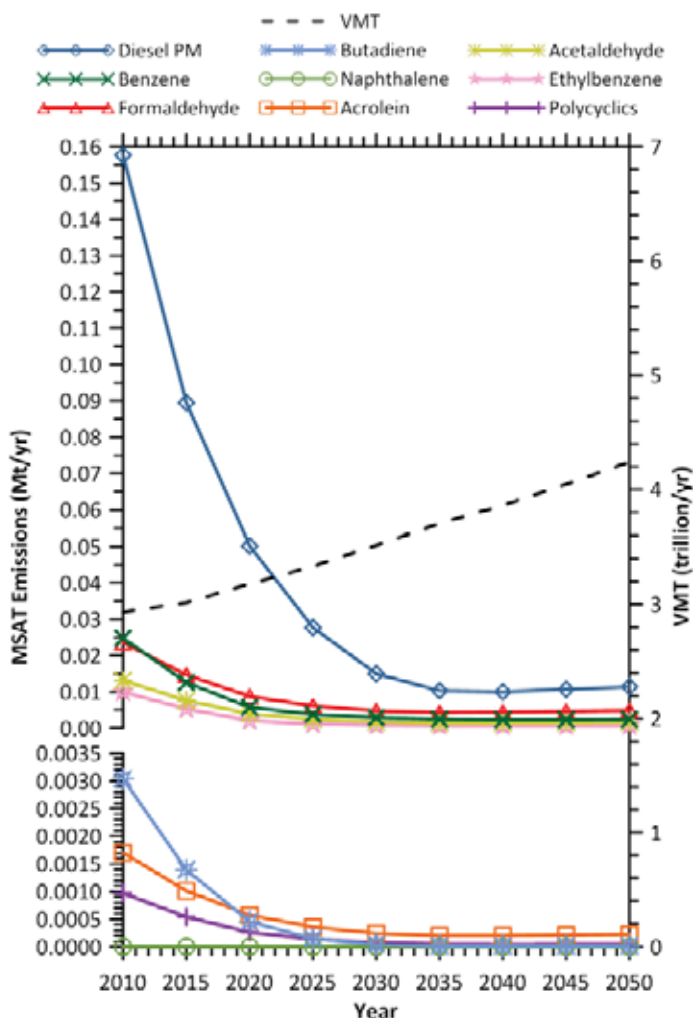
| Pollutant | Parameter | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------------|--------------------------------------------------------|-------|-------|-------|-------|-------|
| CO | Max. 1-hour concentration (ppm) | 2.9 | 2.6 | 2.7 | 2.2 | 2.7 |
| | Max. 8-hour concentration (ppm) | 2.71 | 2.10 | 2.1 | 2.7 | 2 |
| | # Days>Federal 1-hour std. of >35 ppm | 0 | 0 | 0 | 0 | 0 |
| | # Days>Federal 8-hour std. of >9 ppm | 0 | 0 | 0 | 0 | 0 |
| | # Days>California 8-hour std. of >9 ppm | 0 | 0 | 0 | 0 | 0 |
| O ₃ | Max. 1-hour concentration (ppm) | 0.091 | 0.104 | 0.088 | 0.103 | 0.111 |
| | Max. 8-hour concentration (ppm) | 0.078 | 0.091 | 0.082 | 0.090 | 0.093 |
| | # Days>Federal 8-hour std. of >0.070 ppm | 3 | 6 | 2 | 12 | 16 |
| | # Days>California 1-hour std. of >0.09 ppm | 0 | 2 | 0 | 1 | 5 |
| | # Days>California 8-hour std. of >0.07 ppm | 7 | 12 | 13 | 24 | 24 |
| NO ₂ | Max. 1-hour concentration (ppm) | 0.054 | 0.061 | 0.054 | 0.055 | 0.042 |
| | Annual average (ppm) | 0.011 | NA | 0.011 | 0.010 | 0.009 |
| | # Days>California 1-hour std. of >0.18 ppm | 0 | 0 | 0 | 0 | 0 |
| PM ₁₀ | Max. 24-hour concentration (µg/m ³) | 73.5 | 74.6 | 98.8 | 127.7 | 90.3 |
| | Annual average (µg/m ³) | 25.5 | 25.6 | 30.9 | 25.6 | 30.9 |
| | #Days>Federal 24-hour std. of >150 µg/m ³ | 0 | 0 | 0 | 0 | 0 |
| | #Days>California 24-hour std. of >50 µg/m ³ | 6 | 5 | 18 | 37 | 31 |
| PM _{2.5} | Max. 24-hour concentration (µg/m ³) | 71.1 | 62.3 | 83.2 | 58.2 | 44.0 |
| | Annual average (µg/m ³) | 14.7 | 11.9 | 14.4 | 11.4 | NA |
| | #Days>Federal 24-hour std. of >35 µg/m ³ | 25 | 13 | 37 | 17 | 4 |

The California Geological Survey identifies ultramafic rocks in California to be the source of NOA, and in August 2000, the California Department of Conservation, Division of Mines and Geology (CDMG) published *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*. The project area is designated by the CDMG as an area not likely to contain NOA. Under the federal asbestos National Emissions Standards for Hazardous Air Pollutants regulations (NESHAP, 40 CFR Part 61, Subpart M), a Certified Asbestos Consultant (CAC) must make definitive conclusions regarding the presence of asbestos construction building materials (ACBM). Any projects in which structures are demolished or renovated within Stanislaus County are required to provide written notification to the San Joaquin Valley Unified Air Pollution Control District at least 10 business days prior to conducting the work, regardless of the presence or absence of asbestos in building materials.

Mobile Source Air Toxics (MSATs)

Transportation projects may affect the regional or local air toxic concentrations due to the MSAT emissions from vehicles. Nationwide MSAT emissions are expected to be lower than present levels in the future years as a result of USEPA's national emissions control programs and fuel economy standards. Using USEPA's MOVES2014a model, as shown in Figure 2.2.4-1, FHWA estimates that even if vehicle miles traveled (VMT) increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSATs is projected for the same time period.

Figure 2.2.4-1 FHWA Projected National MSAT Emissions Trends 2010-2050 for Vehicles Operating on Roadways



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors. Source: EPA MOVES2014a model runs conducted by FHWA, September 2016.

Sensitive Receptors

Sensitive air quality receptors include receptors such as residences, schools, daycare centers, nursing homes, and hospitals. The sensitive land uses in the project area are shown in Figure 2.2.4-2. The ambient air concentrations shown in Table 2.2.4-2 are representative of the existing conditions experienced by sensitive receptors located near the project area. The immediate vicinity of the project area is a mix of industrial, commercial, and residential land uses. The nearest residential area is next to 7th Street, southwest of the proposed bridge. The nearest school is Kirk Baucher School located on Calaveras Street, approximately 1,100 feet north of the 7th Street Bridge.

2.2.4.3 ENVIRONMENTAL CONSEQUENCES

Implementation of the project will result in potential air quality impacts during construction and operation. During construction, exhaust emissions and fugitive dust emissions will result in temporary air quality impacts. During operation, changes of traffic conditions in the project area will potentially result in localized air quality impacts. The air quality impacts for the No-Build and Build Alternatives were evaluated for the opening year 2020, and the horizon year of 2040. This chapter discusses the potential long-term and temporary air quality impacts for the project.

Long-term Impacts

This section describes the potential long-term air quality impacts of the project. The impact assessment discusses the regional and project level conformity requirements for the project, CO and PM₁₀/PM_{2.5} hot spot analysis, MSATs effects, and naturally occurring asbestos. This section shows that the operation of the project will not have a significant adverse long-term effect on air quality.

Regional Conformity

The project is located in a federal nonattainment area for ozone and PM_{2.5}, and in a maintenance area for PM₁₀ and CO. The project is subject to transportation conformity requirements and needs to demonstrate regional conformity for these pollutants.

Regional conformity for transportation projects is satisfied by inclusion of the transportation project in an approved RTP and Regional Transportation Improvement Program (RTIP). The 7th Street Bridge Project is listed in the financially-constrained StanCOG 2014 RTP/SCS. The 2014 RTP/SCS was adopted by StanCOG on June 18, 2014 and the conformity determination was made by FHWA and FTA on December 12, 2014. The project is also included in StanCOG's financially-constrained 2017



VICINITY MAP

LEGEND

- Project Area
- Schools
- ↙ Mobile Home Park

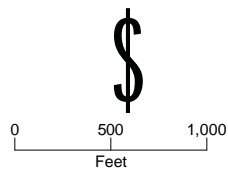


FIGURE 2.2.4-2
Sensitive Land Uses
7th Street Bridge Project
Modesto, California

pedestrian access.” FHWA/FTA last issued a finding of conformity for the 2017 Transportation Improvement Plan (TIP) on December 16, 2106. The design concept and scope of the project is consistent with the project description in the 2014 RTP/SCS, 2017 RTIP, and the “open to traffic” assumptions of the StanCOG regional emissions.

Project Level Conformity

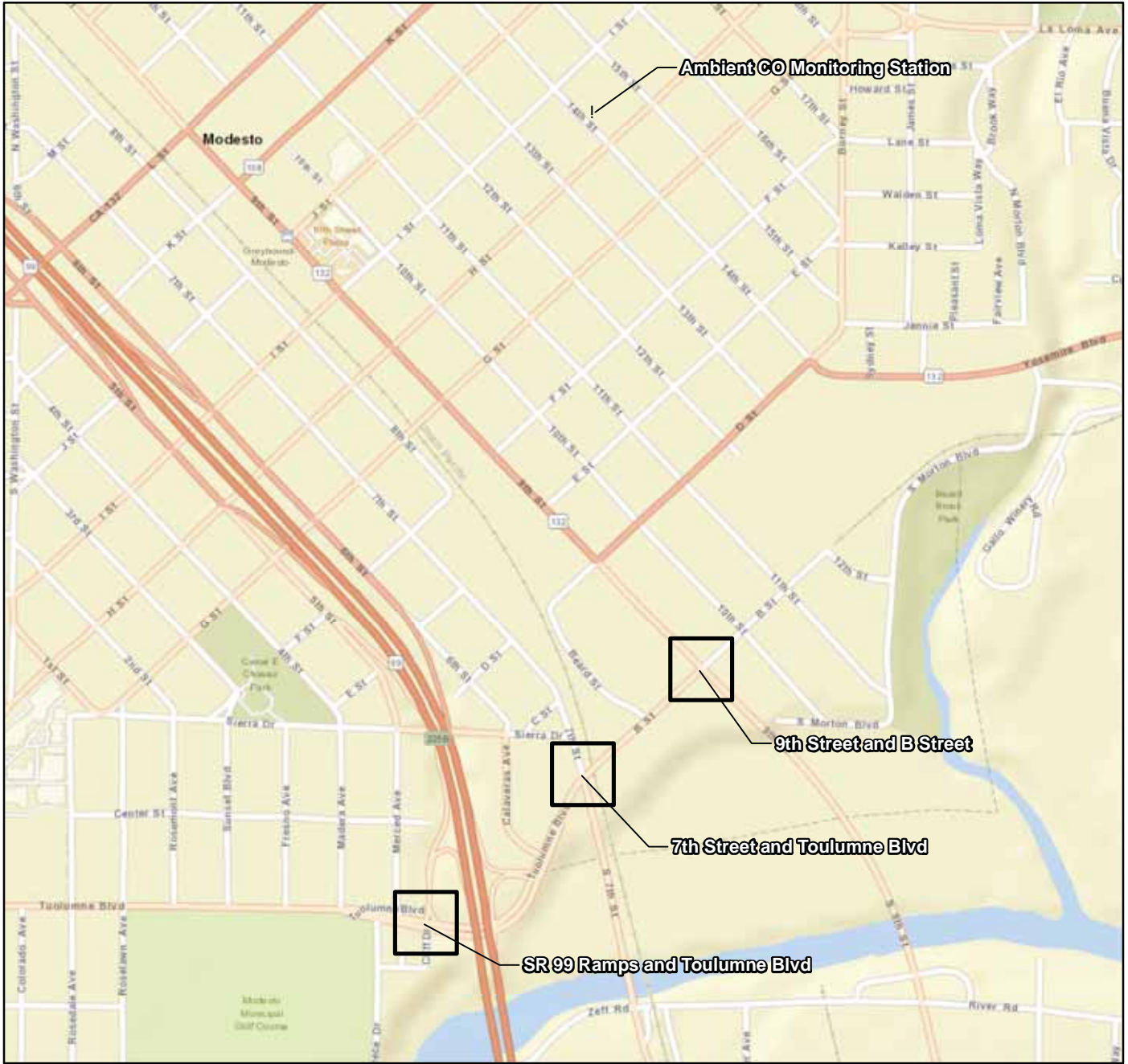
The project is located in a federal nonattainment or maintenance area for CO, PM_{2.5}, and PM₁₀ and must demonstrate project-level conformity. The following sections evaluate whether the project would cause or contribute to any new localized CO, PM_{2.5}, and/or PM₁₀ violations or increase the frequency or severity of any existing violations for CO, PM_{2.5}, and PM₁₀.

CO Hot Spots Analysis

The area where the project is located is a maintenance area for CO. According to the Transportation Conformity Regulation (40 CFR Part 93 Subpart A), CO maintenance areas must demonstrate project-level conformity. Project-level conformity for CO is demonstrated by evaluating the potential for a project to create CO hot spots.

Localized CO impacts resulting from the project alternatives were evaluated following the Caltrans guidance document titled Transportation Project-Level Carbon Monoxide Protocol (CO Protocol). Following the flow charts of the CO Protocol, a CO air dispersion modeling was performed to determine if the project will cause any CO hot spots in the project area.

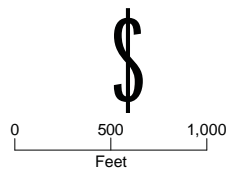
The microscale CO modeling was performed based on traffic conditions during the morning (AM) and afternoon (PM) peak traffic periods when maximum traffic volumes occur on local streets and when the greatest traffic and air quality impacts of the project are expected. Traffic data for the air quality analysis were derived from traffic counts and other information developed as part of an overall traffic analysis for the project. Traffic conditions at affected intersections were evaluated to identify which intersections in the study area will have the potential to cause CO hot spots. Intersections within the study area were screened based on changes in intersection volume, delay, and level of service (LOS) between the existing condition, No-Build Alternative, and the Build Alternatives. Intersections were considered to have the potential to cause CO hot spots if the LOS decreased from D or better to D or worse. The three intersections with the worst LOS, delay, and/or traffic volume were included in the CO hot-spot modeling (see Figure 2.2.4-3).



VICINITY MAP

LEGEND

- ! Monitoring Station
- Receptor Site



Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, IPC, TomTom
 Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri Korea,

FIGURE 2.2.4-3
Receptor Sites For CO Hot Spot
Analysis and Monitoring Station
7th Street Bridge Project
Modesto, California

Receptors for the intersection analyses were established in accordance with the CO Protocol. Receptors for the intersection analysis were located 3 meters from the roadway so they were not within the mixing zone of the travel lanes and were spaced at 0, 25, and 50 meters from the intersection for both the 1-hour and 8-hour analyses.

CO emissions from vehicles at the intersections were estimated by using EMFAC2014. The estimated CO emissions were modeled using the CALINE4 dispersion model to obtain the CO concentrations near the intersections. While the 1-hour CO concentrations were modeled based on the peak hour emission rates, the 8-hour concentrations of CO were obtained by multiplying the highest peak hour CO concentrations by a persistence factor of 0.7, as recommended in the CO Protocol. The modeled CO concentrations were combined with the background CO concentrations from the closest air quality monitoring stations, and the sums were compared to the applicable NAAQS.

Summaries of the predicted 1-hour and 8-hour CO concentrations for each project analysis year are shown in Table 2.2.4-3. The CO modeling results demonstrated that the predicted CO concentrations at the worst-case intersections in the project area will be below the NAAQS for the No-Build and all Build Alternatives. Therefore, the project will not cause or contribute to any localized CO violations.

Table 2.2.4-3 Summary of Predicted Carbon Monoxide Concentrations at the Three Worst-case Intersections

| Alternatives | CO Concentration (ppm) | | | | | |
|------------------------------|-------------------------------------|--------|--------------------------------------|--------|----------------------|--------|
| | 7th St./Tuolumne Blvd./B St. (P.M.) | | SR 99 SB Ramps/Tuolumne Blvd. (P.M.) | | 9th St./B St. (P.M.) | |
| | 1-hour | 8-hour | 1-hour | 8-hour | 1-hour | 8-hour |
| Existing Condition | 4.6 | 3.7 | NA | NA | 7.2 | 5.3 |
| Opening Year 2020 No-Build | 4.0 | 3.4 | 3.4 | 3.0 | 4.7 | 3.8 |
| Opening Year 2020 Build Alts | 3.8 | 3.2 | 3.4 | 3.0 | 4.8 | 3.8 |
| Horizon Year 2040 No-Build | 3.5 | 3.1 | 3.2 | 2.9 | 3.7 | 3.2 |
| Horizon Year 2040 Build Alts | 3.5 | 3.1 | 3.2 | 2.9 | 3.9 | 3.3 |
| NAAQS/CAAQS | 35 | 9 | 35 | 9 | 35 | 9 |

Notes:

The concentrations included the 1-hour CO background concentration of 2.9 parts per million (ppm) and the 8-hour background concentration of 2.7 ppm, monitored in Modesto, CA.
 NA = not applicable; SB = southbound

PM₁₀/PM_{2.5} Hot Spots Analysis

The area where the project is located is in federal nonattainment area for PM_{2.5}, and in maintenance for PM₁₀. Therefore, a project-level conformity demonstration for PM₁₀/PM_{2.5} is required for the project. To demonstrate that the project is unlikely to cause a new violation or contribute to an existing violation of the PM₁₀ or PM_{2.5} standards, the project was evaluated according to the criteria listed in FHWA's and USEPA's Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas.

According to this guidance, the first step in the PM₁₀ and PM_{2.5} hotspot evaluation is to determine if the project would be a project of air quality concern. USEPA specified in 40 CFR 93.123(b)(1) that projects of concern with respect to air quality are certain highway and transit projects that involve significant levels of diesel vehicle traffic, such as major highway projects and projects at congested intersections that handle significant diesel traffic, or any other project identified in the PM_{2.5} or PM₁₀ SIP as a localized air quality concern. According to USEPA criteria, the project will not be of air quality concern because:

- The project will reconstruct the 7th Street Bridge which serves local surface streets with a low percentages of diesel trucks. The project will not be a new or expanded highway project, and is not expected to cause a significant increase in the number of diesel vehicles in the area.
- Although some of the intersections in the project area are at LOS D, E, or F, or may change to LOS D, E, or F after completion of the project, none of the intersections currently have or will have a significant number of diesel vehicles.
- The project does not involve any new bus and rail terminals and transfer points that will have a significant number of diesel vehicles congregating at a single location.
- The project does not involve expanded bus and rail terminals and transfer points that will significantly increase the number of diesel vehicles congregating at a single location.
- The 7th Street Bridge and the nearby roadways were not identified as a roadway of concern in the SIP for reaching PM_{2.5} and PM₁₀ attainment.

Based on the above discussion, the project is not expected to be of air quality concern. Therefore, the project is not expected to cause or contribute to any new localized PM_{2.5} and PM₁₀ violations or increase the frequency or severity of any existing violations.

A PM hot spot conformity assessment of the project was submitted to the StanCOG for interagency consultation on May 19, 2015. On May 22, 2015, the interagency consultation group determined that the project is not a project of air quality concern. As such, the project would meet the requirements of 40 CFR 93.116 without explicit quantitative hot-spot analysis. Concurrence of the conformity group is included in Appendix C of the project's Air Quality Technical Report .

Additional PM₁₀/PM_{2.5} Discussion under NEPA

PM₁₀ and PM_{2.5} emissions from vehicle travel in the project area were estimated using CT-EMFAC2014 Version 6.0 for the project area. PM₁₀ and PM_{2.5} emissions evaluated for the project included the vehicle exhaust, tire wear, and brake wear. Table 2.2.4-4 summarizes the project area VMT and the PM₁₀ and PM_{2.5} emissions for the existing condition, the Build Alternatives, and No-Build Alternative in 2020 and 2040.

Table 2.2.4-4 Summary of PM₁₀ and PM_{2.5} Emissions in the Project Area

| Alternatives | VMT (miles/year) | PM₁₀ (tons/year) | PM_{2.5} (ton/year) |
|---------------------|-----------------------------|----------------------------------------|----------------------------------------|
| Existing | 68,840,825 | 5.59 | 3.11 |
| No Build 2020 | 78,467,335 | 4.79 | 2.07 |
| Build 2020 | 77,832,600 | 4.75 | 2.05 |
| No Build 2040 | 102,569,380 | 5.82 | 2.35 |
| Build 2040 | 100,505,670 | 5.70 | 2.30 |

As shown in Table 2.2.4-4, the VMT within the project area for the Build Alternative would be lower than the VMT of the No-Build Alternative in future years. As a result, the project would reduce the PM₁₀ and PM_{2.5} emissions in 2020 and 2040 from the No-Build condition, and consequently decrease the ambient concentrations of PM₁₀ and PM_{2.5} of the project area. Therefore, the project will be beneficial to the air quality in the project area, and it will not cause new violations or worsen the existing violations of the PM₁₀ and PM_{2.5} ambient air quality standards.

Mobile Source Air Toxics (MSATs)

Potential MSAT effects from project operation were evaluated following the FHWA Memorandum titled *Interim Guidance on Air Toxic Analysis in NEPA*. The purpose of FHWA's guidance is to advise on when and how to analyze MSATs in the NEPA process for highways. The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

- No analysis for projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; or
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

According to the FHWA's interim guidance, the types of projects considered to have low potential MSAT effects include those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions.

The project is designed to correct structural and hydraulic deficiencies, including removal of load restrictions on the bridge, and to improve conditions for vehicles, bicyclists, and pedestrians. The project will also improve the operational and traffic conditions of the project area. Although the project will expand the vehicle capacity of the 7th Street corridor, the average annual daily traffic (AADT) on 7th Street within the project area will be less than 29,000 in the 2040 design year for the Build Alternatives. Therefore, replacement of the bridge will not create new capacity or add significant capacity to nearby highways such as State Route (SR) 99, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year. In fact, the project will potentially result in a decrease of the AADT on SR 99 in the project vicinity due to the increased capacity of 7th Street. Diesel trucks currently only account for less than one percent of the AADT on 7th Street; thus the amount of diesel truck traffic increase due to the project will be minimal. In addition, the project will not create or significantly alter a major intermodal freight facility that has the potential to concentrate higher levels of diesel particulate matter (DPM) in a single location. Therefore, the project is a "minor widening project" as described in FHWA's interim guidance, and it is expected to have low potential for MSAT effects.

Following FHWA/USEPA guidance, a qualitative MSATs analysis was conducted to evaluate the potential MSAT impacts during project operation. A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA titled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*.

For each alternative in this study, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The total VMT in the project area estimated for the Build Alternatives is slightly higher than that for the No-Build Alternative, because the additional capacity would increase the efficiency of the roadway and attract rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the Build Alternatives along 7th Street with the new bridge, along with a corresponding decrease in MSAT emissions from other roadways in the area (see Table 2.2.4-5). The emissions increase would be offset somewhat by lower MSAT emission rates due to increased speeds. Because the estimated VMT under each of the alternatives are nearly the same, it is expected that there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA’s national control programs, projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Table 2.2.4-5 Daily Vehicle Miles Traveled on Roadway Segments in the Project Area

| Roadway | Affected Roadway Segments | | VMT/day | | | | |
|------------------------|---------------------------|------------------|----------|---------------|-----------------|---------------|-----------------|
| | From | To | Existing | No-Build 2020 | Build Alts 2020 | No-Build 2040 | Build Alts 2040 |
| 1. 7 th St. | Sierra Dr. | Tuolumne Blvd. | 395 | 460 | 480 | 550 | 580 |
| 2. 7 th St. | Tuolumne Blvd. | River Rd. | 4,770 | 5,130 | 6,030 | 6,030 | 8,700 |
| 3. Crows Landing Rd. | 7 th St. | Blankenburg Ave. | 3,750 | 4,200 | 4,620 | 5,340 | 6,870 |

Table 2.2.4-5 Daily Vehicle Miles Traveled on Roadway Segments in the Project Area

| Roadway | Affected Roadway Segments | | VMT/day | | | | |
|------------------------|---------------------------|---------------------|----------|---------------|-----------------|---------------|-----------------|
| | From | To | Existing | No-Build 2020 | Build Alts 2020 | No-Build 2040 | Build Alts 2040 |
| 4. 7 th St. | Crows Landing Rd. | Blankenburg Ave. | 1,080 | 1,080 | 1,230 | 1,110 | 1,680 |
| 5. 9 th St. | B St. | D Street | 5,600 | 6,180 | 6,080 | 7,660 | 7,240 |
| 6. 9 th St. | B St. | River Rd. | 11,450 | 12,000 | 12,150 | 13,450 | 13,550 |
| 7. 9 th St. | River Rd. | Hosmer Ave. | 4,000 | 4,060 | 3,960 | 4,200 | 4,060 |
| 8. River Rd. | 9 th St. | Bunker Ave. | 520 | 520 | 300 | 540 | 300 |
| 9. B St. | 7 th St. | 9 th St. | 3,300 | 3,960 | 4,140 | 5,640 | 6,060 |
| 10. Pecos Ave. | 7 th St. | 9 th St. | 595 | 644 | 700 | 882 | 1,008 |
| 11. Tuolumne Blvd. | SR 99 | 7 th St. | 2,840 | 3,440 | 3,120 | 4,920 | 3,820 |
| SR 99 Mainline | Tuolumne Blvd. | Crows Landing Rd. | 150,305 | 173,305 | 170,430 | 230,690 | 221,490 |

Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

The following discussion regarding the limitations of the MSAT analysis is prototype language taken from Appendix C of the FHWA Updated Interim Guidance on Air Toxic Analysis in NEPA.

Because of the lack of a national consensus on an acceptable level of risk, uncertainties about other air quality criteria assumed to protect the public health and welfare, and uncertainties about the reliability of available technical tools, the project-specific health impacts of the emission changes associated with the alternatives evaluated in this assessment cannot be predicted with confidence. The outcome of such an assessment would be influenced more by the uncertainty introduced into the process by the assumptions made than insight into the actual health impacts from human exposure to MSATs directly attributable to the proposed action. Because of these limitations, the following discussion is included in accordance with NEPA (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

In FHWA’s view, information is incomplete or unavailable to credibly predict the project-specific health impacts associated with changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced

into the process through assumption and speculation rather than insight into the actual health impacts directly attributable to exposure to MSATs associated with the proposed action.

According to FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA, USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the CAA and its amendments and has specific statutory obligations with respect to HAPs and MSATs. USEPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. USEPA maintains IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects." Each report contains assessments of noncancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures, with uncertainty spanning perhaps an order of magnitude.

Other organizations also are active in the research and analysis of the human health effects of exposures to MSATs, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract including the exacerbation of asthma. Less obvious are the adverse human health effects of exposures to MSAT compounds at current environmental concentrations or at future concentrations as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and final assessment of potential health impacts, with each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete definition or differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) exposure assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology over that timeframe, since such information is unavailable.

Additionally, given that some of the necessary information is unavailable, it is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and

human exposures near roadways, to determine the portion of time that people are actually exposed at a specific location, and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI. As a result, there is no national consensus on air dose response values assumed to protect the public health and welfare for MSAT compounds, and in particular for DPM. The USEPA states that with respect to diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk.”⁹

There also is a lack of a national consensus on an acceptable level of risk. The current context is the process used by USEPA, as provided by the CAA, to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires USEPA to determine an “acceptable” level of risk due to emissions from a source, which is generally set at a value for excess lifetime cancer risk of no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with excess lifetime cancer risks less than 1 in a million due to exposure to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to TACs are less than 1 in a million; in some cases, the residual risk determination could indicate maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld USEPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described above, any predicted difference in health impacts between alternatives is

⁹ USEPA IRIS database, Diesel Engine Exhaust, Section II.C.
(https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642.htm#quainhal)

likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Naturally Occurring Asbestos (NOA) and Structural Asbestos

In addition to CO, particulate matter (PM_{2.5} and PM₁₀), and MSATs, asbestos may also cause localized impacts. Asbestos may occur naturally in serpentine and ultramafic rock and can be released when the rock is broken or crushed. The Asbestos Airborne Toxic Control Measure (ATCM) for construction, grading, quarrying, and surface mining operations was adopted by the ARB on July 26, 2001. This ATCM covers disturbance of areas with NOA, serpentine, or ultramafic rock. According to the CDMG, the area where the project is located does not contain serpentine or ultramafic rock. Therefore, fugitive asbestos from these naturally occurring materials will not be emitted during construction or operation of the project.

Following the federal and SJVAPCD requirements, the CAC will review as-built drawings and do a site visit to assess the presence of suspected ACBM. If suspected ACBM is present, the CAC will collect samples for submittal to a lab to be tested for the presence of asbestos in accordance with the appropriate specifications and, based on the results, prepare a report appropriate for submittal with the notice to the SJVAPCD.

Short-term Impacts

Construction Emissions

During construction of the project, short-term degradation of air quality will occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities. Emissions from construction equipment will include CO, nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly-emitted PM₁₀ and PM_{2.5}, and TACs such as DPM. Ozone is a regional pollutant that is formed when NO_x and VOCs react 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, and paving roadway surfaces. Construction-related effects on air quality from most transportation projects are 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. These activities could temporarily generate

enough PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and VOCs to be of concern. Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an added source of airborne dust after it dries. PM₁₀ emissions will vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles settle near the source, while fine particles are dispersed over greater distances from the construction site.

In addition to dust-related PM₁₀ emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines generate CO, SO₂, NO_x, VOCs and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm sulfur), so SO₂-related issues due to diesel exhaust will be minimal for the project.

Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site. Such odors would quickly disperse to below detectable levels as distance from the site increases.

Construction Emission Estimate

Construction emissions were estimated for the project Build Alternatives to evaluate the temporary air quality impacts. Construction of the project will occur over 2.5 to 3 years, depending on the alternative selected, starting in 2017. Construction activities will not last for more than 5 years at any one location, so construction-related emissions do not need to be included in regional and project-level transportation conformity analysis (40 CFR 93.123(c)(5)).

As discussed above, construction emissions include engine exhaust from vehicle trips traveled by construction workers, delivery trucks, concrete trucks, and off-road construction equipment. In addition, earth-moving activities result in fugitive dust

emissions. The construction equipment and vehicle emissions of CO, NO_x, reactive organic gases (ROG), SO_x, PM₁₀, and PM_{2.5} that will result from the project were estimated using the California Emission Estimator Model (CalEEMod) based on projected construction duration and estimated numbers and types of equipment. Default equipment settings in CalEEMod were used when project-specific information was not available. Table 2.2.4-6 presents the estimated construction emissions of each project Build Alternative.

Table 2.2.4-6 Estimated Maximum Annual Construction Emissions for Each Project Build Alternative

| Alternative | Emissions (ton/year) | | | | | |
|----------------|----------------------|-----------------|------|-----------------|------------------|-------------------|
| | CO | NO _x | ROG | SO _x | PM ₁₀ | PM _{2.5} |
| Alternative 2A | 5.87 | 9.06 | 0.92 | 0.01 | 0.54 | 0.46 |
| Alternative 2B | 5.12 | 8.85 | 0.89 | 0.01 | 0.53 | 0.45 |
| Alternative 3 | 6.07 | 9.76 | 0.99 | 0.01 | 0.57 | 0.48 |
| Alternative 4 | 5.84 | 9.44 | 0.95 | 0.01 | 0.53 | 0.45 |

Notes:

CO = carbon monoxide; NO_x = nitrogen oxides; ROG = reactive organic gases; SO_x = sulfur oxides; PM₁₀ = particles of 10 micrometers or smaller; PM_{2.5} = particles of 2.5 micrometers or smaller

As shown in Table 2.2.4-6, the estimated maximum annual emissions of each Build Alternative are similar. Construction emissions of NO_x will be greater than 2 tons per year; therefore, the project NO_x emissions will exceed the SJVAPCD Indirect Source Review (ISR) Rule 9510 trigger level. The project will either mitigate or offset the NO_x emissions by 20 percent as required by SJVAPCD before the project construction starts.

2.2.4.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Most of the construction impacts to air quality would be short-term in duration and therefore would not result in long-term adverse conditions. Implementation of the following MMs, some of which may also be required for other purposes such as storm water pollution control, would reduce any adverse air quality effects resulting from construction activities:

- **MM AQ-1:** The construction contractor must comply with the Caltrans Standard Specifications in Section 14-9.
 - Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution

control district and air quality management district regulations and local ordinances.

- Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18.
- **MM AQ-2:** Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the right-of-way line, depending on local regulations.
 - Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.
 - Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions.
 - Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
 - A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
 - Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.
 - Environmentally Sensitive Areas or their equivalent will be established near sensitive air receptors. Within these areas construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.
 - Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.

- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust (particulate matter) during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to decrease particulate matter.
- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues, and therefore controls such as dampened straw will be used as needed.

In addition, the project will also implement the required fugitive emission control measures in SJVAPCD rules, as described in the Air Quality Technical Report.

Construction emissions of NO_x from the project will exceed the 2 tons/year threshold and trigger the ISR requirements. If implemented, the project must submit the ISR application and either mitigate or offset the NO_x construction emissions by 20 percent as required by SJVAPCD Rule 9510.

2.2.5 Noise

This section identifies the existing land uses in the project area that could be affected by traffic and construction noise, discusses how noise impacts were assessed, and determines if there are adverse effects. The findings of this section are based on the Noise Study Report (NSR, 2015) conducted for this project.

2.2.5.1 REGULATORY SETTING

NEPA provides the broad basis for analyzing and abating highway traffic noise effects. The intent of this law is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement under NEPA are described below.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. These regulations apply to the project because of federal funding as administered by Caltrans. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. The noise environment is predominantly residential and commercial. The NAC for residences (67 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.2.5-1 identifies the NAC for the different Activity Categories.

Table 2.2.5-1 Noise Abatement Criteria

| Activity Category | NAC: Hourly A-Weighted Noise Level dBA, Leq(h) | Description of Activity Category |
|-------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | 57 (Exterior) | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose |
| B ^a | 67 (Exterior) | Residential |
| C ^a | 67 (Exterior) | Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings |
| D | 52 (Interior) | Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios |
| E | 72 (Exterior) | Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F |
| F | No NAC - Reporting Only | Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing |
| G | No NAC - Reporting Only | Undeveloped lands that are not permitted |

Notes:

^a Includes undeveloped lands permitted for this activity category
 Leq(h) = hourly equivalent sound level

The majority of the noise sensitive sites in the project area are residential (Activity Category B). As shown in Table 2.2.5-1, the NAC is for the exterior use. Therefore, the outdoor activity area nearest to the proposed alignment was identified. For the residential areas, the outdoor activity areas include a porch, deck, pool, front/back entrance, and playground area.

Figure 2.2.5-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|----------------------------------------------------|-------------------|------------------------------------------------|
| Jet Fly-over at 300m (1000 ft) | 110 | Rock Band |
| Gas Lawn Mower at 1 m (3 ft) | 100 | |
| Diesel Truck at 15 m (50 ft), at 80 km (50 mph) | 90 | Food Blender at 1 m (3 ft) |
| Noisy Urban Area, Daytime | 80 | Garbage Disposal at 1 m (3 ft) |
| Gas Lawn Mower, 30 m (100 ft) | 70 | Vacuum Cleaner at 3 m (10 ft) |
| Commercial Area | | Normal Speech at 1 m (3 ft) |
| Heavy Traffic at 90 m (300 ft) | 60 | Large Business Office |
| Quiet Urban Daytime | 50 | Dishwasher Next Room |
| Quiet Urban Nighttime | 40 | Theater, Large Conference Room (Background) |
| Quiet Suburban Nighttime | | Library |
| Quiet Rural Nighttime | 30 | Bedroom at Night, Concert Hall (Background) |
| | 20 | Broadcast/Recording Studio |
| | 10 | |
| Lowest Threshold of Human Hearing | 0 | Lowest Threshold of Human Hearing |

Figure 2.2.5-1 Noise Levels of Common Activities

According to the *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. For a noise barrier to achieve the Caltrans acoustical design goal, it must be capable of achieving a minimum 7 dBA reduction in the future noise level for at least one receptor. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

2.2.5.2 AFFECTED ENVIRONMENT

The findings of the noise analysis for this project are documented in the NSR for the 7th Street Bridge Project.

This section identifies the existing land uses which would be affected by the proposed alternative, how they were assessed, and whether there are significant adverse effects.

Land uses in the study area are a combination of residential and commercial/industrial uses. Important residential land uses are single-family residences from Sierra Drive to Tuolumne Boulevard and a mobile home park (Sunrise Village) between Zeff Road and Crows Landing Road. There are several commercial buildings to the west of 7th Street and the majority of the land use to the east of 7th Street is commercial and industrial. Just north of the Tuolumne River is existing open space featuring currently undeveloped pedestrian trails. This area is part of the Tuolumne River Parkway (Gateway Parcel), which is proposed for future park/open space development.

For this analysis, noise sensitive receptors were grouped into common noise environments (CNEs) to represent areas with similar locations, terrain, and adjacent roadways (see Figure 2.2.5-2). The following six CNEs were established:

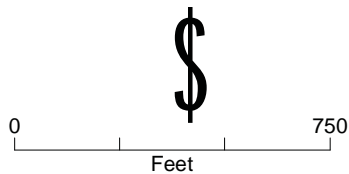
- CNE A: West of 7th Street from Sierra Drive to Tuolumne Boulevard is predominantly residential. The existing noise levels at this location range from 51 to 65 dBA. Non-residential uses include a church and the playground of the Tuolumne Christian Pre-School. A total of 17 modeling receptors were established to represent the noise sensitive land uses within CNE A.
- CNE B: West of 7th Street from Tuolumne Boulevard to the Tuolumne River consists of open space with currently undeveloped pedestrian trails. Existing noise levels range from 62 to 68 dBA. A total of 6 modeling receptors were established to represent the noise environment along the western portions of the pedestrian trails in CNE B.
- CNE C: West of 7th Street from Zeff Road to Crows Landing Road consists a mobile home park with several commercial buildings. Existing noise levels range from 63 to 70 dBA. A total of 22 modeling receptors were established to represent the noise sensitive land uses within Sun Rise Mobile Home Park.
- CNE D: East of 7th Street from the north project terminus to B Street is predominantly commercial use. There are no noise-sensitive receptors in this CNE; therefore, no further analysis was necessary.
- CNE E: East of 7th Street from B Street to the Tuolumne River is open space with currently undeveloped pedestrian trails. Existing noise levels at the trails range from 54 to 60 dBA. A total of 8 modeling receptors were established to represent the noise environment along the eastern portions of the pedestrian trails in CNE E.
- CNE F: East of 7th Street from the Tuolumne River to the southern project terminus is commercial and industrial use. There are no noise-sensitive receptors in this CNE; therefore, no further analysis was necessary.

The main source of noise within the project area is from Highway 99 (to the west of the study area). The high traffic volumes and high speeds of Highway 99 are dominant compared to the low volumes at 25 mph along 7th Street.



Legend

- Receiver
- Study Area
- Common Noise Environment



**FIGURE 2.2.5-2
Common Noise Environments**

*7th Street Bridge Project
Modesto, California*

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Under the existing conditions, many of the modeling receptors, closest to Highway 99 have noise levels that approach or exceed the Noise Abatement Criteria (i.e. a Traffic Noise Impact).

Assessment Methods – Traffic Noise

The FHWA traffic noise model (TNM) 2.5 was used to predict noise levels for the existing, future No-Build, and future build conditions. Receptors were input into the noise model to represent noise-sensitive land uses.

TNM calculates traffic noise based on the geometry of the site, which includes the positioning of lanes, receptors, and barriers. The noise source is the traffic flow, which is input into the program in terms of hourly volumes and speeds of automobiles, medium trucks, heavy trucks, buses, and motorcycles. Vehicle distributions varied by roadway and alternative. Vehicle speeds also varied, and variations also included roadway type and vehicle type.

Predicted peak hour noise levels were compared to the applicable NAC to identify locations where adverse noise effects would occur with each alternative. Barriers of varying heights and locations were evaluated for abatement of noise at those locations. Noise barriers were determined to be feasible where the barrier would be capable of reducing noise by at least 5 decibels (dB). Any feasible noise barriers require evaluation for their reasonableness based on the number of benefited receptors, the noise barrier cost allowance (determined based on Caltrans Protocol), and the estimated cost of the noise barrier.

Assessment Methods – Construction Noise

Construction-related noise impacts would occur to sensitive receptors over an extended period. During construction, overall noise levels would vary based on the level of activity, the types of equipment used, when the equipment is used, and the distance from the activities to the receptors.

To estimate construction equipment usage, durations, and overlapping activities, a preliminary schedule was developed for each of the Build Alternatives. Typical construction equipment noise-level data were obtained from several sources, including USEPA, FHWA, American Road Builders Association, and the Construction Industry Research and Information Association. These data and those from the schedules confirm that the two construction activities that would generate the highest noise levels for the longest durations would be roadway excavation and

bridge construction. The various types of standard equipment used for these activities are shown in Table 2.2.5-2.

Table 2.2.5-2 Noise Levels of Construction Equipment Grouped by Construction Activity

| Equipment | Noise Level Range (dBA at 15.2 meters [50 feet]) |
|------------------------------------|--------------------------------------------------|
| Excavation and Earth Moving | |
| Bulldozer | 80 |
| Backhoe | 72-93 |
| Front-end loader | 72-84 |
| Dump truck | 81-98 |
| Jackhammer | 83-94 |
| Scraper | 80-93 |
| Bridge Construction | |
| Crane | 75-87 |
| Welding generator | 71-82 |
| Concrete mixer | 74-88 |
| Concrete pump | 81-84 |
| Concrete vibrator | 76 |
| Cement and dump trucks | 83-94 |
| Air compressor | 74-87 |
| Pneumatic tools | 81-98 |
| Bulldozer | 80 |
| Pile driver | 91-105 |
| Front-end loader | 72-84 |
| Dump truck | 83-84 |
| Paver | 86-88 |

Excavation sequences would depend on the availability and location of fill material, as well as the availability of access for construction vehicles and equipment. Project phasing has been planned so that fill material would be available from within the project right-of-way. Construction vehicles and equipment would be used to excavate and transfer material from one area to another. A variety of equipment, including bulldozers, excavators, trucks, and scrapers, would be used during construction. The preliminary construction schedule is available in Table 1-1 (Section 1.3.3.2).

2.2.5.3 ENVIRONMENTAL CONSEQUENCES

The project is a Type I project that requires an evaluation of noise abatement under 23 CFR 772. This section addresses the environmental consequences of the project regarding traffic noise and construction noise.

Traffic Noise

To identify traffic noise impacts, predicted design-year traffic noise levels with the project are compared to existing conditions and to design-year no-project conditions.

CNE A Traffic Noise Environmental Consequences – There are 17 noise-sensitive receptors located within CNE A. The majority of these are residences. The predicted noise levels within CNE A range from 55 to 68 dBA under the Design Year (2040) No-Build condition. Under the proposed alternatives for year 2040 (Alternatives 2, 3, and 4) predicted noise levels are 53 to 68 dBA. The only noise-sensitive receptor that will experience a traffic noise impact is R17 (the playground at the Tuolumne Christian Pre-school at 133 Tuolumne Boulevard).

CNE B Traffic Noise Environmental Consequences – There are six noise-sensitive receptors within CNE B which are below the 7th Street Bridge, to the west, in the open space area where there is an existing trail. Predicted noise levels range from 65 to 71 dBA under the Design Year (2040) No-Build condition. Under the proposed Alternatives 2 and 3 predicted noise levels range from 66 to 71 dBA, with traffic noise impacts at all six receptors. Predicted noise levels under Alternative 4 range from 65 to 71 dBA, with traffic noise impacts at three receptors (two of the receptors are under the proposed bridge under this alternative).

CNE C Traffic Noise Environmental Consequences – There are 22 noise-sensitive receptors located within CNE C. All are residences within the mobile home park. All of these receptors are Activity Category B. Predicted noise levels range from 67 to 74 dBA under the Design Year (2040) No-Build condition. Under all of the Build Alternatives (2, 3, and 4) predicted noise levels for 2040 range from 68 to 73 dBA with impacts to all of the mobile home receptors (that would not be displaced by the project).

CNE D Traffic Noise Environmental Consequences – CNE D is predominantly commercial and industrial. There are no noise-sensitive outdoor activity areas within CNE D; therefore, noise impacts are not anticipated as part of the proposed action.

CNE E Traffic Noise Environmental Consequences – There are eight noise-sensitive receptors (Activity Category C) located within CNE E which are below the 7th Street Bridge, to the east, in the open space area. There is an existing trail within CNE E. Predicted noise levels range from 57 to 63 dBA under the Design Year (2040) No-Build condition. Under the proposed Alternative 2 predicted future noise levels range from 61 to 68 dBA with impacts at four of the receptors. Under the proposed Alternative 3 predicted future noise levels range from 61 to 67 dBA with impacts to three of the receptors. Under the proposed Alternative 4 predicted future noise levels range from 60 to 67 dBA with three impacted receptors.

CNE F Traffic Noise Environmental Consequences – CNE F is predominantly commercial and industrial. There are no noise-sensitive outdoor activity areas within CNE F; therefore, noise impacts are not anticipated as part of the proposed action.

Construction Noise

The Project would cause temporary noise impacts during construction. Bridge construction typically includes noisy equipment like backhoes, bulldozers, heavy trucks, and vibrating plates. It also includes noisy processes such as excavation, grading, and pile driving. Receptors closest to the project right-of-way, such as residents of Sunrise Village Mobile Home Park, would be most affected by construction noise. The construction noise would be primarily from road building/reconfiguration activity in the immediate vicinity rather than from bridge construction.

Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. Caltrans Standard Specification Section 14-8.02, Noise Control, establishes a noise level limit of 86 dBA at 50 feet from construction activities from 9:00 PM to 6:00 AM. Stanislaus County (Code 10.46.060) limits construction activity that creates sound levels greater than 75 dB, on average, from occurring after 7:00 PM and before 7:00 AM. The City of Modesto (Code 4-9.103) prohibits heavy equipment operation or activities involving construction, demolition, excavation, or erection to occur before 7:00 AM or after 9:00 PM on weekdays, except under urgent circumstances involving public welfare. Work is prohibited before 9:00 AM and after 9:00 PM on Saturday, Sunday and state or federal holidays.

No adverse noise impacts from construction of the project are anticipated because construction would be conducted in accordance with all applicable local noise standards and according to Caltrans Standard Specifications. Construction noise levels could exceed these thresholds intermittently and temporarily, but would be short term, intermittent, and overshadowed by local traffic noise.

2.2.5.4 AVOIDANCE, MINIMIZATION, AND/OR ABATEMENT MEASURES

Investigation of Abatement

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. While all available abatement options were considered, because of the configuration and location of the project, abatement in the form of noise barriers is the only abatement that is considered to be Feasible and Reasonable.

As stated previously, traffic noise impacts are anticipated at:

- The pre-school playground, in CNE A, on the north side of Tuolumne Boulevard
- Throughout the mobile home park, in CNE C
- At the trail area below the 7th Street Bridge, in CNEs B and E

Since traffic from Highway 99 is the dominant noise source, noise barriers along 7th Street are not the most effective way to abate noise in this area. However, abatement along Highway 99 is outside the scope of this project.

A noise barrier was analyzed for each Build Alternative based on achievable noise reduction. The noise barriers were evaluated along the edge-of-pavement for 7th Street, Zeff Road, and Crows Landing Road. For a noise barrier to achieve the Caltrans acoustical design goal it must be capable of achieving a 7 dBA reduction for at least one receptor.

Alternatives 2A and 2B Barrier Analysis – With barriers adjacent to the 7th Street project, only one benefit (noise reduction of 5 dBA) is achieved with a barrier height of 14 feet and 16 feet. The design goal (7 dBA insertion loss) is not achieved at any of the receptors at the maximum height of 16 feet.

Alternative 3 Barrier Analysis – With barriers adjacent to the 7th Street project, only one benefit (noise reduction of 5 dBA) is achieved (at R18) at a barrier height of 14 feet and 16 feet. The design goal (7 dBA insertion loss) is not achieved at any of the receptors at the maximum height of 16 feet.

Alternative 4 Barrier Analysis – With barriers adjacent to the 7th Street project, only one benefit (noise reduction of 5 dBA) is achieved (at R18) at a barrier height of 14 feet and 16 feet. The design goal (7 dBA insertion loss) is not achieved at any of the receptors at the maximum height of 16 feet.

Since the design goal (noise reduction of 7 dBA) is not achieved at any of the impacted receptors, at the maximum height of 16 feet, noise barriers are not recommended for further consideration. Table 2.2.5-3 presents a summary of noise modeling based on the analysis contained in the NSR for the 7th Street Bridge Project. The table presents the receptors, land uses, and the range of existing and future noise levels within the CNEs, with and without the Build Alternatives. Those areas that meet the definition of a traffic noise impact are identified. The table also summarizes the determination of whether the various evaluated noise barrier alternatives are reasonable and feasible. While noise barriers are not recommended for further consideration, construction noise minimization elements will be incorporated into the project. The control of noise from construction activities will conform to the provisions of the Caltrans Standard Specifications in Section 14-8.02, Noise Control, and Section S5-310 of the Special Provisions.

The Standard Specifications Provisions used are quoted below:

- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m. Use an alternative warning method instead of a sound signal unless required by safety laws.
- Equip an internal combustion engine with the manufacturer recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Also, as stated above, control of noise from construction activities will conform to the provisions of the Caltrans Standard Specifications in Section 14-8.02, Noise Control and Section S5-310 of the Special Provisions. Therefore, the project will incorporate the following MMs:

- **MM NO-1:** Observation of Time Restrictions and Use of Alternative Alarms. As required by the Standard Specifications Provisions, do not exceed 86 dBA at 50 feet from the job site activities from 9:00 p.m. to 6:00 a.m. Use an alternative warning method instead of a sound signal unless required by safety laws.

Table 2.2.5-3 Predicted Existing/Future Noise Levels and Barrier Analysis

| Receptor I.D. | CNE | Land Use | 7 th Street Future Worst Hour Noise Levels | | | | | | Traffic Noise Impacts | Barrier Impact Summary | Reasonable and Feasible Determination |
|----------------------------------------------------|-----|-------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|
| | | | Existing Noise Level - Leq(h) (dBA) | Design Year Noise Level without Project - Leq(h) (dBA) | Alt 2: Design Year Noise Level with Project - Leq(h) (dBA) | Alt 3: Design Year Noise Level with Project - Leq(h) (dBA) | Alt 4: Design Year Noise Level with Project - Leq(h) (dBA) | | | | |
| R0 - R16 (16 Receptors) | A | Single-family residences and a church | 51 - 62 | 55 - 65 | 53 - 65 | 53 - 65 | 53 - 65 | No | No traffic noise impacts | Not Feasible or Reasonable | |
| R17 | | Tuolumne Christian Pre-School (playground) | 65 | 68 | 68 | 68 | 68 | Yes | Barriers provide no improvement to the noise environment (no insertion loss) | | |
| TR-01, 02, 03, 09, 11 and 11 (6 Receptors) | B | Trail (east of bridge) | 62 - 68 | 65 - 71 | 65 - 71 | 66 - 71 | 65 - 71 | Yes | All receptors experience or will experience a traffic noise impact. barriers provide no improvement to the noise environment (no insertion loss) | Not Feasible or Reasonable | |
| R1 - R37 (18 to 22 Non-Displaced Receptors) | C | Mobile homes in Sunrise Mobile Home Park | 63 - 70 | 67 - 74 | 68 - 73 | 70 - 73 | 69 - 73 | Yes | Barriers provide limited improvement to the noise environment: <ul style="list-style-type: none"> • Barriers less than 12 feet tall provide virtually no insertion loss • 12-foot-tall barriers provide a 3 dBA maximum insertion loss • 16- and 18-foot-tall barriers provide a 5 dBA maximum insertion loss to a single receptor | Not Reasonable | |
| None | D | Commercial are-- north of Tuolumne Boulevard | No noise sensitive land uses | | | | | | | | |
| TR-04, 05, 06, 07, 08, 12, 13 and 14 (8 Receptors) | E | Trail (west of bridge) | 54 - 60 | 57 - 63 | 61 - 68 | 61 - 67 | 61 - 67 | Yes | Barriers provide no improvement to the noise environment (no insertion loss) | Not Feasible or Reasonable | |
| None | F | Commercial are-- east of 7 th Street and south of River Road | No noise sensitive land uses | | | | | | | | |

Notes:

CNE = Common Noise Environment (see Figure 2.2.5-2); dBA = A-weighted decibels; Leq(h) = hourly equivalent sound level

- **MM NO-2:** Use Mufflers on Equipment with Internal Combustion Engines. As required by the Standard Specifications Provisions, equip internal combustion engines with manufacturer-recommended mufflers. Do not operate an internal combustion engine on the job site without the appropriate muffler.
- **MM NO-3:** Placement of Stationary Equipment. Stationary construction equipment will be placed such that noise is directed away from sensitive receptors nearest the activity.
- **MM NO-4:** Construction Equipment Staging. Construction equipment and supplies will be located in staging areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the activity.
- **MM NO-5:** Equipment that is quieter than standard equipment should be utilized.

2.3 Biological Environment

This section presents findings of reports for vegetation and wildlife communities, wetlands and other waters of the U.S., threatened and endangered species, and invasive species within the 22.5-acre biological study area (BSA) that has been identified to contain the spatial extent of all potential direct and indirect effects of the proposed project (see Figure 2.3-1). The reports include a Natural Environment Study (NES, 2016) that includes a wetland delineation and a rare plant study, and a Biological Assessment and Essential Fish Habitat (EFH) Assessment.

2.3.1 Natural Communities

This section focuses on the ecology of natural communities within the project area, rather than on individual plant or animal species. This section also discusses wildlife corridors, fish passage, and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves dividing sensitive habitat and thereby lessening its biological value.

Habitat designated as critical habitat under the federal Endangered Species Act (FESA) is discussed in Section 2.3.4, Threatened and Endangered Species. Wetlands and Other Waters are discussed in Section 2.3.2.

2.3.1.1 AFFECTED ENVIRONMENT

The project site is located in the northern portion of the San Joaquin Valley geographic sub-region of the Great Central Valley Region in the California Floristic Province. Most of the project area is developed with urban, commercial, and industrial land uses. Undeveloped portions of the project area include disturbed non-native grasslands, and riverine and riparian habitat. Plant species observed during surveys are included in the Rare Plant Report that is Appendix E to the NES. Of the 76 plant species observed, 49 are non-native. Four of these introduced species are considered highly invasive.

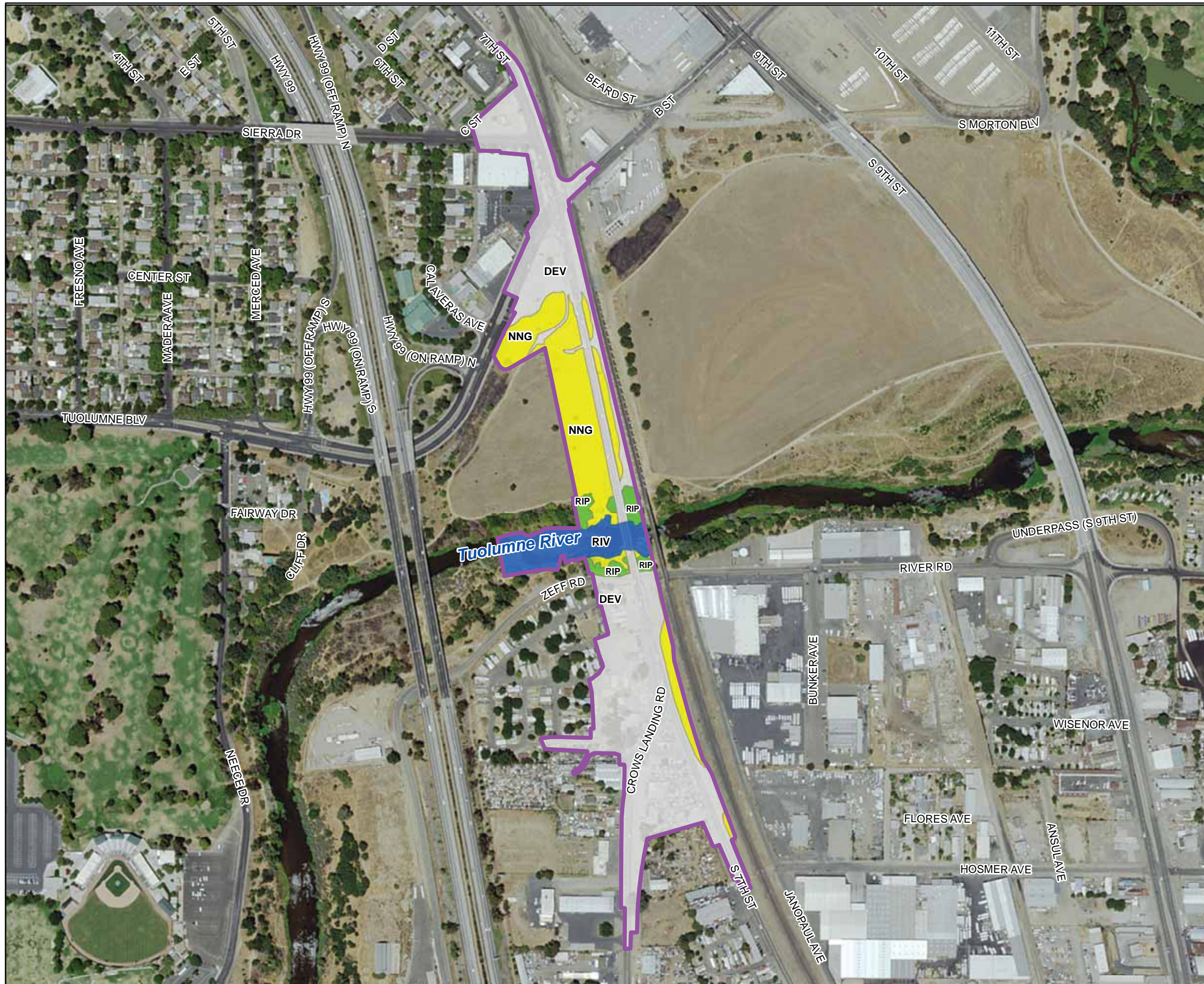
Disturbed Non-native Grasslands and Fallow Agriculture

Extensive areas of non-native grassland and inactive agricultural lands dominate the project area north of the Tuolumne River corridor. Observations made during site surveys noted that this area displayed furrows from disking, much like the furrows that would be cut in advance of agricultural operations. However, agricultural crops were not observed in this area during any site visit, suggesting that regular disking was instead a weed management/fire fuel reduction measure. The dominant species observed consisted of monotypic patches of slender wild oat (*Avena barbata*), broad leaf filaree (*Erodium botrys*), cheeseweed (*Malva parviflora*), milk thistle (*Silybum marianum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), broad-leaved pepperweed (*Lepidium latifolium*), fall panic grass (*Panicum dichotomiflorum*), and bindweed (*Convolvulus arvensis*). Non-native grassland also occurs east of 7th Street near the southern portion of the project area. Wildfires had recently burned the project area before site surveys.






Riparian Woodland

Riparian woodland vegetation along the Tuolumne River (both the north and south banks) within the area is highly disturbed and, at the time of field visits, supported a number of homeless encampments. Evidence of small spot-fires was present throughout the riparian corridor, and within the non-native grassland areas described previously.

Dominant woodland canopy species included box-elder (*Acer negundo*), southern California black walnut (*Juglans californica*), shining willow (*Salix laevigata*), and valley oak (*Quercus lobata*). California sycamore (*Platanus racemosa*) and Fremont cottonwood (*Populus fremontii*) were also documented, though not abundant, as components of the riparian tree layer. Shrub species were scarce. Herbaceous understory dominants included Italian thistle (*Carduus pycnocephalus*), stinging



LEGEND

-  Biological Study Area (22.5 Acres)
- Land Cover Type**
-  Aquatic / Riverine (RIV) (1.93 Acres)
-  Non-native Grassland (NNG) (4.71 Acres)
-  Riparian Vegetation (RIP) (0.72 Acre)
-  Developed (DEV) (15.1 Acres)

Note:
 Tuolumne River delineated by
 Y. Molette and J. Weisman
 on August 29, 2012

Source:
 CH2M HILL Habitat Survey, May and August 2012
 and ICF International, Inc. Botanical Survey
 Memorandum dated September 20, 2011

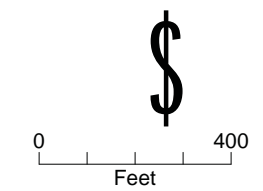


FIGURE 2.3-1
Biological Study Area and
Land Cover Types
 7th Street Bridge Project
 Modesto, California

nettle (*Urtica dioica*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), mugwort (*Artemisia douglasiana*), Bermuda grass (*Cynodon dactylon*), and fall panic grass.

On the active floodplain of the Tuolumne River, sandbar willow (*Salix exegua*) was the most abundant woody species. Open areas within the riparian corridor primarily supported non-native species including Chilean evening-primrose (*Oenothera stricta* ssp. *stricta*), horseweed (*Conyza canadensis*), jungle rice (*Echinochloa colona*), and fall panic grass.

Riverine Habitat

Riverine habitat (the portion of the BSA between the river's ordinary high water marks) totals 1.95 acres. This habitat supports a number of aquatic species, including sensitive fish, and habitats for fish regulated by the National Marine Fisheries Service (NMFS) under various laws.

The riverbed is characterized by a mix of substrates including sand, gravel, cobbles, and rocks, with large sandy expanses on the downstream side of the existing bridge. Tuolumne River hydrology is seasonally variable, and the extent of exposed riverbed within the project area is commensurately seasonally variable.

During summer 2014 site visits, water hyacinth (*Eichornia crassipes*) was exceptionally dense, and covered extensive portions of the Tuolumne River water surface. Water hyacinth is an introduced species that is highly invasive in California waterways. No other fully aquatic plants were observed in the project area. At the river margin, below the river ordinary high water mark, hydrophytic (water-loving) vegetation such as tall flatsedge (*Cyperus eragrostis*) and cattails (*Typha latifolia*) was present as narrow ribbons. This vegetation is likely seasonal and is scoured away when flows increase above summer minimum releases.

The National Wetlands Inventory shows two palustrine forested temporary flooded wetlands and two riverine lower perennial unconsolidated bottom permanently flooded features (riverine) in the vicinity of the project, although outside the BSA.

Sensitive Habitats

Sensitive habitats are those considered by agencies to be rare, unique, protected, and/or important to sensitive or managed species. Stanislaus County encompasses a variety of habitats including foothill oak savanna, valley grassland, vernal pool, wetland, and riparian communities. An initial list of sensitive habitats, natural

communities of concern, and sensitive species occurring or potentially occurring in the project area was assembled by querying resource databases from the California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS), and the U.S. Fish and Wildlife Service (USFWS). These databases were queried within the Riverbank quadrangle (U.S. Geological Survey [USGS] 7.5-minute series), which contains the project area, and within eight surrounding USGS 7.5-minute series quadrangles (Waterford, Ceres, Denair, Salida, Brush Lake, Escalon, Oakdale, and Avena). Results of these database queries are attached to the NES.

As a result of this initial query, and site surveys and reconnaissance visits, three sensitive habitats were determined to occur: riparian/riverine habitat, Critical Habitat for Central Valley steelhead, and EFH for Pacific Chinook salmon.

Critical Habitat for Central Valley steelhead is discussed in Section 2.3.4, Threatened and Endangered Species. Pacific Chinook Salmon EFH is discussed in Section 2.3.3, Animal Species.

2.3.1.2 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would avoid all direct and indirect effects to natural terrestrial and aquatic communities in the project area.

Build Alternatives

Implementation of the project could directly and indirectly affect riparian vegetation and Tuolumne riverine habitat. Riparian vegetation will be directly impacted by constructing access roads to the river channel and likely by creating or improving staging areas to store equipment. Table 2.3-1 summarizes temporary and permanent impact to riparian vegetation by alternative.

Table 2.3-1 Riparian Habitat Impacts by Alternative

| Impacts | Alt 2A | Alt 2B | Alt 3 | Alt 4 | No-Build |
|---------------------------|--------|--------|-------|-------|----------|
| Permanent Impacts – acres | 0.23 | 0.23 | 0.11 | 0.13 | 0 |
| Temporary Impacts – acres | 0.42 | 0.42 | 0.54 | 0.52 | 0 |

The wetted channel of the Tuolumne River (riverine habitat) will be temporarily impacted by all alternatives equally during construction. Following construction, Alternative 2A will occupy the smallest permanent riverine footprint of all alternatives since the existing bridge (with 13 piers and 2 abutments) will be

removed, and the new bridge will be founded with 5 piers and 2 abutments. Alternatives 2B and 3 will replace the old bridge with 7 piers and 2 abutments. Alternative 4 will result in the largest permanent riverine footprint, as it retains the existing bridge and adds 7 piers and 2 abutments. Direct permanent impacts to riparian and riverine habitat associated with Alternatives 2A, 2B, and 3 are less than Alternative 4.

All Build Alternatives will result in a bridge deck surface that is approximately twice as wide as the existing bridge deck surface. The wider bridge deck will create a larger shading footprint that could restrict the development of riparian vegetation. Because the condition of the existing riparian corridor and vegetation is degraded from urban use and encroachment, the potential shading effect to riparian vegetation is negligible. The lower Tuolumne River is temperature impaired and commonly conveys flows (particularly in the summer and fall) that are too warm for salmon and steelhead. A larger shaded footprint may provide thermal benefits to migrating salmon and steelhead, though this benefit is anticipated to be incremental. Indirect effects to riverine and riparian habitat are negligible, and no mitigation is necessary.

Implementing MM BIO-1 through MM BIO-15 (presented below) is required for temporary effects to riparian habitat resulting from the construction of access roads and staging areas and effects to riparian habitat from construction equipment.

2.3.1.3 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above analysis, mitigation for potential project effects to natural terrestrial and aquatic communities is required. The following MMs have been incorporated into the project to address these effects:

- **MM BIO-1:** Consider bridge designs that minimize the permanent placement of structures or fill in the river corridor.
- **MM BIO-2:** Channel access points will be flagged and used during site construction to minimize impacts to riverine and riparian habitats.
- **MM BIO-3:** No refueling or handling of chemicals will be allowed in or within 100 feet of the active channel of the Tuolumne River. The contractor will establish proper staging and refueling areas to conduct these activities.
- **MM BIO-4:** In-water work (e.g., existing pier demolition and new pier construction) will be limited to the time of the year specified in wildlife agency

permits (assumed to be June 1 through October 31). In-water work that is necessary outside of the permitted seasonal window will be isolated from the flowing channel with cofferdams or similar structures. The contractor will prepare an isolation and dewatering plan for agency approval prior to working in wet areas outside of the seasonal window.

- **MM BIO-5:** Before the onset of construction activities, a qualified person will conduct an education program for all construction personnel. The training will include a description of all sensitive species with the potential to occur in the BSA, and will review the mandatory conditions of approval agency permits and approvals.
- **MM BIO-6:** Environmentally Sensitive Areas (ESAs) will be clearly flagged for the duration of site construction. Access to and use of ESAs will be restricted. Vehicle fueling and staging areas will be located at least 100 feet from flagged ESAs.
- **MM BIO-7:** The contractor will prepare and implement a Stormwater Pollution Prevention Plan as required during permitting.
- **MM BIO-8:** Discharging pollutants from vehicle and equipment cleaning into any storm drains or watercourses will be prohibited.
- **MM BIO-9:** Concrete waste materials will not be allowed to enter the flowing water of the Tuolumne River. Waste materials will be disposed of offsite, at an approved location, where they cannot enter surface waters.
- **MM BIO-10:** Spill containment kits will be maintained onsite at all times during construction activities and staging or fueling of equipment.
- **MM BIO-11:** Water will be applied in construction areas, including access roadways, to control dust. Soil stockpiles will be covered when weather conditions require.
- **MM BIO-12:** Coir rolls, straw wattles, or similar materials will be used at the bases of slopes during construction to capture sediment.
- **MM BIO-13:** Graded areas will be protected from excessive erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of

designated staging areas, and erosion-control netting (such as jute or coir) as appropriate on sloped areas.

- **MM BIO-14:** Borrow or fill material used in the BSA shall be native or, if from offsite, certified to be non-toxic and weed free.
- **MM BIO-15:** Compensatory mitigation for the permanent loss of riverine habitat under all Build Alternatives to be negotiated with NMFS and other permitting agencies.

2.3.2 Wetlands and Other Waters

2.3.2.1 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 referred to as the Clean Water Act (CWA) (33 USC 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the United States, 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. To classify wetlands for the purposes of the CWA, 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 CWA.

Section 404 of the CWA 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 USACE with oversight by the USEPA.

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. 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 authorize a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard

permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with USEPA's Section 404(b)(1) Guidelines (USEPA 40 CFR 230), and whether permit approval is in the public interest. The 404 (b)(1) Guidelines (Guidelines) were developed by the USEPA in conjunction with the USACE, 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 which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practical 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 (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA 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.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by WDRs and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see Section, 2.2.1, Water Quality and Stormwater Runoff, for more details.

2.3.2.2 AFFECTED ENVIRONMENT

A Wetland Delineation Report (see Appendix D of the NES) was prepared for the 7th Street Bridge Project based on the 22.5-acre BSA shown in Figure 2.3-2. Caltrans submitted the Wetland Delineation Report to the USACE for verification on December 1, 2014, and the USACE issued its preliminary jurisdictional determination on March 25, 2015. Prior to construction, the USACE will require submittal of a Pre-Construction Notification for processing and approval.

A total of 1.95 acres of Waters of the U.S. were identified corresponding to the extent of riverine habitat between both ordinary high water marks of the Tuolumne River as shown in Figure 2.3-2. This area is part of the Tuolumne River, a managed, perennial water body. No jurisdictional wetlands were identified within the BSA. Caltrans

submitted the Wetland Delineation Report to USACE for verification on December 1, 2014, and the USACE issued its preliminary jurisdictional determination on March 25, 2015.

The Waters of the U.S. identified in the BSA are part of the Tuolumne River, the largest tributary to the San Joaquin River. The Tuolumne River is a perennial waterway whose watershed spans approximately 1,900 square miles from its headwaters in the Sierra Nevada Range to its confluence with the San Joaquin River west of Modesto. Surface flows are highly regulated by a series of dams operated by the Modesto and Turlock Irrigation Districts and the City and County of San Francisco. The watershed traverses private ranches, farmlands, and urban lands. Because of these conditions, the floodplain has been reduced to its active flow channel buffered by a narrow riparian corridor. The moderately sloped bank along the northern side of the river is connected to an extensive floodplain north of the active river channel. The southern bank has a short, near-vertical bank, rising to a narrow terrace from which a moderately sloped bank continues to rise away from the river and finally is topped with a paved road (Zeff Road).

The riparian and riverine habitats associated with the Tuolumne River within the BSA are described in Section 2.3.1.1, Affected Environment, in the Natural Communities section. Prominent riparian species include California walnut (*Juglans californica*), box-elder (*Acer negundo*), and sandbar willow (*Salix exigua*).

2.3.2.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would avoid direct and indirect effects to waters of the U.S.

Build Alternatives

The project's potential direct and indirect effects on waters of the U.S. (WOUS) within the project area are discussed in this section. Jurisdictional wetlands do not occur in the project area; therefore there would be no impacts to wetlands as a result of this project. A total of 1.95 acres of other WOUS was documented corresponding to the extent of riverine habitat between ordinary high water marks of the Tuolumne River as shown in Figure 2.3-2. Project features for each alternative that affect the WOUS are summarized in Table 2.3-2. Direct and indirect, temporary and permanent impacts by project alternative are summarized in Table 2.3-3.

Table 2.3-2 Project Features by Alternative

| Feature | Alt 2A | Alt 2B | Alt 3 | Alt 4 | No-Build |
|----------------------------------------------|--------|-----------|-----------|---------------------|----------|
| Deck length over WOUS - feet | 103 | 103 | 103 | 103 | 103 |
| Deck width over WOUS – feet | 77 | 77 | 86 | 80 | 33 |
| Deck area over WOUS - square feet | 7,931 | 7,931 | 8,858 | 8,240 | 3,399 |
| Work zone width (deck width + buffer) - feet | 177 | 177 | 186 | 180 | 133 |
| Work zone area - square feet | 18,231 | 18,231 | 19,158 | 18,540 | 13,699 |
| Piers/columns in WOUS | none | 4 columns | 4 columns | 2 piers + 2 columns | 2 piers |
| Area of piers in WOUS - square feet | none | 154 | 154 | 938 | 861 |

Notes:

WOUS = waters of the United States

Table 2.3-3 Impact to Waters of the U.S. by Project Alternative

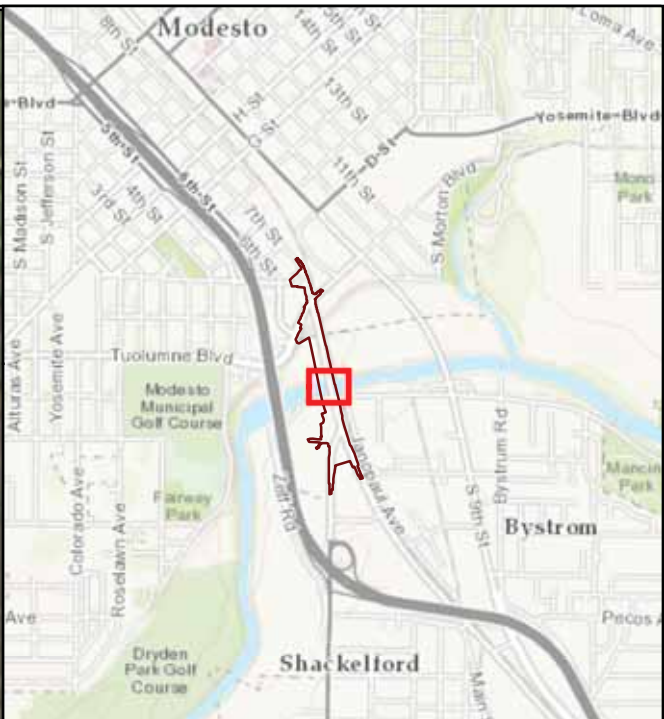
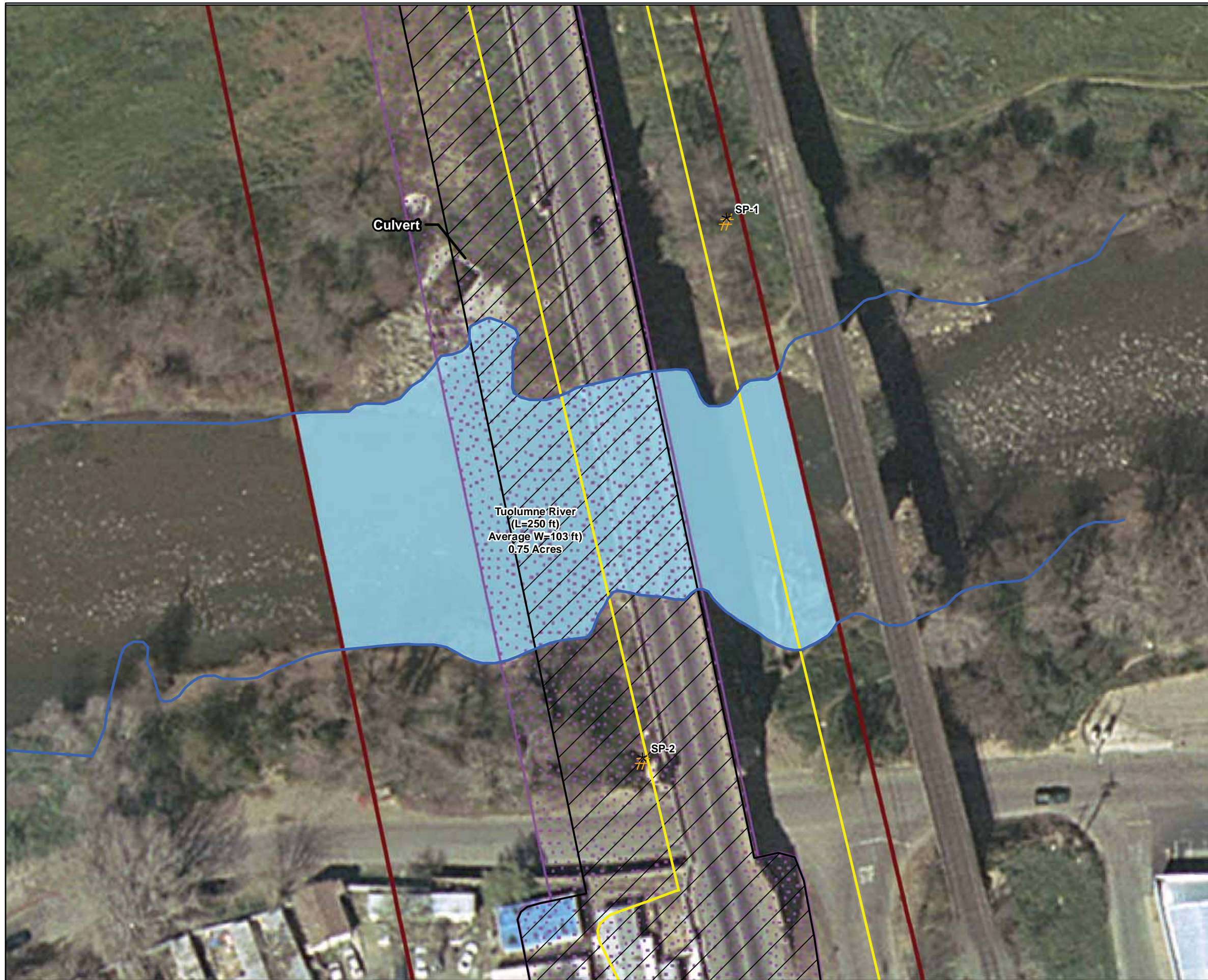
| Impact Type | Mechanism | Alt 2A (sq. ft.) | Alt 2B (sq. ft.) | Alt 3 (sq. ft.) | Alt 4* (sq. ft.) | No-Build* (sq. ft.) |
|--------------------|-----------------------------------------------------|------------------|------------------|-----------------|------------------|---------------------|
| Direct/permanent | Piers/columns in WOUS | none | 154 | 154 | 938 | 861 |
| Direct/temporary | Deck area + 50 ft each side for construction access | 18,231 | 18,231 | 19,158 | 18,540 | 0 |
| Indirect/permanent | Shading (deck area over WOUS) | 7,931 | 7,931 | 8,858 | 8,240 | 3,399 |
| Indirect/temporary | WOUS area in BSA. Sedimentation during construction | 84,940 | 84,940 | 84,940 | 84,940 | 0 |
| Total | | 111,102 | 111,256 | 113,110 | 112,658 | 4,260 |

Note:

* All alternatives would require maintenance which would create minimal but unquantifiable impacts. These would be slightly greater with the No-Build Alternative and Alternative 4 because both of these would preserve the existing bridge.

Permanent Impacts

The proposed project could directly and indirectly effect riverine and riparian habitat within the WOUS. Direct permanent impacts include the placement of piers or columns in the WOUS. Alternatives 2A, 2B, and 3 would have a beneficial effect in this respect because the area of piers or columns proposed is less than the pier area of the existing bridge. Alternative 2A would have the most beneficial effect because there would be no piers in the WOUS. Alternative 4, instead, would have a greater



- LEGEND**
- Biological Study Area (21.2 Acres)
 - Sample Point
 - Ordinary High-Water Mark
 - Potential Waters of the U.S. (0.75 Acre)
 - Alternative 2 Permanent Footprint
 - Alternative 3 Permanent Footprint
 - Alternative 4 Permanent Footprint

Imagery Source:
 USGS High Resolution Orthoimage
 USNG 10SFG765655.tif, Modesto Area, CA
 03-14-2002

Delineated by Y. Molette and
 J. Weisman on August 29, 2012
 Revised March 5, 2015

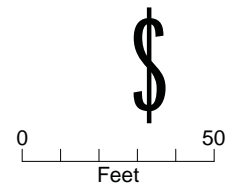


FIGURE 2.3-2
Potential Waters of the U.S.
 7th Street Bridge Project
 Modesto, California

impact than the existing condition, with 77 more square feet of pier within the WOUS.

Indirect permanent impacts would result because the deck width proposed for each Build Alternative is at least twice as wide as that of the existing bridge. This would create the indirect effect of greater shading of riverine habitat, potentially negatively affecting the WOUS. Shading may reduce water temperatures beneath the new bridge to an unknown extent. Cooler water may produce beneficial effects to steelhead and other fish species.

Temporary Impacts

Construction would result in direct and indirect effects to WOUS. Waters of the U.S. would be directly disturbed in Alternatives 2B, 3, and 4 by construction equipment excavating the riverbed within the WOUS and constructing columns or piers. Project excavation could temporarily increase water turbidity and construction equipment has the potential to contaminate WOUS because of leaks of fuel, lubricants, hydraulic fluids, or coolant.

All Build Alternatives have the potential to indirectly affect the WOUS by construction on the riverbanks and on the bridge deck above the river. Leaks of contaminants by construction vehicles could contaminate riverine habitat. Construction-related erosion and sedimentation on the riverbank could temporarily increase turbidity of water in the WOUS, affecting riverine habitat.

2.3.2.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementing MM BIO-1 through MM BIO-15 (listed in Section 2.3.1.3) would reduce impacts to WOUS associated with the Build Alternatives.

2.3.3 Animal Species

2.3.3.1 REGULATORY SETTING

Many federal laws regulate impacts on wildlife. The USFWS and NMFS are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under FESA. Species listed or proposed for listing are discussed in Section 2.3.4, Threatened and Endangered Species. All other federally protected special-status animal species are discussed here, including USFWS or NMFS candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act (NEPA)

- Migratory Bird Treaty Act (MBTA)
- Fish and Wildlife Coordination Act
- Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA)

2.3.3.2 AFFECTED ENVIRONMENT

Wildlife

Wildlife surveys was completed for the project from 2011 through 2014 and are documented in the NES. Few wildlife species were observed during site surveys and reconnaissance visits. Unidentified song birds, crows, and ravens were observed, as were non-native European starlings and house sparrows.

Wildlife species that can reasonably be expected to occur in association with valley foothill riparian vegetation, and thus the project area, include common garter snake (*Thamnophis sirtalis*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), river otter (*Lutra canadensis*), muskrat (*Ondatra zibethicus*), California ground squirrel (*Spermophilus beecheyi*), and striped skunk (*Mephitis mephitis*). Raptors, resident and migratory birds, warbling vireo (*Vireo gilvus*), California quail (*Callipepla californica*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), great egret (*Casmerodius albus*), and black-crowned night heron (*Nycticorax nycticorax*) may be found within Tuolumne River riparian zones.

Many vacant mud nests of American cliff swallows (*Petrochelidon pyrrhon*) were observed on the substructure of the bridge during summer 2014 site visits. Active nesting for this species typically occurs in spring. While not observed during site visits, other species such as black phoebe (*Sayornis nigricans*) also commonly nest on bridge structures near water (nesting birds are described in greater detail later in this section).

During site visits completed in June and July 2014, the existing bridge understructure was observed to support day-roosting colonies of unidentified bats. Day-roosting bats were present in small, narrow crevices exposed where concrete has chipped away (spalled) from the I-beam supports of the bridge deck. Bats were evidenced by guano piles in the dirt beneath the bridge, and by vocalizations (roosting bats are described in greater detail later in this section).

Fish

Of the 37 fish species occurring in the lower Tuolumne River, 14 species are native and 23 are introduced. Most non-native species are members of the sunfish family

(Centrarchidae), minnow family (Cyprinidae), and catfish family (Ictaluridae). Several of the sunfish species (for example, largemouth bass, *Micropterus salmoides*) support recreational fisheries in the Tuolumne River watershed, while at the same time posing management concerns as predators of juvenile Chinook salmon and steelhead.

A reconnaissance-level fishery resource and habitat survey was conducted on February 13, 2013. No fish species were observed during the survey. During a site visit in June 2014, common carp (*Cyprinus carpio*) was observed in the deeper water areas beneath the bridge, and largemouth bass, green sunfish (*Lepomis cyanellus*), and western mosquitofish (*Gambusia affinis*) near the margins of the Tuolumne River in the project area.

The project area includes suitable migration habitat for fall-run Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead (*O. mykiss*). Both species are known to occur in the Tuolumne River. The project area intersects designated Critical Habitat for Central Valley steelhead, and intersects EFH for fall-run Chinook salmon. These resources are discussed in greater detail later in this section.

Sensitive Species

The project area was determined to support suitable habitat for nine special-status animal species. These species are described below. Special-status species have one or more of the following characteristics:

- Wildlife listed, proposed for, or candidates for listing as endangered or threatened under the FESA
- Wildlife listed or proposed for listing as endangered or threatened under the California Endangered Species Act (CESA)
- Wildlife species listed as “fully protected” under California Fish and Game Code
- Wildlife listed by CDFW as Species of Special Concern

Valley elderberry longhorn beetle

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is a federally listed threatened species. See discussion in Section 2.3.4.2, Affected Environment, in the Threatened and Endangered Species section.

Central Valley Steelhead

Central Valley Steelhead (*Oncorhynchus mykiss*) is a federally listed threatened species and a California Species of Special Concern. See discussion in Section 2.3.4.2, Affected Environment, of the Threatened and Endangered Species section.

Chinook salmon

Chinook salmon (*Oncorhynchus tshawytscha*) migrate from the Pacific Ocean to freshwater spawning grounds in coastal and valley drainages throughout the west coast of North America. California's Central Valley contains habitat for four runs (races) of Chinook salmon: spring-run, fall-run, late-fall run, and winter-run, corresponding generally to the season in which adults return to natal drainages to spawn.

The Central Valley fall-run Chinook salmon Evolutionarily Significant Unit (ESU) race occurs in the Tuolumne River upriver to La Grange Dam, an impassable barrier located 52.2 RM above the San Joaquin River confluence. Central Valley fall-run ESU Chinook salmon are considered a California Species of Special Concern.

Juvenile fall-run Chinook salmon are surveyed regularly in the Tuolumne River. A total of 3,103 juvenile Chinook salmon juveniles was trapped at Waterford in 2013, with daily ranges of zero to 158 fish. Peak abundances of juveniles at Waterford were observed in January to March 2013. During the same time period, 35 juvenile Chinook salmon were trapped at Grayson River Ranch, with daily abundances ranging from zero to 9 fish. Most fish captured at the Grayson station were observed from mid-April to early May. Annual estimates of the total number of juvenile fall-run Chinook salmon in the lower Tuolumne River at Waterford ranged from 1,280 fish in 1997 to 1.6 million fish in 1998. An estimated population of 2,120 fall-run Chinook adults spawned in fall 2012 to produce the juveniles trapped in 2013. GrandTab, an accounting spreadsheet used by CDFW to track adult Chinook salmon abundance in drainages throughout California, reported that 1,926 adult fall-run Chinook salmon returned to the Tuolumne River in 2013.

The project area likely only provides move-through habitat for Central Valley fall-run Chinook salmon adults because the broad, silty-substrate reach does not include suitable spawning areas. A small scour pool located directly under the 7th Street Bridge may, during high flows, allow salmon to hold temporarily while moving upstream. Juvenile salmon may use portions of the project area for rearing habitat

before emigrating to the ocean, but instream temperatures and degraded riparian conditions likely limit the value of the project area for this purpose.

Hardhead

The hardhead (*Mylopharodon conocephalus*) is a member of the minnow family (Cyprinidae) that is native to and broadly distributed throughout mid- to low-elevation streams in the Sacramento and San Joaquin River basins. Suitable habitat includes clear, deep pools and runs with sand-gravel-boulder substrates and slow velocities. Optimal water temperatures are 24 to 28°C (75 to 82°F). Hardhead mature in their third year and spawn in April and May, sometime extending into August. Spawning occurs in aggregations, and results in depositing fertilized eggs in gravel beds in riffles, runs, or the heads of pools. Hardhead is considered a California species of special concern.

The CNDDDB reports three records of hardhead in the Tuolumne River: 2007 and 2008 occurrences near Waterford (about 13 miles upriver of the project area), and a 2007 record near Hughson (about 7 miles upriver of the project area).

Hardhead was captured during 2013 sampling at both the Grayson and Waterford sampling stations monitored annually for salmonids, as described above for Central Valley steelhead and Central Valley fall-run ESU Chinook salmon.

Surveys were not conducted for hardhead specifically in association with the proposed project. This species is known to occur in the Tuolumne River upstream and downstream of the project area. As such, it is assumed to occur in the project area, and likely provides preferred rearing and foraging habitat for hardhead. Suitable spawning habitat for hardhead (gravels) does not occur in the project area.

Western pond turtle

Western pond turtle *Actinemys [Emys] marmorata* is a California Species of Special Concern. The taxonomy of the western pond turtle is unsettled, but two general groups are recognized: the southwestern pond turtle occupies a relatively small and primarily coastal range from San Francisco Bay south to northern Baja California, and the northwestern pond turtle ranges from the San Francisco Bay north to Washington. Pond turtles found within the project area would be considered northwestern pond turtles, by definition.

Pond turtles are highly aquatic and are typically associated with riparian habitat including streams, rivers, sloughs, ponds, and artificial water bodies. Deep pools,

basking sites, and aquatic vegetation are important components of optimal pond turtle habitat. Western pond turtles typically breed between April and August. Female turtles lay eggs in excavated chambers located in upland habitat as much as 100 meters away from water. Hatchlings typically emerge in late summer or fall but may over-winter in the nest and emerge the following spring. In the winter, adult turtles hibernate after burying themselves in muddy bottoms underwater or in upland soil and vegetative litter. Western pond turtles are omnivorous with a diet that includes plant material, insects, crustaceans, fish, amphibians, and carrion. This species is in decline because of habitat loss, habitat modification, pollution, human recreation, and illegal collection.

Western pond turtle is not reported by the CNDDDB within the Riverbank USGS quadrangle. Two historical (1993) occurrences were reported in association with agricultural ponds located in the Stanislaus River watershed 15 miles northwest of the project area.

Focused surveys for pond turtles were not completed in association with the proposed project, and individuals were not observed incidentally during site visits completed to date. This species could be present in the project area based on the presence of suitable, albeit highly disturbed, habitat along the Tuolumne River corridor.

Western burrowing owl

Western burrowing owl (*Athene cunicularia hypugaea*) is a California Species of Special Concern that ranges from Canada to South America. Most burrowing owls in this the Central Valley of California are residents, though some are migratory, spending winters nearby or in Southern California or Mexico and appearing in the San Joaquin Valley to breed in summer.

Burrowing owls use burrows (preferable in annual or perennial grassland areas) usually dug by ground squirrels, and less so those dug by coyotes, badgers, and foxes. Six to twelve eggs are typically laid in burrows from late April to mid-May, with chicks hatching approximately 4 weeks later. Young are mobile 2 weeks after hatching, and fledge from their natal burrow approximately 6 weeks after hatching. Fledglings may remain in their parent's territories to forage.

The CNDDDB reports two historical occurrences of western burrowing owl within the broad region queried for this project. One 1994 occurrence was a perched adult at a location approximately 7 miles northwest of the project area in an area now apparently developed as a residential housing tract. The second occurrence was an

individual approximately 15 miles northwest of the project area. Current imagery shows this location as active row-cropped agriculture.

Focused surveys were not conducted for this species, but burrowing owls were not observed during reconnaissance surveys of the project area. Near the northern portion of the existing bridge includes potential, though highly disturbed, nesting and foraging habitat for this species. As such, burrowing owl could potentially occur within the project area.

Swainson's hawk

Swainson's hawk (*Buteo swainsoni*) is a California threatened migratory species found throughout the agricultural areas of the Central Valley, including Stanislaus County. Swainson's hawks often nest in trees adjacent to agricultural fields (for example, alfalfa, hay, and row crops) where prey species such as small mammals are abundant. Prey species include mice, gophers, ground squirrels, rabbits, amphibians, reptiles, birds, and, rarely, fish. Swainson's hawks are known to forage up to 16 kilometers (10 miles) from a nest tree.

Migrating individuals move south to Mexico through the southern and central interior portions of California in September and October, and return in March through May. Some individuals migrate as far as South America, passing in large flocks over Central America. Breeding occurs in late March to late August, with peak activity late May through July. Clutch size usually consists of two or three eggs, which the female incubates for 25 to 28 days.

Reasons for declines in population include predation and competition by larger raptors and loss of foraging habitat in the Central Valley. Competitors for food include northern harriers, red-tailed hawks, black-shouldered kites, burrowing owls, and golden eagles.

The CNDDDB reports 16 occurrences of Swainson's hawk within the broad region queried for the project. Nest trees, when specified in the CNDDDB, were typically in or near active agricultural lands that were proximal to rivers or creeks. The closest of these occurrences (about 5.5 miles northwest of the project area) was a 1997 observation along Dry Creek, a tributary to the Tuolumne River

Focused surveys were not conducted for Swainson's hawk in association with the proposed project. While this species was not observed during reconnaissance visits to

the project area, Swainson's hawk could potentially occur based on presence of suitable, although highly disturbed, nesting and foraging habitat.

Red bat

The red bat (*Lasiurus blossevillii*) is a California Species of Special Concern that is distributed broadly throughout the western United States, and from British Columbia south to South America. In California, red bats are generally most abundant in the Central Valley and in coastal areas south of San Francisco Bay.

The reproductive life history of the red bat is not completely documented, but that of its eastern counterpart, *L. borealis*, is better known. For *L. borealis*, females bear an average of 3.2 young in June, with young able to fly in 3 to 6 weeks.

Red bats roost in the foliage of trees, particularly large trees adjacent to streams and open fields. Central Valley area surveys in 1999 and 2000 reported that next to Mexican free-tail bats, red bats were the most frequently detected bat species (present at 93 percent of stations sampled). Red bats were shown to associate with (and potentially maternally roost within) the canopies of mature, somewhat expansive (corridors/patches greater than 50 meters in width) cottonwood-sycamore-valley oak forest more so than other habitat categories sampled. Western red bats are not known to use bridge structures. Sampling also showed that red bats foraged heavily over exposed gravel bars associated with well-developed riparian corridors.

The CNDDDB reports two historical occurrences of western red bat within the broad region queried for the proposed project: a 1999 acoustic detection about 4 miles northeast of Oakdale on Highway 120, and a 1999 detection at the Orange Blossom Road crossing of the Stanislaus River about 5 miles east-northeast of Oakdale.

Survey efforts showed that red bats were detected at four locations (of four surveyed) along the Stanislaus River from June to October 1999, and at three locations (of three surveyed) along the Merced River in May, July, August, and September 1999.

Focused bat surveys were not completed in association with the proposed project. Based on the results of the previous survey efforts summarized above, red bats could occur (roost and forage) in the project area, particularly in association with larger trees near the Tuolumne River corridor.

Other Sensitive Resources

Essential Fish Habitat

EFH is designated by NMFS under the MSA for all commercially important fish species with Fishery Management Plans. EFH includes the habitat necessary for all life stages of managed fish species. Federal agencies are required to evaluate the effects of their actions on EFH to demonstrate consistency with the MSA. Caltrans prepared an EFH Assessment to analyze the effects of the proposed 7th Street Bridge Project on EFH for Pacific Chinook salmon and to facilitate consultation with NMFS under the MSA. Caltrans concludes that the proposed project May Adversely Affect Pacific Chinook salmon EFH, but minimally.

The Pacific Fishery Management Council has, to Amendment 14 of the Pacific Coast Salmon FMP, identified EFH for Pacific Coast salmon as all those streams, lakes, ponds, wetlands, and other currently viable water bodies and most of the habitat historically accessible to salmon in Washington, Oregon, Idaho, and California.

The lower Tuolumne River, including the project area, is mapped at EFH Unit 1804002 (Middle San Joaquin-Lower Merced-Lower Stanislaus Unit), and is considered accessible, unoccupied historical habitat. This EFH unit comprises the lower reaches of the Merced, Tuolumne, and Stanislaus rivers below fish passage barriers to their confluences with the San Joaquin River, the San Joaquin River mainstem between the Stanislaus and Merced rivers, and all tributaries to these drainages.

Nesting Birds

Site surveys in summer 2014 documented vacant/inactive cliff swallow nests on the substructure (girders) of the existing 7th Street Bridge. California Fish and Game Code and provisions of the MBTA prohibit impacts to nesting birds or their active nests and eggs.

Cliff swallows

Cliff swallows (*Petrochelidon pyrrhonota*) are found throughout California, except in high mountains and the dry southeastern desert. Four basic conditions are found at all cliff swallow colonies: (1) an open habitat for foraging; (2) a vertical surface beneath an overhang for attaching the nest; (3) a supply of mud that has the proper consistency for nest building; and (4) a body of fresh water for drinking.

Cliff swallows spend the winter months in South America. In late winter and early spring, they begin a northward migration through Central America and Mexico.

Arrival dates can vary greatly because of weather conditions. The first migrants usually appear in southern California by late February or early March. Two or three weeks later cliff swallows begin arriving in northern California.

CDFW considers February 15 to September 1 to be the swallow nesting season in California. Completed (such as active) nests during this breeding season cannot be harmed without a permit from USFWS and approval from CDFW. Outside of these dates, nests can be removed without a permit.

Other species of birds (for example, black phoebe) also commonly build nests on bridges near water. Nests of other species were not observed during site visits, but other species of birds are expected to potentially nest on the existing bridge structure. Fish and Game Code and MBTA extend impact prohibitions to areas other than the existing bridge. That is, actively nesting birds and their nests and eggs cannot be impacted, wherever they may occur.

Roosting Bats

Site surveys in summer 2014 documented active day roosts for unidentified bat species on the substructure (girders) of the existing 7th Street Bridge. Caltrans reports that bridge structures are known to support 18 of 24 bat species occurring in California. Four of these species are noted as commonly associating with bridges: pallid bat (*Antrozous pallidus*), Mexican free-tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), and big brown bat (*Eptesicus fuscus*). None of these is listed under the FESA or CESA, but pallid bat is considered a California Species of Special Concern.

Bats use California bridges for day and night roosts. Day roosts are used from sunrise to sunset and are the places where bats sleep and raise young. Night roosts are typically used from sunset to sunrise by bats resting between foraging bouts. Some bridges provide both day- and night-roosting habitat. Day roosts are commonly located by daytime vocalizations and by the presence of guano beneath day-roost entrances. Night-roosts are commonly evidenced by staining on the understructure of bridges. Night-roosts may also be established by migratory species moving through an area.

Focused surveys for bats have not been completed in the project area. However, evidence of day-roosting and night-roosting bats was observed on the existing 7th Street Bridge substructure (girders) during site visits in summer 2014. Staining was observed in the open girders on the bridge understructure, suggesting night-roosting

activity also. Bat vocalizations were heard and guano accumulations were observed in association with exposed spaces between I-beams where concrete has cracked away. Roosting bats were not identified to species at the time of summer 2014 site visits.

2.3.3.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would avoid direct and indirect effects on animal species.

Build Alternatives

Aquatic Species

Project construction could directly and indirectly impact sensitive aquatic species in and near riverine habitat of the project area. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead (federal threatened), fall-run Chinook salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could also be impacted by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation.

Project Alternatives 2B and 3 include demolition of the existing bridge and construction of a new bridge, and would directly and indirectly impact sensitive aquatic species similarly. Alternative 4 would potentially affect sensitive aquatic species less than Alternatives 2B and 3 since the existing bridge would not be demolished in Alternative 4, but would instead be retrofitted. The new bridge constructed under Alternative 4 would be narrower than other alternatives, and would require fewer columns for support. Alternative 2A would potentially affect sensitive fish species less than Alternatives 2B, 3, and 4 since the low-flow channel of the Tuolumne River would be spanned with the arch design and piers associated with Alternative 2A would not be adjacent to the flowing water of the low-flow channel.

Implementation of the project could directly and indirectly impact designated Critical Habitat for Central Valley steelhead and designated Essential Fish Habitat for fall-run Chinook salmon. All project alternatives would temporarily and similarly impact these designated areas during construction. Alternative 2A would result in the fewest permanent impacts, and Alternative 4 would result in the greatest permanent impacts. These effects could be considered adverse under the FESA and MSA.

Impacts to sensitive aquatic species under all Build Alternatives would be reduced with the implementation of MM BIO-1 through MM BIO-15 as listed in Section 2.3.1.3 and MM BIO-16 through MM BIO-72 as listed in Section 2.3.3.4.

Terrestrial Wildlife

Project construction could directly impact sensitive bird species and bat species that nest and roost on the existing bridge. The existing 7th Street Bridge supports nesting birds and roosting bat species. Alternatives 2A, 2B, and 3 would include demolition of the existing bridge where nesting and roosting is known to occur. Alternative 4 would retain the existing 7th Street Bridge, but retrofitting of the existing structure would likely impact nesting birds and roosting bats similar to bridge demolition.

Project construction could directly impact sensitive bird species that nest in vegetation of the project area. Impacts to nesting birds (including eggs, young, and active nests themselves) is prohibited by sections of the California Fish and Game Code and the MBTA. All Build Alternatives would require vegetation disturbance to create access roads to the Tuolumne River corridor, to improve staging areas, and to facilitate demolition and construction of bridge alternatives.

Project construction could directly and indirectly impact Swainson's hawks that nest within or near the project area during construction. Such impacts are prohibited by the CESA, the MBTA, and California Fish and Game Code. Bridge demolition and construction activities could directly impact Swainson's hawk if active nest trees are removed or otherwise damaged. Demolition and construction activities could indirectly affect Swainson's hawk if activities change the behavior of nesting hawks or their young and the behavioral changes affect the success of the nest. All bridge alternatives would potentially impact Swainson's hawks equally. Suitable foraging habitat for Swainson's hawk does not occur in the project area since the disturbed property area within the north floodplain of the Tuolumne River is maintained in a clear, furrowed condition. The No-Build Alternative would not impact Swainson's hawk since vegetation would not be removed and activity associated with bridge demolition and construction would not be conducted.

Implementation of the MMs listed below would reduce adverse effects to animal species associated with the Build Alternatives.

2.3.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementing MM BIO-1 through BIO-15 (listed in Section 2.3.1.3) and MM BIO-16 through MM BIO-81 listed below would reduce adverse effects to animal species associated with Build Alternatives to negligible levels.

- **MM BIO-16:** To the extent feasible, equipment will not be operated during nighttime hours (i.e., after dark) to minimize impacts to salmon and steelhead.
- **MM BIO-17:** Equipment will be inspected on a daily basis for leaks and completely cleaned of any external petroleum products, hydraulic fluid, coolants, and other deleterious materials prior to operating the equipment.
- **MM BIO-18:** A Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed to provide consistent, appropriate responses to spills that may reasonably be expected with implementation of the project. The SPCC Plan will be kept on-site during construction and the appropriate materials and equipment will also be on-site during construction to ensure the SPCC Plan can be implemented. Personnel will be knowledgeable in the use and deployment of the materials and equipment so response to an accidental spill will be timely.
- **MM BIO-19:** Maintenance and fueling of construction equipment and vehicles will not occur within 150 feet of the flowing water of the Tuolumne River.
- **MM BIO-20:** Maintenance and construction activities will be avoided at night to the extent practicable. When night work cannot be avoided, disturbance of sensitive species and managed habitats (including EFH) will be avoided and minimized by restricting substantial use of temporary lighting to the least sensitive seasonal and meteorological windows. Lights on work areas will be shielded and focused to minimize fugitive lighting.
- **MM BIO-21:** Debris from demolition and construction activities will be disposed of off-site at an approved location where it cannot enter surface waters.
- **MM BIO-22:** An underslung work platform, temporary work trestle or similar structure will be installed to keep bridge debris and construction, maintenance, and repair materials from falling into the river during demolition and construction.

- **MM BIO-23:** Temporary sediment basins, if installed, will be cleaned of sediment and the site restored to pre-construction contours (elevations, profile, and gradient) and function post-construction.
- **MM BIO-24:** Construction staging and storage areas will be located a minimum of 150 feet from the flowing water of the Tuolumne River and from sensitive plant communities such as native riparian vegetation.
- **MM BIO-25:** Excavated material will not be stored or stockpiled in the channel. Any excavated material that will not be placed back in the channel or on the bank after construction will be end-hauled to an approved disposal site.
- **MM BIO-26:** Gravel and large woody debris (LWD) excavated from the channel that is temporarily stockpiled for reuse in the channel will be stored in a manner that prevents mixing with river flows.
- **MM BIO-27:** "Wet-work" area(s) will be isolated from flowing water using cofferdams, gravel berms, or other methods approved by permitting agencies. Seasonal in-water work areas will be specified by regulatory agencies during project permitting, but are assumed to be June 1 through October 31.
- **MM BIO-28:** Cofferdams or other diversions will affect no more of the river channel than is necessary to support completion of the maintenance or construction activity. Immediately upon completion of in-channel work, temporary fills, cofferdams, diversions, and other in-channel structures that will not remain in the river (i.e., materials other than clean, spawning-sized gravel) will be removed in a manner that minimizes disturbance to the aquatic environment.
- **MM BIO-29:** All structures and imported materials placed in the river channel or on the banks during construction that are not designed to withstand high flows will be removed before such flows occur.
- **MM BIO-30:** Temporary fills, cofferdams, and diversions that are left in the river channel will be composed of washed, rounded, spawning-sized gravel between 0.4 to 4 inches in diameter; gravel in contact with flowing water will be left in place, modified (i.e., manually spread out using had tools if necessary) to ensure adequate passage for all life stages of fish present in the BSA, and then allowed to disperse naturally by high winter flows; materials placed above the Ordinary High

Water Mark must be clean washed rock or contained to prevent material conveyance to the river or mixing with clean gravel.

- **MM BIO-31:** The extent of dewatering will be limited to the minimum footprint (within coffered areas) necessary to support construction activities.
- **MM BIO-32:** A wood block, bubble curtain, or similar protection will be installed (prior to the driving of piles) to further reduce the effects of noise and vibration to fish associated with pile-driving activities if it is determined that such activities must occur in the water.
- **MM BIO-33:** The contractor will monitor turbidity levels in the river during construction and implement a plan that avoids unacceptable sedimentation and turbidity.
- **MM BIO-34:** Water pumped from areas isolated from surface water to allow construction to occur in the dry will be discharged to an upland area providing overland flow and infiltration before returning to the river. Upland areas may include sediment basins of sufficient size to allow infiltration rather than overflow or adjacent dry gravel/sand bars if the water is clean and no visible plume of sediment is created downstream of the discharge. Other measures may be used to settle and filter water such as Baker tanks.
- **MM BIO-35:** A NMFS-approved fish biologist will be onsite to observe dewatering activities and to capture/rescue any fish that are observed in an isolated area during dewatering activities.
- **MM BIO-36:** Drilling will be conducted in dry river channel areas, to the extent practicable. If drilling must occur where water is present, the work area will be isolated from live water prior to work.
- **MM BIO-37:** When geotechnical drilling takes place within the river channel, including gravel beds and bars, drilling mud will be bentonite without additives; initial drilling through gravel will be accomplished using clean water as a lubricant; after contact with bedrock or consolidated material, drilling mud (i.e., bentonite clay) may be used. All drilling fluids and materials will be self-contained and removed from the site after use; drilling will be conducted inside a casing so that all spoils are recoverable in a collection structure.

- **MM BIO-38:** Stream width, depth, velocity, and slope that provide upstream and downstream passage of adult and juvenile fish will be preserved according to current NMFS and CDFW guidelines and criteria or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions.
- **MM BIO-39:** Flow through new and replacement structures must meet the velocity depth, and other passage criteria for salmonid streams as described by the current NMFS and CDFW guidelines or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions.
- **MM BIO-40:** Rock slope protection (RSP), sheet piles, and other erosion control materials will be pre-washed to remove sediment and/or contaminants.
- **MM BIO-41:** Temporary material storage piles (e.g., RSP) will not be placed in the 100-year floodplain during the rainy season (October 15 through May 31), unless material can be relocated within 12 hours before the onset of a storm.
- **MM BIO-42:** When concrete is poured to construct bridge footings or other infrastructure in the vicinity of flowing water, work must be conducted to prevent contact of wet concrete with water (e.g., within a cofferdam). Concrete or concrete slurry will not come into direct contact with flowing water.
- **MM BIO-43:** Environmentally Sensitive Areas will be fenced to prevent encroachment of equipment and personnel into riparian areas, river channels and banks, and other sensitive habitats.
- **MM BIO-44:** Trees as identified in any special contract provisions or as directed by the Project Engineer will be preserved. Hazard trees greater than 24 inches in diameter at breast height (DBH) will be removed only under the supervision of the Project Biologist. Trees will be felled in such a manner as not to injure standing trees and other plants to the extent practicable.
- **MM BIO-45:** Where vegetation removal is temporary to support construction activities, native species will be re-established that are adapted to the project location and that contribute to a diverse community of woody and herbaceous plants.
- **MM BIO-46:** Disturbance and removal of aquatic vegetation will be minimized. The limits of disturbance will be identified; native vegetation, river channel

- substrate, and LWD disturbed outside these limits should be replaced if damaged. The minimum amount of wood, sediment and gravel, and other natural debris will be removed using hand tools, where feasible, only as necessary to maintain and protect culvert and bridge function, ensure suitable fish passage conditions, and minimize disturbance of the riverbed.
- **MM BIO-47:** Soil compaction will be minimized by using equipment that can reach over sensitive areas and that minimizes the pressure exerted on the ground. Where soil compaction is unintended, compacted soils will be loosened after heavy construction activities are complete.
 - **MM BIO-48:** LWD subject to damage or removal will be retained and replaced on site after project completion as long as such action would not jeopardize infrastructure or private property or create a liability. LWD not replaced on-site will be stored or offered to other entities for use in other mitigation/restoration projects where feasible.
 - **MM BIO-49:** Vegetation disturbance will be minimized by locating temporary work areas to avoid patches of native aquatic vegetation, substantial LWD, and spawning gravel. Where vegetation removal is temporary to support construction activities, native species will be re-established that are specific to the project location and that comprise a diverse community of aquatic plants.
 - **MM BIO-50:** Where river bed material is removed temporarily to facilitate construction, it will be stored adjacent to the site, then placed back in the channel post-construction at approximately pre-project depth and gradient.
 - **MM BIO-51:** Existing roadways will be used for temporary access roads whenever reasonable and safe. The number of access and egress points and total area affected by vehicle operation will be minimized; disturbed areas will be located to reduce damage to existing native aquatic vegetation, substantial large woody debris, and spawning gravel.
 - **MM BIO-52:** Modified or disturbed portions of rivers, banks, and riparian areas will be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). At project completion, the riverbank toe will not extend farther into the active channel than the existing riverbank toe location.

- **MM BIO-53:** The use of RSP at bridge abutments will be limited to the minimum necessary to protect the abutments under flood conditions.
- **MM BIO-54:** Bank stabilization will incorporate bioengineering solutions consistent with site-specific engineering requirements, when feasible. Where RSP is necessary, native riparian vegetation and/or LWD may be incorporated into the RSP.
- **MM BIO-55:** Caltrans shall retain a qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids, salmonid/habitat relationships, and biological monitoring of salmonids. Caltrans shall ensure that all biologists working on the project will be qualified to conduct fish collections in a manner which minimizes potential risks to salmonids.
- **MM BIO-56:** If individuals of sensitive aquatic species may be present and subject to potential injury or mortality from construction activities, a qualified biologist will conduct a preconstruction visual survey (i.e., bank observations).
- **MM BIO-57:** When sensitive aquatic species are present in the BSA and it is determined that they could be injured or killed by construction activities, a qualified project biologist will identify appropriate methods for capture, handling, exclusion, and relocation of individuals or resources that could be affected. Where such resources cannot be feasibly captured, handled, excluded, or relocated (e.g., salmonid redd), actions that could injure or kill individual organisms or harm resources will be avoided or delayed until the species leaves the affected area or the organism reaches a stage that can be captured, handled, excluded, or relocated.
- **MM BIO-58:** The project biologist will conduct, monitor, and supervise all capture, handling, exclusion, and relocation activities; ensure that sufficient personnel are available for safe and efficient collection of listed species; and ensure that proper training of personnel has been conducted in identification and safe capture and handling of sensitive aquatic species.
- **MM BIO-59:** Electrofishing may be used when other standard fish capture methods are likely to be ineffective or other methods fail to remove all fish from the site; the project biologist must have appropriate training and experience in electrofishing techniques and all electrofishing must be conducted according to the NMFS (2000) Guidelines for Electrofishing.

- **MM BIO-60:** Individual organisms will be relocated the shortest distance possible to habitat unaffected by construction activities. Within occupied habitat, capture, handling, exclusion, and relocation activities will be completed no earlier than 48 hours before construction begins to minimize the probability that listed species will recolonize the affected areas.
- **MM BIO-61:** Within temporarily drained river channel areas, salvage activities will be initiated before or at the same time as river area draining and completed within a time frame necessary to avoid injury and mortality of sensitive aquatic species.
- **MM BIO-62:** The project biologist will continuously monitor in-water activities (e.g., placement of cofferdams, dewatering of isolated areas) for the purpose of removing and relocating any listed species that were not detected or could not be removed and relocated prior to construction. The project biologist will be present at the work site until all sensitive species to be removed from a project site have been removed and relocated.
- **MM BIO-63:** The project biologist will maintain detailed records of the species, numbers, life stages, and size classes of listed species observed, collected, relocated, injured, and killed, as well as recording the date and time of each activity or observation.
- **MM BIO-64:** Before construction activities begin, the project environmental coordinator or biologist will discuss the implementation of the required BMPs with the maintenance crew or construction resident engineer and contractor, and identify and document Environmentally Sensitive Areas and potential occurrence of listed species.
- **MM BIO-65:** Before construction activities begin, the project environmental coordinator or biologist will conduct a worker awareness training session for all construction personnel that describes the listed species and their habitat requirements, the specific measures being taken to protect individuals of listed species in the project area, and the boundaries within which project activities will be restricted.
- **MM BIO-66:** Caltrans will designate a biological monitor to monitor on-site compliance with all project BMPs and any unanticipated effects on listed species. Non-compliance with BMPs and unanticipated effects on listed species will be

reported to the resident engineer or maintenance supervisor immediately. When non-compliance is reported, the resident engineer or maintenance supervisor will implement corrective actions immediately to meet all BMPs; where unanticipated effects on listed species cannot be immediately resolved, the resident engineer or maintenance supervisor will stop work that is causing the unanticipated effect until the unanticipated effects are resolved. The biological monitor should be approved by NMFS.

- **MM BIO-67:** Work within water will be restricted to the period from June 1 to October 31, per the NMFS Biological Opinion and CDFW Lake and Streambed Alteration Agreement for the project. Extensions beyond October 31 may be conditionally granted by NMFS and CDFW.
- **MM BIO-68:** Temporary falsework will be constructed to ensure that materials used during bridge demolition and construction do not enter the river channel.
- **MM BIO-69:** "Wet-work" area(s) will be isolated from flowing water using cofferdams, gravel berms, or other methods approved by permitting agencies. Seasonal in-water work areas will be specified by regulatory agencies during project permitting, but are assumed to be June 1 through October 31.
- **MM BIO-70:** A fish biologist will be onsite to observe de-watering activities and to capture/rescue any fish that are observed in an isolated area during dewatering activities.
- **MM BIO-71:** Vegetation disturbance will be minimized by locating temporary work areas to avoid patches of native aquatic vegetation, substantial LWD, and spawning gravel. Where vegetation removal is temporary to support construction activities, native species will be re-established that are specific to the project location and that comprise a diverse community of aquatic plants.
- **MM BIO-72:** Purchase of in-lieu fee program credit at a 3:1 ratio for 154 square feet of permanent impacts to designated California Central Valley steelhead critical habitat within the stream channel resulting from the proposed project.
- **MM BIO-73:** The following measures for western pond turtle will be implemented:
 - Preconstruction surveys for presence/absence

- Dewatering of work areas and cofferdams to prevent rewatering
- Caltrans will ensure that a qualified biologist is on site during major ground-disturbing activities and dewatering to capture and relocate turtles as necessary
- **MM BIO-74:** The following measures for burrowing owl will be implemented:
 - Prior to ground-disturbing activities in the BSA, Caltrans will conduct surveys for burrowing owls using the guidance provided by the California Burrowing Owl Consortium.
 - Active burrows will be avoided by establishing a no-work buffer of 50 meters during the non-nesting period of September 1 to January 31, unless modified by the CDFW.
 - Active burrows will be avoided by establishing a no-work buffer of 75 meters during the nesting period (February 1 to August 31), unless modified by the CDFW.
 - Unless agreed to otherwise by Caltrans and CDFW, compensatory mitigation for impacts to burrowing owl and its suitable foraging habitat will follow CDFW guidance.
- **MM BIO-75:** The following measures for Swainson's hawk will be implemented:
 - Caltrans will complete surveys for nesting Swainson's hawk within the BSA and within an appropriate buffer around the BSA following guidelines of the Swainson's hawk Technical Advisory Committee.
 - If active nest trees are found and may be affected, CDFW will be notified immediately and consultation may be required.
 - The project may be designed or reconfigured to avoid and/or minimize impacts to nesting Swainson's hawks.
 - CDFW provides recommendations for seasonal work restrictions and buffers from active nests while conducting project activities. Caltrans will work with CDFW to identify and establish appropriate buffers around active nests during the period March 1 to September 15.

- **MM BIO-76:** The following measures for red bats will be implemented:
 - During the summer or early fall immediately preceding bridge demolition, complete surveys to confirm what bat species are using the existing bridge structure and in what capacity.
 - Develop a site-specific bat mitigation plan to:
 - Humanely exclude bats from roosting in trees that are planned for removal or trimming
 - Humanely exclude bats from roosting on the existing bridge structure
 - Bats will not be excluded from using the existing bridge during the maternal roosting period of April 15 to August 31 unless otherwise agreed to by Caltrans and CDFW.
- **MM BIO-77:** To avoid direct impacts to nesting cliff swallow, Caltrans, in consultation with CDFW, will develop and implement a nesting bird exclusion plan prior to site construction. This plan will:
 - Include provisions to remove relict nests from the existing bridge understructure outside of the typical nesting season.
 - Exclude birds from establishing new nests on the bridge structure (existing or new bridge) by hanging exclusion netting or some similar technique approved by CDFW.
- **MM BIO-78:** A preconstruction nesting bird survey will be conducted to identify active nests within the BSA. Caltrans may remove unoccupied nests during the non-nesting period (September 1 to February 15).
- **MM BIO-79:** If occupied nests (i.e., nests with birds or eggs) are present within the BSA, work within 50 feet of the nest of passerine species or 300 feet of raptor species will be avoided. Work shall not be permitted within this buffer until a qualified biologist has determined that nests are no longer active (i.e., young have fledged, or nest has failed)
- **MM BIO-80:** Trees will be removed during the non-nesting season Sept. 1 to Feb 15. If vegetation removal is required during the nesting season, an approved biologist will survey for active nesting 72 hours prior to vegetation removal.

- **MM BIO-81:** A bird exclusion plan will be developed in the event that nesting is identified on the bridge structure.

2.3.4 Threatened and Endangered Species

2.3.4.1 REGULATORY SETTING

FESA is the primary federal law protecting threatened and endangered species (16 USC Section 1531, et seq.) See also 50 CFR 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 Caltrans, as assigned by FHWA, are required to consult with the USFWS and NMFS 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, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

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.

2.3.4.2 AFFECTED ENVIRONMENT

This section presents findings of reports for threatened and endangered species within the BSA, including the NES (2016) and the Biological Assessment and Essential Fish Habitat Assessment (2016). Caltrans is in the process of consulting with NMFS under FESA Section 7, and sent the Biological Assessment and Essential Fish Habitat Assessment to NMFS in July 2016. Consultation between Caltrans and NMFS is ongoing.

Central Valley Steelhead

Central Valley steelhead (*Oncorhynchus mykiss*) is a federally listed threatened species and is a California Species of Special Concern. Steelhead is the anadromous (seagoing) form of resident rainbow trout. The Central Valley Distinct Population Segment (DPS) of steelhead ranges within the mainstem and tributaries of the Sacramento River, the San Joaquin River, and the San Francisco Bay-delta.

Historically, the Tuolumne River supported steelhead, spring-run Chinook salmon, and fall-run Chinook salmon. Currently, the Tuolumne River supports fall-run Chinook salmon only, as spring-run Chinook have been extirpated from the Tuolumne River and the San Joaquin Basin as a whole. Central Valley steelhead are thought to persist in relatively low abundance in the Tuolumne River. Zimmerman et al. conducted analyses of the chemical composition of otoliths (ear bones) from 147 *O. mykiss* collected from the Tuolumne River from 2001 to 2007. Results indicated that while progeny of steelhead females were present in the Tuolumne River, they were infrequent and comprised a minority of the total *O. mykiss* analyzed.

Central Valley steelhead are typically “winter steelhead,” meaning that they return as adults to freshwater in winter months. The U.S. Bureau of Reclamation summarized the life history timing of Central Valley steelhead on the Stanislaus River. In that drainage, adult spawning occurred from early December into June, with most adults returning in the period late-January to mid-June. Juveniles reared all year in the Stanislaus River, with out-migration occurring in January through June after spending 1 to 3 years in freshwater. The life history and timing of Tuolumne River juvenile Central Valley steelhead are assumed to be very similar to those of steelhead in the Stanislaus River.

In general, steelhead require cold water to successfully reproduce. Specific temperature ranges for life history stages of Central Valley steelhead are not as well understood as they are for northern steelhead populations, but incubating eggs display mortality beginning at 56°F. Rearing steelhead on the Feather River and Mokelumne River reportedly preferred temperatures between 62.5 and 68°F. Central Valley steelhead juveniles can show mortality at constant temperatures of 77°F although they can tolerate temperatures of 85°F for short periods. Water temperatures in the lower Tuolumne River (described in Section 3 of this NES) from May through September (juvenile rearing period) are generally unsuitably warm for steelhead.

The CNDDDB reports Central Valley steelhead in the lower Tuolumne River upstream to La Grange Dam, at river mile (RM) 52. Juvenile salmonid trapping efforts have been conducted in the Tuolumne River by the Turlock Irrigation District and Modesto Irrigation District at Grayson River Ranch (RM 5.2, downstream of the project area) and Waterford (RM 29.8, upstream of the project area) since the 1990s. In 2013, no *O. mykiss* were trapped at either station. Between 2000 and 2013, the annual catch of *O. mykiss* at both stations combined ranged from zero to 11 fish. It should be noted that no attempt was made by the surveyors to distinguish rainbow trout from steelhead.

Surveys were not conducted for Central Valley steelhead in association with the proposed project. *O. mykiss* is known to occur in the Tuolumne River to as far as La Grange Dam at RM 52. As such, it occurs in the project area.

The project area likely only provides move-through (migration) habitat for Central Valley steelhead adults because the broad, silty-substrate reach does not include suitable spawning areas. A small scour pool located directly under the 7th Street Bridge may, during high flows, allow steelhead to hold temporarily while moving upstream. Juvenile steelhead may use portions of the project area for rearing habitat before emigrating (out-migrating) to the ocean, but excessive instream temperatures, lack of instream structure, and degraded riparian conditions likely limit the value of the project area for this purpose.

Central Valley Steelhead Critical Habitat. Federal agencies are required by law to designate Critical Habitat for FESA-listed species at the time of species listing. Section 3 of the FESA defines critical habitat as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species.

Critical Habitat for Central Valley steelhead was designated by NMFS in 2005. The project area is located within subunits 553530 and 553550 of the San Joaquin Valley Floor Hydrologic Unit (HUC 5535) of Central Valley steelhead Critical Habitat. Federal action agencies must consult with the NMFS if a proposed project (action) may adversely affect designated Critical Habitat.

California Red-legged Frog

California red-legged frog (CRLF) (*Rana draytonii*) was federally listed as threatened in 1996 and is also a California Species of Special Concern. Twenty-eight critical habitat units are designated throughout the range of the CRLF, and include one unit on the Upper Tuolumne River. Critical habitat for CRLF does not intersect the project area.

The CRLF is the largest native frog in the western United States, and is one of two subspecies. Its range includes all valley drainages emptying into the Sacramento River from Shasta County south, as well as coastal drainages from Point Arena south into northwestern Baja California. Currently, the largest occupied habitat is found in Monterey, San Luis Obispo, and Santa Barbara counties. This species is typically associated with dense riparian areas with sufficient deep pool cover or slow-moving water. CRLF require aquatic habitat for breeding and use upland habitat for dispersal and cover. Red-legged frogs typically begin breeding with the onset of large rainfall events from November through April. Egg masses are deposited on emergent vegetation in still water areas such as stock ponds, wetlands, or idle stream channel pools. Tadpoles typically metamorphose between July and September. Tadpoles feed on algae, detritus, and invertebrates, while metamorphs (such as legged tadpoles) eat a variety of invertebrates and small vertebrates. Much of the adult diet includes tree frogs and small mammals that they typically capture at night. The CRLF population initially declined in the 1800s because of harvesting and habitat loss. The population continues to be susceptible to ongoing habitat loss, modification, and fragmentation, as well as the intrusion of exotic species and drought conditions.

The CRLF has been extirpated from nearly 70 percent of its former range in California, and is currently largely restricted to coastal drainages from central California to northern Baja California, Mexico. Suitable habitat includes aquatic breeding areas interspersed within a matrix of riparian and upland dispersal habitats. Breeding sites include pools and backwaters of streams, marshes, and ponds. Stock ponds and other man-made features commonly support CRLF breeding.

Though the Tuolumne River historically supported CRLF, this species is considered extirpated from this drainage, with no confirmed observations in “several decades”. The CNDDDB does not report CRLF within the Riverbank USGS quadrangle, or within any of the eight adjacent quadrangles. The USFWS species list reported CRLF within all nine quadrangles queried, presumably reflecting the historic distribution of this species.

No focused surveys were conducted for CRLF in the project area. The Lower Tuolumne Basin represents potential recovery and dispersal habitat. The river channel in the project area includes degraded riparian and upland dispersal habitat. Breeding pools were not observed during site visits. No red-legged frogs were observed during the reconnaissance surveys of the project area.

The current distribution of this species is limited to the northern Coast Range, Transverse Range, and isolated populations in the Sierra Nevada foothills. The last confirmed red legged frog record from the Central Valley was in 1957. It is unlikely that this species is currently found in the project area. The closest known CRLF population is approximately 40 miles northeast near the town of Angels Camp, Calaveras County, in the foothills of the Sierra Nevada. This population was only recently rediscovered in a rancher's stock pond. The upper Tuolumne River, above Don Pedro Reservoir, is considered important to recovery of the species and includes a designated Critical Habitat unit. Based on the presence of predatory species such as exotic fish and bullfrogs and degraded habitat conditions in the project area, it is unlikely that CRLF occur, and unlikely that CRLF will occur in the future.

The Recovery Plan for CRLF identifies historical habitat in the upper Tuolumne River Basin as a priority core restoration area. Specifically, controlling non-native fish and amphibians at Swamp Lake and Miguel Meadows (both in Yosemite National Park) are identified as restoration targets.

Valley elderberry longhorn beetle

The valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) is a federally listed threatened species. VELB can be found throughout remaining riparian forests of the Central Valley from Redding to Bakersfield. The beetle appears to be only locally common, that is, found in population clusters that are not evenly distributed across the Central Valley. This species is nearly always found on or close to its host plant, elderberry (*Sambucus* sp.). The animal has four life stages: egg, larva, pupa, and adult. Females lay their eggs on the bark and larvae hatch and burrow into the stems. The larval stage may last 2 years, after which the larvae enter the pupal stage and transform into adults. Adults are active from March to June, feeding and mating.

It appears that in order to serve as habitat, elderberry shrubs must have stems that are 1.0 inch or greater in diameter at ground level. Use of the plants by the VELB is rarely apparent. The only exterior evidence of the VELB's use of the shrub is an exit

hole created by the larva just before the pupal stage; however, recent studies have found that larvae can be found in elderberry stems with no evidence of exit holes.

Decline of this species can be attributed to the following factors: loss and alteration of habitat by agricultural conversion; inappropriate grazing; levee construction; stream and river channelization; removal of riparian vegetation and rip-rapping of shoreline; predation by nonnative animals such as the Argentine ant; and recreational, industrial, and urban development. Insecticide and herbicide use in agricultural areas and along road rights-of-way may be factors limiting the beetle's distribution. The age and quality of individual elderberry shrubs/trees and stands as a food plant for beetles may also be a factor in its limited distribution.

The CNDDDB reports two occurrences of this species within the Riverbank quadrangle: a 1991 occurrence on the bank of the Stanislaus River, and a 1984 occurrence on the Tuolumne River near Modesto (both records were of exit holes in *Sambucus*). This second occurrence is located near the Highway 99 bridge crossing of the Tuolumne River, approximately 0.2 mile downriver from the project area.

Surveys in 2011, 2012, and 2014 did not detect elderberry plants. Elderberry shrubs were observed, however, on the south bank of the Tuolumne River, east and outside of the project area. As such, VELB does not currently occur and is unlikely to occur in the near future in the project area because of a lack of its host plant.

2.3.4.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would avoid direct and indirect effects on all threatened and endangered species.

Build Alternatives

Central Valley Steelhead

Caltrans prepared a Biological Assessment to analyze the effects of the project on Central Valley steelhead and its designated Critical Habitat, and to facilitate consultation with NMFS for these resources under Section 7 of the FESA. Caltrans concluded that the proposed project may affect, and is likely to adversely affect, Central Valley steelhead and its designated Critical Habitat.

Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead if construction is conducted in "live" water while individuals are located in the project area. This species could also be impacted by

excessive turbidity during earthwork and pile removal/installation, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation.

Project Alternatives 2B and 3 include demolition of the existing bridge and construction of a new bridge, and would directly and indirectly impact Central Valley steelhead similarly. Alternative 4 would potentially affect Central Valley steelhead less than Alternatives 2B and 3 since the existing bridge would not be demolished in Alternative 4, but would instead be retrofitted. The new bridge constructed under Alternative 4 would be narrower than other alternatives, and would require fewer columns for support. Alternative 2A would potentially affect Central Valley steelhead than Alternatives 2B, 3, and 4 since the low-flow channel of the Tuolumne River would be spanned with the arch design and piers associated with Alternative 2A would not be adjacent to the flowing water of the low-flow channel.

Implementation of the project could directly and indirectly impact designated Critical Habitat for Central Valley steelhead. All project alternatives would temporarily and similarly impact these designated areas during construction. Alternative 2A would result in the fewest permanent impacts, and Alternative 4 would result in the greatest permanent impacts. These impacts could be considered adverse effects under the FESA and MSA. Adverse effects would be reduced to negligible levels with the implementation of MM BIO-1 through MM BIO-15 as listed in Section 2.3.1.3 and MM BIO-16 through MM BIO-72 as listed in Section 2.3.3.4.

California Red-Legged Frog

Neither CRLF nor its designated Critical Habitat occur in the project area. The project therefore will have no effect on CRLF or its designated Critical Habitat. There would be no impact to CRLF under all Build Alternatives because there are no occurrences in the project area. No mitigation is necessary.

Valley Elderberry Longhorn Beetle

Surveys in 2011, 2012, and 2014 did not detect elderberry plants. Elderberry shrubs were observed, however, on the south bank of the Tuolumne River, east and outside of the project area. As such, VELB does not currently occur and is unlikely to occur in the near future in the project area because of a lack of its host plant. Caltrans concluded that the proposed project would have no effect on VELB or its designated Critical Habitat.

There would be no impact to VELB under all Build Alternatives because no VELB habitat was detected. No mitigation is necessary.

2.3.4.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Impacts to Central Valley steelhead under all Build Alternatives would be adverse, but would be reduced to negligible levels with the implementation of MM BIO-1 through MM BIO-15 as listed in Section 2.3.1.3 and MM BIO-16 through MM BIO-72 as listed in Section 2.3.3.4.

2.3.5 Invasive Species

2.3.5.1 REGULATORY SETTING

On February 3, 1999, President William J. Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999 directs the use of the State’s invasive species list, maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.3.5.2 AFFECTED ENVIRONMENT

This section presents findings of reports for invasive species within the BSA, based on the Natural Environment Study (2016).

Water hyacinth is seasonally abundant and dominant within the open water areas of the project area. Water hyacinth is an aquatic plant native to the Amazon River of South America. It was introduced to the United States in 1884 as an ornamental for water gardens, and was first detected in California in 1904. Propagation and dispersal occurs primarily by fragmentation of established plants. Water hyacinth grows quickly, and can generate than one ton of dry plant matter per day per hectare. One plant may be able to produce enough growth to cover 600 square meters in one year. Water hyacinth obstructs navigable waterways, impedes drainage, fouls hydroelectric generators and water pumps, and blocks irrigation channels. Stagnant water among water hyacinth leaves can also breed mosquitos. Backwater rearing habitats important to salmonids are threatened by water hyacinth in the Tuolumne River. The California Invasive Plant Council (Cal-IPC) considers water hyacinth a high-alert species. High-alert species are those that: “...*have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology*

and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.”

Other Cal-IPC high-alert invasive species detected in the project area include: yellow star thistle (*Centaurea solstitialis*), fennel (*Foeniculum vulgare*), and broad-leaved pepperweed. These species were scattered throughout the project area, likely reflecting past and current disturbances. No invasive invertebrates or other wildlife species were observed during the biological surveys.

2.3.5.3 ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

Under the No-Build Alternative, the proposed project would not be implemented so there would be no effect under NEPA.

Build Alternatives

Construction activities (including demolition) in the project area could spread invasive plant species currently existing in the area (Cal-IPC high-alert species) described earlier in this section), or could introduce invasive plant species not currently known to occur.

Construction equipment has the potential to introduce and/or spread new or existing invasive plant species into the BSA during project implementation. However, none of the species on the California list of invasive species is used by Caltrans for erosion control or landscaping in the project area. All equipment and materials will be inspected for the presence of invasive species.

All Build Alternatives could contribute to this impact which would be considered adverse under NEPA. Implementing the MMs listed below will reduce these adverse effects to negligible levels.

2.3.5.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementing MM BIO-1 through MM BIO-15 (listed in Section 2.3.1.3) would reduce adverse invasive plant-related effects associated with the Build Alternatives to negligible levels.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts on resources in the project area may result from the impacts of the transportation project together with other past, present, and reasonably foreseeable projects such as residential, commercial, industrial, and other development, as well as from agricultural activities and the conversion to more intensive agricultural cultivation. Such land use activities may result in cumulative effects on a variety of natural resources such as species and their habitats, water resources, and air quality. Additionally, they can also contribute to cumulative impacts on the urban environment such as changes in community character, traffic volume and patterns, increased noise, housing availability, and employment.

A definition of cumulative impacts under NEPA can be found in 40 CFR 1508.7.

2.4.2 Reasonably Foreseeable Future Actions

The cumulative impacts analysis focuses on the environmental resources analyzed in Chapter 2. Additional information about the setting for each of these resources can be found in each of the individual resource chapters. The cumulative setting conditions are based on the existing land uses within the study area, which exist as a result of past and present development activity. In addition, consideration was given to future projects that may occur during and shortly after the bridge construction period. Although the exact nature and extent of all future projects is not known, the known foreseeable future projects are expected to include those noted in the following subsections.

2.4.2.1 REGIONAL TRANSPORTATION PLAN

The RTP is a 25-year blueprint created to plan and accommodate anticipated growth in the regional area while providing a variety of housing and transportation options, promoting healthy living and economic vitality, and developing a transportation network to improve surrounding communities. Among various goals and objectives, the StanCOG's RTP has identified the need to increase the 7th Street Bridge vehicular

capacity from two lanes to four lanes. The 2014 RTP includes a list of transportation projects, many of which would contribute to improved traffic conditions in the area. Examples of these other projects include the SR 132/SR 99 connectivity improvements and Crows Landing Road widening between 7th Street and SR 99.

2.4.2.2 CROWS LANDING ROAD CORRIDOR STUDY

The City of Modesto recently completed the Crows Landing Road Corridor Study which focused on the roadway section between 7th Street and SR 99. The intent of the corridor study is to establish a plan for a safe, efficient, and vibrant multi-modal transportation facility serving the southern portion of Modesto and nearby unincorporated Stanislaus County. Improvements were proposed that include both short-term, relatively low-cost actions; mid-term changes; and, long-term, relatively high-cost improvements. The improvement projects most likely to contribute to cumulative impacts are identified below. All improvements are based on full buildout of Crows Landing Road as a four-lane *minor arterial* roadway, which would be a change from its current designation as a six-lane *principal arterial*.

- **Pedestrian Improvements.** Pedestrian safety improvements, such as refreshing pavement markings and installing push button-activated flashing signage to draw attention to pedestrians in the street, are recommended high-priority projects. Priority pedestrian safety projects are proposed at Amador Avenue, Glenn Avenue, School Avenue, Crater/Barozzi Avenues, and near Shackleford School. In addition, standard green times at signals would be increased to allow safe crossing.
- **Resurface/Restripe.** When resurfacing and restriping occur, travel lanes will be reduced in width and bicycle lanes and buffers can be added, which will also improve pedestrian safety by moving traffic away from the curb and sidewalk while providing additional safety and visibility for bicycle riders and for motorists exiting driveways and intersecting streets.
- **Traffic Signals.** Traffic signal improvements – including both new and modified signals – are proposed or under consideration at Butte Avenue, Winmoore Way, Glenn Avenue, and Imperial Avenue.
- **Extended Raised Medians.** Raised medians are proposed throughout Crows Landing Road with limited openings for left-in, left-out traffic at intersections and driveways.

- **On-Street Parking.** Use of on-street parking will be considered where it is desirable or necessary in conjunction with adjoining businesses.

Some improvements are relatively inexpensive and can be implemented more quickly, while others are more costly and won't be implemented until new development occurs. Funding availability and jurisdictional issues will have the greatest impact on when and where changes are implemented. Full implementation of the adopted plan is expected to occur incrementally over the course of many years.

2.4.2.3 TUOLUMNE RIVER REGIONAL PARK GATEWAY PARCEL

The City of Modesto, on behalf of the TRRP Commission (comprised of the City of Modesto, the City of Ceres, and Stanislaus County), proposes to adopt and implement the Gateway Parcel Precise Plan, a component of the TRRP Master Plan, which was adopted in December 2001. The Master Plan is for a proposed 500-acre regional riverfront park that extends 7-miles along the Tuolumne River south of downtown Modesto. A Master Environmental Impact Report for the TRRP Master Plan was certified by the City of Modesto in September 2001.

The Gateway Parcel is one of six planning areas in the Master Plan. The Gateway Parcel would be a high-profile public gathering place close to the commercial centers of Modesto and Ceres and accessible to the rest of the region along major arterial streets and SR 99. The Gateway Parcel would include a Riverwalk, four riparian terraces, an amphimeadow, and a wildlife island. Also included is construction of a 2,500-foot trail, installation of a 5,000-foot fire suppression main line and seven fire hydrants, irrigation, and planting of various native plant trees, shrubs, and grasses.

Portions of the Gateway Parcel are expected to be under construction before and during bridge construction. At this time, final grading and drainage plans have been completed. In addition to mass grading operations in the Gateway Parcel, development of some park facilities began in early 2017. These improvements include the trail system in the vicinity of the 7th Street Bridge, backwater channels for restored habitat, and a fishing pier.

2.4.2.4 ALTAMONT CORRIDOR EXPRESS

The San Joaquin Regional Rail Commission ACEforward program would improve and expand the existing Altamont Corridor Express (ACE) rail service. ACE has four round-trips during the weekdays and carries nearly 1.3 million passengers annually. ACE's largest market is carrying commuters from the San Joaquin Valley to Silicon

Valley and the Tri-Valley Area. ACE ridership has been growing steadily; and, over the last 5 years, ACE's ridership has nearly doubled.

A key component of ACEforward is to extend ACE service along the UPRR alignment further south in the San Joaquin Valley to the downtowns of Manteca, Ripon, Modesto, Turlock, Livingston or Atwater, and Merced. To extend ACE to Merced, a new track will need to be constructed within the UPRR right-of-way from Lathrop to Merced (58 miles). The existing single-track UPRR bridge crossing upstream of and adjacent to the 7th Street Bridge would be expanded to accommodate an additional track, or a new parallel bridge would be constructed. The San Joaquin Regional Rail Commission published a CEQA Notice of Preparation for the ACEforward program on June 24, 2013.

2.4.3 Cumulative Impact Analysis

2.4.3.1 LAND USE

As described in Section 2.1.1.3, the 7th Street Bridge Project would have no adverse land use effects. The project would be consistent with local land use plans and policies. For this reason, there would be no cumulative impacts.

2.4.3.2 COMMUNITY IMPACTS

Community Cohesion

As discussed in Section 2.1.2.1, Community Character and Cohesion, the project may have an adverse effect to community cohesion because of the permanent displacement of between 8 (Alternatives 2A and 2B) and 19 (Alternatives 3 and 4) residences. Compliance with the Uniform Act, as described in Section 2.1.2.2, Relocations and Real Property Acquisition, could minimize this impact by assisting residents to relocate, but the adverse effects to community cohesion may remain adverse if residents are not able to relocate within Sunrise Village or nearby. The loss of Lion's Market under Alternatives 3 and 4 would also constitute an adverse impact to community cohesion. This adverse effect would not occur under Alternatives 2A and 2B because Lion's Market would not be displaced.

Other reasonably foreseeable future projects have the potential to affect community cohesion if they affect the ability of the neighborhoods to function. The TRRP Gateway Parcel project is unlikely to adversely affect permanent community cohesion because it is unlikely to physically alter surrounding neighborhoods. Instead, the TRRP Gateway Parcel is more likely to enhance the quality of life for residents in southern Modesto and northern Stanislaus County because of the natural amenities it would provide, creating a beneficial effect to community cohesion. The ACEforward

project has the potential to contribute to cumulative impacts on community cohesion if it divides a neighborhood or causes residential displacements. Given that the existing track is not adjacent to existing homes, ACEforward is unlikely to cause residential displacements or divide neighborhoods.

For the reasons discussed above, the 7th Street Project and other reasonably foreseeable projects together are not likely to create a cumulative considerable adverse effect to community cohesion.

Relocations and Real Property Acquisition

Implementation of the 7th Street Bridge Project would create displacements to residents and business. However, compliance with Uniform Act, as discussed in Section 2.1.2.2, would be required. Therefore, the 7th Street Bridge's project would not contribute to cumulative impacts on Relocations and Real Property Acquisitions.

Environmental Justice

All Build Alternatives would cause disproportionate impacts to protected populations but compliance with the Uniform Act, as discussed in Section 2.1.2.2, Relocations and Real Property Acquisition, would reduce these impacts. Disproportionate impacts may also be caused by the permanent displacement of Lion's Market under Alternatives 3 and 4. Alternatives 2A and 2B would not displace Lion's Market and so would not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice. Therefore, Alternatives 2A and 2B would not contribute to cumulative impacts on Environmental Justice.

2.4.3.3 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

The resource study area for cumulative effects on traffic and transportation/pedestrian and bicycle facilities is all of Stanislaus County, the region covered by the RTP.

Operational traffic impacts identified in Section 2.1.3.3 include changes in intersection LOS in the study area, with impacts identified at some study intersections including SR 99 ramps at both Tuolumne Boulevard and Crows Landing Road. Traffic studies were performed based on implementation of the RTP and project impacts are based on the "design year" horizon that takes into account all planned transportation system improvements. Because the RTP includes reasonably foreseeable transportation projects, the 7th Street Bridge Project would have no cumulative transportation impacts upon completion.

Project construction would require street and lane closures that would hinder full use of the local transportation system. Similar types of transportation effects could occur during any simultaneous construction activities (for example installation of pedestrian improvements along the Crows Landing Road corridor). However, all projects would include general safety standards for traffic control, including measures to ensure traffic safety, bicycle and pedestrian access, and coordination with transit and emergency service providers. Because impacts would be fully offset, the 7th Street Bridge Project would not contribute to cumulative impacts on traffic and transportation.

2.4.3.4 VISUAL/AESTHETICS

As described in Section 2.1.4.3, all Build Alternatives of the 7th Street Project would cause minor visual impacts. The primary visual impacts would occur from points that have a view of the 7th Street Bridge. Accordingly, the resource study area for cumulative effects on aesthetics are places from which the bridge can be seen. These include places up to several hundred yards east and west of the bridge along the Tuolumne River.

The current visual environment of the resource study area is relatively flat, riverfront land within the Tuolumne River's 100-year floodplain, known as the Gateway Parcel. The Gateway Parcel was previously a walnut orchard but is no longer in agricultural use. Four bridges traverse the Gateway Parcel, including the SR 99 bridge on the western portion of the area, the 7th and 9th street vehicular bridges, and the UPRR steel, brick and wood trestle. Aside from the bridges, the Gateway Parcel is in a relatively undeveloped state.

Other projects that would occur in the resource study area are the TRRP Gateway Parcel project and the ACEforward project. The TRRP Gateway Parcel project would be a new riverfront park on the north bank of the Tuolumne River near the 7th Street Bridge project area. The proposed park will enhance the scenic quality of the area surrounding the 7th Street Bridge and provide a trail system for viewers to enjoy it. The proposed park would include four riparian terraces, an amphimeadow, a wildlife island, 2,500 feet of trail, and planting of native plant trees, shrubs, and grasses. The resulting visual changes would have a beneficial effect on the resource study area

The ACEforward project would expand the existing single-track UPRR bridge crossing just upstream of to the 7th Street Bridge to accommodate an additional track. Because there is already a railroad track bridge just upstream of the 7th Street Bridge,

the visual effect of this project is not likely to constitute an adverse effect on the existing visual quality of the resource study area.

The 7th Street Bridge Project together with the TRRP Gateway Parcel and ACEforward projects would result in a high visual level of visual change in the resource study area. Because, the TRRP Gateway Parcel Project would provide beneficial effects and the adverse effects of the 7th Street Bridge Project and the ACEforward project would be minor, the visual result of all three projects would not constitute a cumulatively significant adverse effect on visual resources.

2.4.3.5 CULTURAL RESOURCES

As described in Section 2.1.5.3, adverse effects to historic resources are limited to those on the 7th Street Bridge itself – the only known historic property in the project area. Other reasonably foreseeable projects would not further contribute to cumulative impacts on this historic resource.

2.4.3.6 WATER QUALITY AND STORMWATER RUNOFF

Construction of the 7th Street Bridge Project could result in erosion and siltation with associated water quality impacts. However, the 7th Street Bridge Project, and all other projects in the vicinity, would follow the County's Stormwater Management Program. Each project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Because impacts would be offset, there is no contribution to cumulative impacts on traffic and transportation from the 7th Street Bridge Project.

2.4.3.7 PALEONTOLOGICAL RESOURCES

Implementation of the 7th Street Bridge Project would increase the potential to disturb undiscovered, subsurface paleontological resources. Mitigation measures are prescribed that would reduce these impacts. Other projects in the vicinity mostly require surface grading – there would be limited deep excavation that could affect the Modesto or Riverbank Formation. For example, drilling for bridge piles would have a limited footprint, and other projects are expected to have similar procedures for paleontological investigations. Therefore, the 7th Street Bridge Project would not contribute to cumulative impacts on paleontological resources.

2.4.3.8 HAZARDOUS MATERIALS/HAZARDOUS WASTE

Impacts from hazards and hazardous materials are site specific rather than cumulative. Like the 7th Street Bridge Project, other projects that may expose or otherwise disrupt hazardous materials during construction would follow standard

requirements, including preparation of a hazardous communication program, hazardous materials business plan, and spill prevention and countermeasures plan. These measures would fully offset the impacts to hazardous materials. Therefore, there would be no cumulative impact.

2.4.3.9 AIR QUALITY

Operational air quality impacts identified in Section 2.2.4.3 are associated with increases in traffic. The analysis for regional air quality impacts is based on implementation of the RTP and implementation of the RTP has been found to conform to regional attainment goals. In other words, project air quality impacts are based on a cumulative impacts scenario that takes into account planned land use and transportation system improvements. Because the 7th Street Bridge Project is consistent with the RTP, it would have no cumulative air quality impacts.

Construction impacts would be reduced to non-adverse levels by the implementation of mitigation measures. With implementation of these measures, the 7th Street Bridge's impacts would be fully offset and would not contribute to cumulative impacts on air quality.

2.4.3.10 NOISE

Operational noise impacts identified in Section 2.2.5.3 are associated with changes in roadway traffic. Impacts are identified at a daycare facility north of Tuolumne Boulevard, at Sunrise Village Mobile Home Park, and for future TRRP Gateway Parcel park users. The basis for the noise impacts analysis was the project traffic studies, which were performed based on implementation of the RTP. In other words, all project noise impacts are based on a cumulative impacts scenario that takes into account planned transportation system improvements. Because the RTP includes reasonably foreseeable transportation projects, the 7th Street Bridge Project would have no cumulative noise impacts.

No adverse noise impacts from construction of the proposed project are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 7-1.01I and applicable local noise standards. These measures would fully offset the noise impacts. Therefore, there would be no cumulative impact.

2.4.3.11 NATURAL COMMUNITIES

All Build Alternatives could directly impact riparian vegetation and Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. MMs are required for all temporary effects to riparian habitat. Therefore, there would be no cumulative impact.

2.4.3.12 WETLANDS AND OTHER WATERS

The proposed project could affect riverine and riparian habitat within the WOUS. Direct permanent impacts include the placement of piers or columns in the WOUS. Project excavation could temporarily increase water turbidity and construction equipment has the potential to contamination to the WOUS because of leaks of fuel, lubricants, hydraulic fluids, or coolant. But these effects to WOUS would be reduced by implementing mitigation measures. Therefore, there would be no cumulative impact.

2.4.3.13 ANIMAL SPECIES

Project construction could impact sensitive aquatic species in the project area. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead (federal threatened), fall-run Chinook salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could be also be impacted by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. Project construction could also impact sensitive bird and bat species. The impacts to sensitive animal species would be reduced to negligible levels by implementing mitigation measures. Therefore, there would be no cumulative impact.

2.4.3.14 THREATENED AND ENDANGERED SPECIES

Demolition of the existing bridge and construction of a new bridge could kill or injure Central Valley steelhead if construction is conducted in “live” water while individuals are located in the project area. This species could be also be impacted by excessive turbidity during earthwork and pile removal/installation, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. The impacts to sensitive threatened and endangered species would be made negligible by implementing mitigation measures. Therefore, there would be no cumulative impact.

Chapter 3 Comments and Coordination

3.1 Stakeholder Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. This coordination helps Caltrans determine the necessary scope of environmental documentation, the level of analysis required, potential impacts that could result from project implementation, appropriate avoidance and minimization measures and/or mitigation measures to address these impacts, and related environmental requirements. Agency consultation and public participation for the proposed project were accomplished through a variety of formal and informal methods, including interagency coordination meetings and public meetings. This chapter summarizes the results of these efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

3.2 Agency Consultation Meetings

There are several public agencies involved in environmental clearance and permitting of the proposed Build Alternatives, including agencies listed in Table 1-2. Prior agency coordination actions have included the Tuolumne River Regional Park (staffed by the City of Modesto Parks, Recreation and Neighborhoods Department), the Central Valley Flood Protection Board, and the U.S. Army Corps of Engineers.

A consultation meeting was held with TRRP on October 2, 2014 to coordinate bridge planning activities with planned construction activities in the Gateway Parcel. Meetings with the CVFPB were held on December 11, 2014 and September 15, 2015 to discuss issues related to the project's hydraulics and freeboard requirements. In addition to these formal meetings with TRRP and CVFPB, correspondence with these agencies occurred via email messaging and telephone conversations. The USACE was also consulted for this project regarding a Preliminary Jurisdictional Determination based on the project Wetland Delineation Report. The USACE sent a concurrence letter, dated March 25, 2015.

3.3 Summary of Public Involvement Activities

3.3.1 Public Scoping Meeting Held on October 14, 2013

Stanislaus County, in cooperation with the City of Modesto, held a Public Scoping Meeting in Modesto on Monday, October 14, 2013.

The meeting was publicized through a jumbo postcard invitation sent by first-class U.S. mail, a public notice (advertisement) in English published in The Modesto Bee and in Spanish in Vida en el Valle, a news release to print and broadcast media that serve the Modesto area, and the websites of the City and County. Additionally, a dedicated project website was established: <http://www.7thStreetBridge.org>.

Sixteen members of the public and elected officials signed in at the meeting. The meeting was conducted as an open house with a presentation by the consultant project manager, followed by questions, comments, and suggestions from the audience. Members of the project team were also available during the open house periods to receive comments and answer questions. Informational display boards and exhibits were available for review. Attendees were also provided with a print agenda and comment sheets. Traffic simulations were shown at the Traffic Station. Personnel from Stanislaus County, City of Modesto, and the consultant team staffed the information stations.

Primary public comments included the following topics:

1. Timing of next public meeting.
2. Opportunity for additional comment.
3. Breadth of publicity for the public meetings.
4. Disposition of the old bridge if a new one is constructed.
5. Disposition of the lion statuary.
6. Potential loss of low-income housing if the new bridge/roadway alignments affect Sunrise Village Mobile Home Park.

3.3.2 Public Information Meeting Held on February 24, 2014

Stanislaus County, in cooperation with the City of Modesto, held a Public Information Meeting in Modesto on Monday, February 24, 2014 at the City-County Administrative Offices Basement Training Room at 1010 Tenth Street. The meeting provided members of the public and other interested parties an opportunity to provide comments, concerns, or suggestions that could be addressed during this phase. The meeting was publicized through a jumbo postcard invitation sent by first-class U.S. mail, a public notice (advertisement) in English published in The Modesto Bee and in Spanish in Vida en el Valle, a news release to print and broadcast media that serve the

Modesto area, and the websites of the City and County. Additionally, information about the meeting was posted on the dedicated project website:

<http://www.7thStreetBridge.org>.

Thirty-three members of the public and elected officials signed in at the meeting. The meeting was conducted as an open house with a presentation by the consultant project manager, followed by questions, comments, and suggestions from the audience. A public stenographer was available to receive dictated questions, comments, and suggestions. Members of the project team were also available during the open house periods to receive comments and answer questions.

Informational display boards and exhibits were available for review. Attendees were also provided with a print agenda and comment sheets. Personnel from Stanislaus County, City of Modesto, and the consultant team staffed the information stations.

Primary public comments included the following topics:

1. Disposition of the lion statuary
2. Concern about the effects of any changes on nearby businesses
3. Concern about the effects of potential changes on Sunrise Village Mobile Home Park
4. Potential loss of low-income housing in Sunrise Village Mobile Home Park

3.3.3 Public Information Meeting Held on January 14, 2015

Stanislaus County, in cooperation with the City of Modesto, held a Public Information Meeting to Review Bridge Aesthetics in Modesto on Wednesday, January 14, 2015 at the City-County Administrative Offices Basement Training Room at 1010 Tenth Street. The Public Information Meeting provided members of the public and other interested parties an opportunity to provide comments, concerns, or suggestions about bridge aesthetics that could be considered during this phase. The meeting was publicized through a jumbo postcard invitation sent by first-class U.S. mail, a public notice (advertisement) in English published in The Modesto Bee, and a news release to print and broadcast media that serve the Modesto area. Additionally, information about the meeting was posted on the dedicated project website:

www.7thStreetBridge.org.

Twenty-three members of the public and elected officials signed in at the meeting. The meeting was conducted as an open house with a presentation by the consultant project manager, followed by questions, comments, and suggestions from the audience. A public stenographer took notes during the meeting and was available to receive dictated questions, comments, and suggestions. Members of the project team were also available during the open house period to receive comments and answer questions. Informational display boards and exhibits were available for review. Attendees were also provided with a printed agenda and a set of comment sheets that included guided questions about the bridge aesthetics. Personnel from Stanislaus County, City of Modesto, and the consultant team staffed the information stations.

Primary public comments included the following topics:

1. The dollar amount of proposed aesthetic improvements
2. Objections to abandoning the existing bridge
3. Suggestion for use of existing bridge by bicyclists and pedestrians only
4. Concerns that illegal camping under bridge is a deterrent to use of the park by others
5. Preservation/re-use of the lion statuary

3.3.4 Public Information Meeting Held on February 25, 2015

Stanislaus County, in cooperation with the City of Modesto, held a Second Public Information Meeting to Review Bridge Aesthetics in Modesto on Wednesday, February 25, 2015 at the City-County Administrative Offices Basement Training Room at 1010 Tenth Street. The second meeting provided an update on project plans, following input on project aesthetics from members of the public and other interested parties at the January 14, 2015 meeting. This second meeting summarized the results of the first meeting, presented updated renderings for the bridge alternatives, and offered an additional opportunity for the public to provide comments, concerns, or suggestions about bridge aesthetics.

The meeting was publicized through a jumbo postcard invitation sent by first-class U.S. mail, a public notice (advertisement) in English published in The Modesto Bee, a news release to print and broadcast media that serve the Modesto area, and the websites of the City, County, and Caltrans. Additionally, information about the

meeting was posted on the dedicated project website:

<http://www.7thStreetBridge.org>.

Sixteen members of the public and elected officials signed in at the meeting. After a welcome from the Stanislaus County Project Manager, a presentation was made by the consultant project manager and the bridge architect, who invited questions, comments, and suggestions from the audience. Members of the project team were also available during a subsequent open house period to receive comments and answer questions. Informational display boards and exhibits were available for review. Attendees were also provided with a print agenda, a comment sheet for general comments about the project, and a ballot to solicit opinions on bridge aesthetics. Personnel from Stanislaus County, City of Modesto, and the consultant team staffed the information stations.

Primary public comments included the following topics:

1. Use of lions on the new bridge
2. Would new barriers on bridge mimic style of existing bridge barriers
3. Visual interface of bicyclists and motorists with bridge barriers
4. Use of existing bridge for pedestrians only
5. Re-use of existing bridge elements on new bridge
6. Project impacts on the Sunrise Village mobile home park
7. Bridge lighting design

Chapter 4 List of Preparers

The following Caltrans, Stanislaus County, City of Modesto, and consultant staff contributed to the preparation of this EA.

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- Julie Myrah, Environmental Chief. Contribution: Environmental document oversight.
- Abdulrahim N. Chafi, Civil Engineer. Contribution: Air Quality Technical Report, Noise Study Report, Location Hydraulics Study, Summary Floodplain Evaluation Report, and Water Quality Assessment Report oversight.
- Dominic Vitali, Biologist. Contribution: Natural Environment Study, Biological Assessment, and Wetland Delineation oversight.
- Emilie Zelazo, PQS-Principal Investigator Prehistoric Archaeology/Architectural Historian. Contribution: Historic Property Survey Report, Archaeological Survey Report, Historical Resources Evaluation Report, and cultural resources compliance documents oversight.
- Jesus Serrano, Local Assistance Bridge Engineer. Contribution: Environmental document reviewer.
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CH2M HILL

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- Ellen Payak, Hazards and Hazardous Materials Specialist. Contribution: Initial Site Assessment.

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- Chris Sewell, Hydrologist. Contribution: Location Hydraulics Study, Summary Floodplain Evaluation Report, and Water Quality Assessment Report.

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- Chris McMorris, Cultural Resources Specialist. Historical Resources Evaluation Report, cultural resources compliance documents, and environmental document preparation.

Chapter 5 Distribution List

This Draft EA will be distributed to the following state, local, tribal, and federal agencies and elected officials, as well as members of the Community Advisory Group and interested businesses, and organizations. Distribution of this Draft EA will include hardcopy, electronic media, reference to the website where the document is available, or a combination of these. In addition, all property owners/occupants within a 500-foot radius of the project limits will receive a project mailer informing them of the availability of the Draft EA.

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Appendix A Section 4(f)

BRLS 5938(167)

7th Street Bridge Project

**DRAFT PROGRAMMATIC SECTION 4(F), DE MINIMIS DETERMINATION, AND
SECTION 6(F) EVALUATION**

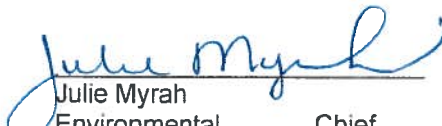
Submitted Pursuant to:

49 USC 303

THE STATE OF CALIFORNIA

Department of Transportation as assigned

1/9/18
Date of Approval


Julie Myrah
Environmental Chief

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

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Exhibits

- 1 Section 4(f) Resources in the Project Area
- 2 Illustrative Site Plan of the TRRP Gateway Parcel
- 3 Overall Site Plan of the TRRP Gateway Parcel

Acronyms and Abbreviations

| | |
|----------|--------------------------------------------------------------------|
| AASHTO | American Association of State Highway and Transportation Officials |
| ACHP | Advisory Council on Historic Preservation |
| ADA | Americans with Disabilities Act |
| ASR | alkali-silica reaction |
| Caltrans | California Department of Transportation |
| CFR | Code of Federal Regulations |
| CRHR | California Register of Historical Resources |
| EA | Environmental Assessment |
| FHWA | Federal Highway Administration |
| HAER | Historic American Engineering Record |
| LOS | level of service |
| LRFD | Load and Resistance Factor |
| LWCF | Land and Water Conservation Act |
| MOA | Memorandum of Agreement |
| NAC | noise abatement criterion |
| NRHP | National Register of Historic Places |
| RTP | Regional Transportation Plan |
| SCS | Sustainable Communities Strategy |
| SHPO | State Historic Preservation Officer |
| StanCOG | Stanislaus Council of Governments |
| TRRP | Tuolumne River Regional Park |
| USC | United States Code |

Chapter 1 Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at Title 49 of United States Code (USC) Section 303 (49 USC 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) 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:

- there is no prudent and feasible alternative to using that land; and
- 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.

As shown in Exhibit 1 (exhibits are presented at the end of this report), there are two resources subject to Section 4(f) located in the 7th Street Bridge Project (project) study area (defined as 0.5 mile from the footprint of the Build Alternatives): the historic 7th Street Bridge (Lion Bridge) and the Tuolumne River Regional Park (TRRP) Gateway Parcel.

Chapter 2 Description of Proposed Project and Alternatives

The California Department of Transportation (Caltrans), in cooperation with the County of Stanislaus and the City of Modesto, is proposing to replace or repair the existing 7th Street Bridge across the Tuolumne River. The 7th Street corridor is one of several north-south roadways connecting downtown Modesto with areas south of the Tuolumne River.

The purpose of the 7th Street Bridge Project is to:

- Create a structurally sufficient bridge crossing of the Tuolumne River along the 7th Street corridor. A “structurally sufficient” bridge would:
 - Improve conditions for vehicular and seismic loads by meeting appropriate design criteria including the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor (LRFD) Bridge Design Specifications
 - Protect the 7th Street Bridge from flood damage by meeting hydrologic standards consistent with the AASHTO LRFD Bridge Design Specifications and as determined by the Central Valley Flood Protection Board
- Create a functionally sufficient bridge crossing of the Tuolumne River along the 7th Street corridor. A “functionally sufficient” bridge would:
 - Provide adequate vehicular lanes and shoulders, on-street bike lanes, and pedestrian walkways that meet appropriate design criteria including the AASHTO Policy on Geometric Design of Highways and Streets; AASHTO Guide for the Development of Bicycle Facilities; AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities; and Caltrans standards.
 - Relieve traffic congestion and provide for anticipated roadway and intersection capacity at an acceptable level of service consistent with the Stanislaus Council of Governments (StanCOG) 2014 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Stanislaus County General Plan, and City of Modesto General Plan.

The project is needed because the existing 7th Street Bridge is listed on the Caltrans Local Agency Bridge List with a sufficiency rating of 2 on a scale of 0 (low) to 100 (high). The extremely low sufficiency rating is because of structural deficiencies associated with deteriorated structural and hydrologic conditions, and functional deficiencies due to its inadequate width and limited vehicle capacity.

All Build Alternatives share common elements, including closure of the existing roadway connection from 7th Street to Zeff Road/River Road, scour protection at bridge abutments, and access improvements (for example, new driveways) for affected properties. All four Build Alternatives would increase the 7th Street Bridge corridor from two lanes to four lanes; Alternatives 2A, 2B and 3 involve the construction of a new four-lane replacement bridge and the demolition of the existing two-lane bridge, while Alternative 4 involves construction of a new two-lane bridge in addition to a full retrofit of the existing bridge. Architectural details, such as visual character (for example, color and texture) and lighting, have not yet been developed, but can be equally applied to all Build Alternatives.

All Build Alternatives would be designed consistent with the Caltrans Highway Design Guidelines, various AASHTO design guidelines, and local standards. Under all Build Alternatives, the new bridge would have a design life of 75 years, based on the AASHTO LRFD Bridge Design Specifications.

2.1 Alternative 2A: Existing Bridge Alignment (Arch Bridge)

This alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment, and would therefore require demolition of the existing bridge. To use the existing bridge alignment as efficiently as possible, 7th Street over the river would be closed during construction. Because this alternative does not require staged construction of the bridge, it accommodates a tied-arch structure spanning the Tuolumne River that avoids the need for piers in the river's low-flow channel (i.e., the active river channel that always contains water, as opposed to the surrounding floodplain which only contains water during flood events). For the portion of the bridge that crosses the river, a concrete arch would be used. The bridge deck (also concrete) would be supported by the arch using metal cables (hangers) arranged in a diamond pattern and connected by a series of beams and stringers. For the portion of the bridge that crosses the floodplain, a precast concrete girder structure would be used. This alternative would require approximately seven piers in the floodplain.

Because of the loss of bicycle and pedestrian access across the bridge during construction, this alternative includes either a temporary pedestrian/bike bridge downstream of the construction zone or temporary transit service to accommodate access across the river.

Alternative 2A would have 12-foot-wide vehicle lanes, 6-foot-8-inch-wide sidewalks, and 5-foot-wide shoulders on each side that also would serve as Class II bicycle lanes.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be reconfigured to accommodate four lanes of traffic. The intersection of 7th Street with Crows Landing Road would be similar to the existing “Y” configuration, but the intersection would be signalized and would prioritize traffic flow onto and from Crows Landing Road. The modified intersections north and south of the bridge would require two full property acquisitions and 14 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 2A is estimated to be \$55.6 million.

2.2 Alternative 2B: Existing Bridge Alignment (Standard Bridge)

This alternative would be the same as Alternative 2A, except with a more standard structure type used for the portion of the bridge spanning the low-flow channel of the Tuolumne River for cost efficiency (as compared to Alternative 2A). Like Alternative 2A, Alternative 2B would require demolition of the existing bridge. Precast concrete girders would be used for the entire bridge superstructure. This alternative would require approximately seven piers, including one in the low-flow channel of the river.

Alternatives 2B would have 12-foot-wide vehicle lanes, 6-foot-8-inch-wide sidewalks, and 5-foot-wide shoulders on each side that also would serve as Class II bicycle lanes. Alternative 2B would require two full property acquisitions and 14 partial property acquisitions – same as Alternative 2A.

Based on the current level of design development, the total cost of Alternative 2B is estimated to be \$36.9 million, making this the lowest cost alternative.

2.3 Alternative 3: Existing Alignment with Staged Construction

Similar to Alternatives 2A and 2B, this alternative would use the existing 7th Street Bridge alignment as part of the new bridge alignment, and would therefore require demolition of the existing bridge. However, Alternative 3 would construct the bridge in two stages so that the existing bridge could remain open while one-half of the new bridge is constructed immediately downstream of (and adjacent to) the existing bridge. Traffic would then be diverted to the new structure while the existing bridge is demolished and the second half of the new bridge is constructed. The new bridge would be a concrete box girder structure type with approximately seven piers, including one in the low-flow channel.

Alternative 3 would have 12-foot-wide vehicle lanes, 10-foot-wide sidewalks, and 6-foot-wide shoulders on each side that also would serve as Class II bicycle lanes.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be approximately the same as Alternatives 2A and 2B. The intersection of 7th Street with Crows Landing Road would be completely reconfigured. The existing configuration emphasizes northbound traffic continuity along 7th Street, with a “Y” intersection at Crows Landing Road. The new configuration would emphasize both northbound and southbound traffic continuity to the Crows Landing Road corridor, with a signalized intersection at 7th Street. This configuration would require the acquisition of more right-of-way than Alternatives 2A and 2B, including five full property acquisitions and 13 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 3 is estimated to be \$42.5 million.

2.4 Alternative 4: Retrofit and New Two-Lane Bridge

This alternative is focused on a comprehensive retrofit of the existing 7th Street Bridge, with full truck carrying capacity provided and with the addition of a new, two-lane bridge (precast concrete girder) constructed 9 feet downstream of and 9 feet higher than the existing bridge. The new bridge would be constructed first, and would be used by all traffic in both directions until the retrofit is complete. When the retrofit of the 7th Street Bridge is complete, it would be opened to one-directional traffic in the northbound direction and the adjacent new bridge would be converted to only southbound traffic.

The new southbound bridge would have 12-foot-wide vehicle lanes, a 10-foot-wide shared use (bicycle and pedestrian) path, and a 6-foot-wide shoulder that also would be used as a Class II bicycle lane. The retrofitted northbound bridge would have 11-foot-wide vehicle lanes and a 6-foot-2-inch-wide shoulder that also would be used as a Class II bicycle lane.

Intersection improvements at B Street/Tuolumne River Boulevard would be the same as in Alternatives 2A, 2B, and 3. Intersection improvements at Crows Landing Road would be the same as in Alternative 3. This alternative would require approximately seven piers, including one in the low-flow channel of the river. Like Alternative 3, this alternative would require five full property acquisitions and 13 partial property acquisitions.

Based on the current level of design development, the total cost of Alternative 4 is estimated to be \$43.9 million.

2.5 No-Build Alternative

In addition to the four Build Alternatives described above, under the National Environmental Policy Act (NEPA), environmental review must consider the effects of not implementing the proposed project. Under the No-Build Alternative, none of the project features described above would be constructed. The 7th Street Bridge would remain as it is currently. Under NEPA, the No-Build Alternative can be used as the baseline for comparing environmental impacts of the proposed Build Alternatives.

Under the No-Build Alternative, the adverse environmental effects of the Build Alternatives would not occur. These adverse effects include residential and business relocations, loss of the existing bridge (a historic property), disruption of the natural environment, and temporary construction impacts including increased dust and noise. However, the No-Build Alternative also would prolong the existing bridge's structural and functional deficiencies. Load restrictions would remain in place, and structural conditions in general would continue to decline as the existing deficiencies worsen. The bridge would continue to be susceptible to seismic and hydrologic vulnerabilities. Capacity deficiencies would continue to deteriorate as traffic on the bridge increases to 29,000 vehicles per day by 2040. Not widening the bridge to four lanes in order to relieve traffic congestion would be inconsistent with the 2014 StanCOG RTP/STS, the Stanislaus County General Plan, and the City of Modesto General Plan.

Chapter 3 Description of Section 4(f) Property – 7th Street Bridge

The existing bridge is depicted in Figures 1 through 3.



Figure 1 7th Street Bridge from the North Bank of the Tuolumne River (facing southeast)

Photograph taken April 17, 2014.



Figure 2 7th Street Bridge from the North Bank of the Tuolumne River (facing southwest)

Photograph taken April 17, 2014.



Figure 3 Recumbent Lion at the Southwest Corner of the Bridge with Concrete Bench Behind It (facing northwest)

Photograph taken April 17, 2014.

The 7th Street Bridge, also known as the Lion Bridge, is eligible for listing in the National Register of Historic Places (NRHP). The 7th Street Bridge is eligible under NRHP Criterion A and California Register of Historical Resources (CRHR) Criterion 1 at the local level of significance, and under NRHP Criterion C and CRHR Criterion 3 at the state level of significance. The period of significance for the bridge is 1916 to 1917. The history of the bridge, written description, and significance conclusions are

summarized in the *7th Street Bridge Project Historical Resources Evaluation Report*. The bridge is jointly owned and maintained by Stanislaus County and the City of Modesto. There are no leases, easements, covenants, or restrictions affecting the ownership of the bridge.

A vicinity map showing the location of the 7th Street Bridge is provided on Figure 1-1 of the Draft Environmental Assessment (Draft EA). The location of the bridge with respect to the project Build Alternatives is shown on Figures 1-2A through 1-7C of the Draft EA. The bridge is accessible from both sides of the Tuolumne River via 7th Street.

7th Street is a two-lane undivided roadway (classified as an arterial) with a posted speed limit of 25 miles per hour (mph). The 7th Street Bridge over the Tuolumne River currently carries 15,900 vehicles per day. The 7th Street Bridge is not currently used for public transit, due in part to its low load carrying capacity. The bridge currently has a narrow, substandard pedestrian walkway along each side of the bridge that places pedestrians very close to vehicular traffic. The sidewalk widths and approaches do not comply with the Americans with Disabilities Act (ADA). The bridge does not provide dedicated bicycle facilities so vehicles and bicycles have to share a single narrow travel lane with no shoulder, increasing vehicle/bicycle conflicts.

The bridge is eligible under NRHP Criterion A and CRHR Criterion 1 for important associations with the City Beautiful movement in the San Joaquin Valley. It is eligible under these criteria at the local level of significance, and the period of significance is the date of construction, 1916-1917. During the early twentieth century, Modesto joined the nationwide City Beautiful movement by opening new parks, adding landscaped settings, and building aesthetically pleasing buildings and structures. Of the latter, the 7th Street Bridge was the largest and most prominent. The 1,170-foot-bridge was the only crossing of the Tuolumne River into Modesto from the south, and thus functioned as a gateway into the city. The lighting fixtures, recumbent lions, benches, curved railing, and arches all added to the attractiveness and monumentality of the bridge, helping make it one of the best examples of the City Beautiful movement civic engineering in the San Joaquin Valley.

The bridge is also eligible under NRHP Criterion C and CRHR Criterion 3 as an important example of a type, period, and method of construction. Specifically, it is a large and impressive example of the rare “cantcrete” bridge type. The bridge is also

eligible under NRHP Criterion C and CRHR Criterion 3 as an important example of a master engineer. Specifically, this bridge is one of the largest and most impressive cantilever bridges designed by John B. Leonard during the seven-year phase of his career when he appears to have designed only cantilever bridges. Under these criteria, the bridge is significant at the state level and the period of significance is 1916-1917.

The bridge retains a high degree of historic integrity. The only known changes to the original construction are the replacement of light fixtures, repaving, and addition of reinforcements under the northernmost span. Although the bridge shows signs of deterioration, it retains the physical features that convey its historic significance. Deterioration includes eroding concrete, especially under the bridge, and misaligned spans that create slight gaps and bumps in the roadway. Deterioration is most notable to the lions that flank the bridge's entrances at the both ends. These lions are mostly intact, but there are some missing pieces of concrete. These changes amount to a slight diminishment of the integrity of materials, design, and feeling. The structure appears to retain overall integrity to its period of significance. It should also be noted that this is a rare surviving example of cantilever bridges within the state of California. Only two others are known to exist: Stornetta Bridge, a former state highway bridge now located on private property in San Luis Obispo County, and Larkin Street Bridge in Monterey County, which was retrofitted in 2007.

The boundaries of this historic property include the bridge from its approach at the north end, south of Tuolumne Boulevard, to its approach at the south end, near Zeff Road. The character-defining features of this bridge include the concrete arches encasing steel trusses; eight utilitarian piers, three obelisk-topped piers, and two pedestal-topped piers; distressed quoins and scored concrete featured on the obelisk and pedestal pier types; arch-window guardrails; four concrete lions at the bridge approaches; concrete benches behind the lions; two-lane road width; and scored concrete sidewalks.

The 7th Street Bridge has no relationship to any other existing historic structures in the study area.

Chapter 4 Impacts on Section 4(f) Property

Per the cultural resources impact analysis conducted for this project, all four of the Build Alternatives studied would result in a use of the 7th Street Bridge property; this is due to the fact that all Build Alternatives would permanently incorporate property from the historic resource in addition to having an adverse effect under Section 106 (therefore the impact is greater than *de minimis*).

4.1 Alternative 2A and 2B

Facilities, functions, and/or activities potentially affected

Alternatives 2A and 2B would demolish the existing 7th Street Bridge and replace it with a new bridge. The new bridge would feature precast concrete girder structure in the floodplain and a tied-arch structure over the Tuolumne River that avoids piers in the river's low-flow channel. It will be located along the same alignment as the existing 7th Street Bridge. This alternative would constitute a direct *adverse effect* because it would, after salvage of some features (e.g., lion statues), demolish all of the existing 7th Street Bridge.

Accessibility

Under Alternative 2A and 2B the 7th Street Bridge would continue to be accessible to motorists and access to the bridge for bicyclists and pedestrians would be improved. Whereas the current bridge does not have dedicated bicycle facilities and has non-ADA-compliant sidewalk widths, the new bridge would have 12-foot-wide vehicle lanes, 6-foot-8-inch-wide sidewalks, and 5-foot-wide shoulders on each side that also would serve as Class II bicycle lanes. Unlike the current bridge, the new bridge would also be accessible to public transit use because there would no longer be load restrictions prohibiting use of the bridge by buses.

More detail regarding impacts related to accessibility (for automobiles, transit, bicyclists, and pedestrians) under Alternatives 2A and 2B is provided in Section 2.1.3.3 of the Draft EA.

Visual

Under Alternative 2A, the aesthetic benefit that the existing bridge brings to the corridor would be lost, though it would be partially offset by this alternative's arch design feature. Overall visual quality in the corridor would decrease. The degree of

resource change (change in visual character combined with change in visual quality) produced by this alternative would be moderate-low. The overall visual impact (resource change combined with viewer response) would be moderate.

Under Alternative 2B, the aesthetic benefit of the existing bridge would be lost and would not be offset by the new bridge because of the lack of an iconic design feature under this alternative. Overall visual quality in the corridor would decrease, and the degree of resource change (change in visual character combined with visual quality) produced by this alternative would be moderate-high. The overall visual impact (resource change combined with viewer response) for Alternative 2B would be moderate-high.

More detail regarding visual impacts under Alternative 2A and 2B is provided in Section 2.1.4.3 of the Draft EA.

Noise

Under Alternatives 2A and 2B, there would be adverse noise impacts to some receptors, although the main source of noise impacts is from increased traffic on SR 99. Since the traffic from SR 99 is the dominant noise source, noise barriers along 7th Street would not be effective in abating noise in these areas.

More detail regarding noise impacts under Alternatives 2A and 2B is provided in Section 2.2.5.3 of the Draft EA.

Vegetation

Alternatives 2A and 2B could directly impact 0.65 acres of riparian vegetation and 0.42 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction.

Under Alternatives 2A and 2B construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of mitigation measures.

More detail regarding impacts to vegetation under Alternatives 2A and 2B is provided in Sections 2.3.1.2, 2.3.4.3, and 2.3.5.3 of the Draft EA.

Wildlife

Under Alternatives 2A and 2B project construction could have an adverse effect on sensitive aquatic species. Demolition of the existing bridge and construction of a new bridge could directly kill or injure Central Valley steelhead (federal threatened), fall-run Chinook salmon, hardhead, and western pond turtles (all California species of special concern) if construction is conducted in “live” water while individuals are located in the project area. These species could be also be affected by excessive turbidity during earthwork, chemical spills by construction equipment, and excessive noise and pressure waves during pile installation. Project construction could also affect sensitive bird and bat species. Effects to sensitive animal species would be fully offset by implementation of mitigation measures.

More detail regarding impacts to wildlife under Alternatives 2A and 2B is provided in Section 2.3.3.3 of the Draft EA.

Air quality

Alternatives 2A and 2B would result in short-term construction period effects to air quality as well as long-term effects associated with increases in traffic. Standard construction BMPs and emission reduction measures will be implemented to minimize project emissions during construction, and implementation of the Regional Transportation Plan (RTP) has been found to conform to regional air quality attainment goals.

More detail regarding impacts to air quality under Alternatives 2A and 2B is provided in Section 2.2.4.3 of the Draft EA.

Water quality

Alternatives 2A and 2B could result in erosion and siltation with associated water quality impacts. However, the project would follow the County’s Stormwater Management Program and Caltrans standards. The project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Standard construction best management practices and pollution control measures will be implemented to minimize erosion and sedimentation during construction.

More detail regarding impacts to water quality under Alternatives 2A and 2B is provided in Section 2.2.1.3 of the Draft EA.

4.2 Alternative 3

Facilities, functions, and/or activities potentially affected

Alternative 3 would demolish the existing 7th Street Bridge and replace it with a new bridge. This alternative would build the new bridge in stages, leaving the existing bridge in place while half of the new bridge is constructed. During the second stage, the 7th Street Bridge would be demolished as the other half of the new bridge is constructed. The new bridge would be a concrete box girder structure type. This alternative would constitute a direct *adverse effect* because it would, after salvage of some features (e.g., lion statues), demolish all of the existing 7th Street Bridge.

Accessibility

Anticipated impacts to accessibility under Alternative 3 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts related to accessibility (for automobiles, transit, bicyclists, and pedestrians) under Alternative 3 is provided in Section 2.1.3.3 of the Draft EA.

Visual

For Alternative 3, the aesthetic benefit of the existing bridge would be lost and would not be offset by the new bridge because of the absence of an iconic design feature. Overall visual quality in the corridor would decrease, and the degree of resource change (change in visual character combined with change in visual quality) produced by this alternative would be moderate. The overall visual impact (resource change combined with viewer response) for Alternative 3 is moderate-high.

More detail regarding visual impacts under Alternative 3 is provided in Section 2.1.4.3 of the Draft EA.

Noise

Anticipated noise impacts under Alternative 3 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding noise impacts under Alternative 3 is provided in Section 2.2.5.3 of the Draft EA.

Vegetation

Alternative 3 could directly impact 0.65 acres of riparian vegetation and 0.44 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction.

Under Alternative 3 construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of mitigation measures.

More detail regarding impacts to vegetation under Alternative 3 is provided in Sections 2.3.1.2, 2.3.4.3, and 2.3.5.3 of the Draft EA.

Wildlife

Anticipated impacts to wildlife under Alternative 3 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts to wildlife under Alternative 3 is provided in Section 2.3.3.3 of the Draft EA.

Air quality

Anticipated air quality impacts under Alternative 3 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts to air quality under Alternative 3 is provided in Section 2.2.4.3 of the Draft EA.

Water quality

Anticipated water quality impacts under Alternative 3 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts to water quality under Alternative 3 is provided in Section 2.2.1.3 of the Draft EA.

4.3 Alternative 4

Facilities, functions, and/or activities potentially affected

Alternative 4 proposes a comprehensive retrofit of the existing 7th Street Bridge and construction of a new two-lane precast concrete girder bridge downstream of the existing bridge. The new bridge would be constructed first and would be used by all traffic during the retrofit of the 7th Street Bridge. Once the retrofit of the existing bridge is completed, northbound traffic will use the existing bridge and southbound traffic will use the new bridge.

The construction of a new bridge downstream of the existing bridge would introduce visual and audible elements that would diminish the integrity of setting, design, and feeling. At the time of its construction, the 7th Street Bridge was the sole automobile bridge crossing of the river into Modesto. A railroad bridge located upstream from the 7th Street Bridge was present at the time of construction. Other automobile bridges that were constructed since the 7th Street Bridge was built include the 9th Street Bridge located approximately 1,700 feet upstream and the bridge carrying State Route (SR) 99 located about 800 feet downstream. At its closest, the new bridge would be 9 feet from the 7th Street Bridge. The introduction of the new bridge in such close proximity would constitute an indirect *adverse effect* because it would introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.

Under Alternative 4, the existing 7th Street Bridge would carry two lanes of northbound traffic instead of one lane for each direction of traffic. This is a minimal change in the historical use of the bridge that does not substantially diminish its historic integrity. The bridge will remain an automobile bridge carrying two lanes of traffic, as it was during its period of significance. This change would not constitute a change in the character of the property's use under adverse effect example (iv).

The retrofit being considered was discussed in the "Final Rehabilitation and Retrofit Strategy Report, 7th Street Bridge Project, Bridge No. 38C-0023." That report described the existing conditions, performed a structural analysis to assess vulnerabilities, and proposed a series of required upgrades to rehabilitate and retrofit the bridge. Some of the proposed rehabilitation and retrofit activities constitute an alteration of the historic property. The following analyzes whether each proposed activity is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (SOI Standards).

- **Replace bridge deck:** This activity will replace the bridge deck, instead of rehabilitating it, because of its age and existing condition, the under-reinforced nature of the deck, and the infeasibility of other repair strategies. While replacing the deck, joint seals at the expansion joints would be replaced. This activity would be considered an alteration of the property that is consistent with the SOI Standards. The bridge deck is not considered a character-defining feature, nor is it a significant characteristic of the cantcrete design of the bridge, and thus this would not constitute a removal of distinctive materials or alteration of features, spaces, or spatial relationships that characterize the property. This activity results in no adverse effect.
- **Replace floor beams:** The floor beams will be replaced. The floor beams are key elements of the bridge's cantcrete design as they are steel structures encased in concrete. To meet SOI Standards and avoid an adverse effect, the replacement of these beams would need to match the design, color, texture, and, where possible, materials of the originals. While the design of these features has not been completed, the new floor beams are not expected to match the originals in design—they will be concrete and similar in texture and color but, because of changing AASHTO LRFD standards since the original (early 1900s) design, the new floor beams might not match the dimensions or cantcrete design of the existing floor beams. Because removing the original floor beams will destroy an important design feature of the bridge and the replacement floor beams will not match the original in design, this activity would constitute a direct *adverse effect* because it would alter the historic property in a way that is not consistent with the SOI Standards. The concrete-encased steel trusses that run along the outside of the bridge should not be altered during this process as they are also character-defining features of the historic property.
- **Add longitudinal girder:** This activity will install a longitudinal beam such as an arched girder. This will reduce load-bearing and seismic stability demands on the existing steel trusses. The longitudinal beam would run parallel to the concrete-encased steel trusses. With their arch-like appearance and cantcrete design, these original truss walls are character-defining features of the historic property. The new longitudinal beam would constitute an addition to the historic property. To meet SOI Standards, this addition cannot destroy historic materials, features, or spatial relationships that characterize the property. It also must be differentiated from and compatible with the historic materials, features, size, scale and proportion, and massing. Finally, the addition will need to be done in such a

manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. While the design for this longitudinal beam has not been finalized, it would be shallower than the outer truss walls but constructed of concrete. Therefore, the longitudinal beam will likely be different from, but compatible with, the original historic property. The floor beams will be replaced under a separate activity of Alternative 4 (see “Replace floor beams” above); therefore, the activity of adding a longitudinal beam would not destroy those historic features. If the design of the longitudinal beam follows these designs, it would constitute no adverse effect because it would be consistent with the SOI Standards.

- **Connect mid-span joints:** This work involves connecting the mid-span cantilevers together for vertical support. One option for connecting the cantilevers is to install hanger plates that will be visible. This activity would require installing new materials to the historic property. To meet the SOI Standards, this activity cannot destroy historic materials, features, or spatial relationships that characterize the historic property. It must be differentiated from the bridge and compatible with the historic materials, features, size, scale and proportion, and massing. It also must be undertaken in a manner that, if removed in the future, the essential form and integrity of the historic property would be unimpaired. If it is done in this manner this activity would constitute no adverse effect because it would be consistent with the SOI Standards.
- **Expand south abutment seat:** The seat on the south abutment will be extended 16 inches to comply with required 30-inch seat length specified per Section 7.8.3 of the Caltrans Seismic Design Criteria. The abutment seats are not character-defining features. The expansion of the south abutment seat would be considered an alteration that will not destroy historic materials, features, or spatial relationships that characterize the property. This alteration of the historic property would therefore be consistent with the SOI Standards and would result in no adverse effect.
- **Replace diaphragm pier walls:** The diaphragm wall on the piers will be removed and replaced to strengthen the connection with the piers. New walls will be thicker than the existing walls to prevent shear failure during a seismic event. The piers are considered character-defining features and the smooth and scored concrete diaphragm walls are elements of these features. The severity of the condition is such that repair of the existing diaphragm walls is not possible. To

- meet SOI Standards, the new walls will need to match the old in design, color, texture, and materials. The new walls will be concrete and can be designed to be close in color and texture to the original design. The new walls will match the visible dimensions of the existing walls. If the diaphragm walls are replaced in this manner, this activity would constitute no adverse effect because it would not alter the historic property in a way that is not consistent with the SOI Standards.
- **Construct additional piles:** Large-diameter cast-in-drilled-hole piles or cast-in-steel-shell piles will be installed to supplement the inadequate existing timber and concrete piles. The new piles will be installed through the existing pier caps and will vary between 3 and 7 feet in diameter. The pile caps will be attached to the new diaphragm walls. The piles will not be visible once completed. The piles are not considered character-defining features. The historic materials will remain in place. The piles are not a visible element of the bridge. This activity would be consistent with the SOI Standards and result in no adverse effect.
 - **Remove sidewalks:** This activity would remove the existing sidewalks and replace them with safety barriers to prevent vehicular collision impacts on the existing barrier railing. The existing railing contains part of the steel truss, which is a primary structural element. Damage to this part of the steel truss due to a vehicular collision could potentially cause localized partial collapse of the structure. The new barriers would obscure the view of the existing railing from the inside of the bridge, but the visibility from the outside would not be altered. The railing and sidewalks are character-defining features of the historic property. The replacement of sidewalks with safety barriers would constitute a direct *adverse effect* because it would alter the property in a manner not consistent with the SOI Standards. Specifically, the activity would remove distinctive materials and alter features, spaces, and spatial relationships that characterize a property.
 - **Patch, clean and coat lion statues and benches:** This activity will patch the lion statues and concrete benches, remove biological growth, and apply waterproof coating. Most of the damage to the lion statues is due to vandalism. Repairing instead of replacing these character-defining features is consistent with the SOI Standards. Waterproof coating is a standard maintenance activity that can be done to meet SOI Standards of using the gentlest means possible and not using treatments that cause damage to the historic materials. This would result in no adverse effect.

- **Clean and paint plaques:** The bronze plaques at the bridge approaches will be cleaned and an anti-graffiti coating applied. The plaques were installed when the bridge was built and are character-defining features. Cleaning of the plaques should be done in the gentlest means possible. Treatments that cause damage must be avoided. While the plaques are currently painted, they were not so when originally installed. The paint should be removed and a protective coating applied. These actions would meet the SOI Standards and would result in no adverse effect.
- **Patch failed concrete:** Deteriorated concrete on the bridge will be removed and replaced. Patches can be done to meet SOI Standards by using materials that match the original materials. Documentary and physical evidence, including as-built drawings and historic photographs, are available to be used to determine the materials. If SOI standards are followed, this activity would constitute no adverse effect.
- **Replace patches:** Mismatched patches that were previously added will be removed and replaced. Patches, which are replacement of missing materials, can be done to meet SOI Standards by using materials that match the original materials. Documentary and physical evidence, including as-built drawings and historic photographs, are available to be used to determine the materials. If SOI standards are followed, this activity would constitute no adverse effect.
- **Replace lighting fixtures:** An option under this alternative is to replace the lighting fixtures with replicas of the original light fixtures detailed on the as-built plans. This would constitute restoration of the historic material in keeping with the SOI Standards. Documentary evidence, including original as-built drawings and historic photographs, is available to be used to guide the replacement of the lighting fixtures. This activity would constitute no adverse effect.
- **Remove graffiti and install countermeasures:** Existing graffiti will be removed and countermeasures will be employed to deter or mitigate future graffiti and vandalism. The measures could include adding protective coatings on the concrete surfaces, landscaping to cover target areas, or fencing to limit access to the bridge. Graffiti removal is a standard maintenance activity that can be done to meet the SOI Standards. Chemical or physical treatments will use the gentlest non-destructive means. Countermeasures can be designed to meet the SOI Standards, but designs for adding elements such as fencing and landscaping should be done

in a manner such that the removal of these elements would not alter the essential form and integrity of the bridge, or destroy historic materials, features, or spatial relationships that characterize the property. If SOI Standards are followed, this activity would result in no adverse effect.

In sum, Alternative 4 would result in a direct *adverse effect* to the 7th Street Bridge because removing the sidewalks, installing safety barriers, and replacing the floor beams would alter the historic property in ways not consistent with the SOI Standards. Other activities, including installing a longitudinal beam, connecting mid-span joints with hanger plates, and replacing the diaphragm walls on the piers could also potentially constitute alterations of the historic property in ways that are not consistent with the SOI Standards.

This alternative would also result in an indirect *adverse effect* because the addition of a parallel new bridge would introduce visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. However, the direct adverse effect under Alternatives 2A, 2B, and 3, in which the historic property is demolished, would be far greater than the direct and indirect adverse effects under Alternative 4, which would alter, but retain the historic property.

Accessibility

Anticipated impacts related to accessibility under Alternative 4 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts related to accessibility (for automobiles, transit, bicyclists, and pedestrians) under Alternative 4 is provided in Section 2.1.3.3 of the Draft EA.

Visual

Under Alternative 4, the existing bridge would remain, but it would be sandwiched between the UPRR trestle and a new bridge span built adjacent to and downstream of the existing bridge. Though the elements of the existing bridge that contribute to the visual quality of the project corridor would remain in place, their context would be negatively affected because the existing bridge would be substantially obscured by the new downstream bridge. Overall visual quality in the corridor would decrease, and the degree of resource change (change in visual character combined with change in visual quality) produced by this alternative would be high. The overall visual

impact (resource change combined with viewer response) for Alternative 4 would be high.

More detail on visual impacts related to Alternative 4 is provided in Section 2.1.4.3 of the Draft EA.

Noise

Anticipated noise impacts under Alternative 4 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail on noise impacts related to Alternative 4 is provided in Section 2.2.5.3 of the Draft EA.

Vegetation

Alternative 4 could directly impact 0.65 acres of riparian vegetation and 0.45 acres of Tuolumne riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riverine and riparian habitat during construction

Under Alternative 4 construction activities (including demolition) could spread invasive plant species currently existing in the area, or could introduce invasive plant species not currently known to occur. Invasive species impacts would be fully offset by implementation of mitigation measures.

More detail regarding impacts to vegetation under Alternative 4 is provided in Sections 2.3.1.2, 2.3.4.3, and 2.3.5.3 of the Draft EA.

Wildlife

Anticipated air quality impacts under Alternative 4 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts to wildlife under Alternative 4 is provided in Section 2.3.3.3 of the Draft EA.

Air quality

Anticipated air quality impacts under Alternative 4 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding air quality impacts under Alternative 4 is provided in Section 2.3.4.3 of the Draft EA.

Water quality

Anticipated water quality impacts under Alternative 4 are the same as those described for Alternatives 2A and 2B in Section 4.1.

More detail regarding impacts to water quality under Alternative 4 is provided in Section 2.2.1.3 of the Draft EA.

Chapter 5 Applicability of Programmatic Section 4(f)

This section is prepared in accordance with the Programmatic Section 4(f) Evaluation and Approval for Federal Highway Administration (FHWA) Projects that Necessitate the Use of Historic Bridges. Italicized and indented text in the sections below indicates text excerpted directly from the programmatic evaluation.

This programmatic Section 4(f) evaluation may be applied by the FHWA to projects which meet the following criteria:

- 1. The bridge is to be replaced or rehabilitated with Federal funds.*
- 2. The project will require the use of a historic bridge structure which is on or is eligible for listing on the National Register of Historic Places.*
- 3. The bridge is not a National Historic Landmark.*
- 4. The FHWA Division Administrator determines that the facts of the project match those set forth in the sections of this document labeled Alternatives, Findings, and Mitigation.*
- 5. Agreement among the FHWA, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) has been reached through procedures pursuant to Section 106 of the National Historic Preservation Act (NHPA).*

Should any of the above criteria not be met, this programmatic Section 4(f) evaluation cannot be used, and an individual Section 4(f) evaluation must be prepared.

Finding: This programmatic Section 4(f) evaluation is applicable to the 7th Street Bridge Project for the following reasons:

1. The 7th Street Bridge Project entails the repair or replacement of the 7th Street Bridge with federal funds. The project is included in the StanCOG's financially-constrained 2017 Federal Transit Improvement Program (FTIP), Appendix A, page 10, as "Seismic Bridge Replacement, 4 lane bridge with pedestrian access." The project is also listed in the financially-constrained StanCOG 2014 RTP/SCS.

2. The 7th Street Bridge has been determined eligible for the NRHP. The bridge was determined eligible for listing in the NRHP as a result of the Caltrans Historic Bridge Inventory conducted in 1986, a conclusion the SHPO concurred with on January 12, 1987. The determination was reaffirmed in the Caltrans Historic Bridge Inventory of the early 2000s.
3. The 7th Street Bridge is not a designated National Historic Landmark.
4. Caltrans verifies that the facts of the project as presented in the responses of this document match those set forth in the Alternatives, Findings, and Mitigation sections of the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* statement.
5. A Section 106 Memorandum of Agreement (MOA) between Caltrans and the SHPO regarding the 7th Street Bridge was signed in [enter month, year].

Chapter 6 Avoidance Alternatives and Other Findings

As noted in FHWA's Programmatic Section 4(f) Evaluation guidance on the use of historic bridges, the following alternatives avoid any use of the historic bridge:

1. *Do nothing.*
2. *Build a new structure at a different location without affecting the historic integrity of the old bridge, as determined by procedures implementing the NHPA.*
3. *Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the NHPA.*

Findings for each of the above three avoidance alternatives are addressed below.

1. ***Do Nothing.*** *The do nothing alternative has been studied. The do nothing alternative ignores the basic transportation need. For the following reasons this alternative is not feasible and prudent:*
 - a. *Maintenance - The do nothing alternative does not correct the situation that causes the bridge to be considered structurally deficient or deteriorated. These deficiencies can lead to sudden collapse and potential injury or loss of life. Normal maintenance is not considered adequate to cope with the situation.*
 - b. *Safety - The do nothing alternative does not correct the situation that causes the bridge to be considered deficient.*

Because of these deficiencies the bridge poses serious and unacceptable safety hazards to the traveling public or places intolerable restriction on transport and travel.

Findings: The No-Build Alternative would avoid uses of the Section 4(f) resource, but is deemed not feasible and prudent per both (a) and (b) listed above.

Rehabilitation and retrofit or replacement of the existing historic structure is necessary for many reasons. First, many parts of the structure have significant

cracking and concrete spalling with some exposed reinforcement or structural steel. Also, there are vertical offsets (up to 3 inches) at mid-span bridge joints, suggesting that overstressing of the steel truss has occurred. In addition to observed conditions, structural analysis using a computer model was performed to determine the extent of potential vulnerabilities. The analysis identified vehicular load vulnerabilities to the bridge deck and barriers, floor beams, arch trusses, and substructure, with additional seismic load vulnerabilities to the arch trusses and substructure.

As a result of these structural conditions, the inventory and operating load ratings are 6.5 tons and 11 tons, respectively, and the bridge is posted with a 4-ton weight limit. These load ratings are well below modern standards. This prevents most commercial trucks from using the bridge, and also limits use by local buses and large emergency vehicles. Seismic load deficiencies indicate that the bridge is also vulnerable to collapse during an earthquake.

Hydrologic conditions were most recently evaluated in the Bridge Design Hydraulic Study Report. As identified in the report, scour issues have occurred in the past along the Tuolumne River piers and the structure does not satisfy the required freeboard criteria above the Tuolumne River floodplain; therefore, there remains the potential for structural instability during a flood. Based on this analysis, the bridge is classified as scour critical.

The maximum potential scour depths are significant and well below the bottom of bridge piles. Due to the magnitude of the scour depths relative to the pile lengths, the piles could be severely compromised in both the 100-year and 200-year flood. Thus, retrofit or replacement of the pile foundations is necessary to ensure stability of the bridge.

The existing bridge also does not have adequate freeboard to pass a 100-year flood flow without impairment – there is no freeboard, as the 100-year flood water surface elevation is at the same height as the bridge deck (75.1 feet). The controlling design standard for passing flood flows is from the Central Valley Flood Protection Board, which requires 3 feet of freeboard above the 100-year flood water surface elevation.

The current vehicle lanes do not comply with the guidelines specified in the Caltrans Highway Design Manual and the AASHTO Policy on Geometric Design of Highways and Streets. Collectively, these documents recommend 12-foot-wide lanes with 8-foot-wide shoulders for this urban arterial street. On the existing bridge, travel lanes are 12 feet wide but there are no shoulders.

The 7th Street Bridge has narrow, substandard sidewalks that place pedestrians very close to vehicular traffic. The Caltrans Highway Design Manual requires 6-foot-wide sidewalks along bridges and recommends 8-foot-wide sidewalks for pedestrian comfort, but the current sidewalks are only 4 feet wide. In addition, the approaches to these sidewalks are not ADA compliant, forcing some wheelchair traffic to use the vehicle lanes.

The bridge does not provide dedicated bicycle infrastructure; vehicles and bicycles must share a single, narrow travel lane with no shoulder, which increases vehicle/bicycle conflicts. The lack of bicycle infrastructure is inconsistent with the City of Modesto Non-Motorized Transportation Master Plan, which calls for a complete network of bikeways, walkways, trails, and paths that serve all non-motorized groups. The Modesto Non-Motorized Transportation Master Plan designates a Class II Bike Lane along the 7th Street Bridge corridor, where a Class II Bike Lane is defined in the Master Plan as a “striped and stenciled lane for one-way travel on a street or highway.” The StanCOG Non-Motorized Transportation Plan recommends a 6-foot width for a Class II Bike Lane, with a required minimum width of 5 feet.

7th Street is an important two-lane arterial roadway that carries traffic to and from downtown Modesto and the surrounding neighborhoods and communities. Traffic conditions were most recently evaluated in the Final Traffic Report for the 7th Street Bridge Project. As identified in the report, the bridge carries 15,900 vehicles per day, and the intersection north of the bridge (Tuolumne Boulevard/B Street) operates at level of service (LOS) C in the AM peak hour and LOS D in the PM peak hour. Lengthy vehicle queues occur on the bridge during peak travel conditions and when train crossings at B Street cause traffic signal preemptions. With no improvements, traffic volumes on the 7th Street Bridge are anticipated to increase by 82 percent to 29,000 vehicles per day and the Tuolumne Boulevard/B Street intersection would operate at an unacceptable LOS F (Design Year = 2040).

The StanCOG 2014 RTP/SCS has identified the need to increase the 7th Street Bridge vehicular capacity from two lanes to four lanes. Both the City of Modesto General Plan and the Stanislaus County General Plan also identify the future 7th Street Bridge as a four-lane structure.

The No-Build Alternative would not address any of the above issues – it does not address the stated project purpose and need to correct known structural and functional deficiencies of the existing 7th Street Bridge.

Conclusion: although the No-Build Alternative would avoid uses of all Section 4(f) resources, it is concluded to be not feasible and prudent per reasons (a) and (b) because it would not address serious and unacceptable safety hazards to the traveling public.

2. ***Build on New Location Without Using the Old Bridge.*** *Investigations have been conducted to construct a bridge on a new location or parallel to the old bridge (allowing for a one- way couplet), but, for one or more of the following reasons, this alternative is not feasible and prudent:*
 - a. *Terrain - The present bridge structure has already been located at the only feasible and prudent site, i.e., a gap in the land form, the narrowest point of the river canyon, etc. To build a new bridge at another site will result in extraordinary bridge and approach engineering and construction difficulty or costs or extraordinary disruption to established traffic patterns.*
 - b. *Adverse Social, Economic, or Environmental Effects - Building a new bridge away from the present site would result in social, economic, or environmental impact of extraordinary magnitude. Such impacts as extensive severing of productive farmlands, displacement of a significant number of families or businesses, serious disruption of established travel patterns, and access and damage to wetlands may individually or cumulatively weigh heavily against relocation to a new site.*
 - c. *Engineering and Economy - Where difficulty associated with the new location is less extreme than those encountered above, a new site would not be feasible and prudent where cost and engineering difficulties reach extraordinary magnitude. Factors supporting this conclusion include significantly increased roadway and structure costs, serious foundation problems, or extreme difficulty in reaching the new site with construction equipment. Additional design and safety factors to be considered include an ability to achieve minimum design standards or to meet requirements of various permitting agencies such as those involved with navigation, pollution, and the environment.*

- d. *Preservation of Old Bridge - It is not feasible and prudent to preserve the existing bridge, even if a new bridge were to be built at a new location. This could occur when the historic bridge is beyond rehabilitation for a transportation or an alternative use, when no responsible party can be located to maintain and preserve the bridge, or when a permitting authority, such as the Coast Guard requires removal or demolition of the old bridge.*

Findings: The project considered and dismissed an alternative that was proposed which would have theoretically been built at a new location while avoiding a use of the 7th Street Bridge. This alternative is described in Section 1.3.2.2 of the Draft EA as a “New Downstream Bridge with Retrofit of Existing Bridge for Bicycle/ Pedestrian Use.”

During the scoping phase of the project, several commenters suggested maintaining the existing 7th Street Bridge for bicycle and pedestrian use. This alternative would require construction of a new downstream bridge for vehicle traffic only. All bicycles and pedestrians would use the existing 7th Street Bridge.

The new, four-lane bridge would be located approximately 20 feet downstream of the existing bridge for appropriate vehicle travel lane configuration that avoids interference with the existing bridge. The new bridge would be either a concrete box girder or precast concrete girder structure type, with approximately seven piers in the Tuolumne River floodplain and one pier in the low-flow channel of the river itself. The new bridge would have two 12-foot-wide vehicle lanes with 6-foot-wide shoulders; sidewalks and dedicated bike lanes would not be needed.

The intersection of 7th Street with B Street/Tuolumne River Boulevard would be reconfigured to accommodate four lanes of traffic, and the intersection of 7th Street with Crows Landing Road would be reconfigured to emphasize traffic continuity to the more heavily used Crows Landing Road corridor. Both intersections would be shifted to the west because of the downstream location of the new bridge. As a result, the downstream location of the new bridge would require greater encroachment into private property, including 22 residential relocations at Sunrise Village Mobile Home Park and encroachment into an existing commercial building (Wille Electric) that would not occur under the other Build Alternatives.

To ensure structural safety, retrofit of the existing bridge similar to Alternative 4 would be required. Although vehicles would not use the existing bridge, the same

amount of structural retrofit would be required in order to correct its seismic deficiencies sufficient for bicycle and pedestrian use.

Based on the design concept, the total cost of this alternative is estimated to be \$53.2 million.

Per the analysis conducted by the project team prior to the Draft EA, this alternative was eliminated from detailed consideration for several reasons:

- The new downstream bridge would not obviate the high level of property acquisition that would occur under Alternatives 3 and 4.
- Retrofit of the existing bridge would not provide increased flood flow capacity as the existing bridge would remain within the Tuolumne River floodway.
- Financial considerations: This alternative would have financial constraints associated with maintenance. As a non-vehicular bridge in the Tuolumne River Parkway, maintenance would be the responsibility of a local parks agency (for example, the Stanislaus County Parks and Recreation Department). The maintenance needs of such a large structure would likely exceed the financial capacity of local parks agencies.

Other factors that contribute to this avoidance alternative being not feasible and prudent:

- Natural area impacts
 - Removal of habitat in the area under the new bridge would result in a reduction of cover, nesting, and foraging habitat for some wildlife species. Habitat function would be reduced as compared to existing conditions because vegetation would be removed and overwater structures would increase shading.
 - Vegetation communities and habitats would be removed from areas where new roadway would be on the ground, and some vegetation would be removed for columns to support the bridge and ramps.
 - In-stream habitat would be decreased because columns and piers would be constructed below the ordinary high water elevation to support the bridge structure.

- Impacts to the TRRP Gateway Parcel
 - A greater percentage of parkland would be occupied by bridge/ramp piers, including the planned water-harvesting outdoor classroom area.
 - Introduction of a new, approximately 90-foot, elevated structure over the park would have substantial visual impacts to this riverside park area.
- The impacts to community character and cohesion of Sunrise Village Mobile Home Park would be greater and more residents would need to be relocated. Sunrise Village includes 136 mobile homes and cottages in an area with high minority and low-income populations compared to the City of Modesto and the rest of unincorporated Stanislaus County. Approximately 63 percent of the population are ethnic minorities, mostly Hispanic or Latino. Almost 40 percent of the households are at or below the poverty level. The median income is less than half of that of Modesto or Stanislaus County.
- To accommodate the realignment of the roadway associated with the new downstream bridge, there would need to be significant local street system modifications both north and south of the river, with resulting adverse impacts to residents and businesses located in the path of the new bridge approach ramps and roadways.

Conclusion: Based on the above analysis, this avoidance alternative is not feasible and prudent per a combination of reasons (b) and (c).

3. ***Rehabilitation Without Affecting the Historic Integrity of the Bridge.***

Studies have been conducted of rehabilitation measures, but, for one or more of the following reasons, this alternative is not feasible and prudent:

- a. *The bridge is so structurally deficient that it cannot be rehabilitated to meet minimum acceptable load requirements without affecting the historic integrity of the bridge.*
- b. *The bridge is seriously deficient geometrically and cannot be widened to meet the minimum required capacity of the highway system on which it is located without affecting the historic integrity of the bridge. Flexibility in the application of the American Association of State Highway and Transportation Officials geometric standards should be exercised as permitted in 23 CFR Part 625 during the analysis of this alternative.*

Findings: This avoidance concept would entail performing rehabilitation and retrofit measures that would meet the stated purpose and need of the project while preserving the architectural character of the 7th Street Bridge to avoid an adverse effect to the historic bridge under Section 106. However, as described in the 7th Street Bridge Project Rehabilitation and Retrofit Strategy Report, performing a limited retrofit that would satisfy the aforementioned avoidance concept objective would result in the following remaining deficiencies:

- **Functional obsolescence of the existing structure:** The existing structure has no shoulders, which creates an unsafe condition for drivers and cyclists. The existing sidewalks could be removed to provide shoulders, but they would be substandard in width and result in a loss of pedestrian access. There is no feasible way to widen the structure to provide room for shoulders as the truss embedded in the concrete arch extends above the roadway surface.
- **Freeboard inadequacy for the 100-, 200-, and 500-year flood events:** The structure has no freeboard for the 100-year event and partly impounds the 200-year event. There is no practical way to raise the bridge.
- **Remaining life of the existing steel truss and questionable durability of the concrete arch and abutments:** The concrete that encases the embedded steel truss prevents inspection and monitoring of the condition of the steel members. The potential presence and propagation of fatigue cracks and corrosion in the members cannot be observed or repaired. Because of the inability to closely inspect and monitor the aged steel members and the fact that the bridge is non-redundant, structural deterioration cannot be assessed and failure of any one of the embedded steel members will result in likely collapse. In addition, regions of the concrete exhibit significant cracking and spalling that appears to be because of alkali-silica reaction (ASR). There are no practical mitigations for ASR. The ASR will continue to cause cracking in the concrete and will be an ongoing inspection and maintenance need. An extensive and expensive test program would be required to determine the exact condition of the existing concrete and embedded steel.
- **Collision performance of the existing barriers:** The existing barriers are not capable of resisting design crash loads, and because the barriers are a component of the bridge's primary structural system, damage to them can lead to bridge collapse. The only way to protect the bridge from this vulnerability would be the

installation of supplemental barriers in front of the existing barriers. This would require removal of the existing sidewalks and loss of pedestrian access on the bridge. It would also reduce the potential shoulder width improvement provided by removing the sidewalks.

- Continuing deterioration of bridge architectural features, such as the barrier railing and recumbent lion statues: Maintenance of the architectural features will require an ongoing inspection and repair program to minimize their continued deterioration.
- Americans with Disabilities Act requirements for the existing sidewalks: If the existing sidewalks remain, they will require significant improvements to provide adequate disabled access across the bridge.

Alternative 4, the one rehabilitation/retrofit alternative among the Build Alternatives, meets the purpose and need of the project through a substantially more robust engineering retrofit, but does not preserve the architectural integrity of the bridge to a degree that would avoid an adverse effect under Section 106 (and subsequent use under Section (f)).

Conclusion: Based on the above analysis, this avoidance alternative is not feasible/prudent per (a) noted above.

Chapter 7 Measures to Minimize Harm on the Section 4(f) Property

Measures to minimize harm to the historic 7th Street Bridge are based on the Section 106 MOA between Caltrans and the California SHPO regarding the 7th Street Bridge and are summarized below.

7.1 Treatment of Historic Properties

- **Measure CUL-1a:** Prior to the start of any work under Alternative 2A, 2B, 3, or 4 that could adversely affect characteristics that qualify the 7th Street Bridge as a historic property, Stanislaus County shall ensure that the bridge shall be the subject of recordation by photography and drawing following the standards of the Historic American Engineering Record (HAER) prior to the start of the undertaking.
 - The appropriate level of documentation shall specifically follow HAER criteria at the level specified by the National Park Service (NPS) Regional HAER coordinator. Documentation shall be completed by a qualified professional who meets the standards for History, Architectural History, or Architecture (as appropriate) set forth by the Secretary of the Interior’s Professional Qualification Standards (36 CFR, Part 61).
 - Upon completion of the documentation prescribed above and review and approval of such documentation by the Caltrans Professionally Qualified Staff (PQS) and the SHPO, Stanislaus County will provide the documentation meeting current archival quality standards established by the NPS Heritage Documentation Programs to Caltrans District 10 and the Caltrans Transportation History Library in Sacramento. Stanislaus County will also offer copies of the documentation and provide copies upon request to, at a minimum, the California Office of Historic Preservation; City of Modesto Landmark Preservation Committee; Stanislaus County Public Library, Modesto Branch; McHenry Museum & Historical Society; and California State University, Stanislaus, Special Collections.
- **Measure CUL-1b:** Under Alternative 2A, 2B, or 3, Stanislaus County will implement measures to interpret the 7th Street Bridge’s historic significance for the public. A Caltrans Architectural Historian or Principal Architectural Historian

will review and approve the format, text, photographs, and visual simulations/animations of the measures listed below. All interpretive materials will also be made available for review and approval by the SHPO prior to fabrication, installation, or publication.

- Stanislaus County will install an interpretive display within the pedestrian plaza. The display will include historical data taken from the HAER documentation and/or other cited archival sources and will also include photographs. Displayed photographs will include information about the subject, the date of the photograph, and photo credit/photo collection credit. The interpretive display installed in the pedestrian plaza will be sufficiently durable to withstand typical Modesto weather conditions for at least ten years, like fiberglass embedment panels that meet NPS, or similar, signage standards. The interpretive display will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.

- Stanislaus County will investigate the feasibility of removing historic elements from the 7th Street Bridge prior to its demolition. If feasible, Stanislaus County will remove the selected features and install them within the pedestrian plaza. These features may include one or more of the concrete lions, railing/bench segments, an obelisk, and one or more of the bridge's bronze plaques. The concrete lion(s) installed in the pedestrian plaza may be replicated from an original if it is determined that the historic lions are too deteriorated. The plaza also will include a salvaged cutaway portion of the existing bridge that shows the underlying steel structure supporting the "canticrete" bridge design. This salvaged cutaway will be selected to show how the original bridge design featured an internal steel structure encased in concrete. Interpretation of the cutaway should include images of the original bridge design drawings, if those images are available, and otherwise will follow the requirements for interpretive exhibits described above. Stanislaus County will ensure that the selected features are adequately stored and protected during the interim between their removal and installation in the pedestrian plaza. The selected features will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.

- Stanislaus County will place historical information from the HAER report on a County or City of Modesto website, with a link provided on a public library website. The historical information will be made available to the public within

6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years. The text will be written for popular consumption, but also be properly cited following historical documentation standards. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.

- Stanislaus County will provide visual simulations and/or animations of the 7th Street Bridge on the website. The simulations and/or animations will be based on the LIDAR (light detection and ranging) data collected of the structure and may include still images, flythrough images, and point cloud(s). These images are intended to supplement the photographs included in the HAER report. The visual simulations and/or animations will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years.
- **Measure CUL-2:** Under Alternative 4, if feasible, the new downstream bridge will be redesigned and relocated to minimize the adverse effect, and the retrofit will be conducted to meet SOI standards as much as possible.
 - The retrofit of 7th Street Bridge will meet the SOI Standards to the extent possible. A qualified Architectural Historian will ensure the retrofit design of 7th Street Bridge meets SOI Standards. Reference will be made to *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, National Park Service Preservation Briefs, and other relevant documents.
 - The qualified Architectural Historian will ensure that SOI Standards requirements for the project are clearly described and illustrated in the plans, specifications, and estimates (PS&E). A Caltrans Architectural Historian will review for approval the PS&E package to ensure that SOI's requirements for the project are clearly described and illustrated in the PS&E package. Changes to the PS&E will be reviewed by the qualified Architectural Historian and reviewed and approved by a Caltrans Architectural Historian.
 - The Caltrans Architectural Historian must be a PQS Principal Architectural Historian. The qualified Architectural Historian must meet the SOI's Professional Qualification Standards for Architectural History or Historic

Architecture set forth by the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61).

- **Measure CUL-3:** Under Alternative 4, Stanislaus County will implement measures to interpret the 7th Street Bridge's historic significance for the public. A Caltrans Architectural Historian or Principal Architectural Historian will review and approve the format, text, photographs, and visual simulations/animations of the measures listed below. All interpretive materials will also be made available for review and approval by the SHPO prior to fabrication, installation, or publication.
 - Stanislaus County will install an interpretive display within the pedestrian plaza. The display will include historical data taken from the HAER documentation and/or other cited archival sources and will also include photographs. Displayed photographs will include information about the subject, the date of the photograph, and photo credit/photo collection credit. The interpretive display installed in the pedestrian plaza will be sufficiently durable to withstand typical Modesto weather conditions for at least 10 years, like fiberglass embedment panels that meet NPS, or similar, signage standards. The interpretive display will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.
 - Stanislaus County will place historical information from the HAER report on a County or City of Modesto website, with a link provided on a public library website. The historical information will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years. The text will be written for popular consumption, but also be properly cited following historical documentation standards. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.
 - Stanislaus County will provide visual simulations and/or animations of the 7th Street Bridge on the website. The simulations and/or animations will be based on the LIDAR data collected of the structure and may include still images, flythrough images, and point cloud(s). These images are intended to supplement the photographs included in the HAER report. The visual simulations and/or animations will be made available to the public within

6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years.

These measures from the Section 106 MOA also are included in the Environmental Impact Report (EIR) that was prepared for the project as required by the California Environmental Quality Act (CEQA). Stanislaus County, the CEQA Lead Agency, certified the EIR on May 23, 2017, and in doing so selected Alternative 2B as its locally preferred alternative. The City of Modesto, a CEQA Responsible Agency, adopted a resolution on February 14, 2017 supporting Alternative 2B as the locally preferred alternative. The City and the County together own the 7th Street Bridge and are jointly (along with Caltrans) funding the 7th Street Bridge Project. In addition, the City and the County oversee the Tuolumne River Regional Park. These actions by the local agencies, in consideration of overall project costs, show support by the local officials for the project, its mitigation requirements and costs, and its impacts and benefits to the community.

Also see EA Chapter 3, Comments and Coordination, for a summary of public involvement activities.

7.2 Coordination

Caltrans has coordinated with the California SHPO throughout the project process, with the result being the drafting of a Section 106 MOA between Caltrans and the SHPO regarding the 7th Street Bridge. See EA Section 2.1.5, Cultural Resources, for a discussion of the bridge evaluation process to date including the technical analyses and findings. SHPO has reviewed and updated the Draft Section 106 MOA, and has indicated that it will undertake its final review following circulation of the Draft EA and 4(f) Evaluation for public review.

The findings presented in this programmatic evaluation are being circulated for review together with the Draft EA. A Notice of Availability was provided in local English and Spanish language newspapers, by distributing postcards to a project mailing list of over 500 interested organizations and individuals, and by posting on a dedicated project website (www.7thStreetBridge.org). Following a 30-day review period, Caltrans will respond to all comments.

Chapter 8 Description of Section 4(f) Property – Tuolumne River Regional Park, Gateway Parcel (*de minimis*)



8.1 Introduction

This section of the document discusses the *de minimis* impact determination under Section 4(f). Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amended Section 4(f) legislation at 23 USC 138 and 49 USC 303 to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). This amendment provides that once the U.S. Department of Transportation determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a *de minimis* impact on that property, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete. FHWA's final rule on Section 4(f) *de minimis* findings is codified in 23 CFR 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 USC 326 and 327, including *de minimis* impact determinations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

8.2 Activities, Features, and Attributes of the Property

The Tuolumne River Regional Park consists of over 500 acres of parkland that runs along 7 miles of the Tuolumne River. The TRRP consists of five major areas: the Legion Park/Airport Area, the Gateway Parcel, Mancini Park, the Dryden Park Golf Course Area, and the Carpenter Road Area. The 7th Street Bridge Project would intersect with the Gateway Parcel.

The TRRP Gateway Parcel is approximately 90 acres in size. Land uses surrounding the TRRP Gateway Parcel include industrial uses such as warehouses, distribution centers, and food processing facilities to the north; industrial uses within the Gallo Winery complex to the east; commercial retail uses across Tuolumne River to the south; and residential uses across SR 99 to the west.

The TRRP is co-managed by Stanislaus County and the City of Modesto. There are no leases, easements, covenants, or restrictions that affect ownership of the TRRP.

There are currently no recreational amenities located inside the TRRP Gateway Parcel, although informal unpaved trails exist on the property that are utilized by the public. The public also utilizes the unimproved property to access the river and for picnicking. However, a master plan has been created to develop the park through a joint powers agreement – the TRRP Commission – with the City of Modesto, City of Ceres, and Stanislaus County. Drawings were prepared in July 2015 for construction of the park below and around the existing bridge, and initial site grading activities occurred in 2016 and 2017. Additional park improvements are expected to be installed before any work is done on the bridge project. Figure 4 shows the unimproved existing conditions at the TRRP Gateway Parcel.



Figure 4 Existing Conditions at TRRP Gateway Parcel

The TRRP Commission envisions the Gateway Parcel to be a high-profile public gathering place close to the commercial centers of Modesto and Ceres and accessible to the rest of the region along major arterial streets, as defined in the TRRP Master Plan. The *Gateway Precise Plan* is intended to achieve the objectives of the master plan and provides additional design detail needed to implement the proposed park improvements within the TRRP Gateway Parcel. As can be seen in the Site Plans presented in Exhibits 2 and 3, the following features will be located in the part of the TRRP Gateway Parcel where project actions would occur:

- A landscaped park with native vegetation and a restored riparian corridor
- Trails extending through the park and restored riparian terraces
- A river overlook with views of the Tuolumne River
- Multi-use meadows for picnicking and passive recreation
- A gathering space for farmers’ markets and community events
- An outdoor classroom
- An “amphimeadow” for concerts and performances
- Park vehicular access road

The TRRP Gateway Parcel is currently accessible by bicycle and foot from Tuolumne Boulevard. There is currently no vehicular access into the TRRP Gateway Parcel nor are there any designated TRRP Gateway Parcel parking areas.

8.3 Use of the 4(f) Property (*de minimis*)

All Build Alternatives would result in the permanent incorporation of property from the TRRP Gateway Parcel to accommodate the placement of bridge support columns. Alternatives 2A, 2B, and 3, which all would remove the existing bridge, would result in the permanent incorporation of approximately 462 square feet of the TRRP Gateway Parcel property to accommodate the new bridge columns. This represents approximately 0.01 percent of the TRRP Gateway Parcel total size. By removing the existing bridge, Alternatives 2A, 2B, and 3 also include removal of the existing footings, which total approximately 4,349 square feet and therefore results in a net gain in park area.

Alternative 4, which keeps the existing bridge, would have the existing bridge column footprint plus half of the new bridge (six 7-foot-diameter columns) for a total permanent incorporation of 4,580 feet of TRRP Gateway Parcel property; this represents approximately 0.11 percent of the TRRP Gateway Parcel total size.

No improvements or recreational features of any kind are currently located in the TRRP Gateway Parcel park area where the Build Alternatives would be constructed. However, Section 4(f) requires that impacts to documented planned features be considered in the same manner as existing facilities. Planned features in the area intersected by the 7th Street Bridge Project include a water harvesting outdoor classroom and sections of two trails. The project would remove the planned trail connection to 7th Street/Tuolumne Boulevard during construction, but this trail connection will be rebuilt as part of the project. The reconstructed trail segment will connect to 7th Street/Tuolumne Boulevard at a new pedestrian plaza/trail head at the intersection of 7th Street/Tuolumne Boulevard to be constructed as part of all Build Alternatives.

The project team is working with Stanislaus County and the City of Modesto staff to site the fishing dock and planned park trails to not conflict with proposed bridge locations. As such, no permanent impact to planned recreational features at the TRRP Gateway Parcel are anticipated.

Access to all parts of the park will be maintained during construction except for temporary periods when the area directly under the new bridge would be closed for safety purposes. During construction, the TRRP Gateway Parcel and its trails can still be accessed from other locations.

Based on this discussion, it is concluded that access impacts would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

8.3.1 Visual

Visitors to the TRRP Gateway Parcel would experience visual impacts based on the construction of the Build Alternatives:

- Under Alternative 2A the overall visual impact (resource change combined with viewer response) would be moderate.
- Under Alternative 2B, the overall visual impact (resource change combined with viewer response) would be moderate-high.
- Under Alternative 3, the overall visual impact (resource change combined with viewer response) would be moderate-high.

- Under Alternative 4, the overall visual impact (resource change combined with viewer response) would be high.

The visual changes would not rise to a level that would be considered a substantial degradation of the existing visual character or quality of the site and its surroundings. Given this, and because the project corridor is not located in a visually pristine or highly scenic area, project-related changes to the corridor's visual character and quality would be minor.

Based on this discussion, it is concluded that visual impacts would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

Further detail on visual impacts associated with project Build Alternatives is provided in Section 2.1.4 of the Draft EA.

8.3.2 Noise

A Noise Study Report was prepared for the project to assess the potential for noise impacts. At the portion of the TRRP Gateway Parcel located west of the bridge, predicted noise levels range from 65 to 71 A-weighted decibels (dBA) under the Design Year (2040) No-Build condition. Under the proposed Alternatives 2A, 2B, and 3 predicted noise levels west of the bridge range from 66 to 71 dBA, with traffic noise impacts at all six receivers. Predicted noise levels west of the bridge under Alternative 4 range from 65 to 71 dBA, with traffic noise impacts at three receivers (two of the receivers are under the proposed bridge under this alternative).

Although there is the potential that Build Alternatives could exceed the applicable federal noise abatement criterion (NAC) for the park (70 dBA), because (per 23 CFR 774.15(f)(3)) the difference in projected noise impact ranges between the 2040 No-Build Alternative and any of the Build Alternatives is less than 3 dBA, this difference would be considered barely perceptible and would not result in a noise-related constructive use.

At the portion of the TRRP Gateway Parcel located east of the bridge, predicted noise levels range from 57 to 63 dBA under the Design Year (2040) No-Build condition. Under the proposed Alternative 2 predicted future noise levels range from 61 to 68 dBA with impacts at four of the receivers. Under the proposed Alternative 3 predicted future noise levels range from 61 to 67 dBA with impacts to three of the receivers. Under the proposed Alternative 4 predicted future noise levels range from 60 to 67

dBA with three impacted receivers. Under the above scenarios, none of the Build Alternatives would exceed the NAC for the park.

Based on this discussion, it is concluded that noise impacts would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

Further detail on noise impacts associated with the Build Alternatives is provided in Section 2.2.5 of the Draft EA.

8.3.3 Vegetation

All of the Build Alternatives would directly impact riparian vegetation and Tuolumne River riverine habitat by constructing access roads to the river channel and creating staging areas to store equipment. Standard measures will be implemented to reduce direct and indirect impacts to riparian and riverine habitat during construction.

No rare plants were observed during project field analysis. Though no rare plants were observed, construction could have a direct effect on sensitive plant species that may occur. Implementation of best management practices (BMPs) during construction would mitigate this potential effect.

Based on this discussion, it is concluded that impacts to vegetation would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

Further detail on impacts to vegetation associated with the Build Alternatives is provided in Sections 2.3.1 and 2.3.2 of the Draft EA.

8.3.4 Wildlife

Construction of any of the Build Alternatives could directly impact sensitive bird species that nest in vegetation of the project area, including, potentially, the TRRP Gateway Parcel. Impacts to nesting birds (including eggs, young, and active nests themselves) is prohibited by sections of the California Fish and Game Code and the Migratory Bird Treaty Act. All Build Alternatives would require vegetation disturbance to create access roads to the Tuolumne River corridor, to improve staging areas, and to facilitate demolition and construction of bridge alternatives.

Based on this discussion, it is concluded that impacts to wildlife would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

Further detail on impacts to wildlife associated with the Build Alternatives is provided in Sections 2.3.3 and 2.3.4 of the Draft EA.

8.3.5 Air Quality

All Build Alternatives would result in short-term construction period effects to air quality. Standard construction BMPs and emission reduction measures will be implemented to minimize project emissions during construction. All Build Alternatives are consistent with the RTP/SCS, and implementation of the RTP/SCS has been found to conform to regional air quality attainment goals.

Based on this discussion, it is concluded that air quality impacts would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

Further detail on impacts to air quality associated with project Build Alternatives is provided in Section 2.2.4 of the Draft EA.

8.3.6 Water Quality

All Build Alternatives could result in erosion and siltation with associated water quality impacts. However, the project would follow the County's Stormwater Management Program. The project would prepare a stormwater pollution prevention plan and implement site-specific measures to reduce pollutant discharge into receiving water bodies. Standard construction BMPs and pollution control measures will be implemented to minimize erosion and sedimentation during construction.

Based on this discussion, it is concluded that water quality impacts would not adversely affect the features, attributes, or activities qualifying the TRRP Gateway parcel for protection under Section 4(f) for any of the Build Alternatives.

Further detail on impacts to water quality associated with project Build Alternatives is provided in Section 2.2.1 of the Draft EA.

8.4 Avoidance, Minimization, and Mitigation Measures

The impacts from 7th Street Bridge Project Build Alternatives to recreational features at the TRRP Gateway Parcel are potential future impacts associated with planned park amenities. As such, 7th Street Bridge Project staff have begun the process of coordinating with the City of Modesto and Stanislaus County, and will continue to do so throughout the duration of the project, to ensure that the planned recreational features in the project area (noted earlier) could still be installed and used at the

TRRP Gateway Parcel in the manner described in the *Gateway Precise Plan* so that impacts can be avoided to the greatest extent possible. Measures to be undertaken include designating the location of the planned fishing dock so as to avoid impacts and potentially altering the route of the planned trail access to the park.

Since the TRRP Gateway Parcel will already be developed at the time the 7th Street Bridge Project is being constructed, the project would provide detours for trail(s) that would be temporarily occupied, so as to ensure the continuity of the trail(s) for users.

8.5 Coordination

TRRP staff have been consulted for this project. A consultation meeting was held with TRRP on October 2, 2014 to coordinate bridge planning activities with planned construction activities in the Gateway Parcel. As noted earlier, 7th Street Bridge Project staff have also coordinated with staff from the City of Modesto and Stanislaus County, and will continue to do so throughout the duration of the project.

The findings presented in this programmatic evaluation are being circulated for review together with the Draft EA. A Notice of Availability was provided in local English and Spanish language newspapers, by distributing postcards to a project mailing list of over 500 interested organizations and individuals, and by posting on a dedicated project website (www.7thStreetBridge.org). Following a 30-day review period, Caltrans will respond to all comments.

8.6 Concluding Statement for TRRP Gateway Parcel

Although each of the Build Alternatives will result in the permanent use of land, it is anticipated that through avoidance, minimization, and mitigation, a determination of *de minimis* can be reached in coordination with Stanislaus County and the City of Modesto. None of the planned recreational uses would be diminished. The net area of the park would be larger following removal of the existing bridge footings under Alternatives 2A, 2B, and 3, and would be only slightly diminished under Alternative 4. TRRP Gateway Park will not be adversely effected.

Findings supporting a proposed determination of *de minimis* at TRRP Gateway Parcel per 23 CFR 774.7(b) are provided below:

Finding: As described earlier, the actual amount of parkland to be permanently incorporated by the project by the installation of bridge piers is a minor percentage of the total park size (0.01 percent under Alternatives 2A, 2B, and 3; 0.11 percent under

Alternative 4). Also, Alternatives 2A, 2B, and 3 will remove the existing piers that are larger in size than what the new bridge piers would be, therefore resulting in a net gain of parkland compared to existing conditions. Project actions would not result in the permanent or temporary disruption of any of the recreational features of the park.

Finding: Through project team discussions with the City of Modesto and Stanislaus County, both jurisdictions have been informed of the preliminary determination of *de minimis* impacts at TRRP Gateway Parcel from the project Build Alternatives. Subsequent to the closing of the Draft EA public comment period, a formal determination of *de minimis* impacts letter will be sent by Caltrans to both the City of Modesto and Stanislaus County to obtain their official written concurrence on this finding.

Finding: This proposed finding of *de minimis* impacts will be contained in the Draft EA, which will be released and made available for public comment for a period of 30 days.

Based on the above findings, Caltrans has concluded there would be no more than a *de minimis* impact to the TRRP Gateway Parcel as a result of the Build Alternatives.

Chapter 9 Section 6(f) Property

There is one Section 6(f) property located in the project study area – the TRRP Gateway Parcel. The City of Modesto received Land and Water Conservation Act (LWCF) grant dollars for the TRRP on three separate occasions (1970, 1983, and 1995). Because parts of the TRRP were acquired or developed with LWCF grant assistance, the TRRP is subject to the requirements of Section 6(f).

All Build Alternatives would result in the permanent incorporation of property from the TRRP Gateway Parcel to accommodate the placement of bridge support columns. Alternatives 2A, 2B, and 3, which all remove the existing bridge, would result in the permanent incorporation of approximately 462 square feet of TRRP Gateway Parcel property to accommodate the new bridge columns. This represents approximately 0.01 percent of the TRRP Gateway Parcel total size. However, by removing the existing bridge, Alternatives 2A, 2B, and 3 also include removal of the existing footings, which total approximately 4,349 square feet, and therefore these alternatives result in a net gain in parkland at the TRRP Gateway Parcel. Alternative 4, which keeps the existing bridge, would have the existing bridge column footprint plus six new, 7-foot diameter columns for a total permanent incorporation of 4,580 feet of TRRP Gateway Parcel property; this represents approximately 0.11 percent of the TRRP Gateway Parcel total size.

Because Build Alternatives 2A, 2B, and 3 would result in a net gain of parkland at the TRRP, a Section 6(f) conversion process would likely not be necessary. Regarding Alternative 4, where a Section 6(f) conversion process would likely be required, the required amount of replacement recreational land would need to be as large in size and value as that amount actually incorporated into the project as the result of the installation of a bridge.

Exhibits



LEGEND
 TRRP Gateway Parcel

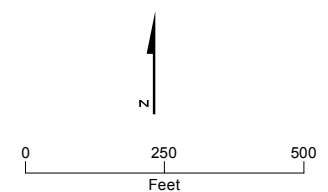
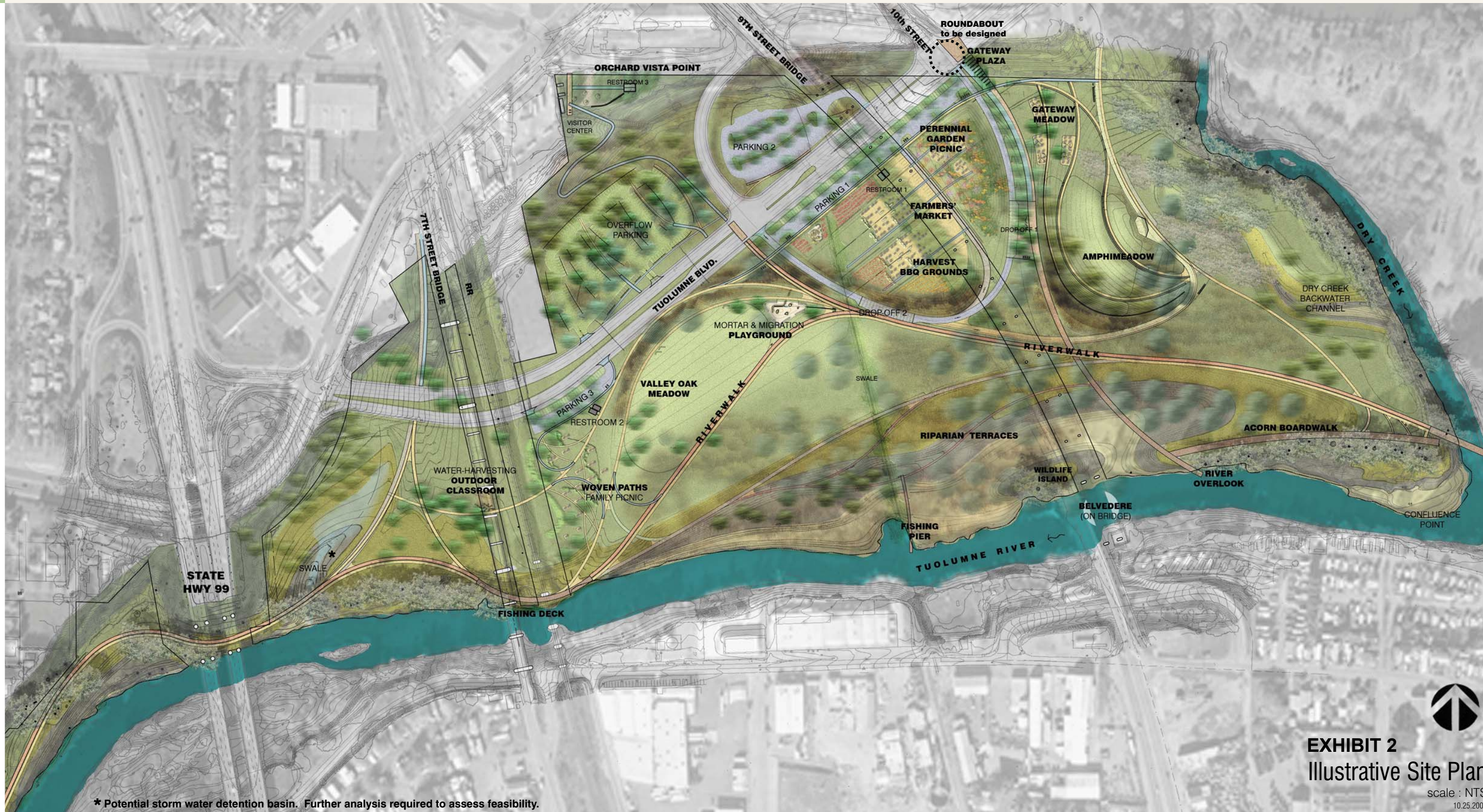


EXHIBIT 1
Section 4(f) Resources in Project Area
 7th Street Bridge Project
 Stanislaus County, California



* Potential storm water detention basin. Further analysis required to assess feasibility.



EXHIBIT 2 Illustrative Site Plan

scale : NTS
10.25.2004

Figure 46. *Precise Plan*. The Master Plan framework, environmental factors, public input and the design concept produced this final site plan, which reflects true fusion between use and restoration.

LEGEND | NOTES

PROPERTY LINE

PHASE 2 LIMIT OF WORK

1. REFER TO SHEET G002 FOR GENERAL NOTES, REFER TO SHEET G001 FOR ABBREVIATIONS AND GENERAL LEGEND.
2. WORK WITHIN PROTECTION ZONE WILL NOT OCCUR UNTIL ALL REQUIRED AGENCY PERMITS ARE OBTAINED AND CITY PROVIDES CONTRACTOR WITH NOTICE TO PROCEED. REFER TO SPECS.
3. SEE SHEETS PP101, PP102, PP103, PP104 FOR TRAIL LAYOUT AND DU101 FOR BACKWATER CHANNEL.

| | |
|--------------------|-------|
| DRAWN BY: | DATE: |
| TB, RG, SR | 07,15 |
| CHECKED BY: | DATE: |
| TB, KC | 07,15 |
| RECORD DRAWING BY: | DATE: |
| BY: | |
| DESCRIPTION: | |
| DATE: | |
| REVISION: | |
| APPROVED BY: | DATE: |
| APPROVED BY: | DATE: |
| APPROVED BY: | DATE: |

COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT
P.O. BOX 642
1010 10th STREET
MODESTO, CA 95353
PHONE: (209) 577-5462

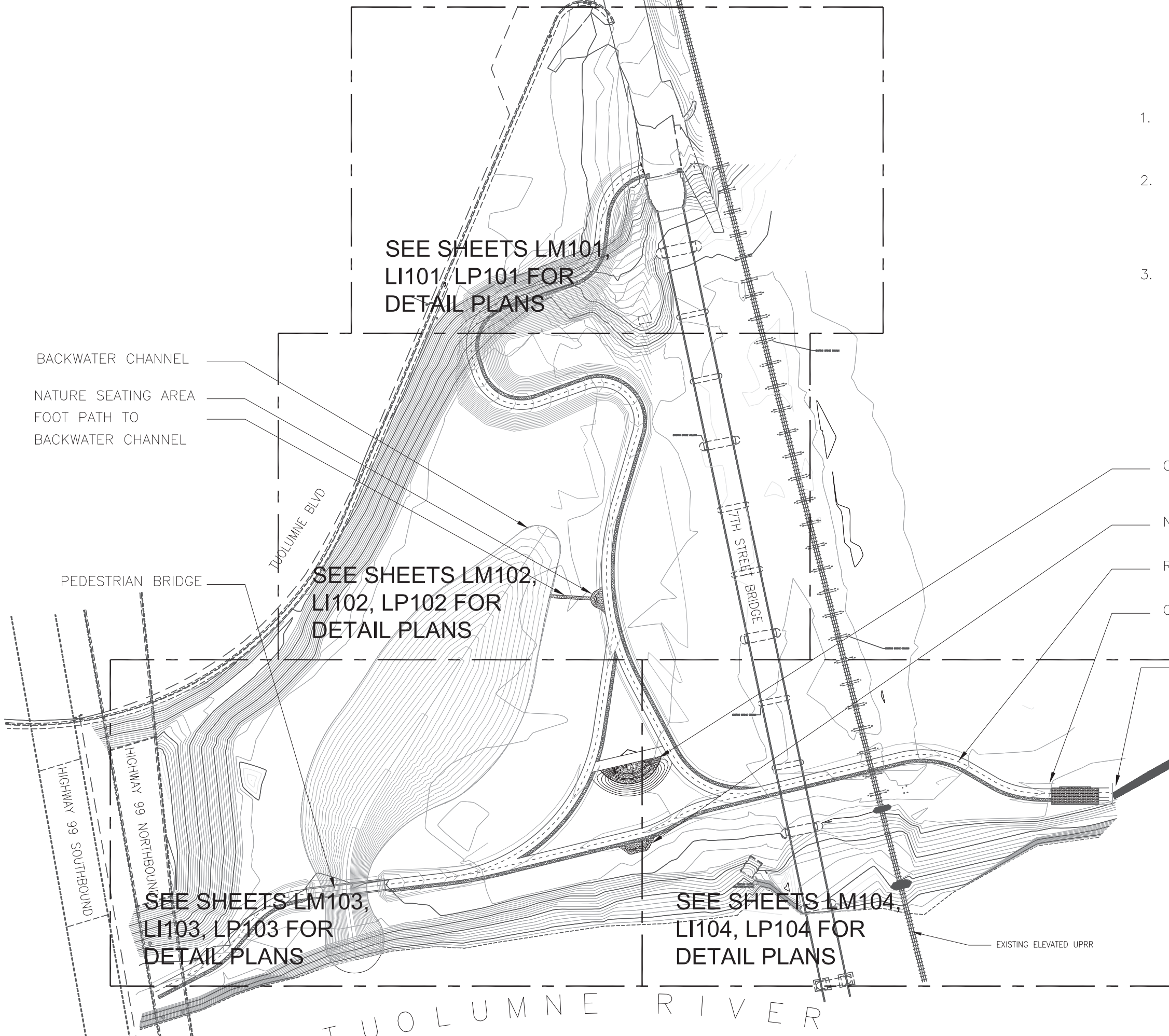


OVERALL SITE PLAN
TUOLUMNE RIVER REGIONAL PARK GATEWAY
PARCEL PHASE 2
MODESTO, CALIFORNIA 95353

AECOM
2020 L Street, Suite 400
Sacramento, CA 95811

BY:
DATE:

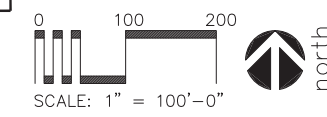
JOB NO. 100599
SHEET NO. **PP100**
4 OF 49 PAGES
VAULT NO. 19-D-0367



OUTDOOR CLASSROOM
NATURE SEATING AREA
RIVER WALK TRAIL
OBSERVATION AREA

10' WIDE CONNECTION TO EXISTING TRAIL

EXHIBIT 3



TUOLUMNE RIVER

Appendix B Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
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SACRAMENTO, CA 94273-0001
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March 2013

**NON-DISCRIMINATION
POLICY STATEMENT**

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

A handwritten signature in blue ink, appearing to read "Malcolm Dougherty".

MALCOLM DOUGHERTY
Director

Appendix C Summary of Relocation Benefits

Appendix C Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

RELOCATION ASSISTANCE ADVISORY SERVICES

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 **shall 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 (CFR), Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, 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 shall 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 Caltrans 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.

RESIDENTIAL RELOCATION PAYMENTS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until Caltrans obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property), may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is \$22,500. If the total entitlement (without the moving payments) is in excess of \$22,500, the Last Resort Housing Program will be used (see the explanation of the Last Resort Housing Program below).

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by Caltrans prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when Caltrans determines that the cost to rent a comparable “decent, safe and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the *Down Payment* section below. The maximum amount payable to any eligible tenant and any owner-occupant of less than 180 days, in addition to moving expenses, is \$5,250. If the total entitlement for rent supplement exceeds \$5,250, the Last Resort Housing Program will be used.

To receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe and sanitary” replacement dwelling within one year from the date Caltrans takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 180 days and tenants in legal occupancy prior to Caltrans’ initiation of negotiations. The down payment and incidental expenses cannot exceed the maximum payment of \$5,250. The one-year eligibility period in which to purchase and occupy a “decent, safe and sanitary” replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the \$22,500 and \$5,250 limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, Caltrans will within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced.
- Specific arrangements needed to accommodate any family member(s) with special needs.
- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family.
- Preferences in area of relocation.
- Location of employment or school.

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 acquired in the right-of-way contract 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 \$10,000 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 \$20,000.

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 the 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 Right-of Way. California’s law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

RELOCATION ASSISTANCE PROGRAM WEBSITE

For additional information, including links to brochures explaining the rights of residents and businesses displaced under the Relocation Assistance Program, please visit the Division of Right of Way’s Relocation Assistance Program website at:

<http://www.dot.ca.gov/hq/row/rap/index.htm>

Appendix D Avoidance, Minimization, and/or Mitigation Summary

Appendix D Avoidance, Minimization, and/or Mitigation Summary

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

| Traffic and Transportation |
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| <p>MM TRANS-1: Adverse effects are identified at both SR 99 study intersections in the Design Year (2040) Condition – primarily the SR 99/Crows Landing Road intersections and to a lesser extent the southbound SR 99/Tuolumne Boulevard intersection. To mitigate this impact, Stanislaus County and the City of Modesto will program future improvements to these intersections into the 2018 StanCOG RTP/SCS. Intersection improvements could include signalization of the ramp intersections</p> |
| <p>MM TRANS-2: A temporary short-term impact is identified on the SR 99 SB mainline segment between Tuolumne Boulevard and Crows Landing Road during the PM peak hour as a result of the potential full closure of the existing 7th Street Bridge. To mitigate this impact, a Traffic Management Plan (TMP) will be implemented before construction begins. As part of the TMP, public information will be distributed by using local news television and radio broadcasts, informational flyers and mailers, Web sites, and other outreach options. Signs will be installed and public notices will be distributed regarding construction work before disruptions occur; the notifications will identify detours to maintain access. The TMP will also include procedures to do the following:</p> <ul style="list-style-type: none"> • Notify and coordinate with emergency responders of potential road closure before construction. • Ensure access for emergency vehicles to and around the project site. • Notify and coordinate with transit operators of potential road closures before construction. |
| Visual/Aesthetics |
| <p>MM VIS-1: Make strategic plantings of aesthetically and ecologically appropriate shrubs where possible along the project corridor.</p> |
| <p>MM VIS-2: Refine the bridge span design to include interesting design features, while still conforming to safety standards, incorporating design elements that would make the bridge more visually engaging and that would better relate to its setting.</p> |
| <p>MM VIS-3: New vertical surfaces of concrete that are created by the project will be textured and/or tinted to reduce the bridge’s visual contrast with its setting and reduce or eliminate the possibility of producing glare.</p> |
| Cultural Resources |
| <p>MM CUL-1a: Prior to the start of any work under Alternative 2A, 2B, 3, or 4 that could adversely affect characteristics that qualify the 7th Street Bridge as a historic property, Stanislaus County shall ensure that the bridge shall be the subject of recordation by photography and drawing following the standards of the Historic American Engineering Record (HAER) prior to the start of the undertaking.</p> <ul style="list-style-type: none"> • The appropriate level of documentation shall specifically follow HAER criteria at the level specified by the National Park Service (NPS) Regional HAER coordinator. Documentation shall be completed by a qualified professional who meets the standards for History, Architectural History, or Architecture (as appropriate) set forth by the Secretary of the Interior’s Professional Qualification Standards (36 CFR, Part 61). • Upon completion of the documentation prescribed above and review and approval of such documentation by the Caltrans Professionally Qualified Staff (PQS) and the SHPO, Stanislaus County will provide the documentation meeting current archival quality standards established by the NPS Heritage Documentation Programs to Caltrans District 10 and the Caltrans Transportation History Library in Sacramento. Stanislaus County will also offer copies of the documentation and provide copies upon request to, at a minimum, the California Office of Historic Preservation; City of Modesto Landmark Preservation Committee; Stanislaus County Public Library, Modesto Branch; McHenry Museum & Historical Society; and California State University, Stanislaus, Special Collections. |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

MM CUL-1b: Under Alternative 2A, 2B, or 3 Stanislaus County will implement measures to interpret the 7th Street Bridge's historic significance for the public. A Caltrans Architectural Historian or Principal Architectural Historian will review and approve the format, text, photographs, and visual simulations / animations of the measures listed below. All interpretive materials will also be made available for review and approval by the SHPO prior to fabrication, installation, or publication.

- Stanislaus County will install an interpretive display within the pedestrian plaza. The display will include historical data taken from the HAER documentation and/or other cited archival sources and will also include photographs. Displayed photographs will include information about the subject, the date of the photograph, and photo credit / photo collection credit. The interpretive display installed in the pedestrian plaza will be sufficiently durable to withstand typical Modesto weather conditions for at least ten years, like fiberglass embedment panels that meet NPS, or similar, signage standards. The interpretive display will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.
- Stanislaus County will investigate the feasibility of removing historic elements from the 7th Street Bridge prior to its demolition. If feasible, Stanislaus County will remove the selected features and install them within the pedestrian plaza. These features may include one or more of the concrete lions, railing/bench segments, an obelisk, and one or more of the bridge's bronze plaques. The concrete lion(s) installed in the pedestrian plaza may be replicated from an original if it is determined that the historic lions are too deteriorated. The plaza also will include a salvaged cutaway portion of the existing bridge that shows the underlying steel structure supporting the "canticrete" bridge design. This salvaged cutaway will be selected to show how the original bridge design featured an internal steel structure encased in concrete. Interpretation of the cutaway should include images of the original bridge design drawings, if those images are available, and otherwise will follow the requirements for interpretive exhibits described above. Stanislaus County will ensure that the selected features are adequately stored and protected during the interim between their removal and installation in the pedestrian plaza. The selected features will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.
- Stanislaus County will place historical information from the HAER report on a County or City of Modesto website, with a link provided on a public library website. The historical information will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years. The text will be written for popular consumption, but also be properly cited following historical documentation standards. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.
- Stanislaus County will provide visual simulations and/or animations of the 7th Street Bridge on the website. The simulations and/or animations will be based from the LIDAR (light/radar) data collected of the structure and may include still images, flythrough images, and point cloud(s). These images are intended to supplement the photographs included in the HAER report. The visual simulations and/or animations will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years.

MM CUL-2: Under Alternative 4, if feasible, the new downstream bridge will be redesigned and relocated to minimize the adverse effect, and the retrofit will be conducted to meet SOI standards as much as possible.

- The retrofit of 7th Street Bridge will meet the SOI Standards to the extent possible. A qualified Architectural Historian will ensure the retrofit design of 7th Street Bridge meets SOI Standards. Reference will be made to *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, National Park Service Preservation Briefs, and other relevant documents.
- The qualified Architectural Historian will ensure that SOI Standards requirements for the project are clearly described and illustrated in the plans, specifications, and estimates (PS&E). A Caltrans Architectural Historian will review for approval the PS&E package to ensure that SOI's requirements for the project are clearly described and illustrated in the PS&E package. Changes to the PS&E will be reviewed by the qualified Architectural Historian and reviewed and approved by a Caltrans Architectural Historian.
- The Caltrans Architectural Historian must be a PQS Principal Architectural Historian. The qualified Architectural Historian must meet the SOI's Professional Qualification Standards for Architectural History or Historic Architecture set forth by the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61).

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

MM CUL-3: Under Alternative 4, Stanislaus County will implement measures to interpret the 7th Street Bridge's historic significance for the public. A Caltrans Architectural Historian or Principal Architectural Historian will review and approve the format, text, photographs, and visual simulations/animations of the measures listed below. All interpretive materials will also be made available for review and approval by the SHPO prior to fabrication, installation, or publication.

- Stanislaus County will install an interpretive display within the pedestrian plaza. The display will include historical data taken from the HAER documentation and/or other cited archival sources and will also include photographs. Displayed photographs will include information about the subject, the date of the photograph, and photo credit / photo collection credit. The interpretive display installed in the pedestrian plaza will be sufficiently durable to withstand typical Modesto weather conditions for at least 10 years, like fiberglass embedment panels that meet NPS, or similar, signage standards. The interpretive display will be installed in the pedestrian plaza within 12 months of the completion of the new 7th Street Bridge.
- Stanislaus County will place historical information from the HAER report on a County or City of Modesto website, with a link provided on a public library website. The historical information will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years. The text will be written for popular consumption, but also be properly cited following historical documentation standards. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their website.
- Stanislaus County will provide visual simulations and/or animations of the 7th Street Bridge on the website. The simulations and/or animations will be based on the LIDAR data collected of the structure and may include still images, flythrough images, and point cloud(s). These images are intended to supplement the photographs included in the HAER report. The visual simulations and/or animations will be made available to the public within 6 months following the demolition of the 7th Street Bridge and will be available to the public for a minimum period of 3 years.

Paleontology

MM PAL-1: The following will be implemented to avoid and minimize project effects to paleontological resources:

- Prior to working on the site, all personnel involved in earth-moving activities will receive Paleontological Resources Awareness Training. Workers will be informed that fossils may be encountered during deeper excavations, are of scientific importance, and need to be reported immediately if they are encountered. The training will provide information on the appearance of fossils, their scientific importance, the role of paleontological monitors, and proper notification procedures.
- A Paleontological Resources Monitoring and Mitigation Program (PRMMP) will be developed during final design to assess the need for construction monitoring. The PRMMP will be prepared by a qualified principal paleontologist (M.S. or Ph.D. in paleontology) once adequate project design information regarding subsurface disturbance location, depth, and lateral extent is available. Project design plans will be reviewed to determine whether sensitive geologic units will be disturbed. If monitoring is determined to be necessary, the program will include monitoring and coordination protocols; emergency discovery procedures; and provisions for museum storage of any specimens recovered. For example, the PRMMP may require that the qualified principal paleontologist will be present at pre-construction meetings to confer with contractors who will be performing ground-disturbing activities, and paleontological monitors, under the direction of the qualified principal paleontologist, may be required to be on site during original ground disturbance. The PRMMP should specify that fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged, and prepared fossils, along with copies of all pertinent field notes, photos, and maps, should be deposited in a scientific institution with paleontological collections. Provisions will be made to suspend monitoring should construction activities be restricted to previously disturbed fill and to adjust monitoring protocols based on updated evaluations of sensitivity subsequent to initial excavations.

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

| Hazardous Waste/Materials |
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| <p>MM HAZ-1: As recommended by the ISA and ISA Addendum, the following investigations will be performed for the preferred alternative during final design (prior to right-of-way acquisition).</p> <ul style="list-style-type: none"> • A Certified Asbestos Consultant will be retained to conduct an evaluation regarding ACM in the building materials of the bridge. Depending on the results of the evaluation, avoidance measures may include not removing or disturbing the ACM. Minimization measures may include identifying areas or materials that contain asbestos requiring removal, separately removing this material, and segregating the removed material from all other debris to minimize the quantity generated. Mitigation measures include the removal and disposal of ACM. • The white and yellow road striping paint will be characterized for Pb in the white road striping paint and for Pb and chromium in the yellow road striping paint. If found, hazardous materials would be selectively removed and properly disposed of at a permitted landfill according to Caltrans guidance. • Soils contaminated with ADL will be managed as determined by the California Department of Toxic Substances Control. An evaluation to define the concentration of ADL in soil as a means to determine the areal extent of soil requiring management is required. Minimization and/or mitigation will be accomplished by selectively excavating soil containing ADL at regulated concentrations with the remaining soil being reused or disposed of without restriction. Mitigation of soil requiring management will be accomplished by reuse on the project with placement restrictions, reuse at an industrial facility, or in certain instances disposal at a landfill. • The former orchard soils will be assessed for metals such as Pb and arsenic, OCPs, and organophosphates. Depending on the results of the assessment, selective excavation and appropriate disposal of contaminated soil by the project proponents will be required. • In the Crows Landing Road and 7th Street vicinity locations where right-of-way will be acquired, the properties will be assessed for soil and groundwater impacts from petroleum hydrocarbon compounds such as gasoline and gasoline additives, diesel, motor oil, automatic transmission fluid, and hydraulic fluid. If contamination is present that cannot be mitigated, the limits of acquisition may be adjusted to avoid the residual contamination. If acquisition limits cannot be adjusted, minimization measures also may include indemnification, reduction in price, or acquisition as highway easement instead of in fee. • Where right-of-way is being acquired adjacent to the agricultural products business, a limited assessment of groundwater impacts from pesticides and fertilizers will be conducted to determine possible effects on the study area. If contamination is present that cannot be mitigated, the limits of acquisition may be adjusted to avoid the residual contamination. If acquisition limits cannot be adjusted, minimization measures also may include indemnification, reduction in price, or acquisition as highway easement instead of in fee. <p>Site-specific avoidance, minimization, and/or mitigation measures will be determined for the preferred alternative following these detailed investigations. In addition, federal, state, and local regulations and ordinances will be followed for hazardous material handling and disposal if other, unknown hazardous materials are found.</p> |
| Air Quality |
| <p>MM AQ-1: The construction contractor must comply with the Caltrans Standard Specifications in Section 14-9.</p> <ul style="list-style-type: none"> • Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. • Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18. |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM AQ-2: Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the right-of-way line, depending on local regulations.</p> <ul style="list-style-type: none"> • Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas. • Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions. • Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114. • A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities. • Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly. • ESA (Environmentally Sensitive Area)-like areas or their equivalent will be established near sensitive air receptors. Within these areas construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible. • Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used. • All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust (particulate matter) during transportation. • Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to decrease particulate matter. • To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times. • Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues, and therefore controls such as dampened straw will be used as needed. |
| <p>Noise</p> |
| <p>MM NO-1: Observation of Time Restrictions and Use of Alternative Alarms. As required by the Standard Specifications Provisions, do not exceed 86 dBA at 50 feet from the job site activities from 9:00 p.m. to 6:00 a.m. Use an alternative warning method instead of a sound signal unless required by safety laws.</p> |
| <p>MM NO-2: Use Mufflers on Equipment with Internal Combustion Engines. As required by the Standard Specifications Provisions, equip internal combustion engines with manufacturer-recommended mufflers. Do not operate an internal combustion engine on the job site without the appropriate muffler.</p> |
| <p>MM NO-3: Placement of Stationary Equipment. Stationary construction equipment will be placed such that noise is directed away from sensitive receptors nearest the activity.</p> |
| <p>MM NO-4: Construction Equipment Staging. Construction equipment and supplies will be located in staging areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the activity.</p> |
| <p>MM NO-5: Equipment that is quieter than standard equipment should be utilized.</p> |
| <p>Biological Resources</p> |
| <p>MM BIO-1: Consider bridge designs that minimize the permanent placement of structures or fill in the river corridor.</p> |
| <p>MM BIO-2: Channel access points will be flagged and used during site construction to minimize impacts to riverine and riparian habitats.</p> |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM BIO-3: No refueling or handling of chemicals will be allowed in or within 100 feet of the active channel of the Tuolumne River. The contractor will establish proper staging and refueling areas to conduct these activities.</p> |
| <p>MM BIO-4: In-water work (e.g., existing pier demolition and new pier construction) will be limited to the time of the year specified in wildlife agency permits (assumed to be June 1 through October 31). In-water work that is necessary outside of the permitted seasonal window will be isolated from the flowing channel with cofferdams or similar structures. The contractor will prepare an isolation and dewatering plan for agency approval prior to working in wet areas outside of the seasonal window.</p> |
| <p>MM BIO-5: Before the onset of construction activities, a qualified person will conduct an education program for all construction personnel. The training will include a description of all sensitive species with the potential to occur in the BSA, and will review the mandatory conditions of approval agency permits and approvals.</p> |
| <p>MM BIO-6: Environmentally Sensitive Areas (ESAs) will be clearly flagged for the duration of site construction. Access to and use of ESAs will be restricted. Vehicle fueling and staging areas will be located at least 100 feet from flagged ESAs.</p> |
| <p>MM BIO-7: The contractor will prepare and implement a Stormwater Pollution Prevention Plan as required during permitting.</p> |
| <p>MM BIO-8: Discharging pollutants from vehicle and equipment cleaning into any storm drains or watercourses will be prohibited.</p> |
| <p>MM BIO-9: Concrete waste materials will not be allowed to enter the flowing water of the Tuolumne River. Waste materials will be disposed of offsite, at an approved location, where they cannot enter surface waters.</p> |
| <p>MM BIO-10: Spill containment kits will be maintained onsite at all times during construction activities and staging or fueling of equipment.</p> |
| <p>MM BIO-11: Water will be applied in construction areas, including access roadways, to control dust. Soil stockpiles will be covered when weather conditions require.</p> |
| <p>MM BIO-12: Coir rolls, straw wattles, or similar materials will be used at the bases of slopes during construction to capture sediment.</p> |
| <p>MM BIO-13: Graded areas will be protected from excessive erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate on sloped areas.</p> |
| <p>MM BIO-14: Borrow or fill material used in the BSA shall be native or, if from offsite, certified to be non-toxic and weed free.</p> |
| <p>MM BIO-15: Compensatory mitigation for the permanent loss of riverine habitat under all Build Alternatives to be negotiated with NMFS and other permitting agencies.</p> |
| <p>MM BIO-16: To the extent feasible, equipment will not be operated during nighttime hours (i.e., after dark) to minimize impacts to salmon and steelhead.</p> |
| <p>MM BIO-17: Equipment will be inspected on a daily basis for leaks and completely cleaned of any external petroleum products, hydraulic fluid, coolants, and other deleterious materials prior to operating the equipment.</p> |
| <p>MM BIO-18: A Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed to provide consistent, appropriate responses to spills that may reasonably be expected with implementation of the project. The SPCC Plan will be kept on-site during construction and the appropriate materials and equipment will also be on-site during construction to ensure the SPCC Plan can be implemented. Personnel will be knowledgeable in the use and deployment of the materials and equipment so response to an accidental spill will be timely.</p> |
| <p>MM BIO-19: Maintenance and fueling of construction equipment and vehicles will not occur within 150 feet of the flowing water of the Tuolumne River.</p> |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM BIO-20: Maintenance and construction activities will be avoided at night to the extent practicable. When night work cannot be avoided, disturbance of sensitive species and managed habitats (including EFH) will be avoided and minimized by restricting substantial use of temporary lighting to the least sensitive seasonal and meteorological windows. Lights on work areas will be shielded and focused to minimize fugitive lighting.</p> |
| <p>MM BIO-21: Debris from demolition and construction activities will be disposed of off-site at an approved location where it cannot enter surface waters.</p> |
| <p>MM BIO-22: An underslung work platform, temporary work trestle or similar structure will be installed to keep bridge debris and construction, maintenance, and repair materials from falling into the river during demolition and construction.</p> |
| <p>MM BIO-23: Temporary sediment basins, if installed, will be cleaned of sediment and the site restored to pre-construction contours (elevations, profile, and gradient) and function post-construction.</p> |
| <p>MM BIO-24: Construction staging and storage areas will be located a minimum of 150 feet from the flowing water of the Tuolumne River and from sensitive plant communities such as native riparian vegetation.</p> |
| <p>MM BIO-25: Excavated material will not be stored or stockpiled in the channel. Any excavated material that will not be placed back in the channel or on the bank after construction will be end-hauled to an approved disposal site.</p> |
| <p>MM BIO-26: Gravel and large woody debris (LWD) excavated from the channel that is temporarily stockpiled for reuse in the channel will be stored in a manner that prevents mixing with river flows.</p> |
| <p>MM BIO-27: "Wet-work" area(s) will be isolated from flowing water using cofferdams, gravel berms, or other methods approved by permitting agencies. Seasonal in-water work areas will be specified by regulatory agencies during project permitting, but are assumed to be June 1 through October 31.</p> |
| <p>MM BIO-28: Cofferdams or other diversions will affect no more of the river channel than is necessary to support completion of the maintenance or construction activity. Immediately upon completion of in-channel work, temporary fills, cofferdams, diversions, and other in-channel structures that will not remain in the river (i.e., materials other than clean, spawning-sized gravel) will be removed in a manner that minimizes disturbance to the aquatic environment.</p> |
| <p>MM BIO-29: All structures and imported materials placed in the river channel or on the banks during construction that are not designed to withstand high flows will be removed before such flows occur.</p> |
| <p>MM BIO-30: Temporary fills, cofferdams, and diversions that are left in the river channel will be composed of washed, rounded, spawning-sized gravel between 0.4 to 4 inches in diameter; gravel in contact with flowing water will be left in place, modified (i.e., manually spread out using had tools if necessary) to ensure adequate passage for all life stages of fish present in the BSA, and then allowed to disperse naturally by high winter flows; materials placed above the Ordinary High Water Mark must be clean washed rock or contained to prevent material conveyance to the river or mixing with clean gravel.</p> |
| <p>MM BIO-31: The extent of dewatering will be limited to the minimum footprint (within coffered areas) necessary to support construction activities.</p> |
| <p>MM BIO-32: A wood block, bubble curtain, or similar protection will be installed (prior to the driving of piles) to further reduce the effects of noise and vibration to fish associated with pile-driving activities if it is determined that such activities must occur in the water.</p> |
| <p>MM BIO-33: The contractor will monitor turbidity levels in the river during construction and implement a plan that avoids unacceptable sedimentation and turbidity.</p> |
| <p>MM BIO-34: Water pumped from areas isolated from surface water to allow construction to occur in the dry will be discharged to an upland area providing overland flow and infiltration before returning to the river. Upland areas may include sediment basins of sufficient size to allow infiltration rather than overflow or adjacent dry gravel/sand bars if the water is clean and no visible plume of sediment is created downstream of the discharge. Other measures may be used to settle and filter water such as Baker tanks.</p> |
| <p>MM BIO-35: A NMFS-approved fish biologist will be onsite to observe de-watering activities and to capture/rescue any fish that are observed in an isolated area during dewatering activities.</p> |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM BIO-36: Drilling will be conducted in dry river channel areas, to the extent practicable. If drilling must occur where water is present, the work area will be isolated from live water prior to work.</p> |
| <p>MM BIO-37: When geotechnical drilling takes place within the river channel, including gravel beds and bars, drilling mud will be bentonite without additives; initial drilling through gravel will be accomplished using clean water as a lubricant; after contact with bedrock or consolidated material, drilling mud (i.e., bentonite clay) may be used. All drilling fluids and materials will be self-contained and removed from the site after use; drilling will be conducted inside a casing so that all spoils are recoverable in a collection structure.</p> |
| <p>MM BIO-38: Stream width, depth, velocity, and slope that provide upstream and downstream passage of adult and juvenile fish will be preserved according to current NMFS and CDFW guidelines and criteria or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions.</p> |
| <p>MM BIO-39: Flow through new and replacement structures must meet the velocity depth, and other passage criteria for salmonid streams as described by the current NMFS and CDFW guidelines or as developed in cooperation with NMFS and CDFW to accommodate site-specific conditions.</p> |
| <p>MM BIO-40: Rock slope protection (RSP), sheet piles, and other erosion control materials will be pre-washed to remove sediment and/or contaminants.</p> |
| <p>MM BIO-41: Temporary material storage piles (e.g., RSP) will not be placed in the 100-year floodplain during the rainy season (October 15 through May 31), unless material can be relocated within 12 hours before the onset of a storm.</p> |
| <p>MM BIO-42: When concrete is poured to construct bridge footings or other infrastructure in the vicinity of flowing water, work must be conducted to prevent contact of wet concrete with water (e.g., within a cofferdam). Concrete or concrete slurry will not come into direct contact with flowing water.</p> |
| <p>MM BIO-43: Environmentally Sensitive Areas will be fenced to prevent encroachment of equipment and personnel into riparian areas, river channels and banks, and other sensitive habitats.</p> |
| <p>MM BIO-44: Trees as identified in any special contract provisions or as directed by the Project Engineer will be preserved. Hazard trees greater than 24 inches in diameter at breast height (DBH) will be removed only under the supervision of the Project Biologist. Trees will be felled in such a manner as not to injure standing trees and other plants to the extent practicable.</p> |
| <p>MM BIO-45: Where vegetation removal is temporary to support construction activities, native species will be re-established that are adapted to the project location and that contribute to a diverse community of woody and herbaceous plants.</p> |
| <p>MM BIO-46: Disturbance and removal of aquatic vegetation will be minimized. The limits of disturbance will be identified; native vegetation, river channel substrate, and LWD disturbed outside these limits should be replaced if damaged. The minimum amount of wood, sediment and gravel, and other natural debris will be removed using hand tools, where feasible, only as necessary to maintain and protect culvert and bridge function, ensure suitable fish passage conditions, and minimize disturbance of the riverbed.</p> |
| <p>MM BIO-47: Soil compaction will be minimized by using equipment that can reach over sensitive areas and that minimizes the pressure exerted on the ground. Where soil compaction is unintended, compacted soils will be loosened after heavy construction activities are complete.</p> |
| <p>MM BIO-48: LWD subject to damage or removal will be retained and replaced on site after project completion as long as such action would not jeopardize infrastructure or private property or create a liability. LWD not replaced on-site will be stored or offered to other entities for use in other mitigation/restoration projects where feasible.</p> |
| <p>MM BIO-49: Vegetation disturbance will be minimized by locating temporary work areas to avoid patches of native aquatic vegetation, substantial LWD, and spawning gravel. Where vegetation removal is temporary to support construction activities, native species will be re-established that are specific to the project location and that comprise a diverse community of aquatic plants.</p> |
| <p>MM BIO-50: Where river bed material is removed temporarily to facilitate construction, it will be stored adjacent to the site, then placed back in the channel post-construction at approximately pre-project depth and gradient.</p> |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM BIO-51: Existing roadways will be used for temporary access roads whenever reasonable and safe. The number of access and egress points and total area affected by vehicle operation will be minimized; disturbed areas will be located to reduce damage to existing native aquatic vegetation, substantial large woody debris, and spawning gravel.</p> |
| <p>MM BIO-52: Modified or disturbed portions of rivers, banks, and riparian areas will be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). At project completion, the riverbank toe will not extend farther into the active channel than the existing riverbank toe location.</p> |
| <p>MM BIO-53: The use of RSP at bridge abutments will be limited to the minimum necessary to protect the abutments under flood conditions.</p> |
| <p>MM BIO-54: Bank stabilization will incorporate bioengineering solutions consistent with site-specific engineering requirements, when feasible. Where RSP is necessary, native riparian vegetation and/or LWD may be incorporated into the RSP.</p> |
| <p>MM BIO-55: Caltrans shall retain a qualified biologist with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids, salmonid/habitat relationships, and biological monitoring of salmonids. Caltrans shall ensure that all biologists working on the project will be qualified to conduct fish collections in a manner which minimizes potential risks to salmonids.</p> |
| <p>MM BIO-56: If individuals of sensitive aquatic species may be present and subject to potential injury or mortality from construction activities, a qualified biologist will conduct a preconstruction visual survey (i.e., bank observations).</p> |
| <p>MM BIO-57: When sensitive aquatic species are present in the BSA and it is determined that they could be injured or killed by construction activities, a qualified project biologist will identify appropriate methods for capture, handling, exclusion, and relocation of individuals or resources that could be affected. Where such resources cannot be feasibly captured, handled, excluded, or relocated (e.g., salmonid redd), actions that could injure or kill individual organisms or harm resources will be avoided or delayed until the species leaves the affected area or the organism reaches a stage that can be captured, handled, excluded, or relocated.</p> |
| <p>MM BIO-58: The project biologist will conduct, monitor, and supervise all capture, handling, exclusion, and relocation activities; ensure that sufficient personnel are available for safe and efficient collection of listed species; and ensure that proper training of personnel has been conducted in identification and safe capture and handling of sensitive aquatic species.</p> |
| <p>MM BIO-59: Electrofishing may be used when other standard fish capture methods are likely to be ineffective or other methods fail to remove all fish from the site; the project biologist must have appropriate training and experience in electrofishing techniques and all electrofishing must be conducted according to the NMFS Guidelines for Electrofishing.</p> |
| <p>MM BIO-60: Individual organisms will be relocated the shortest distance possible to habitat unaffected by construction activities. Within occupied habitat, capture, handling, exclusion, and relocation activities will be completed no earlier than 48 hours before construction begins to minimize the probability that listed species will recolonize the affected areas.</p> |
| <p>MM BIO-61: Within temporarily drained river channel areas, salvage activities will be initiated before or at the same time as river area draining and completed within a time frame necessary to avoid injury and mortality of sensitive aquatic species.</p> |
| <p>MM BIO-62: The project biologist will continuously monitor in-water activities (e.g., placement of cofferdams, dewatering of isolated areas) for the purpose of removing and relocating any listed species that were not detected or could not be removed and relocated prior to construction. The project biologist will be present at the work site until all sensitive species to be removed from a project site have been removed and relocated.</p> |
| <p>MM BIO-63: The project biologist will maintain detailed records of the species, numbers, life stages, and size classes of listed species observed, collected, relocated, injured, and killed, as well as recording the date and time of each activity or observation.</p> |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM BIO-64: Before construction activities begin, the project environmental coordinator or biologist will discuss the implementation of the required BMPs with the maintenance crew or construction resident engineer and contractor, and identify and document environmentally sensitive areas and potential occurrence of listed species.</p> |
| <p>MM BIO-65: Before construction activities begin, the project environmental coordinator or biologist will conduct a worker awareness training session for all construction personnel that describes the listed species and their habitat requirements, the specific measures being taken to protect individuals of listed species in the project area, and the boundaries within which project activities will be restricted.</p> |
| <p>MM BIO-66: Caltrans will designate a biological monitor to monitor on-site compliance with all project BMPs and any unanticipated effects on listed species. Non-compliance with BMPs and unanticipated effects on listed species will be reported to the resident engineer or maintenance supervisor immediately. When non-compliance is reported, the resident engineer or maintenance supervisor will implement corrective actions immediately to meet all BMPs; where unanticipated effects on listed species cannot be immediately resolved, the resident engineer or maintenance supervisor will stop work that is causing the unanticipated effect until the unanticipated effects are resolved. The biological monitor should be approved by NMFS.</p> |
| <p>MM BIO-67: Work within water will be restricted to the period from June 1 to October 31, per the NMFS Biological Opinion and CDFW Lake and Streambed Alteration Agreement for the project. Extensions beyond October 31 may be conditionally granted by NMFS and CDFW.</p> |
| <p>MM BIO-68: Temporary falsework will be constructed to ensure that materials used during bridge demolition and construction do not enter the river channel.</p> |
| <p>MM BIO-69: "Wet-work" area(s) will be isolated from flowing water using cofferdams, gravel berms, or other methods approved by permitting agencies. Seasonal in-water work areas will be specified by regulatory agencies during project permitting, but are assumed to be June 1 through October 31.</p> |
| <p>MM BIO-70: A fish biologist will be onsite to observe de-watering activities and to capture/rescue any fish that are observed in an isolated area during dewatering activities.</p> |
| <p>MM BIO-71: Vegetation disturbance will be minimized by locating temporary work areas to avoid patches of native aquatic vegetation, substantial LWD, and spawning gravel. Where vegetation removal is temporary to support construction activities, native species will be re-established that are specific to the project location and that comprise a diverse community of aquatic plants.</p> |
| <p>MM BIO-72: Purchase of in-lieu fee program credit at a 3:1 ratio for 154 square feet of permanent impacts to designated California Central Valley steelhead critical habitat within the stream channel resulting from the proposed project.</p> |
| <p>MM BIO-73: The following measures for western pond turtle will be implemented:</p> <ul style="list-style-type: none"> • Preconstruction surveys for presence/absence, • Dewatering of work areas and cofferdams to prevent rewatering, • Caltrans will ensure that a qualified biologist is on site during major ground-disturbing activities and dewatering to capture and relocate turtles as necessary. |
| <p>MM BIO-74: The following measures for burrowing owl will be implemented:</p> <ul style="list-style-type: none"> • Prior to ground-disturbing activities in the BSA, Caltrans will conduct surveys for burrowing owls using the guidance provided by the California Burrowing Owl Consortium; • Active burrows will be avoided by establishing a no-work buffer of 50 meters during the non-nesting period of September 1 to January 31, unless modified by the CDFW; • Active burrows will be avoided by establishing a no-work buffer of 75 meters during the nesting period (February 1 to August 31), unless modified by the CDFW; • Unless agreed to otherwise by Caltrans and CDFW, compensatory mitigation for impacts to burrowing owl and its suitable foraging habitat will follow CDFW guidance. |

Table D-1 Avoidance, Minimization, and/or Mitigation Summary

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| <p>MM BIO-75: The following measures for Swainson’s hawk will be implemented:</p> <ul style="list-style-type: none"> • Caltrans will complete surveys for nesting Swainson’s hawk within the BSA and within an appropriate buffer around the BSA following guidelines of the Swainson’s hawk Technical Advisory Committee. • If active nest trees are found and may be affected, CDFW will be notified immediately and consultation may be required; • The project may be designed or reconfigured to avoid and/or minimize impacts to nesting Swainson’s hawks; • CDFW provides recommendations for seasonal work restrictions and buffers from active nests while conducting project activities. Caltrans will work with CDFW to identify and establish appropriate buffers around active nests during the period March 1 to September 15. |
| <p>MM BIO-76: The following measures for red bats will be implemented:</p> <ul style="list-style-type: none"> • During the summer, or early fall immediately preceding bridge demolition, complete surveys to confirm what bat species are using the existing bridge structure and in what capacity; • Develop a site-specific bat mitigation plan to: <ul style="list-style-type: none"> – Humanely exclude bats from roosting in trees that are planned for removal or trimming – Humanely exclude bats from roosting on the existing bridge structure. • Bats will not be excluded from using the existing bridge during the maternal roosting period of April 15 to August 31 unless otherwise agreed to by Caltrans and CDFW. |
| <p>MM BIO-77: To avoid direct impacts to nesting cliff swallow, Caltrans, in consultation with CDFW, will develop and implement a nesting bird exclusion plan prior to site construction. This plan will:</p> <ul style="list-style-type: none"> • Include provisions to remove relict nests from the existing bridge understructure outside of the typical nesting season and • Exclude birds from establishing new nests on the bridge structure (existing or new bridge) by hanging exclusion netting or some similar technique approved by CDFW. |
| <p>MM BIO-78: A preconstruction nesting bird survey will be conducted to identify active nests within the BSA. Caltrans may remove unoccupied nests during the non-nesting period (September 1 to February 15).</p> |
| <p>MM BIO-79: If occupied nests (i.e., nests with birds or eggs) are present within the BSA, work within 50 feet of the nest of passerine species or 300 feet of raptor species will be avoided. Work shall not be permitted within this buffer until a qualified biologist has determined that nests are no longer active (i.e., young have fledged, or nest has failed)</p> |
| <p>MM BIO-80: Trees will be removed during the non-nesting season Sept. 1 to Feb 15. If vegetation removal is required during the nesting season, an approved biologist will survey for active nesting 72 hours prior to vegetation removal.</p> |
| <p>MM BIO-81: A bird exclusion plan will be developed in the event that nesting is identified on the bridge structure.</p> |

Appendix E List of Technical Studies

Caltrans prepared the following technical studies, which are the basis for the technical analysis in this Environmental Assessment. The technical studies contain the detailed lists of references and in-text citations indicating the sources of the technical information provided in this EA.

1. Community Impact Assessment and its Draft Relocation Impact Report appendix (February 15, 2016)
2. Transportation Technical Report (August 2015)
3. Noise Study Report (March 30, 2015)
4. Air Quality Technical Report (March 18, 2015)
5. Visual Impact Assessment (April 28, 2015)
6. Natural Environment Study (July 13, 2016)
7. Archaeological Survey Report (April 2, 2015)
8. Historical Resources Evaluation Report (March 4, 2015)
9. Historic Properties Survey Report (April 8, 2015)
10. Finding of Adverse Effect (October 8, 2015)
11. Initial Site Assessment (April 7, 2015)
12. Initial Site Assessment Addendum (September 2017)
13. Location Hydraulics Study (April 24, 2015)
14. Water Quality Assessment Report (March 2016)
15. Traffic Report (August 2015)
16. Technical Memorandum: Summary of Scour Analysis of the Existing 7th Street Bridge (2012)
17. Biological Assessment and Essential Fish Habitat Assessment (July 13, 2016).

Appendix F List of Acronyms and Abbreviations

| | |
|-------------------|-------------------------------------------------------------------|
| °F | degrees Fahrenheit |
| µg/m ³ | microgram per cubic meter |
| AASHTO | American Association of State Highway and Transportation Official |
| AB | Assembly Bill |
| ac | acre(s) |
| ACBM | asbestos construction building materials |
| ACE | Altamont Corridor Express |
| ACM | asbestos-containing materials |
| ADA | Americans with Disabilities Act |
| ADL | aerially deposited lead |
| Advisory Council | Advisory Council on Historic Preservation |
| APE | area of potential effects |
| ARB | California Air Resources Board |
| B.P. | before present |
| bgs | below ground surface |
| BMP | best management practice |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| Cal-IPC | California Invasive Plant Council |
| Caltrans | California Department of Transportation |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |

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|-----------------|---------------------------------------------------|
| CFR | Code of Federal Regulations |
| CIDH | cast-in-drilled-hole |
| CNDDDB | California Natural Diversity Database |
| CNE | common noise environment |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| CRHR | California Register of Historical Resources |
| CRLF | California red-legged frog |
| CVFPB | Central Valley Flood Protection Board |
| CWA | Clean Water Act |
| dB | decibels |
| dBA | A-weighted decibels |
| DPM | diesel particulate matter |
| DTSC | California Department of Toxic Substances Control |
| EA | Environmental Assessment |
| EB | eastbound |
| EDR | Environmental Data Resources, Inc. |
| EFH | Essential Fish Habitat |
| EO | Executive Order |
| ESA | environmentally sensitive area |
| ESU | Evolutionarily Significant Unit |
| FAE | Finding of Adverse Effect |
| FEMA | Federal Emergency Management Agency |
| FESA | federal Endangered Species Act |

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| FHWA | Federal Highway Administration |
| FMMP | Farmland Mapping and Monitoring Program |
| FTA | Federal Transit Authority |
| FTIP | Federal Transit Improvement Program |
| GIS | geographic information system |
| HAER | Historic American Engineering Record |
| HEI | Health Effects Institute |
| HRER | Historical Resources Evaluation Report |
| ISR | Indirect Source Review |
| KV | key view |
| Leq(h) | hourly equivalent sound level |
| LIDAR | light/radar |
| LOS | level of service |
| LRFD | Load and Resistance Factor |
| Ma | million years ago |
| MBTA | Migratory Bird Treaty Act |
| MM | Mitigation Measure |
| MOA | Memorandum of Agreement |
| MOU | Memorandum of Understanding |
| mph | miles per hour |
| MS4 | municipal separate storm sewer system |
| MSA | Magnuson-Stevens Fishery Conservation and Management Act |
| MSAT | mobile source air toxic |
| NAAQS | National Ambient Air Quality Standards |
| NAC | noise abatement criteria |

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|-------------------|-------------------------------------------------------------|
| NB | northbound |
| NEPA | National Environmental Policy Act |
| NES | Natural Environment Study |
| NHPA | National Historic Preservation Act of 1966 |
| NMFS | National Marine Fisheries Service |
| NO ₂ | nitrogen dioxide |
| NOA | naturally occurring asbestos |
| NO _x | nitrogen oxides |
| NPS | National Park Service |
| NRHP | National Register of Historic Places |
| NSR | Noise Study Report |
| O ₃ | ozone |
| OCP | organochlorine pesticide |
| PA | Programmatic Agreement |
| Pb | lead |
| PM | particulate matter |
| PM _{2.5} | particulate matter of 2.5 micrometers or smaller |
| PM ₁₀ | particulate matter of 10 micrometers or smaller |
| PRC | Public Resources Code |
| PRMMP | Paleontological Resources Monitoring and Mitigation Program |
| REC | recognized environmental condition |
| RSP | rock slope protection |
| RTIP | Regional Transportation Improvement Program |
| RTP | Regional Transportation Plan |
| RM | river mile |

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| ROG | reactive organic gases |
| RWQCB | Central Valley Regional Water Quality Control Board |
| SB | Senate Bill |
| SCHDDEH | Stanislaus County Health Department Division of Environmental Health |
| SCS | Sustainable Communities Strategy |
| SHPO | State Historic Preservation Officer |
| SIP | state implementation plan |
| SJVAB | San Joaquin Valley Air Basin |
| SJVAPCD | San Joaquin Valley Air Pollution Control District |
| SO ₂ | sulfur dioxide |
| SOI | Secretary of the Interior |
| SO _x | sulfur oxides |
| SQCMP | Stormwater Quality Control Measures Plan |
| SR | State Route |
| SSSC | Side Street Stop Control |
| StanCOG | Stanislaus Council of Governments |
| SWMP | Stormwater Management Plan |
| SWPPP | Stormwater Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TAC | toxic air contaminant |
| TIP | Transportation Improvement Plan |
| TNM | traffic noise model |
| TRRP | Tuolumne River Regional Park |
| UAP | United Agricultural Products |
| UCMP | University of California Museum of Paleontology |

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| Uniform Act | Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 |
| UPRR | Union Pacific Railroad |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USDOT | U.S. Department of Transportation |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UST | underground storage tank |
| VAU | visual assessment unit |
| VIA | Visual Impact Assessment |
| VELB | valley elderberry longhorn beetle |
| VMT | vehicle miles traveled |
| WB | westbound |
| WOUS | waters of the U.S. |
| WSE | water surface elevation |