# State Route 180 Westside Expressway
# Route Adoption Study

FRESNO COUNTY, CALIFORNIA
DISTRICT 6 – FRE – PM R3.5/R54.2
Project ID 0600000445
SCH #2006011111

## Final Environmental Impact Report/Tier I Environmental Impact Statement and Section 4(f) Evaluation

## Volume I of II

Prepared by the
State of California Department of Transportation

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 the California Department of Transportation under its assumption of responsibility pursuant to 23 U.S. Code 327.

**March 2013**

# General Information About This Document

### *What's in this document?*

This document contains a Final Environmental Impact Report/Tier I Environmental Impact Statement that examines the potential environmental effects of the alternatives being considered for the route adoption study on State Route 180 in Fresno County, California.

The Draft Environmental Impact Report/Tier I Environmental Impact Statement was circulated to the public from March 16, 2011, to May 9, 2011. Comment letters were received on the draft document. Responses to the circulated document are shown in Volume II, Comments and Responses, which has been added since the draft. Elsewhere throughout this document, a line in the right margin indicates a change made since the draft document circulation.

### *What happens after this?*

The proposed route adoption has completed environmental compliance after the circulation of this document. If the route adoption is given environmental approval, a Notice of Determination will be published in compliance with the California Environmental Quality Act. Once the route is adopted by the California Transportation Commission, Caltrans would prepare project-level (Tier II) environmental documents and design, acquire requisite permits for, and construct all or part of the subsequent project(s) within the adopted route when funds are appropriated.

This document can also be accessed electronically at the following website: http://www.dot.ca.gov/dist6/environmental/projects/sr180westside/.

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

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Kelly Hobbs, Sierra Pacific Environmental Analysis Branch; California Department of Transportation, 855 M Street, Suite 200, Fresno, CA 93721; (559) 445-5286 Voice, or use the California Relay Service TTY number, 1-800-735-2929, or dial 711.

SCH #2006011111
06-FRE-180 PM R3.5/R54.2
0600000445
06-451400

Adopt a route for an ultimate 4-lane expressway for State Route 180, from Interstate 5 to the western terminus of State Route 180, near Valentine Avenue (post miles R3.5 to R54.2), in western Fresno County

# FINAL ENVIRONMENTAL IMPACT REPORT/ TIER I ENVIRONMENTAL IMPACT STATEMENT and Section 4(f) Evaluation

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C) and 23 U.S. Code 327 and 49 U.S. Code 303

THE STATE OF CALIFORNIA
Department of Transportation

3/4/2013
Date of Approval

Sharri Bender Ehlert
District Director
District 6 – Central Region
NEPA Lead Agency
CEQA Lead Agency

The following person may be contacted for additional information concerning this document:

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**Abstract:** The purpose of the proposed route adoption is to identify a corridor that can be used to improve mobility east and west through the center of Fresno County and the San Joaquin Valley. In the future, State Route 180 between Fresno and State Route 33 would not provide an adequate east-west transportation highway for reliable and continuous regional travel between these two locations, and further, State Route 180 does not currently exist between State Route 33 and Interstate 5. Although the route adoption would not do so, future projects derived from this action may have potentially substantial impacts on the following resources: aesthetics (visual resources), biological resources, community character and cohesion, cultural resources, farmlands, hydrology and floodplains, land use, noise, parks and recreation, relocations, water quality and storm water runoff, and wetlands.

Comments on this document are due by April 15, 2013 and should be sent to Kelly Hobbs at the above address.

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# Summary

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 U.S. Code 327, for more than five years, beginning July 1, 2007 and ending September 30, 2012 as authorized by Section 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Moving Ahead for Progress in the 21st Century Act (MAP-21), Public Law No:112-141, signed by President Obama on July 6th, 2012, amended 23 U.S. Code 327 to establish a revised and permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a memorandum of understanding pursuant to 23 U.S. Code 327 (National Environmental Policy Act Assignment Memorandum of Understanding) with Federal Highway Administration. The National Environmental Policy Act Assignment Memorandum of Understanding became effective October 1, 2012 and terminates eighteen months from the effective date of Federal Highway Administration regulations developed to clarify amendments to 23 U.S. Code 327 or on January 1, 2017. The National Environmental Policy Act Assignment Memorandum of Understanding incorporates by reference the terms and conditions of the Pilot Program Memorandum of Understanding. In summary, the Department continues to assume Federal Highway Administration responsibilities under National Environmental Policy Act and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With National Environmental Policy Act Assignment, Federal Highway Administration assigned and Caltrans assumed all of the United States Department of Transportation Secretary's responsibilities under National Environmental Policy Act.

### *Overview of Study Area*

The study area is located west of the city of Fresno, from Whitesbridge Avenue on the south, nearly to the San Joaquin River on the north, and from Interstate 5 on the west to the end of the freeway portion of State Route 180, near Valentine on the east.

The study area is primarily flat cropland, vineyards, orchards, and some feedlots and dairies, all uses typical of Central Valley agricultural landscapes. Residential properties are generally rural in character and scattered across the sparsely populated study area except for urban areas of Kerman and Mendota.

### *Purpose and Need*

The purpose of the proposed route adoption is to provide a corridor for future projects that will improve mobility east and west through the center of Fresno County and the

San Joaquin Valley, by connecting the cities of Fresno, Kerman, Mendota, and Firebaugh (via State Route 33) and the unincorporated community of Rolinda.

This route adoption study will identify the most appropriate location for an ultimate four-lane expressway for State Route 180 within the study area between Interstate 5 and the city of Fresno. The route adoption of a selected alignment alternative would allow for future facility improvements to provide:

- Adequate capacity for the regional movement of people and goods
- Continuity for east-west regional travel
- Improved accessibility and shorter travel times between Westside communities
- Improved safety

There is no reliable and continuous regional east-west highway between Fresno and Interstate 5 under current conditions. By 2030, the easternmost section of existing State Route 180 (Whitesbridge Avenue) between Kerman and Fresno would have inadequate capacity to accommodate local and regional travel demand. State Route 180 is primarily a two-lane conventional highway within the route adoption study area. The highway and rural county roads west of the freeway portion of State Route 180 pose safety concerns due to the high percentage of trucks and agricultural vehicles that share the road with passenger vehicles. The freeway portion of State Route 180 begins at Valentine and continues east toward Fresno. Additionally, the lack of capacity and passing lanes, along with seasonal flooding and heavy fog, contributes to travel time delays and unsafe driving conditions.

### *Proposed Action*

The California Department of Transportation (Caltrans), as the California Environmental Quality Act lead agency, is proposing that the California Transportation Commission adopt a route for State Route 180, from Interstate 5 to the westernmost end of the freeway portion of State Route 180, near Valentine Avenue in the City of Fresno (post miles R3.5.0 to R54.2). The route adoption study will identify the most appropriate location for an ultimate four-lane expressway for State Route 180 within the study area in western Fresno County.

In California State statutes, Section 253 of the Streets and Highway Code, State Route 180 is designated as part of the Freeway and Expressway System. An expressway is a limited access highway, meaning that access to State Route 180 would be at only selected public road intersections. No private road or driveway

access would be allowed. State planning documents show that State Route 180 would be developed ultimately as only an expressway rather than a full freeway. The existing highway has unlimited access. A full freeway is a higher capacity facility with interchanges instead of intersections and access is allowed only at the interchanges.

The formal adoption of a route for State Route 180 would enable Caltrans, in cooperation with local governments, to plan for future transportation projects within the corridor. If the route adoption is given environmental approval, Caltrans would prepare project-level environmental documents (Tier II) and then design and construct all or part of the subsequent project(s) within the adopted route when funds are appropriated.

Three proposed route adoption alternatives—Extend and Improve Existing Route 180 Alternative (Alternative 1), Southern Route Alternative (Alternative 2), and Northern Route Alternative (Alternative 3)—together with additional route variations and the No-Action/No-Project Alternative, are under consideration.

Alternative 1 extends approximately 48 miles across the valley, beginning at a point where a direct westerly extension of Belmont Avenue would intersect Interstate 5. The alignment proceeds east crossing the California Aqueduct and across farmland and turns southeast between San Diego Avenue and Ohio Avenue, passing south of the city of Mendota. This alternative generally follows existing State Route 180 until it reaches a connection with the existing State Route 180 freeway terminus at Brawley Avenue.

Variation 1A (Shields Avenue/West Mendota Bypass) was developed to provide additional opportunities for access for the city of Firebaugh. This variation begins on the west end at an existing interchange of Interstate 5 with Shields Avenue and runs eastward 18 miles, then dips southeasterly just west of Mendota, to bypass the city. Variation 1B (Kerman Bypass) was developed to bypass the city of Kerman and avoid impacts to existing and proposed development within the city's sphere of influence. This variation bypasses to the north of Kerman. Variation 1C (Rolinda and Kerman Bypass) was developed to bypass both Kerman and Rolinda and avoid impacts to existing and proposed development within Kerman's sphere of influence and existing development at Rolinda.

Alternative 2 extends approximately 49 miles across the valley. This route begins at a point where Belmont Avenue would intersect Interstate 5, following the same

alignment as Alternative 1 until just east of State Route 33 where it travels northeasterly to generally follow the McKinley Avenue, Belmont Avenue, and Nielsen Avenue alignments as it travels east to join the existing State Route 180 freeway.

Alternative 3 extends approximately 50 miles across the valley, beginning at an existing interchange of Interstate 5 with Shields Avenue and running eastward 18 miles to State Route 33 north of Mendota. From State Route 33, the route continues eastward across agricultural land, the Mendota Pool Park and the Fresno Slough, and generally parallel to the south of the San Joaquin River/Madera County line. The route veers southeasterly to coincide with Alternative 2 for the remainder of the alignment.

Under the No-Action/No-Project Alternative, except for maintenance and rehabilitation projects, the existing State Route 180 would remain as it currently exists. This alternative would result in no action being taken. The alignment of a future expressway would not be secured by a route adoption within the 50-mile long corridor.

The recommended preferred alternative combines alignments of Alternative 1, Variation 1A, and Variation 1B to be adopted by the California Transportation Commission as the ultimate alignment for State Route 180 in western Fresno County. The decision was based on engineering factors, environmental analysis, and community and agency input received during the public circulation period between March 16, 2011, and May 9, 2011, including the public hearing held on March 30, 2011.

The preferred alternative combines the alignments of a modified Alternative 1 (between Mendota and the western city limits of Fresno, except in Kerman), Variation 1A (between Interstate 5 and Mendota), and Variation 1B that bypasses Kerman to the north (see Figure 2-5).

To avoid adverse effects to Section 4(f)-protected resources, two design changes to Alternative 1 were incorporated into the preferred alternative. Both of the following changes add a level of risk due to the required approval of a design exception during the design phase of a future project. The first change includes a viaduct that would span and avoid the Alkali Sink Ecological Reserve, proposed Alkali Sink conservation bank, and Kerman Ecological Reserve. This viaduct would be built within the Caltrans right-of-way and will require a mandatory design exception at the

Project Approval and Environmental Document phase of a future project when funds are appropriated. The other change includes an advisory design exception during the Project Approval and Environmental Document phase of a future project near Cornelia Avenue on the existing state route alignment that would avoid the Sheldon residence, an historic property protected under Section 4(f).

See Chapter 2 for a detailed description and mapping of the proposed alignment alternatives and variations.

### *Joint California Environmental Quality Act/National Environmental Policy Act Document*

This environmental document is a study-level Environmental Impact Report/Tier I Environmental Impact Statement and is organized to follow an outline typically found in a planning-level Environmental Impact Report/Tier I Environmental Impact Statement, rather than a typical project-level Environmental Impact Report/Environmental Impact Statement. A planning-level Environmental Impact Report/Tier I Environmental Impact Statement is conceptual and abstract in nature and contains a broad discussion of impacts, alternatives, and mitigation measures. Project-level environmental documents would be prepared for future individual construction projects; those documents would contain specific information on alternatives, impacts, mitigation measures and a no-build alternative.

The proposed route adoption is a joint undertaking by Caltrans and the Federal Highway Administration, and is subject to state and federal environmental review requirements. Route adoption documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act and the National Environmental Policy Act. Caltrans is the lead agency under the California Environmental Quality Act and National Environmental Policy Act. The Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this action is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S. Code 327.

Some impacts determined to be significant under the California Environmental Quality Act may not lead to a determination of significance under the National Environmental Policy Act. Because the National Environmental Policy Act is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for the National Environmental Policy Act. One

of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment. However, in this instance, because potential future impacts could be considered substantial under the National Environmental Policy Act, an Environmental Impact Report/Environmental Impact Statement was prepared.

This final environmental impact report/environmental impact statement includes responses to comments received during circulation of the draft document and identifies the recommended preferred alternative. Following circulation of the final environmental impact report/environmental impact statement, if the route adoption is given environmental approval, a Notice of Determination would be published in compliance with the California Environmental Quality Act. The final Route Adoption Report, Notice of Determination, and the supporting final environmental document, would become the decision documents for the route adoption action by the California Transportation Commission.

### *Project Impacts*

A list of major potential impacts is summarized in Table S-1. For purposes of a route adoption, potential impacts were estimated typically within a 1,000-foot-wide alignment (see Section 2.2.1 for description). It is important to note that the route adoption action would not result in impacts on the environment, although adopting a route would potentially result in a commitment to create a corridor in which future impacts could occur. The purpose of the information presented in Table S-1 and in the balance of this document is to illustrate the range of such potential future impacts to help decision-makers and the public make informed decisions about any final selected route for State Route 180.

The County of Fresno and the cities of Kerman and Mendota support the route adoption because it would provide regional continuity and foster economic development in the Westside communities. However, it is anticipated that the conversion of farmland would be substantial given that the study area passes through primarily agricultural land.

Other adverse impacts may occur to visual/aesthetic resources and biological resources such as wetlands and other waters of the U.S. and threatened and endangered species. Impacts would occur to parkland, cultural resources, floodplains, paleontological resources, and noise levels, and future projects may also displace numerous residences and businesses. Section 4(f) resources include an historic

farmhouse, parks and recreation facilities, and wildlife refuges that may be adversely affected by the future projects. Construction and cumulative impacts are expected to occur from subsequent projects associated with this route adoption.

**Table S.1 Summary of Major Potential Impacts from Alternatives**

| Potential Impact | | Preferred Alternative | Alternative 1 | With Variation 1A | With Variation 1B | With Variation 1C | Alternative 2 | Alternative 3 | No-Action/No-Project Alternative |
|---|---|---|---|---|---|---|---|---|---|
| **Land Use**<br>Is the project consistent with the General Plans of: | **City of Fresno** | ▪ Consistent with transportation facility improvement policies<br>▪ Inconsistent with agricultural land preservation policies | | | | | | | No Impact |
| | **County of Fresno** | | | | | | | | Inconsistent with Westside Economic Action Plan |
| | **City of Kerman** | ▪ Consistent with transportation facility improvement policies<br>▪ Consistent with policy for promoting commercial and industrial development<br>▪ Inconsistent with agricultural land preservation policies | ▪ Consistent with transportation facility improvement policies<br>▪ Inconsistent with agricultural land preservation policies<br>▪ Inconsistent with policy for promoting commercial and industrial development | | ▪ Consistent with transportation facility improvement policies<br>▪ Consistent with policy for promoting commercial and industrial development<br>▪ Inconsistent with agricultural land preservation policies | | | | No Impact |
| | **City of Mendota** | ▪ Consistent with transportation facility improvement policies<br>▪ Inconsistent with agricultural land preservation policies | | | | | | | No Impact |
| **Parks and Recreation**<br>The project would impact: | | ▪ Javier's Fresno West Golf and Country Club<br>▪ Kiwanis Park<br>▪ Kerman High School | ▪ Kerman Ecological Reserve<br>▪ Javier's Fresno West Golf and Country Club<br>▪ Kiwanis Park<br>▪ Kerman High School | ▪ Kerman Ecological Reserve<br>▪ Javier's Fresno West Golf and Country Club<br>▪ Kiwanis Park<br>▪ Kerman High School | ▪ Kerman Ecological Reserve<br>▪ Javier's Fresno West Golf and Country Club | ▪ Kerman Ecological Reserve<br>▪ Javier's Fresno West Golf and Country Club | No Impact | Mendota Pool Park | No Impact |
| **Growth** | | Subsequent projects would have a relatively minor effect on planned growth. | | | | | | | No Impact |
| **Farmland**<br>**Acres of farmland converted** | **Total** | 5,612 | 4,311 | 4,128 | 4,593 | 4,666 | 5,268 | 5,184 | No Impact |
| | **Prime Farmland** | 2,384 | 2,744 | 2,228 | 2,918 | 2,924 | 3,350 | 3,150 | |
| | **Williamson Act** | 3,788 | 3,567 | 3,423 | 3,726 | 3,769 | 4,643 | 4,551 | |
| **Community Character and Cohesion**<br>The project would: | | Cause substantial community disruption through the community of Rolinda | Cause substantial community disruption through the city of Kerman and the community of Rolinda | Cause substantial community disruption through the city of Kerman and the community of Rolinda | Cause substantial community disruption through the community of Rolinda | Cause minimal disruption through the city of Kerman and the community of Rolinda | Cause minimal disruption through the city of Kerman and the community of Rolinda | Cause minimal disruption through the city of Kerman and the community of Rolinda | No Impact |

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|---|---|---|---|---|---|---|---|---|---|
| **Relocation**<br>Will the project result in any displacement of: | **Business** | 33 businesses | 107 businesses | 109 businesses | 34 businesses | 19 businesses | 13 businesses | 13 businesses | No Impact |
| | **Housing** | 83 homes | 475 homes | 466 homes | 172 homes | 152 homes | 91 homes | 71 homes | No Impact |
| | **Utilities**<br>**Impacts would occur to:** | ▪ San Luis Canal/California Aqueduct<br>▪ San Joaquin Valley Railroad<br>▪ PG&E power/transmission lines<br>▪ Second Lift Canal<br>▪ Third Lift Canal<br>▪ Main Lift Canal | ▪ San Luis Canal/California Aqueduct<br>▪ San Joaquin Valley Railroad<br>▪ PG&E power/transmission lines | ▪ San Luis Canal/California Aqueduct<br>▪ San Joaquin Valley Railroad<br>▪ PG&E power/transmission lines<br>▪ Second Lift Canal<br>▪ Third Lift Canal<br>▪ Main Lift Canal | ▪ San Luis Canal/California Aqueduct<br>▪ San Joaquin Valley Railroad<br>▪ Houghton Canal<br>▪ PG&E power/transmission lines | ▪ San Luis Canal/California Aqueduct<br>▪ San Joaquin Valley Railroad<br>▪ Houghton Canal<br>▪ PG&E power/transmission lines | ▪ San Luis Canal/California Aqueduct<br>▪ San Joaquin Valley Railroad<br>▪ Houghton Canal<br>▪ PG&E power/transmission lines l | ▪ San Luis Canal/California Aqueduct<br>▪ Delta-Mendota Canal<br>▪ San Joaquin Valley Railroad<br>▪ Houghton Canal<br>▪ PG&E power/transmission lines<br>▪ First Lift Canal<br>▪ Second Lift Canal<br>▪ Third Lift Canal<br>▪ Outside Canal | No Impact |
| **Emergency Services** | | Response time for emergency service providers is expected to improve as project phases are completed. | | | | | | | No Impact |
| **Traffic and Transportation/ Pedestrian and Bicycle Facilities** | | With adoption of a route and ultimate completion of an expressway, there would be considerably less traffic congestion on existing State Route 180. Frontage roads provided would change local access and it may take longer for some motorists to access the new freeway because cul-de-sacs may block direct access. | | | | | | | Congestion within the existing corridor is projected to continue to increase, with expected level of service at D and E between Mendota and Fresno by 2030. |
| **Visual/Aesthetics** | | ▪ Degree of visual quality change: moderate to moderately high<br>▪ Inconsistent with the Fresno County General Plan Open Space Policy OS-F<br>▪ Requires removal of visually sensitive terrain and natural vegetation occurring near ecological reserves and other natural resources | ▪ Degree of visual quality change: moderate to moderately high<br>▪ Inconsistent with the Fresno County General Plan Open Space Policy OS-F and the 2007 Kerman General Plan's Land Use policies on community image<br>▪ Requires removal of visually sensitive terrain and natural vegetation occurring at ecological reserves and other natural resources | | ▪ Degree of visual quality change: moderate to moderately high<br>▪ Inconsistent with the Fresno County General Plan Open Space Policy OS-F<br>▪ Requires removal of visually sensitive terrain and natural vegetation occurring at ecological reserves and other natural resources | | ▪ Degree of visual quality change: moderate to high<br>▪ Inconsistent with the Fresno County General Plan Open Space Policy OS-F<br>▪ Requires removal of visually sensitive terrain and natural vegetation | | No Impact |

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**Table S.1 Summary of Major Potential Impacts from Alternatives**

| Potential Impact | Preferred Alternative | Alternative 1 | With Variation 1A | With Variation 1B | With Variation 1C | Alternative 2 | Alternative 3 | No-Action/No-Project Alternative |
|---|---|---|---|---|---|---|---|---|
| **Cultural Resources**<br><br>The project would impact: | ▪ California Aqueduct<br>▪ Bridge No. 42C0140<br>▪ Habitation site: FRE-538 | ▪ California Aqueduct<br>▪ Sheldon Residence<br>▪ Habitation site: FRE-538 | ▪ California Aqueduct<br>▪ Bridge No. 42C0140<br>▪ Sheldon Residence<br>▪ Habitation site: FRE-538 | ▪ California Aqueduct<br>▪ Sheldon Residence<br>▪ Habitation site: FRE-538 | ▪ California Aqueduct<br>▪ Sheldon Residence<br>▪ Habitation site: FRE-538 | ▪ California Aqueduct<br>▪ Burial sites: FRE-45 and 398 | ▪ California Aqueduct<br>▪ Bridge No. 42C0140<br>▪ Bridge No. 42C0399<br>▪ Burial sites: FRE-45 and 398 | No Impact |
| **Hydrology and Floodplain** | ▪ Zone A: 7.7-mile transverse encroachment<br>▪ Zone AE: 200-foot longitudinal encroachment<br>Zone AH: 2,500-foot transverse encroachment | ▪ Zone A: 7.7-mile transverse encroachment<br>▪ Zone AE: 5.5-mile longitudinal encroachment | ▪ Zone A: 7.7-mile transverse encroachment<br>▪ Zone AE: 200-foot longitudinal encroachment<br>▪ Zone AH: 2,500-foot transverse encroachment | ▪ Zone A: 7.9-mile transverse encroachment<br>▪ Zone AE: 5.5-mile longitudinal encroachment | ▪ Zone A: 8.0-mile transverse encroachment<br>▪ Zone AE: 5.5-mile longitudinal encroachment | ▪ Zone A: 10.3-mile transverse encroachment<br>▪ Zone AE: 5.5-mile longitudinal encroachment | Zone A: 11-mile transverse encroachment | No Impact |
| **Water Quality and Storm Water Runoff** | 396 acres net increase of impermeable surfaces | 368 acres net increase of impermeable surfaces | 388 acres net increase of impermeable surfaces | 372 acres net increase of impermeable surfaces | 372 acres net increase of impermeable surfaces | 480 acres net increase of impermeable surfaces | 480 acres net increase of impermeable surfaces | No Impact |
| | No long-term impacts to water quality or groundwater are anticipated and any short-term impacts to surface water quality during construction would be minor with the implementation of avoidance and minimization measures. | | | | | | | |
| **Geology/Soils/ Seismic/ Topography** | Soils along the study area corridor are suitable to support appropriately engineered and designed roadways, bridges, and associated structures. Geologic hazards that may affect the subsequent projects include settlement/subsidence, expansive soils, ground shaking, liquefaction-induced settlement, slope instability, and flooding. Site-specific investigations, seismic hazard engineering analysis, and engineering recommendations would be conducted during subsequent projects. | | | | | | | No Impact |
| **Paleontology** | All alignment alternatives include rock units of high or indeterminate sensitivity and have substantial, or the potential for substantial, adverse paleontological resources impacts. Additional analysis would be required at the design stage of subsequent projects to determine specific areas that would require monitoring. | | | | | | | No Impact |
| **Hazardous Waste/Materials** | ▪ 2 identified contaminated sites<br>▪ 49 underground storage tanks<br>▪ 2 leaking underground storage tanks<br>▪ 1 events involving spilled hazardous materials/waste | ▪ 2 identified contaminated sites<br>▪ 64 underground storage tanks<br>▪ 3 leaking underground storage tanks<br>▪ 1 event involving spilled hazardous materials/waste | ▪ 2 identified contaminated sites<br>▪ 66 underground storage tanks<br>▪ 3 leaking underground storage tanks<br>▪ 1 event involving spilled hazardous materials/waste | ▪ 2 identified contaminated sites<br>▪ 75 underground storage tanks<br>▪ 3 leaking underground storage tanks<br>▪ 1 event involving spilled hazardous materials/waste | ▪ 2 identified contaminated sites<br>▪ 75 underground storage tanks<br>▪ 3 leaking underground storage tanks<br>▪ 1 event involving spilled hazardous materials/waste | ▪ 1 identified contaminated site<br>▪ 30 underground storage tanks<br>▪ 2 leaking underground storage tanks | ▪ 1 identified contaminated site<br>▪ 32 underground storage tanks<br>▪ 2 leaking underground storage tanks | No Impact |

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|---|---|---|---|---|---|---|---|---|
| **Air Quality** | The study area is in the San Joaquin Valley Air Basin, which is currently classified as a nonattainment area based on National Ambient Air Quality Standards for 8-hour ozone, and $PM_{2.5}$. Most of the construction impacts to air quality are short-term in duration and, therefore, would not result in adverse or long-term conditions. Implementation of avoidance, minimization, and mitigation measures would reduce any air quality impacts that result from construction activities to the amount feasible. Project-specific impacts will be assessed during subsequent projects. | | | | | | | No Impact |
| **Noise and Vibration**<br>Noise impacts are expected at: | 14 receptor sites | 14 receptor sites | 13 receptor sites | 15 receptor sites | 14 receptor sites | 5 receptor sites | 6 receptor sites | No Impact |
| **Natural Communities** | ▪ 124 acres pasture<br>▪ 621 acres annual grassland<br>▪ 2 acres riparian<br>▪ 16 acres chenopod scrub | ▪ 124 acres pasture<br>▪ 616 acres annual grassland<br>▪ 3 acres riparian<br>▪ 16 acres chenopod scrub | ▪ 124 acres pasture<br>▪ 623 acres grassland<br>▪ 2 acres riparian<br>▪ 16 acres chenopod scrub | ▪ 124 acres pasture<br>▪ 616 acres grassland<br>▪ 3 acres riparian<br>▪ 16 acres chenopod scrub | ▪ 113 acres pasture<br>▪ 616 acres grassland<br>▪ 3 acres riparian<br>▪ 16 acres chenopod scrub | ▪ 57 acres pasture<br>▪ 272 acres grassland<br>▪ 1 acre riparian<br>▪ 0 acre chenopod scrub | ▪ 24 acres pasture<br>▪ 133 acres grassland<br>▪ <1 acre riparian<br>▪ 0 acre chenopod scrub | No Impact |
| **Wetlands and other Waters** | ▪ 745 acres habitat with potential for supporting vernal pools<br>▪ 38 acres potential wetlands<br>▪ 28 acres potential other waters | ▪ 756 acres habitat with potential for supporting vernal pools<br>▪ 29 acres potential wetlands<br>▪ 29 acres potential other waters | ▪ 763 acres habitat with potential for supporting vernal pools<br>▪ 38 acres potential wetlands<br>▪ 28 acres potential other waters | ▪ 756 acres habitat with potential for supporting vernal pools<br>▪ 29 acres potential wetlands<br>▪ 29 acres potential other waters | ▪ 745 acres habitat with potential for supporting vernal pools<br>▪ 29 acres potential wetlands<br>▪ 31 acres potential other waters | ▪ 329 acres habitat with potential for supporting vernal pools<br>▪ 60 acres potential wetlands<br>▪ 24 acres potential other waters | ▪ 157 acres habitat with potential for supporting vernal pools<br>▪ 23 acres potential wetlands<br>▪ 31 acres potential other waters | No Impact |
| **Plant Species** | 15 plant species have a “moderate” potential to occur within this alternative approximately between State Route 33 and Yuba Avenue. | | | | | 15 plant species have a “low” potential for occurrence. | 15 plant species have a “low” potential for occurrence. | No Impact |
| **Animal Species** | There is a “moderate” potential for “take” of 17 special-status animal species, including the fully protected white-tailed kite. There is also a “high” potential for impacts to other miscellaneous nesting birds. | | | | | “High” potential for impacts to the western pond turtle and northern harrier. The potential for impacts to special-status animal species is slightly lower based on the presence of lower quality habitat. | | No Impact |
| **Threatened and Endangered Species** | There is a “moderate” potential to impact 6 federally listed species—blunt-nosed leopard lizard, San Joaquin woollythreads, giant kangaroo rat, Fresno kangaroo rat, San Joaquin kit fox, and giant garter snake; and two state threatened species—greater sandhill crane and Swainson’s hawk. | | | | | “Moderate” potential to impact the San Joaquin kit fox, Swainson’s hawk, and giant garter snake. There are also areas of annual grassland that could support the blunt-nosed leopard lizard and/or vernal pool species. | | No Impact |
| **Construction Impacts** | Construction of subsequent projects would impact water quality, air quality, noise levels, and traffic. | | | | | | | No Impact |
| **Cumulative Impacts** | Cumulative impacts may occur to the following resources: farmland; natural communities; wetlands and waters; and threatened and endangered species. | | | | | | | No Impact |

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| Potential Impact | Preferred Alternative | Alternative 1 | With Variation 1A | With Variation 1B | With Variation 1C | Alternative 2 | Alternative 3 | No-Action/No-Project Alternative |
|---|---|---|---|---|---|---|---|---|
| **Section 4(f) Resources** | ▪ San Luis Canal Segment of the California Aqueduct | ▪ San Luis Canal Segment of the California Aqueduct<br>▪ Sheldon Residence<br>▪ Kerman Ecological Reserve<br>▪ Kerman High School<br>▪ Kiwanis Park | ▪ San Luis Canal Segment of the California Aqueduct<br>▪ Bridge No. 42C0140<br>▪ Sheldon Residence<br>▪ Kerman Ecological Reserve<br>▪ Kerman High School<br>▪ Kiwanis Park | ▪ San Luis Canal Segment of the California Aqueduct<br>▪ Sheldon Residence<br>▪ Kerman Ecological Reserve<br>▪ Kerman High School<br>▪ Kiwanis Park | ▪ San Luis Canal Segment of the California Aqueduct<br>▪ Sheldon Residence<br>▪ Kerman Ecological Reserve<br>▪ Kerman High School<br>▪ Kiwanis Park | ▪ San Luis Canal Segment of the California Aqueduct | ▪ San Luis Canal Segment of the California Aqueduct<br>▪ Bridge No. 42C0140<br>▪ Delta-Mendota Canal<br>▪ Bridge No. 42C0399<br>▪ Mendota Pool Park | No Impact |

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### *Coordination with the Public and Other Agencies*

The California Transportation Commission will be asked to adopt a route for State Route 180. Coordination with other agencies for the purpose of obtaining permits or approvals is not required at this time. However, in the future, subsequent projects would be subject to permitting and coordination requirements. A list of anticipated permits and required coordination is provided in Table S.2. Documentation of all coordination with the general public and appropriate public agencies, including Section 6002 coordination, is provided in Chapter 5.

**Table S.2 Potential Permits and Approvals for Future Projects**

| Agency | Permit/Authority | Purpose |
|---|---|---|
| **Federal** | | |
| U.S. Army Corps of Engineers | Nationwide or Individual Permits/Clean Water Act, Section 404 | The U.S. Army Corps of Engineers issues permits for projects involving dredge or fill activities within waters of the U.S. |
| U.S. Fish and Wildlife Service | Endangered Species Act, Section 7 | Biological Opinion required for resolving potential impacts on federally listed species and established critical habitat. |
| Federal Highway Administration | U.S. Department of Transportation Act, Section 4(f) | Section 4(f) evaluation required for potential use of publicly owned parklands, wildlife refuges, or cultural resources eligible for the National Register. |
| Federal Highway Administration | Clean Air Act Conformity | Clean Air Act Conformity Determination is required for all projects in nonattainment areas that do not meet exemption criteria. |
| Federal Highway Administration; Caltrans;Natural Resources Conservation Service | Farmland Conversion | Farmland conversion assessment and coordination with the Natural Resources Conservation Service required. |
| Federal Highway Administration; State Historic Preservation Officer; Advisory Council on Historic Preservation; Caltrans | National Historic Preservation Act; Section 106 | Memorandum of Agreement required for resolving adverse effects on National Register listed or eligible resources. |
| U.S. Bureau of Reclamation<br>U.S. Bureau of Indian Affairs | Archaeological Resources Protection Act Permit | This permit is required when an archaeological survey or excavation is undertaken on federal or tribal lands to insure that federal standards and guidelines for research and curation are followed. |

## Table S.2 Potential Permits and Approvals for Future Projects

| Agency | Permit/Authority | Purpose |
|---|---|---|
| **State** | | |
| California Department of Fish and Game | Section 1602 Agreement/ California Fish and Game Code; Section 2080.1/2081 Incidental Take Permit for Threatened and Endangered Species | An agreement is required for work within the banks of streams and other water bodies in the state of California. The California Department of Fish and Game also issues permits for projects involving a potential take of state threatened and endangered species. |
| State Water Resources Control Board | General Construction Storm Water Permit/Order 2009-0009-DWQ; Resolution No. 2001-046 | Compliance with this permit is triggered for projects that would affect greater than one acre of land within California. |
| **Regional and Local** | | |
| Central Valley Regional Water Quality Control Board | Water Quality Certification/ Clean Water Act, Section 401 | The Regional Water Quality Control Board, in coordination with the U.S. Army Corps of Engineers Section 404 process, confirms that the subject activity would comply with state water quality standards. |
| Central Valley Regional Water Quality Control Board | Dewatering and Other Low-Threat Discharges to Surface Waters, Order No. 5-00-175, National Pollutant Discharge Elimination System Permit No. CAG995001 | Compliance with Dewatering Permit required for any regulated discharge of groundwater to the environment during construction. |
| State Water Resources Control Board (permit authority delegated to Fresno County) | Underground Storage Tank Regulations, California Code of Regulations Title 23, Chapter 16 | Compliance with state and local regulations required for removal of regulated underground storage tanks. |
| The County of Fresno, Department of Community Health | Well Permit | Permit required for the installation and removal of all subsurface wells/borings used to monitor soil and/or groundwater contamination as specified. |
| San Joaquin Valley Unified Pollution Control District | District Rule 2201 (New and Modified Stationary Source Review) and District Rule 9510 (Indirect Source Review) | The San Joaquin Valley Air Pollution Control District adopts and enforces rules and regulations concerning air pollutant sources. The district also issues permits for and inspects stationary sources of air pollutants to ensure that the federal and state ambient air quality standards are attained in the San Joaquin Valley area. |

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# List of Abbreviated Terms

| | |
|---|---|
| AB | Assembly Bill |
| ARPA | Archaeological Resources Protection Act |
| BAT | Best Available Technology |
| BCT | Best Conventional Technology |
| BMPs | Best Management Practices |
| Caltrans | California Department of Transportation |
| CARB | California Air Resources Board |
| CDFG | California Department of Fish and Game |
| CEQ | Council on Environmental Quality |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| $CH_4$ | methane |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| dB | decibel |
| dBA | A-weighted decibel |
| DSA | disturbed soil area |
| EIR | Environmental Impact Report |
| EMFAC | EMission FACtors |
| EPA | Environmental Protection Agency |
| FCV | fuel cell vehicle |
| FHWA | Federal Highway Administration |
| HFC-23 | fluoroform |
| HFC-134a | 1,1,1,2-tetrafluroethane |
| HFC-152a | difluoroethane |
| HFCs | hydrofluorocarbons |
| I-5 | Interstate Highway 5 |
| IPCC | Intergovernmental Panel on Climate Change |
| ITS | Intelligent Transportation System |
| MMT | million metric tons |
| MPO | metropolitan planning organization |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| $N_2O$ | nitrous oxide |
| $NO_2$ | nitrogen dioxide |
| NOC | Notice of Construction |
| NOCC | Notice of Completion of Construction |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| $O_3$ | ozone |
| Pb | lead |
| PFCs | perfluorocarbons |
| PM | post mile, particulate matter |
| $PM_{10}$ | airborne particulates 10 micrometers or less in diameter |
| $PM_{2.5}$ | airborne particulates 2.5 micrometers or less in diameter |
| ppm | parts per million |
| PRC | Public Resources Code |
| RWQCB | Regional Water Quality Control Board |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient, Transportation Equality Act: A Legacy for Users |

| | |
|---|---|
| $SF_6$ | sulfur hexafluoride |
| SHPO | State Historic Preservation Officer |
| $SO_2$ | sulfur dioxide |
| SWMP | Storm Water Management Plan |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| USC | United States Code |
| USFWS | United States Fish and Wildlife Service |
| WPCP | Water Pollution Control Plan |
| $\mu g/m^3$ | micrograms per cubic meter |

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# Chapter 1 Purpose and Need for the Route Adoption Study

## 1.1 Introduction

The California Department of Transportation (Caltrans) is proposing that the California Transportation Commission adopt a new segment of State Route 180, from Interstate 5 to the western terminus of the State Route 180 freeway at Valentine Avenue in the city of Fresno. Caltrans will recommend the alternative determined to offer the most appropriate location for an ultimate four-lane expressway for State Route 180 to the commission following public and resource agency review of the route adoption study. Figure 1-1 shows the study area vicinity, and Figure 1-2 shows the study area. The formal approval of the extension of State Route 180 would enable Caltrans, in cooperation with local governments, to plan for future transportation projects within the corridor.

In California state statutes, Section 253 of the Streets and Highway Code, Route 180 is designated as a part of the Freeway and Expressway System. State planning documents show that State Route 180 would need to be developed ultimately as only an expressway rather than a full freeway. An expressway is a limited access highway, meaning that access to State Route 180 would be allowed at only selected public road intersections. No private road or driveway access would be allowed. A full freeway is a higher capacity facility with interchanges instead of intersections.

The California Transportation Commission approval does not imply near-term development of the corridor. Subsequent projects would occur over time, in response to expected future demand and within the context of local and regional land use planning. The ultimate construction of the expressway may not occur for 50 years or more, but for this analysis, development of the corridor is assumed to occur by 2030.

Existing State Route 180 is an east-west rural highway with its westernmost end at State Route 33 in Mendota. State Route 180 connects communities on the west side of Fresno County, including Kerman and Mendota, with the city of Fresno and Kings Canyon and Sequoia National Parks in the Sierra Nevada mountain range to the east. State Route 180 stops short of Interstate 5, which runs north and south about 20 miles west of State Route 33 in western Fresno County. Extending State Route 180 all the way to Interstate 5 is highly desirable in the view of regional agencies and local municipalities, including Fresno County.

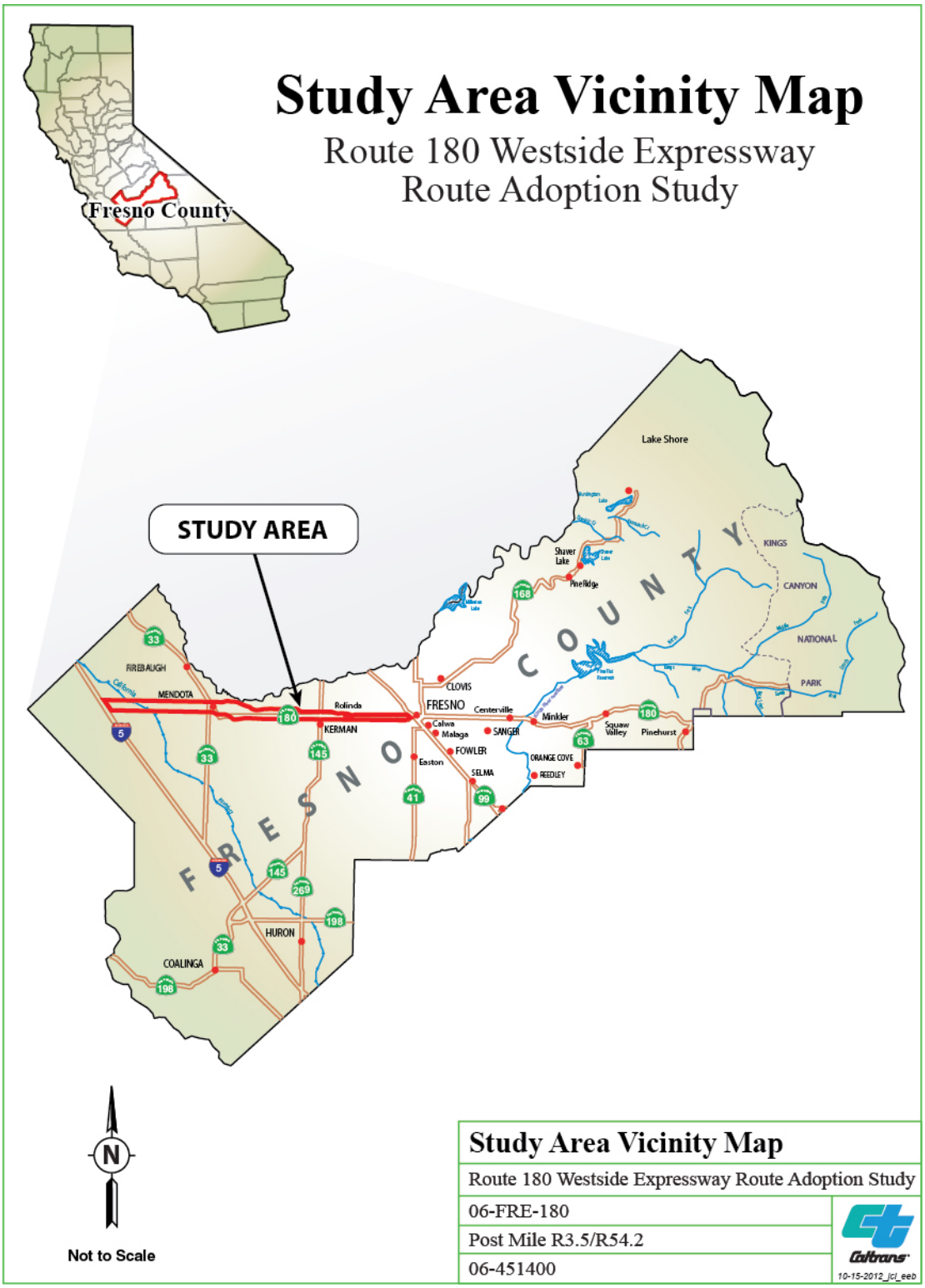


**Figure 1-1 Study Area Vicinity**

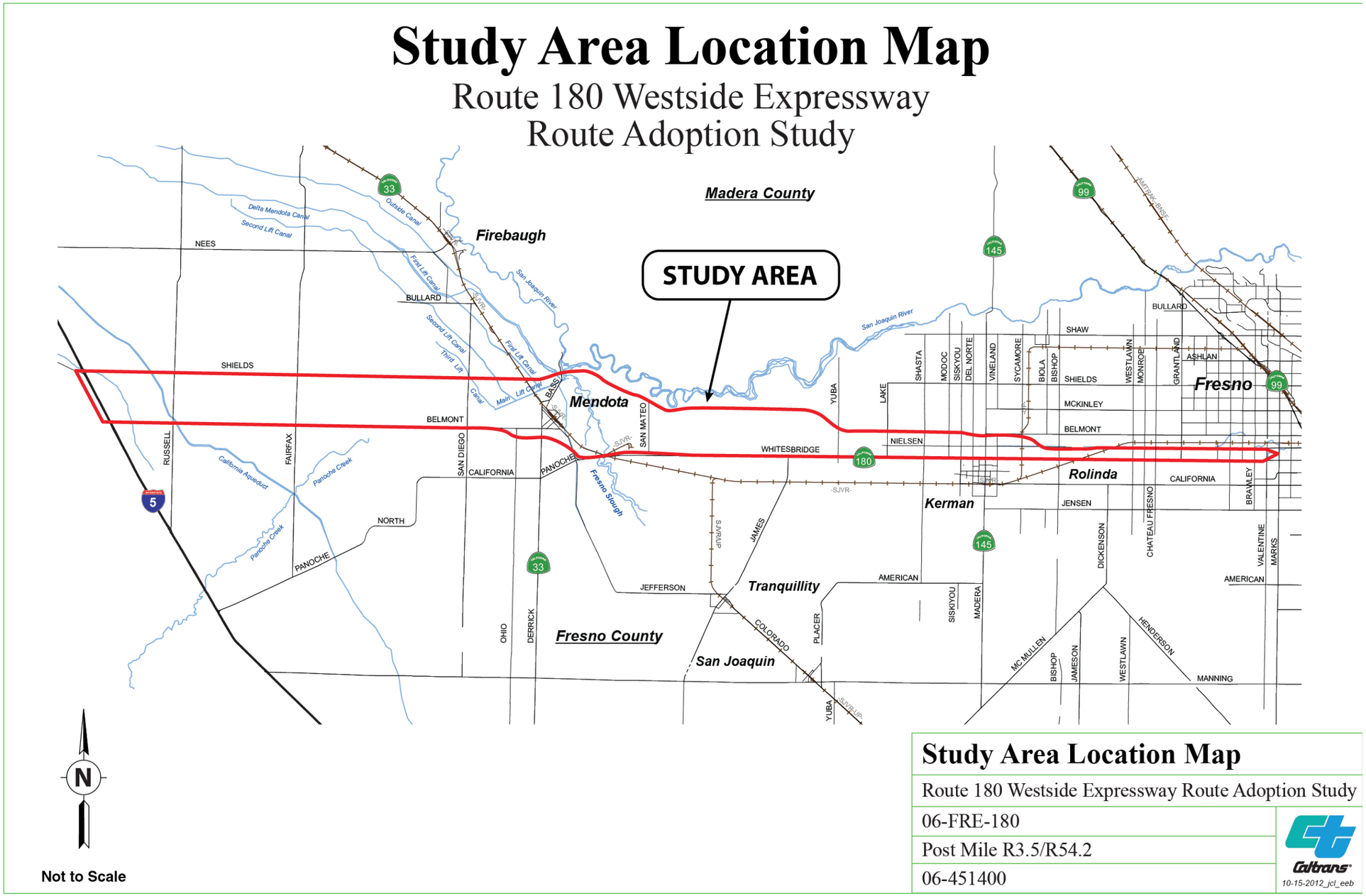


**Figure 1-2 Study Area Location**

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In 2001, Governor Gray Davis' Transportation Congestion Relief Program provided $7 million to prepare environmental studies for the purpose of extending State Route 180. An additional $35 million in federal demonstration funds were secured by Congressman Cal Dooley for construction, including related activities, of an extension of the highway from Mendota to Interstate 5. Five preliminary alternatives were developed and studied within those original limits, and a scoping process was initiated with regulatory agencies and the general public.

The Federal Highway Administration expressed concern that the proposed route adoption limits could cause serious impacts to sensitive resources east of State Route 33 as a result of future planned improvements to State Route 180 and the route would also not meet logical termini criteria. A project must have sufficient length for the transportation improvement and for a review of the environmental impacts to meet logical termini requirements. The Federal Highway Administration reasoned that the route adoption limits did not address potential environmental impacts on a broad enough scope and limited alternative selection for future widening of State Route 180 east of State Route 33. Under those circumstances, the Federal Highway Administration would have been unable to approve environmental documents for future projects within the corridor. Based upon Federal Highway Administration input, Caltrans decided to extend the study's limits of the Route Adoption Study further east to State Route 99.

Three route alternatives, one of which has variations proposed to address localized issues, were developed by a multi-disciplinary team to achieve the project purpose and need. The three proposed route alternatives are—Alternative 1 (Extend and Improve Existing State Route 180), Alternative 2 (Southern Route), and Alternative 3 (Northern Route).

The study area extends from Interstate 5 (post mile R3.5) on the west to just east of Valentine Avenue on the east (post mile R54.2), for a distance of approximately 45 miles as shown in Figure 1-2. The study area is generally bounded by Interstate 5 on the west; County Route J-1/Shields, the San Joaquin River, and Belmont Avenue on the north; Valentine Avenue on the east; and Belmont and Whitesbridge avenues on the south. Currently, State Route 180 is primarily a two-lane highway. The alignment alternatives would be of sufficient width to accommodate a future four-lane expressway. For purposes of this analysis, a route alignment width of 1,000 feet is being considered, within which the future expressway facility would be located.

This is a planning-level Environmental Impact Report/Tier I Environmental Impact Statement to adopt a general route alignment for a future State Route 180 four-lane expressway. No environmental impacts would occur until subsequent projects within the adopted route are constructed. Determinations are based on current technical information to make assumptions that reflect likely future consequences of that construction. It is the intent of this document to use such information to determine the appropriate general location for the expressway. Subsequent projects that result from this route adoption would be subject to additional environmental review processes.

## 1.2 Purpose and Need

The "purpose" is a set of objectives the action intends to meet. The "need" is the transportation deficiency that the action was initiated to address.

### 1.2.1 Purpose

The purpose of the proposed route adoption study is to provide alternative routes for future transportation projects that will improve mobility east and west through the center of Fresno County and the San Joaquin Valley, connecting the cities of Fresno, Kerman, Mendota, and Firebaugh and the unincorporated community of Rolinda. The route adoption would allow for future facility improvements within the selected alignment alternative that would provide:

- Adequate capacity for the regional movement of people and goods
- Continuity for east-west regional travel
- Improved accessibility and shorter travel times between Westside communities
- Improved safety

### 1.2.2 Need

#### *Capacity and Transportation Demand*

Highway capacity is of particular concern along the easternmost section of existing State Route 180 (Whitesbridge Avenue) between Kerman and Fresno. This stretch of roadway has inadequate capacity to accommodate local and regional travel demand associated with projected growth in this area through the planning year 2030.

According to the Council of Fresno County Governments, the county's population is expected to grow from 800,000 in 2005 to approximately 1.4 million in 2030. According to the County of Fresno, the Westside Valley County Planning Area is experiencing even faster population growth, as much as 53 percent between 1990 and

2000, than Fresno County, which grew 19 percent over the same period. Kerman alone grew 57 percent between 1990 and 2000.

With the increasing population, the use of Fresno County roads is projected to increase 66 percent by 2030 and State Route 180 would continue to experience increased traffic in the coming years, according to the Council of Fresno County Governments. Current statistics show State Route 180 operating at level of service C as summarized in Table 1.1. By 2030, State Route 180 in Kerman is predicted to operate at level of service D if no major improvements are made to existing highways. Truck traffic is increasing at a greater rate than overall traffic, a trend that is projected to continue, which would burden a system not designed for such use.

**Table 1.1 State Route 180 Estimated Peak-Hour Level of Service**

| | Interstate 5 to State Route 33 | State Route 33 to Yuba Avenue | Yuba Avenue to Valentine Avenue |
|---|---|---|---|
| **Existing (2004)** | Not constructed | A - C | B - C |
| **2015 No Project** | Not constructed | B - D | C - D |
| **2030 No Project** | Not constructed | B - E | D |

Source: Transportation Concept Report, State Route 180 (Caltrans, 2004).

### *Continuity*

Regional mobility and transportation continuity are key requirements of business and industry, yet the State Route 180 corridor exhibits poor continuity. Because State Route 180 does not exist between Interstate 5 and State Route 33, trucks and other traffic must transition to county roads, which provide less capacity and do not support highway speeds. Regional traffic is further delayed by slower traffic and intersection controls in Mendota and Kerman, at the transition from State Route 33 to State Route 180, and at the existing highway/freeway transition just west of Fresno at Brawley Avenue. Future projects would address these concerns by constructing an expressway facility that increases capacity and limits access at selected intersections. Enhancing regional mobility along this corridor would foster economic development in the Westside communities.

### *Accessibility and Travel Time*

Current accessibility is not ideal, and conditions within the corridor are projected to become more congested in the future. This is particularly true for the area west of Mendota where State Route 180 does not currently exist. In this area, motorists traveling to or from Interstate 5 must select one or more local roadways along an

indirect route with stop sign-controlled intersections, creating travel time delays that are expected to become worse in the future. Conditions contributing to this include a lack of passing lanes, lower speed limits in urban areas, and cross/merging traffic. As future travel demand grows, these conditions would worsen. Future projects would address these concerns by constructing an expressway facility that increases capacity, eliminates the reduced speed zones in urban areas, and limits access at selected intersections.

Where State Route 180 is not built (between Interstate 5 and State Route 33), the county road system does not provide adequate capacity with good access to Interstate 5 and to the city of Fresno. Poor accessibility within the western area has direct implications on economic development, including less than desirable farm-to-market accessibility. Cities and surrounding areas in the west side of the valley have large minority populations, high unemployment rates, and a large percentage of people living below the poverty line as described in the Westside Economic Development Action Plan. The overall goals of the Fresno County 2000 General Plan's Economic Development Element are to increase job growth, develop a diversified economic base, and improve labor force preparedness. Improved accessibility would translate into direct benefits to area businesses and employees by improving the San Joaquin Valley farm-to-market network and accessibility to job centers within the study area.

### *Safety*

County and local roadways west of the freeway portion of State Route 180 at Brawley Avenue present highway safety concerns. Statistically, county-maintained rural roads account for 44 percent of all fatal accidents in Fresno County compared to city streets and state highways. This directly translates into a considerable cost to the public. The Council of Fresno County Governments estimates that the 2,600 reported accidents on rural roads in 2003 cost the public an estimated $326 million. In addition, parts of the roadway within the corridor do not drain properly and are subject to flooding during certain storm events, which can lead to impaired driving conditions.

Direct access from rural roads and private driveways onto the existing State Route 180 highway and local roadways can present challenging conditions for motorists. With few passing lanes along the 45-mile-wide corridor, motorists pass slower trucks and other vehicles using the opposing lane, increasing the potential for vehicle collisions. Also, heavy fog is common during winter months, creating unsafe conditions for motorists on heavily traveled two-lane roadways within the corridor. Future projects would improve safety by constructing an expressway facility with two

lanes in each direction that would allow motorists on the expressway to pass safely. Driveways along the expressway would be closed, which would prevent motorists from pulling onto oncoming traffic on the expressway; access would be provided via frontage roads as needed.

## 1.3 Scope and Organization of the Environmental Impact Report/Environmental Impact Statement

This environmental document is a study-level Environmental Impact Report/Tier I Environmental Impact Statement. It is organized to follow an outline typically found in a planning-level environmental document, rather than a typical project-level document. A planning-level environmental document is conceptual and abstract in nature and contains a broad discussion of impacts, alternatives, and mitigation measures. Project-level environmental documents would be prepared for future individual construction projects within the selected corridor alternative and would contain specific information on alternatives, impacts, and mitigation measures.

A future expressway across the study area has been evaluated to understand the potential effects it would have on the environment. No funding commitments have been made to build subsequent projects, and a substantial passage of time could occur before the entire expressway is completed. For that reason, some of the conditions described in the environmental setting within the study area corridor may or may not exist at the time future projects are proposed. It is possible that some project-level environmental effects may be of lesser or greater significance than they seem to be now. It would be the responsibility of future environmental investigations to determine and disclose those effects and evaluate the implications of the individual future projects in that context.

While the exact future effects of the present route adoption decision cannot be known with certainty, it is possible to make an informed decision using current information that reflects likely future consequences. It is the intent of this document to use such information to aid in making an informed decision as to the appropriate general location for the expressway.

This Environmental Impact Report/Tier I Environmental Impact Statement addresses the required elements of the National Environmental Policy Act and the California Environmental Quality Act, and the United States Department of Transportation Act Section 4(f) policy. It is intended to serve as the primary environmental document for all federal and/or state discretionary approvals and/or permits required for this action.

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# Chapter 2 Project Alternatives

## 2.1 Alternatives

Three route alternatives, one of which has variations proposed to address localized issues, were developed by a multi-disciplinary team to achieve the project purpose and need. The three proposed route alternatives are Alternative 1, Alternative 2, and Alternative 3.

The Route Adoption Study area, which is in Fresno County, is shown in Figure 1-2. The study area is approximately 45 miles long, extending from Interstate 5 (post mile R3.5) on the west to just east of Valentine Avenue on the east (post mile R54.2). The study area is generally bounded by Interstate 5 on the west; County Route J-1/Shields, the San Joaquin River, and Belmont Avenue on the north; Valentine Avenue on the east; and Belmont Avenue and Whitesbridge Avenue on the south. State Route 180 is primarily a two-lane highway, while the adopted route for State Route 180 would be wide enough to accommodate a future four-lane expressway.

An expressway is a limited-access highway, meaning that access to State Route 180 would be allowed at only selected public road intersections. No private road or driveway access would be allowed. Access rights would have to be purchased from property owners who currently have access to Whitesbridge Avenue. Many public roads that cross State Route 180 would end at State Route 180 with a cul-de-sac. See further discussion under Common Design Features of the Alignment Alternatives in the next section.

### 2.1.1 Alignment Alternatives

Three proposed route adoption alternatives and variations and the No-Action/No-Project Alternative are described in this section. “No-Action” is a federal term, while “No-Project” is a state term. Caltrans road construction projects normally have a “No-Build” alternative, however, since this project would lead to only a route adoption rather than a built project, the term “No-Project” will be used from this point on. All of the alternatives and their variations analyzed in this environmental process are contained within an approximate 150-square-mile study area in western Fresno County (Figure 1-2).

The alternatives and their variations were assembled beginning with an exhaustive study of 48 potential route segments in a variety of combinations. Information and

detailed mapping developed in the 2001 Geographic Information System Study and the 2000 Interstate 5 to State Route 33 Corridor Study that examined five potential routes across the 20-mile gap in State Route 180 between Interstate 5 and Mendota were used to help identify the route segments. The full range of alternatives was reduced down to the present set as a result of a multi-staged screening process that evaluated a broad range of factors addressing purpose and need, cost, environmental considerations and public input. The 2009 Alternatives Screening Report describes the complete alternative development and screening process. The final alignment could be a combination of the alternatives and/or variations.

For purposes of identifying the potential environmental impacts of the alignment alternatives, the document considers general ideas for future interchanges, intersections, cul-de-sacs, and bridges. However, these improvements would not be designed or built as part of the adoption of a route. The exact number, location, size, and configuration of these improvements would be determined as individual projects are implemented and their impacts evaluated during subsequent (project-specific) environmental review. A complete set of conceptual alignment drawings can be found in Appendix H.

### *Alternative 1*

This alternative reaches approximately 48 miles across the valley (see Figure 2-1). This alternative begins at a point where a direct westerly extension of Belmont Avenue would intersect Interstate 5. The alignment proceeds east, crossing the California Aqueduct and across farmland to Fairfax Avenue, then on an alignment centered on Belmont Avenue for nearly 17 miles. It turns southeast between San Diego Avenue and Ohio Avenue, proceeding for about a mile, where it turns east, passing south of Mendota High School to intersect with State Route 33.

Alternative 1 then follows a southeasterly diagonal across State Route 33 and returns to Whitesbridge Avenue at the northwest corner of the Mendota Wildlife Area. The alternative then continues easterly, parallel with and north of the existing State Route 180 to avoid the Mendota Wildlife Area and the Alkali Sink Ecological Reserve. Once east of the Alkali Sink Ecological Reserve, the route alignment dips slightly south to become centered on State Route 180/Whitesbridge Avenue. It continues due east along Whitesbridge Avenue, passing adjacent to Javier’s Fresno West Golf Course and through the middle of the Kerman Ecological Reserve, until it reaches a connection with the existing State Route 180 freeway terminus at Brawley Avenue.

Proposed conceptual improvements for this alternative are summarized in Table 2.1. A complete set of conceptual alignment drawings can be found in Appendix H.

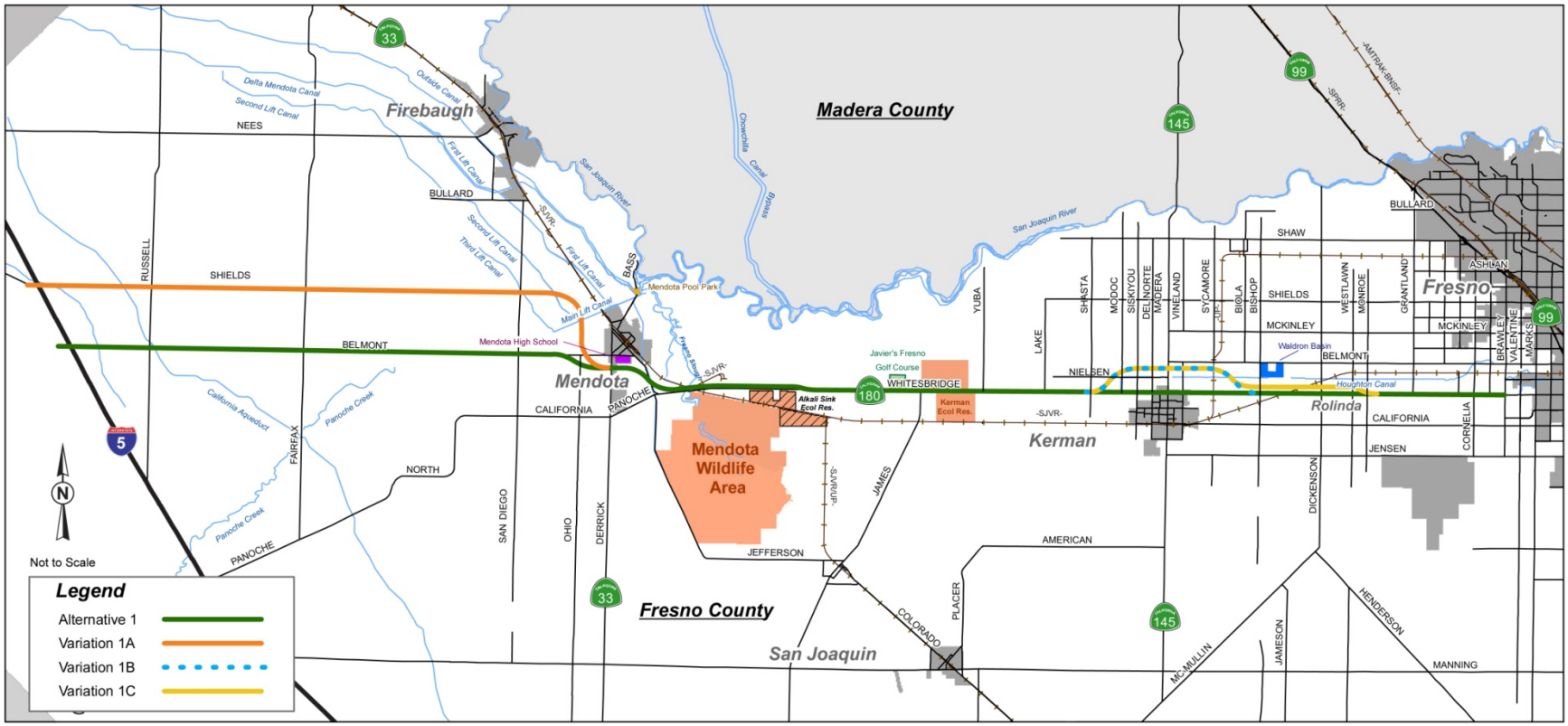



**Figure 2-1 Alternative 1**

**Table 2.1 Potential Facility Improvements—Alternative 1**

| | |
|---|---|
| **Expressway Interchanges** | ▪ New interchange on Interstate 5 at Belmont Avenue alignment<br>▪ New interchange between State Route 180 and State Route 33<br>▪ New interchange between State Route 180 and Madera Avenue (State Route 145)<br>▪ Closure and removal of ramps at Interstate 5/Shields Avenue |
| **Street Intersections** | ▪ New intersections at Russell Avenue, Fairfax Avenue, San Diego Avenue, Ohio Avenue, San Mateo Avenue, James Avenue, Yuba Avenue, Lake Avenue, Lassen Avenue, Howard Avenue, Dickenson Avenue, Chateau Fresno Avenue, and Hayes Avenue |
| **Possible Cul-De-Sacs*** | ▪ Whitesbridge Avenue (State Route 180), Jerrold Avenue, Douglas Avenue, Lyon Avenue, Washoe Avenue, Napa Avenue, Trinity Avenue, Shasta Avenue, Modoc Avenue, Siskiyou Avenue, Del Norte Avenue, Vineland Avenue, Goldenrod Avenue, Bishop Avenue, Floyd Avenue, Jameson Avenue, Rolinda Avenue, Westlawn Avenue, Monroe Avenue, Garfield Avenue, Grantland Avenue, Bryan Avenue, Polk Avenue, Cornelia Avenue, and Blythe Avenue |
| **Bridges** | ▪ New box culvert at Belmont Avenue over Little Panoche Canal<br>▪ New bridge on Belmont Avenue over California Aqueduct<br>▪ New bridge over San Luis Drain<br>▪ New bridge over Fresno Slough<br>▪ New bridge across Union Pacific Railroad near the Fresno Slough<br>▪ Reconstruct bridges 42-0040; 42-0041; 42-0044; 42-0046; 42-0047; 42-0048<br>▪ New bridge across Union Pacific Railroad tracks between Floyd Avenue and Jameson Avenue alignment<br>▪ New bridge over Thompson Extension Canal at Jameson Avenue alignment |
| * In general, cul-de-sacs would be provided both north and south of the proposed alignment, as necessary. | |

*Variation 1A (Shields Avenue)*

A variation of Alternative 1 was developed to provide additional opportunities for highway access for the city of Firebaugh. In this variation, shown in Figure 2-1, the west end of the variation is at an existing interchange on Interstate 5 at Shields Avenue. The alignment runs eastward 18 miles to a point just west of State Route 33 (Dos Palos Road) between the First and Second Lift Canals north of Mendota. It then runs southeasterly, crossing the Main Lift Canal on a new bridge, and then rejoining

Alternative 1 at State Route 33 (Derrick Avenue), southwest of Mendota High School.

*Variation 1B (Kerman Bypass)*

This variation of Alternative 1 was developed to bypass the city of Kerman and avoid impacts to existing and proposed development within Kerman's sphere of influence. This variation, shown in Figure 2-1, deviates from the existing Route 180 alignment at its west end at Whitesbridge Avenue and Shasta Avenue. It extends northeast diagonally to Modoc Avenue midway between Nielsen Avenue and Belmont Avenue. It turns easterly to Sycamore Avenue, where it turns southeast diagonally to rejoin the existing State Route 180 alignment at Whitesbridge Avenue at Bishop Avenue.

*Variation 1C (Rolinda and Kerman Bypass)*

A variation was developed to bypass both the city of Kerman and the community of Rolinda and avoid impacts to existing and proposed development within Kerman's sphere of influence and existing development at the community of Rolinda. This variation, shown in Figure 2-1, follows the same alignment as Variation 1B on the west end. It differs as it turns southeast diagonally at Sycamore Avenue to Biola Avenue, midway between Nielsen Avenue and Whitesbridge Avenue. It turns easterly to Westlawn Avenue, then southeast diagonally to rejoin the existing Route 180 alignment at Whitesbridge Avenue at Monroe Avenue.

### *Alternative 2 (Southern Route)*

Alternative 2 extends approximately 49 miles across the valley. The alignment, shown in Figure 2-2, follows the same line as the Alternative 1 alignment at the west end of the study area. This route begins on the west at a point where Belmont Avenue would intersect Interstate 5, if it extended that far. The route proceeds east crossing the California Aqueduct and across farmland to Fairfax Avenue, then on an alignment centered on Belmont Avenue for almost 17 miles. It turns southeast between San Diego Avenue and Ohio Avenue, proceeding for about a mile, where it turns east, passing south of Mendota High School to intersect State Route 33.

The route travels roughly a half-mile east before it turns northeast just east of Mendota, where it joins Alternative 3 west of the Fresno Slough. Continuing east, the alignment coincides with Alternative 3 for the remainder of the alignment to the eastern end where it joins with existing State Route 180.

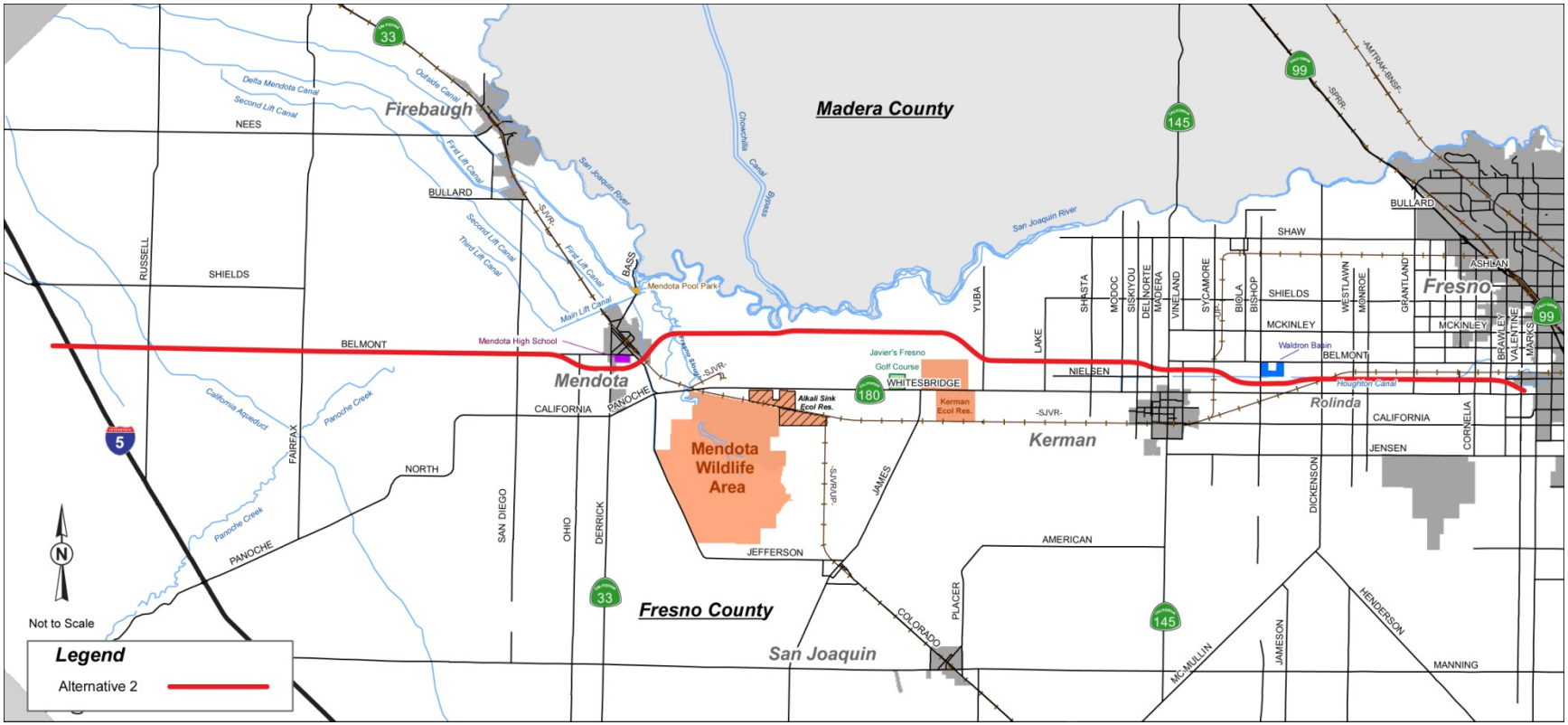



**Figure 2-2 Alternative 2**

At a point approximately one mile west of Yuba Avenue, the alignment dips southeasterly to Yuba Avenue at Belmont Ave. It then turns east and is centered on Belmont Avenue to Siskiyou Avenue. The route dips in a southeasterly direction to the west of Madera Avenue. It then proceeds east following an alignment midway between Belmont and Nielsen avenues. It turns southeast to avoid the Fresno Irrigation District's Waldron Pond, a water banking facility, and then makes a southeasterly transition just east of Sycamore Avenue to Bishop Avenue. The alternative continues east to approximately Jameson Avenue where it travels northeast to rejoin and is centered on Nielsen Avenue and the Houghton Canal (the actual expressway facility would be located either to the north or south of the canal). There the route continues due east to Brawley Avenue. At this point, the alignment heads southeast to a connection with a tangent segment with the existing State Route 180 freeway at Valentine Avenue between Nielsen and Whitesbridge avenues.

Proposed conceptual improvements for Alternative 2 are summarized in Table 2.2. A complete set of conceptual alignment drawings can be found in Appendix H.

**Table 2.2 Potential Facility Improvements—Alternative 2**

| | |
|---|---|
| **Expressway Interchanges** | ▪ New interchange at Interstate 5/Belmont Avenue alignment<br>▪ New interchange between State Route 180 and State Route 33<br>▪ New interchange between State Route 180 and Madera Avenue (State Route 145)<br>▪ Closure and removal of ramps at Interstate 5/Shields Avenue |
| **Street Intersections** | ▪ New intersection at Russell Avenue, Fairfax Avenue, San Diego Avenue, Ohio Avenue, San Mateo Avenue, James Avenue, Yuba Avenue, Lake Avenue, Lassen Avenue, Howard Avenue, Dickenson Avenue, Chateau Fresno Avenue, and Hayes Avenue, Brawley Avenue |
| **Possible Cul-De-Sacs*** | ▪ Jerrold Avenue, Douglas Avenue, Lyon Avenue, Washoe Avenue, Whitesbridge Avenue (State Route 180), Humboldt Avenue, Trinity Avenue, Shasta Avenue, Modoc Avenue, Siskiyou Avenue, Del Norte Avenue, Vineland Avenue, Goldenrod Avenue, Bishop Avenue, Floyd Avenue, Jameson Avenue, Rolinda Avenue, Westlawn Avenue, Monroe Avenue, Bryan Avenue, Polk Avenue, Cornelia Avenue, and Blythe Avenue, Nielsen Avenue |

**Table 2.2 Potential Facility Improvements—Alternative 2**

| | |
|---|---|
| **Bridges** | ▪ New box culvert at Shields Avenue over Little Panoche Canal<br>▪ New bridge on Shields Avenue over California Aqueduct<br>▪ New bridge over San Luis Drain<br>▪ New bridge over Fresno Slough<br>▪ New bridge across Union Pacific Railroad near the Fresno Slough<br>▪ New bridge across Houghton Canal near Howard Avenue<br>▪ New bridge over Thompson Ext. Canal<br>▪ New bridge across Union Pacific Railroad tracks between Dickenson and Rolinda Avenues |
| * In general, cul-de-sacs would be provided both north and south of the proposed alignment, as necessary. | |

### *Alternative 3 (Northern Route)*

This alignment extends approximately 50 miles across the valley (see Figure 2-3). This west end of the alternative begins at an existing interchange on Interstate 5 at Shields Avenue and runs eastward 18 miles to State Route 33 (Dos Palos Road), north of Mendota.

From State Route 33, the route continues eastward across an area of large agricultural parcels of land. After crossing Bass Avenue, as well as over and near the Mendota Pool Park, the Outside and the Delta Mendota Canals, and the Fresno Slough, the alignment generally parallels to the south of the San Joaquin River/Madera County line. About a mile east of the Fresno Slough, it veers southeasterly until turning east just south of an oxbow (a U-shaped body of water) of the San Joaquin River. Continuing east, the alignment coincides with Alternative 2 for the remainder of the corridor to the eastern end where it joins with the existing State Route 180 freeway.

Proposed conceptual improvements for Alternative 3 are shown in Table 2.3. A complete set of conceptual alignment drawings can be found in Appendix H.

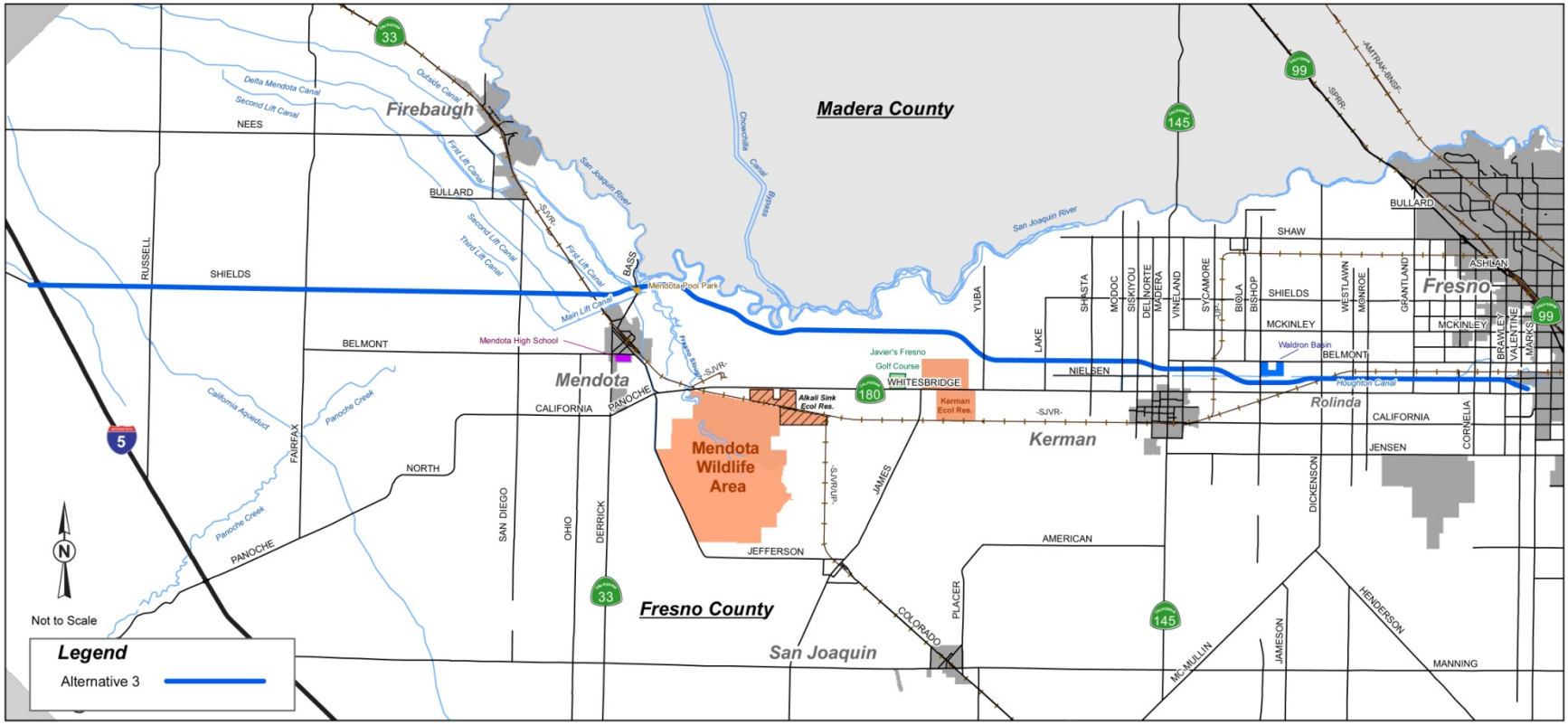


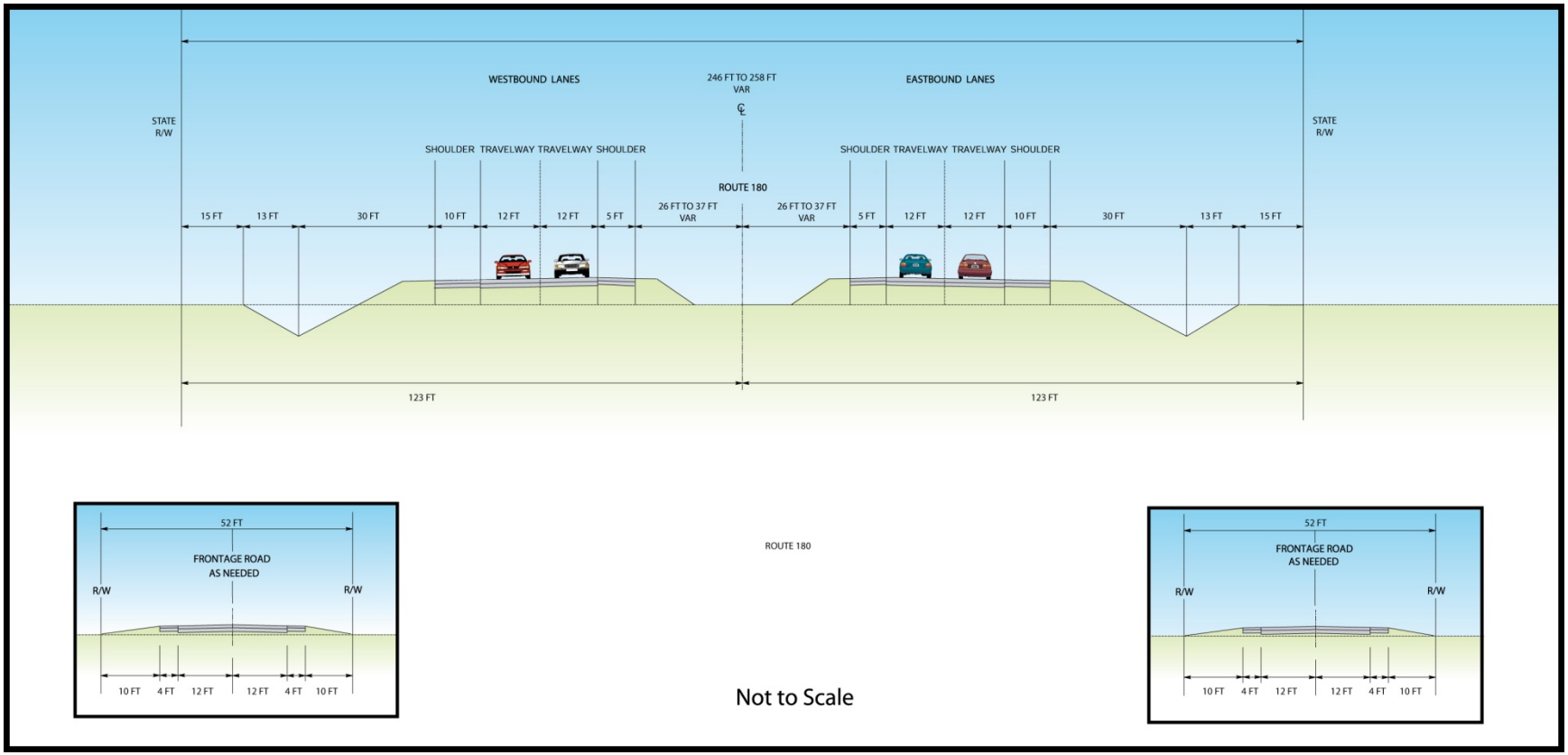

**Figure 2-3 Alternative 3**

**Table 2.3 Potential Facility Improvements—Alternative 3**

| | |
|---|---|
| **Expressway Interchanges** | ▪ Reconstruct Interstate 5 interchange with Shields Avenue<br>▪ New interchange between State Route 180 and State Route 33<br>▪ New interchange between State Route 180 and Madera Avenue (State Route 145) |
| **Street Intersections** | ▪ New intersections at Russell Avenue, Fairfax Avenue, San Diego Avenue, Bass Avenue, San Mateo Avenue, James Avenue, Yuba Avenue, Lake Avenue, Lassen Avenue, Howard Avenue, Dickenson Avenue, Chateau Fresno Avenue, and Hayes Avenue, Brawley Avenue |
| **Possible Cul-De-Sacs*** | ▪ Jerrold Avenue, Humboldt Avenue, Trinity Avenue, Shasta Avenue, Modoc Avenue, Siskiyou Avenue, Del Norte Avenue, Vineland Avenue, Goldenrod Avenue, Bishop Avenue, Floyd Avenue, Jameson Avenue, Rolinda Avenue, Westlawn Avenue, Monroe Avenue, Bryan Avenue, Polk Avenue, Cornelia Avenue, and Blythe Avenue, Nielsen Avenue |
| **Bridges** | ▪ New box culvert at Shields Avenue over Little Panoche Canal<br>▪ New bridge on Shields Avenue over California Aqueduct<br>▪ New bridge over 3rd Lift Canal<br>▪ New bridge over 2nd Lift Canal<br>▪ New bridge across Union Pacific Railroad near State Route 33<br>▪ New bridge over 1st Lift Canal<br>▪ New bridge over Outside Canal<br>▪ New bridge over Delta Mendota Canal<br>▪ New bridge over Fresno Slough<br>▪ New bridge across Houghton Canal near Howard Avenue<br>▪ New bridge over Thompson Ext. Canal<br>▪ New bridge across San Joaquin Valley Railroad tracks between Dickenson and Rolinda Avenues |
| * In general, cul-de-sacs would be provided both north and south of the proposed alignment, as necessary. | |

### *Common Design Features of the Alignment Alternatives*

Figure 2-4 shows a typical cross section. For the purposes of this planning-level analysis, a route alignment width of 1,000 feet is being used for both primary alternatives and route variations, within which a future expressway could be located. The width of the actual expressway corridor would ultimately be determined as part of the design of the individual projects, and it would be dependent upon the need for parallel frontage roads on either side or both sides of the expressway.




Source: Draft Route Adoption Study Report (2010).

**Figure 2-4 Typical Cross Section**

The decision to use 1,000-foot widths for each alignment was made to lock in a location for a future State Route 180 for planning purposes, not to narrowly define a specific project before there are funds or traffic numbers to require it. The 1,000-foot width of each corridor provides flexibility to place the 250- to 350-foot-wide future expressway. This flexibility would allow avoidance of resources like businesses, residences, farmland, wildlife reserves, and wetlands to the extent feasible. A narrowly defined footprint at this time would limit this flexibility. Without project design of the future expressway or knowledge of the development that may occur over time, such project-level decisions must be made when the future projects are proposed.

This Tier I environmental document for the route adoption, prepared under guidelines in the National Environmental Policy Act and the California Environmental Quality Act, allows Caltrans to examine a large land area or a broad set of issues associated with future project(s). When those future projects are actually proposed, the Tier II environmental documents for the projects would concentrate on the issues specific to those projects and would reference the general discussions from this broader Tier I route adoption environmental document.

In most areas, the typical facility would consist of four 12-foot-wide travel lanes (two lanes in each direction) with 10-foot shoulders on either side, separated by a 62-foot-wide center median. Including outside areas for drainage, the total width of the expressway would be about 250 feet.

In some areas, a second facility configuration would add parallel frontage roads on one or both sides of the expressway to provide access to adjacent properties. Each frontage road would have one 12-foot-wide lane in each direction, a 4-foot-wide inside and outside shoulder, and a right-of-way around 52 feet wide. In areas requiring both frontage roads, the total expressway right-of-way would be approximately 350 feet wide. The necessity of frontage roads would depend on a variety of factors, including local access issues, traffic demand, local circulation patterns, and consistency with planned land uses.

Although not required for a proposed route adoption, the possible locations of freeway interchanges, street intersections, cul-de-sacs, and bridge crossings are identified in this document to enable a discussion of potential environmental impacts.

Bridge crossings of large water bodies, such as the Fresno Slough, would typically involve twin bridges, one for each direction of travel. The typical cross section for

each bridge would consist of two 12-foot-wide travel lanes with a 10-foot-wide inside shoulder and a 5-foot-wide outside shoulder, resulting in an assumed typical width for each bridge (including railing) of 44 feet, or 88 feet for the two parallel bridges taken together.

### 2.1.2 No-Action/No-Project Alternative

This alternative assumes that a new route for State Route 180 would neither be adopted by the California Transportation Commission, nor implemented by Caltrans. Improvements to State Route 180 may still be proposed and implemented along the existing route between State Route 99 and State Route 33 on an ad-hoc basis, although no currently programmed projects are proposed within the study area. This alternative assumes no future state highway funds would be available to provide the connection to Interstate 5.

The No-Action/No-Project Alternative provides a baseline for consideration of other alternatives and may be preferred if other alternatives have significant impacts on the environment, do not serve the stated purpose and need, or are economically infeasible.

### 2.1.3 Comparison of Alternatives

An Alternatives Screening Report was completed for the various proposed alternatives and variations within the study area to describe the process undertaken by Caltrans to screen and narrow the range of alternatives to be analyzed. Several performance measures were developed and analyzed to give a preliminary rating for each route analyzed. Engineering and right-of-way costs were analyzed as well as conformance with purpose and need measures and public input. In addition, a preliminary environmental analysis was conducted for the following subject areas: aesthetics/visual impacts, land use, socioeconomics, cultural resources, paleontological resources, agricultural resources, biological resources, traffic and circulation, air quality, noise, geology and soils, water quality and hydrology, and public health and safety.

The State Route 180 Route Adoption alternatives are being comparatively evaluated and, at the completion of the environmental process, an alignment would be selected for the entire corridor that could eventually connect Interstate 5 with State Route 99. Table 2.4 shows a comparison of alternatives. Criteria used to evaluate the route adoption alternatives were the cost and potential resource impacts where the effects would differ between alignment alternatives. The comparison shows that Alternative

1 would have the most potential effects on the environment overall. Alternative 2 would cost about $36 million less to build than Alternative 1, and $2 million less than Alternative 3. Alternative 2 demonstrates the least impact on the environment overall when compared with Alternatives 1 and 3. For in-depth analysis of the items in this table, please review this document in its entirety as well as the technical documents that are available during the public circulation period at the locations listed on the inside cover.

## Table 2.4 Comparison of Alternatives

| Criteria | Preferred Alternative | Alt. 1 | with Variation 1A | with Variation 1B | with Variation 1C | Alt. 2 | Alt. 3 | No Action/ No-Project Alternative |
|---|---|---|---|---|---|---|---|---|
| Alignment Length | 51 miles | 47.5 miles | 50 miles | 48 miles | 47.9 miles | 48.9 miles | 49.7 miles | No change |
| Construction Cost Estimate | $739 million* | $473 million | $500 million | $502 million | $502 million | $487 million | $493 million | $0 |
| Right-Of-Way Cost Estimate | $53 million | $104 million | $102 million | $55 million | $51 million | $55 million | $51 million | $0 |
| Total Capital Cost | $792 million | $580 million | $600 million | $560 million | $560 million | $540 million | $540 million | Maintenance and repair costs |
| Farmland Acquisition | 5,612 acres | 4,311 acres | 4,128 acres | 4,593 acres | 4,666 acres | 5,268 acres | 5,184 acres | No change |
| Williamson Act Parcel Acquisition | 3,615 acres | 3,567 acres | 3,423 acres | 3,726 acres | 3,769 acres | 4,643 acres | 4,551 acres | No change |
| Residential Relocations | 83 | 475 | 466 | 172 | 152 | 91 | 71 | No change |
| Business Relocations | 33 | 107 | 109 | 34 | 19 | 13 | 13 | No change |
| Utilities Relocations—All Types | 6 | 3 | 6 | 4 | 4 | 4 | 9 | No change |
| Hazardous Waste Contaminated Sites | 2 | 2 | 2 | 2 | 2 | 1 | 1 | No change |
| Floodplains—Transverse Encroachments | 7.7 miles | 7.7 miles | 7.7 miles | 7.9 miles | 8.0 miles | 10.3 miles | 11 miles | No change |
| Threatened and Endangered Species | 6 | 6 | 6 | 6 | 6 | 4 | 4 | No change |
| Wetlands and other Waters | 38 acres | 29 acres | 38 acres | 29 acres | 29 acres | 60 acres | 23 acres | No change |
| Noise Impacts—Receptor Sites | 14 | 14 | 13 | 15 | 14 | 5 | 6 | No change |
| Section 4(f) Resources | 1 | 5 | 6 | 3 | 3 | 1 | 5 | No change |

* Includes $212 million for additional viaduct cost.

### *Preferred Alternative*

The recommended preferred alternative combines the alignments of a modified Alternative 1 (between Mendota and the western city limits of Fresno, except in Kerman), Variation 1A (between Interstate 5 and Mendota), and Variation 1B that bypasses Kerman to the north (see Figure 2-5).

Two design changes to Alternative 1 were incorporated into the preferred alternative to avoid adverse effects to Section 4(f)-protected resources. Both changes add a level of risk due to the required approval of a design exception during the design phase of a future project. The first change includes a viaduct that would span and avoid the Alkali Sink Ecological Reserve, proposed Alkali Sink conservation bank, and Kerman Ecological Reserve. This viaduct would be built within the Caltrans right-of-way and will require a mandatory design exception at the Project Approval and Environmental Document phase of a future project when funds are appropriated. The other change includes an advisory design exception during the Project Approval and Environmental Document phase of a future project near Cornelia Avenue on the existing state route alignment that would avoid the Sheldon residence, an historic property protected under Section 4(f).

The preferred alternative runs about 51 miles across the valley. It begins at an existing interchange on Interstate 5 at Shields Avenue and continues east 18 miles to a point just west of State Route 33 (Dos Palos Road) between the First and Second Lift Canals north of Mendota. It then runs southeasterly, crossing the Main Lift Canal on a new bridge, and rejoins Alternative 1 at State Route 33 (Derrick Avenue) southwest of Mendota High School.

The alignment follows a southeasterly diagonal across State Route 33 and returns to Whitesbridge Avenue at the northwest corner of the Mendota Wildlife Area. The alignment then continues east parallel with and north of the existing State Route 180 to avoid the Mendota Wildlife Area and the Alkali Sink Ecological Reserve. Once east of the Alkali Sink Ecological Reserve, the route dips slightly south to become centered on State Route 180/Whitesbridge Avenue. It continues due east along Whitesbridge Avenue, passing next to Javier's Fresno West Golf Course and through the middle of the Kerman Ecological Reserve until it reaches Shasta Avenue. At this point, it extends northeast diagonally to Modoc Avenue to continue east midway between Nielsen Avenue and Belmont Avenue. It turns easterly to Sycamore Avenue where it turns southeast diagonally to rejoin the existing State Route 180 alignment at Whitesbridge Avenue at Bishop Avenue.

Alternative 1 with Variations 1A and 1B was selected as the preferred alternative to be adopted by the California Transportation Commission as the ultimate alignment for State Route 180 in western Fresno County. The decision was based on engineering factors, environmental analysis, and community and agency input received during the public circulation period between March 16, 2011, and May 9, 2011, including the public hearing held on March 30, 2011.

Three route adoption alternatives, together with additional route variations and the No-Action/No-Project Alternative were under consideration. While all the route alternatives would meet the purpose and need of the project, the preferred alternative was selected for the following reasons:

- Fresno County and the City of Kerman support Variation 1B because it minimizes disruption to Kerman's existing and planned land uses.
- Fresno County, City of Firebaugh, and City of Mendota support Variation 1A because it would improve access to both Firebaugh and Mendota.
- Most of the comments received during the public comment period favored staying along the existing corridor to the greatest extent feasible.
- Using the existing State Route180 and Shields Avenue corridors to the greatest extent feasible affects less prime farmland and farming operations compared to Alternatives 2 and 3.
- The preferred alternative uses the existing Interstate 5 interchange at Shields Avenue.
- The preferred alternative reduces effects to sensitive species habitats and Section 4(f) resources with measures that would avoid and/or minimize adverse effects (including cumulative and growth inducement effects) to these resources.

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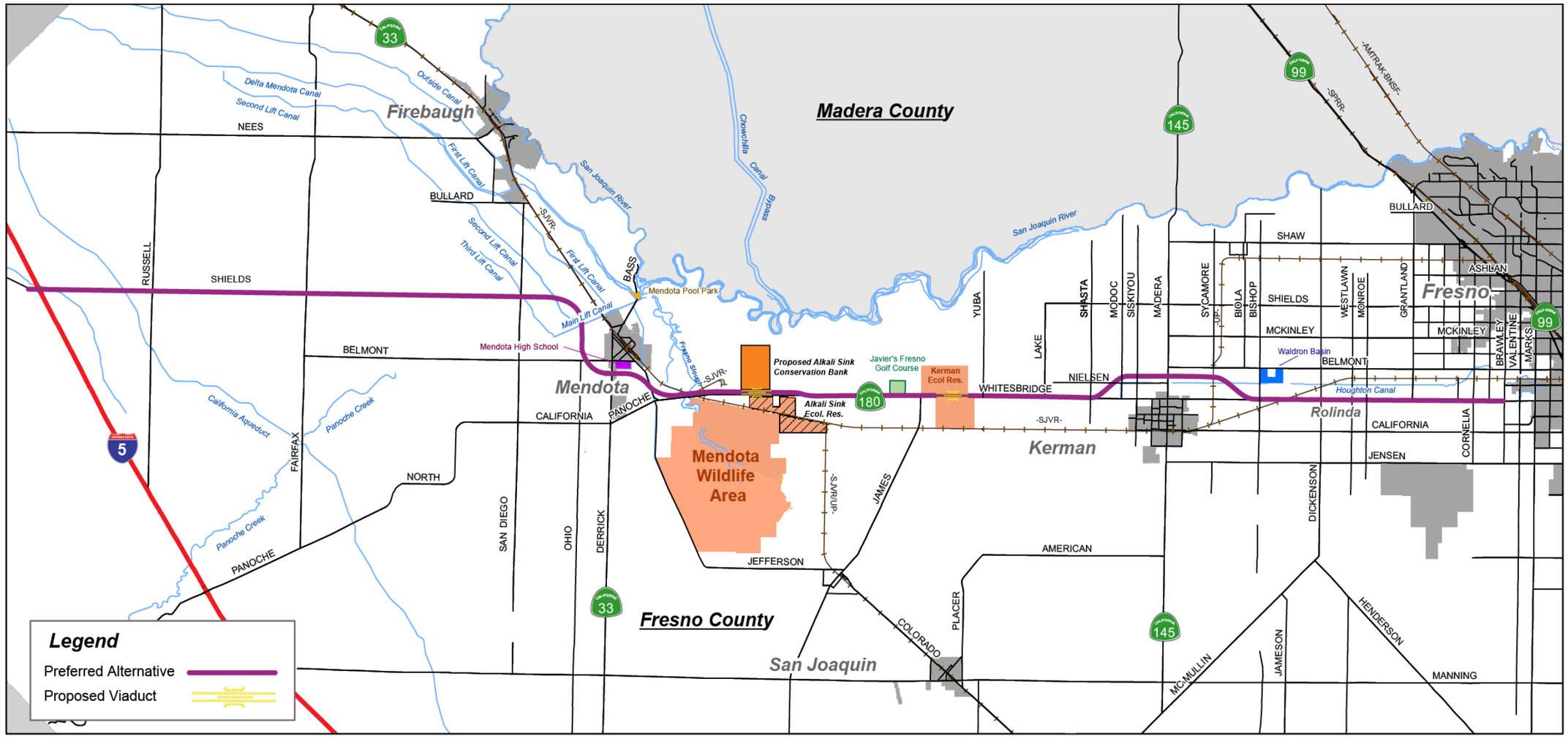


**Figure 2-5 Preferred Alternative**

❖

### 2.1.4 Alternatives Considered but Eliminated from Further Discussion Prior to the Draft Environmental Impact Report/Tier I Environmental Impact Statement

There are numerous route alignment options that have been considered but rejected as part of the alternatives screening process. These are illustrated in Figure 2-6. Details of this process are documented in the 2009 Alternatives Screening Report. The following summarizes reasons for rejecting certain alignments.

- Nees Avenue. Shown in Figure 2-6 as route alignments A to B, this alternative had a higher cost for land acquisition and construction than the Shields and Belmont alignments between Interstate 5 and Mendota. In addition, alignment B is a long diagonal that would result in remnant agricultural parcels with significant access difficulties.

- Nees-Shields Diagonal. Shown in Figure 2-6 as route alignments A to C, this alternative did not serve the goals of the project's purpose and need as well as the retained alignments because it is a longer, less direct route to Interstate 5. It would facilitate north-south access to Interstate 5, but it would not provide an opportunity for serving Firebaugh.

- Nees-Belmont Diagonal. Shown in Figure 2-6 as route alignments C and D, this diagonal is too far to the west to provide adequate access to Firebaugh or Mendota, and it would also create many inaccessible remnant agricultural parcels.

- Shields-Belmont Diagonals. Variation 1A establishes a connection between the Northern and Southern Routes; diagonal alignments E and F are not needed.

- Alignment G (former segment of Alternative 3). Route alignment G was eliminated because it would impact the future expansion of the wastewater treatment plant in Mendota. A segment that spans to the north of the Mendota Wastewater Treatment Plant was developed and incorporated into Alternative 3.

- Kerman Ecological Reserve Bypass Diagonal. Shown in Figure 2-6 as route alignment H, this alternative would bypass the Kerman Ecological Reserve, however, was not retained because it would not provide sufficient northeast-southwest connectivity at this location, which would not serve the goals of the purpose and need.

- Yuba/Lake Diagonal. Shown in Figure 2-6 as route alignment I, this alternative was eliminated because of the out-of-direction travel this alignment would cause.

- Whitesbridge-Belmont Diagonal. Shown in Figure 2-6 as route alignment J, this alternative was no longer needed because Variations 1B and 1C serve the same purpose.

- Alternative 3 between Yuba Avenue and Del Norte Avenue. Shown in Figure 2-6 as route alignment K, this alternative was eliminated because of impacts to the Russian Molokan community.

- Southern Route between Yuba Avenue and Biola Avenue. This alternative, shown in Figure 2-6 as route alignment L, was eliminated because of its impacts to existing and proposed development within the Kerman sphere of influence. Alternative 3 and Variations 1B and 1C that bypass Kerman provide better avoidance.

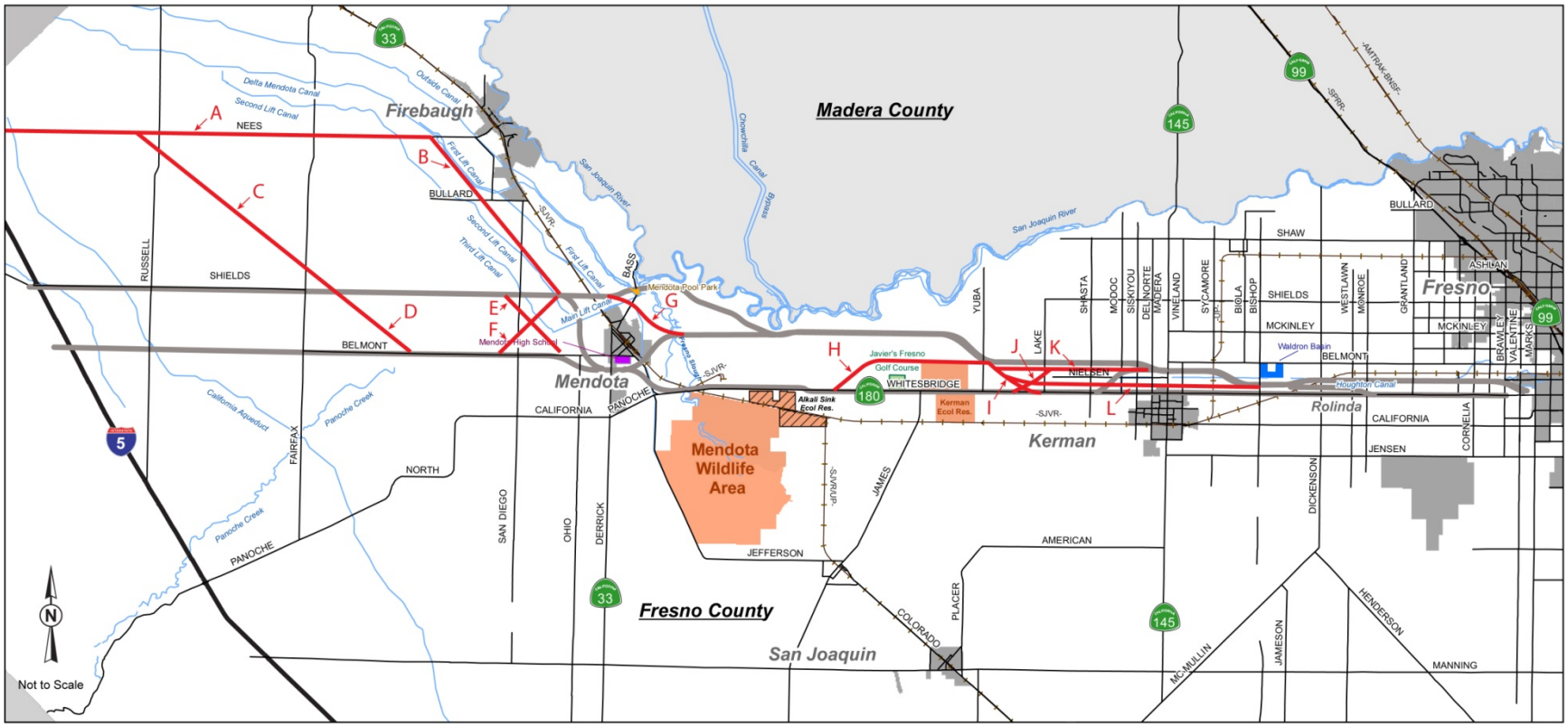


**Figure 2-6 Alternatives Considered but Eliminated from Further Discussion**

## 2.2 Permits and Approvals Needed

This document assesses potential impacts and recommends general mitigation measures for subsequent projects associated with the proposed formal adoption of a route for State Route 180. Since no current development projects are proposed by this action, the only approval required besides Caltrans' certification of the Final Environmental Impact Report/Tier I Environmental Impact Statement is adoption of a proposed route by the California Transportation Commission.

Once a State Route 180 route has been adopted, then many federal, state, and local processes would be required to implement subsequent projects. Besides additional review under the California Environmental Quality Act and the National Environmental Policy Act, subsequent projects may trigger one or more of the permit actions listed in Table 2.5.

**Table 2.5 Potential Permits and Approvals for Future Projects**

| Agency | Permit/Authority | Purpose |
|---|---|---|
| **Federal** | | |
| U.S. Army Corps of Engineers | Nationwide or Individual Permits/Clean Water Act, Section 404 | The U.S. Army Corps of Engineers issues permits for projects involving dredge or fill activities within waters of the U.S. |
| U.S. Fish and Wildlife Service | Endangered Species Act, Section 7 | Biological Opinion required for resolving potential impacts on federally listed species and established critical habitat. |
| Federal Highway Administration | U.S. Department of Transportation Act, Section 4(f) | Section 4(f) evaluation required for potential use of publicly owned parklands, wildlife refuges, or cultural resources eligible for the National Register. |
| Federal Highway Administration | Clean Air Act Conformity | Clean Air Act Conformity Determination is required for all projects in nonattainment areas that do not meet exemption criteria. |
| Federal Highway Administration; Caltrans; Natural Resources Conservation Service | Farmland Conversion | Farmland conversion assessment and coordination with the Natural Resources Conservation Service required. |
| Federal Highway Administration; State Historic Preservation Officer; Advisory Council on Historic Preservation; Caltrans | National Historic Preservation Act; Section 106 | Memorandum of Agreement required for resolving adverse effects on National Register listed or eligible resources. |

## Table 2.5 Potential Permits and Approvals for Future Projects

| Agency | Permit/Authority | Purpose |
|---|---|---|
| U.S. Bureau of Reclamation<br>U.S. Bureau of Indian Affairs | Archaeological Resources Protection Act Permit | This permit is required when an archaeological survey or excavation is undertaken on federal or tribal lands to insure that federal standards and guidelines for research and curation are followed. |
| **State** | | |
| California Department of Fish and Game | Section 1602 Agreement/ California Fish and Game Code; Section 2080.1/2081 Incidental Take Permit for Threatened and Endangered Species | An agreement is required for work within the banks of streams and other water bodies in the state of California. The California Department of Fish and Game also issues permits for projects involving a potential take of state threatened and endangered species. |
| State Water Resources Control Board | General Construction Storm Water Permit/Order 2009-0009-DWQ; Resolution No. 2001-046 | Compliance with this permit is triggered for projects that would affect greater than one acre of land within California. |
| State Water Resources Control Board | Water Pollution Control Plan/Municipal Code | This document may be used in lieu of the Storm Water Pollution Prevention Plan if it is determined that the project would affect less than 1-acre of land in California. |
| **Regional and Local** | | |
| Central Valley Regional Water Quality Control Board | Water Quality Certification/ Clean Water Act, Section 401 | The Regional Water Quality Control Board, in coordination with the U.S. Army Corps of Engineers Section 404 process, confirms that the subject activity would comply with state water quality standards. |
| Central Valley Regional Water Quality Control Board | Dewatering and Other Low-Threat Discharges to Surface Waters, Order No. 5-00-175, National Pollutant Discharge Elimination System Permit No. CAG995001 | Compliance with Dewatering Permit required for any regulated discharge of groundwater to the environment during construction. |
| State Water Resources Control Board (permit authority delegated to Fresno County) | Underground Storage Tank Regulations, California Code of Regulations Title 23, Chapter 16 | Compliance with state and local regulations required for removal of regulated underground storage tanks. |
| The County of Fresno, Department of Community Health | Well Permit | Permit required for the installation and removal of all subsurface wells/borings used to monitor soil and/or groundwater contamination as specified. |

## Table 2.5 Potential Permits and Approvals for Future Projects

| Agency | Permit/Authority | Purpose |
|---|---|---|
| San Joaquin Valley Unified Pollution Control District | District Rule 2201 (New and Modified Stationary Source Review) and District Rule 9510 (Indirect Source Review) | The San Joaquin Valley Air Pollution Control District adopts and enforces rules and regulations concerning air pollutant sources, issues permits for and inspects stationary sources of air pollutants to ensure that federal and state ambient air quality standards are attained in the San Joaquin Valley area. |

# Chapter 3 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

It is important to highlight that each corridor width is 1,000 feet for purposes of comparative analysis presented in this environmental document. The discussions of environmental consequences and associated avoidance, minimization and/or mitigation measures provided in this chapter are conceptual in nature. The impacts presented in this chapter are potential conditions that may result from future proposed projects. This route adoption study does not propose any specific projects at the present time. Actual impacts can be determined only when subsequent projects are proposed and funded.

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but determined to be not relevant. Consequently, there is no further discussion regarding these issues in the document:

- Coastal Zone: No Coastal Zones were observed during field visits conducted on January 22 and 23 in 2009.
- Wild and Scenic Rivers: After review of the "Designated Wild and Scenic Rivers Database," it was determined that there are no waterways classified as wild and/or scenic rivers within the study area limits.

The California Department of Fish and Game became the California Department of Fish and Wildlife as of January 1, 2013, as a result of Assembly Bill 2402, which was signed into law in September 2012 by Governor Jerry Brown. For consistency with the circulated draft environmental document, the name prior to January 1, 2013 is used throughout this document.

# 3.1 Human Environment

## 3.1.1 Land Use

### 3.1.1.1 Existing and Future Land Use

The information contained in the following three technical documents form the basis of the discussion in this section: 2006 Community Impact Assessment, 2009 Community Impact Assessment Addendum and the 2006 Growth Inducement Analysis Report.

Fresno County is considered one of the most important agricultural counties in the nation, producing crops valued at more than $4 billion annually, as well as meat and dairy products. Most of the study area contains a mosaic of agricultural lands, with patches of natural habitats, and limited residential, commercial, and industrial developments.

The western portion of the study area is located in a predominately agricultural setting in Fresno County. Orchards, vineyards, and fields of row crops (cotton, alfalfa, broccoli, asparagus, corn, beets, tomatoes and cantaloupes) dominate the landscape. The California Aqueduct, several canals, numerous agricultural drainage ditches, and other engineered channels form the irrigation network for the study area. Agricultural processing facilities and residential uses along paved and unpaved roadways are dispersed throughout the area. This portion of the study area is sparsely populated and is likely to continue as such in the foreseeable future.

The City of Mendota lies between Alternative 1/Alternative 2 and Alternative 3 and is bisected by State Route 33. The city is a largely Latino community with 94 percent of the population Hispanic or Latino (see Section 3.1.4 Community Impacts). Mendota was founded as a way station on the Southern Pacific Railroad line in 1895 and incorporated as a city in 1942. Located about 35 miles west of Fresno, Mendota is a regional hub for agriculture and claims the title “The Cantaloupe Center of the World.”

The City of Mendota operates the Mendota Pool Park to the north of the city center under a lease agreement. Land to the west of the Fresno Slough consists of an airport and city property being developed for the expansion of a wastewater treatment plant. In and around Mendota are a variety of industrial uses, including a former major sugar beet industrial plant and a biomass power plant. The Fresno Slough is an important aquatic waterway and animal migration corridor that extends roughly south to north just east of Mendota. Land outside of the city between State Route 33 and

Yuba Avenue is predominately used for farming and agricultural processing, with dispersed residential, commercial, industrial, and municipal uses.

Three ecological reserves—the Kerman Ecological Reserve, Mendota State Wildlife Area and Alkali Sink Ecological Reserve—are adjacent to existing State Route 180 between State Route 33 and Yuba Avenue. All three facilities are under the jurisdiction of the California Department of Fish and Game for the management of sensitive plant and animal species.

East of Yuba Avenue, the study area is primarily agricultural with interspersed dairy, residential, commercial, and industrial uses. Roughly 30 percent of the labor force and 48 percent of the land in and around Kerman are engaged in agriculture. This area is also the most rapidly urbanizing area along the route adoption study area. Kerman is the largest of the small incorporated cities within or near the study area, with a population of 14,064 in 2009. It is about 15 miles west of the city of Fresno. Like Mendota, Kerman was first established in 1891by the Southern Pacific Railroad Company as a way station with a pump and watering tank. It was incorporated as a city in 1946.

In recent years, the San Joaquin Valley and Fresno County in particular have experienced growth rates higher than California averages. Loss of farmland has been a concern of the counties within the Central Valley over the past few decades. As continued growth is projected, growth policies would have to balance the needs of urban and agricultural uses to preserve the region's character and continuing agricultural productivity.

Local and regional planners from the cities of Fresno, Kerman, Mendota, and Firebaugh and the county of Fresno were asked about current development trends within growth areas that encompass the study area. Proposed development projects are listed in Table 3.1. These and other future projects would likely be completed before subsequent projects would be constructed. There are no projects proposed for the City of Fresno or Fresno County within the study area.

## Table 3.1 Proposed Development Projects

| Project Name | Location | Description | Status (Spring 2012) |
|---|---|---|---|
| **City of Kerman** | | | |
| La Quinta Motel | Behind the Crossroads shopping mall with entrances on Madera Avenue and Whitesbridge Avenue | 3-story, 58-unit motel development | Developer has dropped project. |
| Kerman Neighborhood Shopping Center | Southeast corner of Whitesbridge Avenue and Madera Avenue | Includes a total of 71,569 square feet of mixed retail/office space to be developed in two phases. | Phase I completed and includes CVS (opened in 2010) and AutoZone (opened in 2011). Phase II will be developed as tenant space is leased out. |
| Rite Aid Pharmacy | Northeast corner of Madera Avenue and Kearney Boulevard | A stand-alone building consisting of 17,340 square feet of retail space | Store opened May 20, 2010. |
| Autumn Ridge Senior Assisted Living Facility | Northwest corner of Stanislaus Avenue and 16th Avenue | An assisted living facility operating 24-hour care with 28 rooms and 34 beds | Facility opened in October 2009. |
| Tract 5478 Pacific Mountain Partners | Southwest corner of Whitesbridge Avenue and Del Norte Avenue | Tract with 116 single-family lots | Only 19 lots have been developed. The lender foreclosed on the project and approx. 97 lots are currently for sale. |
| Tract 5480 “Bella Palma” | Northwest corner of Kearney Boulevard and Siskiyou Avenue | Gated community consisting of 46 lots | Two homes built and one new home under construction. |
| Tracts 5515 and 5677 (H/S Development) “The Vineyard” | Southwest corner of Whitesbridge Avenue and Siskiyou Avenue | About 38 acres (133 lots); will be built in 2 phases | Tract 5515 complete. Tract 5677 has approximately 5 lots remaining. |
| Tract 5719 Covington “Hacienda Heights” | Southeast corner of Whitesbridge Avenue and Siskiyou Avenue | 68 multi-family affordable housing units | Project is currently under construction and is expected to be completed in late summer 2012. |
| Tract 5831 Jonathan Homes (Bordeaux III) “Joseph’s Vineyard” | Siskiyou Avenue/California Avenue | Residential development on 17.9 acres for 91-lot project, including 79 single-family homes and 12 duplexes, plus a gated park with a pool and tot lot | Tract map approved but final map has not been recorded and no improvements have been constructed. |

## Table 3.1 Proposed Development Projects

| Project Name | Location | Description | Status (Spring 2012) |
|---|---|---|---|
| Tract 5928 Covington | North side of Stanislaus Avenue between 16th Street and Goldenrod Avenue | 19 single-family homes and 1 lot for future multi-family apartments | 10 single-family units under construction. Developer intends to build remaining 9 homes as homes are sold. Multi-family units to be developed based on market demand. |
| Tract 5948 Covington | North side of Kearney Boulevard, west of Siskiyou Avenue | Residential subdivision consisting of 132 single-family lots on about 30 acres | Developer has shelved project due to poor market demand. |
| Tract 5975 Covington | South of E Street and West of Goldenrod Avenue | Residential subdivision consisting of 10 single-family lots on 2.29 acres | 10 homes built and currently for sale. |
| Boyd Apartments | Southwest corner of Kearney Boulevard and Siskiyou Avenue | 80-unit multi-family market rate apartments | Project completed in 2008. Approximately 60 units occupied. |
| Kearney Palms II | Kearney Boulevard and 8th Street | 20-unit low-to-moderate income senior apartments | Project completed in 2009. |
| Kearney Palms III | Northwest corner of Kearney Boulevard and 9th Street | 44-unit low-to-moderate income senior apartments | Project completed in November 2011. |
| Granada Commons Housing Authority Project | 14570 West California Avenue | 16-unit low-income multi-family apartment | Project completed in November 2010. |
| Walmart | Southwest corner of Whitesbridge Avenue and Goldenrod Avenue | 160,000 square-foot store on 20.24 acres | Project approved. Construction of offsite work in progress. Applicant intends to pull building permit in April/May 2012. |
| Panoche Creek Expansion | Southwest corner of Madera Avenue and Commerce Way | 102,000 square-foot warehouse addition for storage of almonds | Project was completed in summer 2011. |
| **City of Mendota** | | | |
| Mendota Wastewater Treatment Plant Expansion | East of the City at Mendota Wastewater Treatment Plant | Expansion of the existing plant is required to meet growth demands experienced by the City | The project was completed on 07/12/2011 and is fully operational. The city is planning to add another pond in late summer or early fall of 2012. |

## Table 3.1 Proposed Development Projects

| Project Name | Location | Description | Status (Spring 2012) |
|---|---|---|---|
| Pacific Union Development | Southeast of Mendota High School on Belmont Avenue | More than 2,100 residential units are proposed on the 670 acre site | The Pacific Union development project has been abandoned. The city is working with the property owner to develop a specific plan for the area. |
| Westlands Water District | Northwest of Belmont Avenue and Derrick Avenue, adjacent to existing 75-unit Self-Help housing development | 67 acres donated to Self-Help Enterprises, a nonprofit organization, for the development of up to 360 homes for low-income families | The project is on hold due to the declining housing market. |
| Federal government – Bureau of Prisons | South of the city, along California Avenue | New federal prison will contain 1,152 beds on the 960-acre site | Construction of the prison was completed in March 2012. It is fully operational, but not populated at capacity. |
| **City of Firebaugh** | | | |
| El Sendero Ranch | North end of city, south of Behymer Avenue and west of Clyde Fannon Road | 579-lot single-family residential development, plus 11 acres of future Planned Unit Residential | Tentative map approved. |
| Valle Del Sol | Southeast of Firebaugh High School on State Route 33 | 186-lot single-family residential development, plus one park | Final map approved. Subdivision is almost built-out. |
| Lake Joallan | Northeast of Firebaugh High School | 122-lot single-family residential development, plus 4 parks | Tentative map approved. |
| San Joaquin Villas | North end of the City, on State Route 33 | 21 condominium units | Final map approved. Construction began in 2009. |
| **California Department of Transportation** | | | |
| Mendota East Rehabilitation | On State Route 180 between Belmont Avenue and the San Joaquin Valley Railroad crossing | The project consisted of widening the road and bridges, construction of a westbound left-turn lane at Panoche Road, and culvert replacements. | Construction completed in 2008. |
| Mendota Passing Lanes | On State Route 180 between Yuba Avenue and Lake Avenue | The project would add an eastbound and a westbound passing lane. | Project is in the approval and environmental document phase. |

Sources: City of Kerman, City of Mendota, and City of Firebaugh (2012).

Land use and zoning within the incorporated communities of the study area are designated by respective jurisdictions. Land use and zoning within the unincorporated area are designated by Fresno County. Figure 3-1 presents current land use and zoning designations within the study area.

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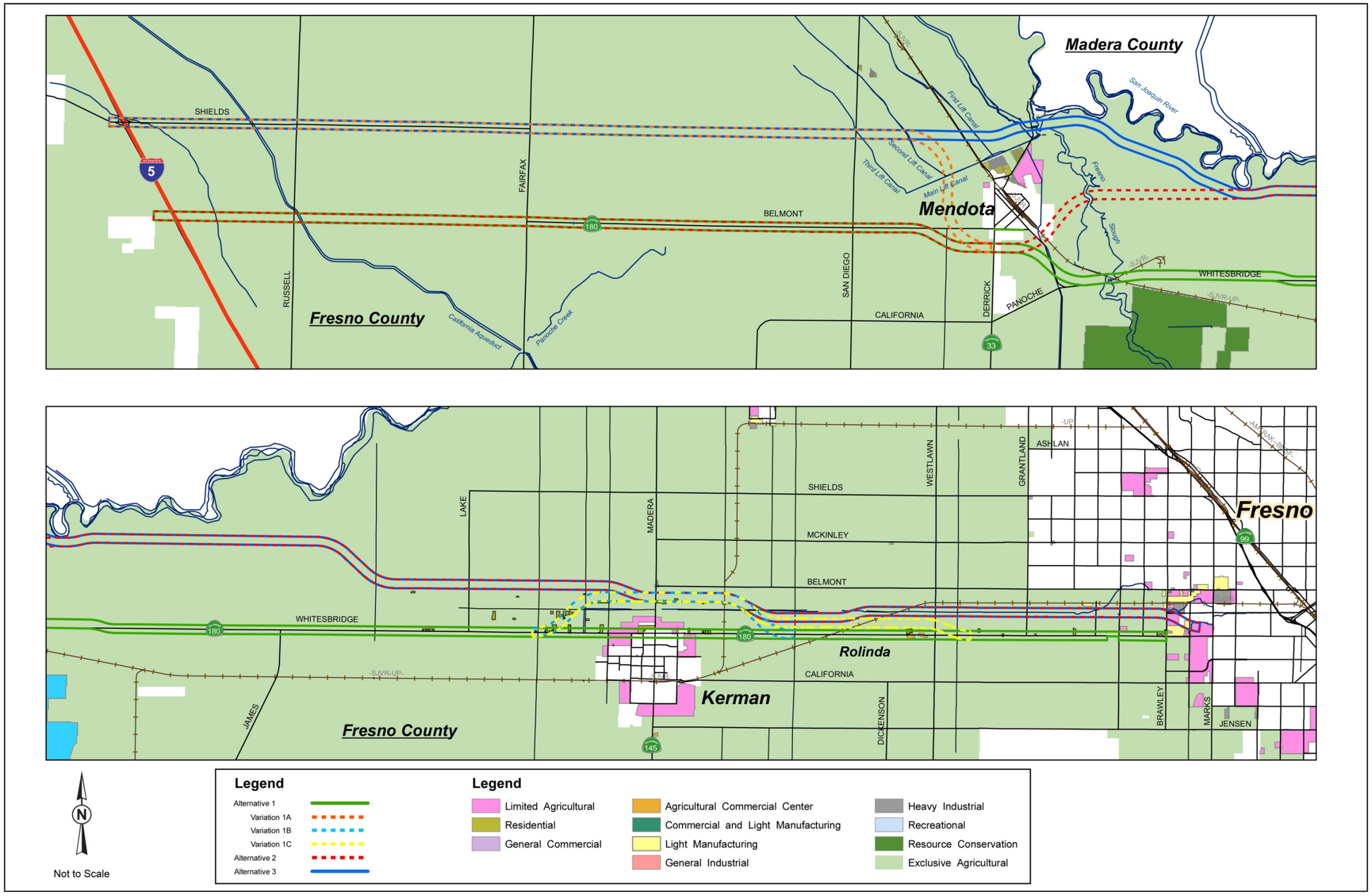


**Figure 3-1 Land Use and Zoning**

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### *Environmental Consequences*

Land use impacts could potentially affect farmland, ecological reserve land, and residential, industrial and commercial properties throughout the study area. As the study area is primarily agricultural land, the conversion of farmlands would be considerable and comparable in numbers of acres for both Alternatives 2 and 3. The mix of crop type affected, however, would vary by the alternative. Alternative 1 would also result in substantial, although comparatively less, agricultural land conversion. Alternatives 2 and 3 would affect approximately the same amount of Williamson Act land, between 4,551 and 4,643 acres, while Alternative 1 would affect 3,567 acres. The intent of the Williamson Act is to encourage landowners to preserve farmland in exchange for a reduction in property taxes for that land. Section 3.1.3 Farmlands/Timberlands addresses the impacts associated with farmland acquisition in further detail.

#### *Alternative 1*

Alternative 1 runs along the same route as Alternative 2 in the west end of the study area and would cross the California Aqueduct and cut through farmland, similar to the effects of all alignment alternatives in the western portion of the study area. Like the other alternatives, bridges would need to be built to cross canals and other water bodies in the western portion of the study area.

This alternative would pass south of Mendota, along the same proposed route as Alternative 2, avoiding the major commercial and residential land uses within Mendota. East of Mendota, this alignment goes southeasterly and runs along existing State Route 180, which is next to the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and proposed Alkali Sink conservation bank, and bisects the Kerman Ecological Reserve. Impacts to these wildlife and ecological reserves are discussed in Section 3.1.1.3 Parks and Recreation.

Alternative 1 would have the greatest effect on residential and commercial land uses in the study area, particularly on the east end. Up to 475 residential properties may be affected by this alternative, housing an estimated 1,038 residents. This alternative could also affect up to 107 businesses. There is also the potential for a cemetery (Fresno Memorial Gardens at the corner of Whitesbridge and Cornelia Avenues) to be affected by this alternative. Relocation impacts are discussed in further detail in Section 3.1.4.2.

Proposed commercial projects described in Table 3.1 that may be directly affected by Alternative 1 include the La Quinta Motel and the Kerman Neighborhood Shopping Center. Two proposed residential projects may also experience direct impacts as a result of this alternative: Tract 5515 "The Vineyard" and Tract 5719 "Hacienda Heights."

### *Alternative 2*

West of Mendota, Alternative 2 is the same as Alternative 1. Like the other alternatives, bridges would need to be built to cross canals and other water bodies in the western portion of the study area.

East of Mendota, this alternative runs along the same route as Alternative 3, avoiding the sensitive wildlife and ecological reserves. It would also minimize potential impacts to the housing stock and commercial properties, as the number of displacements is significantly less than that of Alternative 1. Alternative 2 would affect up to 91 homes and 13 businesses, and displace an estimated 301 residents, as discussed in Section 3.1.4.2 Relocations.

### *Alternative 3*

Alternative 3 runs next to farmland and crosses the California Aqueduct, key canals—Outside Canal; Delta Mendota Canal; and First, Second, Third, and Lift canals—and other utilities. The alignment goes north of Mendota, crossing the Mendota Pool Park and Fresno Slough. The Mendota Pool Park is a public recreational park. Impacts to the park are discussed in Section 3.1.1.3 Parks and Recreation and in Appendix B, the Section 4(f) evaluation. Building new bridges would be necessary to cross canals and other water bodies.

This alternative avoids affecting the bulk of the study area's commercial and residential land, as it goes north of Kerman. Compared to the land use impacts associated with Alternative 1, this alternative would result in a significantly lower number of displaced residents and businesses. Alternative 3 would affect up to 71 residences and 13 businesses, and displace approximately 203 residents. Section 3.1.4.2 Relocations provides more detail regarding displacements that may occur as a result of future projects.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would involve neither State Route 180 route adoption by the California Transportation Commission nor construction of a new

expressway. Under this scenario, highway facilities within the study area would likely remain similar to present-day conditions because no other projects, besides rehabilitation, are programmed by Caltrans for State Route 180. Thus, existing and future land uses would not experience any impacts under the No-Action/No-Project Alternative.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

It is the intention of Caltrans to acquire only land actually needed for construction and right-of-way. The 1,000-foot-wide corridor provides flexibility in placing the 250- to 350-foot-wide future expressway to minimize such impacts. Available mitigation would not fully offset the impacts created by the conversion of agricultural land, including lands under Williamson Act contract.

While not considered an adverse land use impact, impacts to major canals (i.e., Outside, Delta Mendota, and First, Second, Third, and Main Lift Canals) as a result of Alternative 3 could be avoided through selection of Alternative 1 or 2, or minimized with Variation 1A.

The mitigation available would not fully offset direct and indirect incompatible land use impacts of Alternative 1 to the Kerman Ecological Reserve. However, these impacts can be avoided by selecting Alternative 2 or 3. These alternatives would avoid any direct impacts to the reserve.

The mitigation available would not fully offset adverse land use impacts to the Mendota Pool Park caused by Alternative 3. However, these impacts can be minimized by carefully aligning the future expressway within the 1,000-foot-wide corridor or by selecting Alternative 1 or 2. These alternatives would avoid impacts to the park.

Either Alternative 2 or 3 would avoid the cemetery (Fresno Memorial Gardens at the corner of Whitesbridge and Cornelia Avenues) and a substantially higher number of residential, commercial, and industrial displacements between the cities of Kerman and Fresno than Alternative 1.

Although no mitigation measures are required for the route adoption, future project construction should include the following:

- Provide appropriate access to adjacent properties during the planning and design phases of subsequent projects.
- Coordinate with the cities and appropriate local agencies to determine placement of the State Route 180 expressway alignment to either avoid or be consistent with proposed developments.
- Use appropriate landscape elements in the project design that would be compatible with city and county land use and open space policies related to preservation of vegetation and visual resources.
- Provide compensation to displaced businesses and residents in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act (see Section 3.1.4.2) if future acquisition of the planned development occurs during subsequent projects.

*No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would involve neither route adoption nor construction of a highway; therefore, no mitigation is required.

### 3.1.1.2 Consistency with State, Regional, and Local Plans

#### *Affected Environment*

The information contained in the 2006 Community Impact Assessment and the 2009 addendum to this assessment form the basis of the discussion in this section.

Land use and zoning are guided by general plans and other agency plans for the cities and the unincorporated areas of the study area. The following plans contain guidelines for the development of the study area: 2000 Fresno County General Plan; 2025 City of Fresno General Plan; 2007 Kerman General Plan; and 1991 Mendota General Plan Update. The 2007 Council of Fresno County Governments' Regional Transportation Plan and the Westside Economic Development Action Plan, prepared by local residents and regional stakeholders from business, local government, and educational institutions, were also considered in the analysis of the study area. The route adoption of State Route 180 alone could affect future local planning decisions

even without consideration of direct impacts associated with construction of subsequent projects.

### *Fresno County General Plan*

The Fresno County General Plan was adopted in October 2000. The goals and/or policies that are relevant to the proposed route adoption are listed below:

- To promote the long-term conservation of productive and potentially productive agricultural lands and to accommodate agricultural support services and agriculturally related activities. Conflicts between agricultural and nonagricultural uses would be minimized with buffers to provide space for farming practices to continue even when development occurs in or near farm operations. They protect the health and safety of the general public from the noise, dust, odor, and pesticide use that result from farming operations.
- To promote continued agricultural uses along Interstate 5, protect scenic views along the freeway, promote the safe and efficient use of the freeway as a traffic carrier, discourage the establishment of incompatible and hazardous uses along the freeway, and provide for attractive, coordinated development of commercial and service uses that cater specifically to highway travelers.
- To direct urban development within city spheres of influence to existing incorporated cities and ensure that all development in city fringe areas is well planned and adequately served by public facilities and infrastructure in an effort to further countywide economic development goals.
- To plan and provide a unified, coordinated, and cost-efficient countywide street and highway system that ensures the safe, orderly, and efficient movement of people and goods.
- To improve air quality and minimize the adverse effects of air pollution in Fresno County. The County shall maintain designated areas for agriculture use and shall direct urban growth away from valuable agricultural lands to cities, unincorporated communities, and other areas planned for such development where public facilities and infrastructure are available.
- In adopting land use policies, regulations, and programs, the County shall seek to protect agricultural activities from encroachment by incompatible land uses.

- The County shall protect agricultural operations from conflicts with nonagricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.
- The County shall work with the cities within its borders to establish a system of designated truck routes through urban areas.
- The County should utilize road construction methods that minimize the air, water, and noise pollution associated with street and highway development.
- The County shall support the "no-net-loss" wetlands policies of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. Coordination with these agencies at all levels of project review would continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed. The County would support mitigation banking programs that provide the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat, which supports these species in wetland and riparian areas.
- The County shall promote the continued and expanded use of national forest, national park, and other recreational areas to meet the recreational needs of County residents.
- The County shall strive to maintain a standard of 5 to 8 acres of County-owned improved parkland per one thousand residents in the unincorporated areas.
- The County shall support the preservation of significant areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

### *2025 City of Fresno General Plan*

The 2025 City of Fresno General Plan, adopted in 2002, is intended to serve as a guide for government at all levels, private enterprise, community groups, and individual citizens to make decisions and use community resources with a common vision of enhancing the physical, economic, and social environment. The goals and/or policies that are relevant to the proposed route adoption are listed below:

- Coordinate land uses and circulation systems to promote a viable and integrated multimodal transportation network.
- Work cooperatively with the local agricultural industry to conserve prime farmland and respect its importance as Fresno County's base economic resource.

- Give the highest priority to street and highway improvements that would not jeopardize or negatively impact neighborhoods and other sensitive land uses (for example, homes, hospitals, schools, natural habitats, and open space areas).
- Participate in a cooperative and comprehensive analysis of street and highway needs within the metropolitan and regional areas through the Council of Fresno County Governments.
- Support the construction of the planned freeways serving the metropolitan area and advocate to Caltrans and the County Transportation Authority the City's priorities for completion of segments.
- The City of Fresno would continue to recognize its agricultural preserve contracts (i.e., Williamson Act contracts) and would promote the enrollment of all prime farmland that remains outside Fresno's expected urban growth area. Scenic or resource conservation easements should be explored as another means of protecting farmland.

### *City of Kerman General Plan*

The City of Kerman General Plan was adopted in 2007 and provides land use and circulation planning goals for the city. The goals and/or policies that are relevant to the proposed route adoption are listed below:

- Protect the environment against negative impacts to water, air, and energy by promoting economic and industrial development as a business- and industry-friendly community that creates local jobs, thus reducing negative impacts caused by commutes to other areas for employment.
- Protect natural resources in Kerman, including prime agricultural land, and air and water quality (promote an "ag valued added" policy) and proceed with plans for development of a secondary water system.
- Arterial roadways should have sufficient right-of-way to contain four travel lanes, two parking lanes, and 16-foot median/turn lanes, 7-foot parkways and 5-foot sidewalks; major collector roadways should have sufficient right-of-way to contain two travel lanes, two bike lanes, two parking lanes, a 14-foot median/turn lane, 6-foot parkways and 5-foot sidewalks.
- The City of Kerman should coordinate with the Council of Fresno County Governments and Caltrans to widen and improve the primary roadways that connect Kerman with State Highway 99, Whitesbridge Road (State Highway 180)

and Jensen Avenue. The extension of State Route 180 from Mendota to Interstate 5 and the potential 180 truck route "by-pass" north of the current Whitesbridge alignment are integral elements of this transportation plan.

- The City of Kerman shall work with Caltrans and private development to beautify entryways into Kerman through installation of landscaping, sign treatment, landscaped medians, and lighting.

### *City of Mendota General Plan*

The City of Mendota General Plan was adopted in 1991. An update is currently in the process of being adopted. The goals and/or policies that are relevant to the proposed route adoption are listed below:

- Preserve the low-density, single-family character of the community.
- Provide all necessary public facilities, infrastructure, and services to support residential, commercial, and industrial uses.
- Provide a traffic circulation system for motor vehicles and pedestrians, ensuring safe and efficient access to employment, education, commerce, and recreation without interference to adjacent land uses.
- Safe truck routes should be designated to limit the amount of through traffic in the central business district and residential neighborhoods.
- The City of Mendota and Caltrans shall coordinate the alignment of State Route 180 and if necessary amend the General Plan to ensure the City's Circulation and Land Use Elements identify the route alignment.

### *2007 Regional Transportation Plan*

The 2007 Regional Transportation Plan is the official transportation policy-planning document for Fresno County, prepared by the Council of Fresno County Governments. Federal and state law mandates that a Regional Transportation Plan be prepared every three years and cover a planning period of at least 20 years. As of July 2008, the 2007 Regional Transportation Plan has been amended twice and aims to coordinate goals and objectives with eight San Joaquin Valley counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and a portion of Kern County.

The 2007 Regional Transportation Plan's Policy Element lists a number of key transportation goals:

- Design, develop, and maintain a multimodal transportation system that efficiently and safely moves people and goods; serves the social, economic, and physical needs of valley residents while enhancing the quality of life.
- Develop and finance multimodal transportation facilities that are consistent with regional, subregional, and local growth policies that are consistent with state and federal air quality plans.
- Define, preserve, and enhance valley transportation corridors.
- Promote the maintenance of the existing transportation system.
- Encourage land use design, which is more efficient and more conducive to the use of transit, non-motorized transportation, and rail alternatives.

Relevant policies for implementing the major transportation goals are as follows:

- Facilitate a cooperative effort between the public and private sectors to integrate transportation modes through a coordinated transportation planning process, carried out by the eight regional transportation planning agencies.
- Involve citizens as well as businesses in planning transportation facilities and services. Special efforts should be made to include individuals and groups that may not have been included in the past. These groups may include the elderly, disabled, and racial/ethnic minorities, including Native Americans. Working with these and other groups, strategies that address transportation issues of importance to underserved groups would be developed. Direct involvement by under-represented groups would be promoted in transportation planning, project selection, and other transportation issues that affect them.
- Work directly with the San Joaquin Valley Air Pollution Control District in the developmental phases of transportation programs, air quality, transportation plans, and fee schedules.
- Coordinate planning efforts to prioritize a system of regional corridors of importance.
- Cooperatively determine appropriate measures to pursue preservation and improvement of the defined corridor system.

- Allocate sufficient resources to maintain current system at the current level of repair.
- Pursue additional funding to increase level of maintenance to correct deficiency.

### *Westside Economic Development Action Plan*

The Westside Economic Development Action Plan, dated November 30, 2004, was prepared by the Fresno County Administrative Office for economic development in collaboration with stakeholders from the Westside Valley Area region. The Westside Economic Development Action Plan is a task-oriented document that is focused on improving economic conditions in the Westside Valley Area region of Fresno County. The most relevant short-term initiative to the proposed route adoption included establishing a direct connection from State Route 180 near the City of Fresno and Interstate 5 and improving transportation connectivity in the Westside Valley Area.

### *Specific Development Proposals*

Several development proposals are planned for the study area. The City of Mendota completed construction of its wastewater treatment plant expansion in July 2011. The city is pursuing additional funds to build an additional pond in the near future. The plant expansion projects would accommodate growth demands in Mendota. Alternative 3 would avoid the Mendota Wastewater Treatment Plant.

Two residential projects also are underway in the city of Kerman. “The Vineyard” at the southwest corner of Whitesbridge Avenue and Siskiyou Avenue has one phase of its development completed. Phase II of the project is currently in construction. At the same intersection, “Villa Sonata” has built on 21 of the proposed 33 lots. See Table 3.1 in Section 3.1.1.1 for a complete listing of active and inactive projects proposed for the study area.

## ***Environmental Consequences***

The proposed alternatives are compatible with the various plans related to improving the transportation system described in the preceding paragraphs. These plans also place emphasis on supporting the agriculture and agricultural facilities that form the economic basis of the area economy. Future projects would require farmland to be converted to transportation uses and thus conflict with farmland preservation policies of these plans. An added benefit of an improved transportation system is that

conveying agricultural products to markets and processing facilities would be safer and more efficient, contributing positively to agriculture and the local economy.

### *Alignment Alternatives*

At this stage, the impact assessment in this planning-level study document presents general conclusions based on information currently available. Future environmental documentation would be required when subsequent projects are proposed. Potential impacts related to consistency with state, regional and local plans and policies would be similar for each alternative and associated variation and are therefore evaluated for the study area as a whole.

Projects proposed after the route is adopted would involve substantial farmland conversion. Section 3.1.3 Farmlands/Timberlands discusses the impacts associated with direct and indirect farmland losses in further detail.

The route adoption study would not require any of the adopted plans and policies at the local and regional levels be revised. However, the action conflicts with County and other local government policies related to agricultural land preservation. As such, the impact due to conflicts with state and local agricultural land preservation policies would be adverse. All alignment alternatives would potentially be inconsistent with the Fresno County Open Space Policy OS-F that encourages the preservation and protection of valuable vegetation resources in Fresno County.

Except for farmland conversions, the route adoption would not encourage land use changes that would conflict with long-term plans and policies (see Section 3.1.2 Growth). Therefore, it is consistent with state, regional, or local plans and policies that promote transportation facility development, economic growth in the agricultural and manufacturing sectors, regional connectivity, and job creation.

The alignment alternatives would not affect the City of Kerman General Plan Urban Growth Boundary. However, Alternative 1 would be inconsistent with the City of Kerman policy for "... promoting economic and industrial development of a business and industry-friendly community that creates local jobs, thus reducing negative impacts caused by commutes to other areas for employment." This alternative would have considerable effects on commercial/industrial businesses and associated jobs within the city because of substantial relocation and displacement impacts. Alternative 1 may also be potentially inconsistent with the 2007 Kerman General Plan's Land Use policies on community image that includes efforts to preserve and

enhance Kerman's small-town character. Table 3.2 summarizes the land use impacts by alternative.

## Table 3.2 Land Use Impacts by Alternative

| Impacts to Existing Land Uses | Impacts to Land Use Plans |
|---|---|
| Alternative 1 would: | |
| • Convert substantial amounts of agricultural land to transportation use<br>• Expand transportation effects (noise, air, etc.) adjacent to Mendota Wildlife Area and Alkali Sink Ecological Reserve<br>• Convert a small portion of Kerman Ecological Reserve to transportation use<br>• Convert approximately 475 residential uses to transportation<br>• Convert substantially more commercial uses to transportation than other alternatives<br>• Convert substantial existing and planned uses within the Kerman sphere of influence | • Be in conflict with state and local policies regarding agricultural land preservation<br>• Be consistent with state, regional and local plans and policies regarding transportation facility improvement<br>• Be inconsistent with City of Kerman policy for promoting commercial and industrial development<br>• Be inconsistent with Fresno County's open space policies and City of Kerman's land use polices on community image |
| Variation 1A would: | |
| Convert approximately 466 residential uses and substantial amounts of agricultural land to transportation use | • Be in conflict with state and local policies regarding agricultural land preservation<br>• Be inconsistent with Fresno County's open space policies |
| Variation 1B would: | |
| Convert approximately 172 residential and a few commercial uses to transportation | • Be consistent with state, regional and local plans and policies regarding transportation facility improvement<br>• Be inconsistent with Fresno County's open space policies |
| Variation 1C would: | |
| • Convert approximately 152 residential and a few commercial uses to transportation<br>• Have the least effect on Kerman land uses | • Be consistent with state, regional and local plans and policies regarding transportation facility improvement<br>• Be inconsistent with Fresno County's open space policies |
| Alternative 2 would: | |
| • Convert substantial amounts of agricultural land to transportation use<br>• Convert approximately 91 residential and a few commercial uses to transportation | • Be in conflict with state and local policies regarding agricultural land preservation<br>• Be consistent with state, regional and local plans and policies regarding transportation facility improvement<br>• Be inconsistent with Fresno County's open space policies |

**Table 3.2 Land Use Impacts by Alternative**

| Impacts to Existing Land Uses | Impacts to Land Use Plans |
|---|---|
| Alternative 3 would: | |
| • Convert substantial amounts of agricultural land to transportation use<br>• Encroach substantially into Mendota Pool Park and Fresno Slough, changing land use and affecting recreational uses<br>• Convert approximately 71 residential and a few commercial uses to transportation | • Be in conflict with state and local policies regarding agricultural land preservation<br>• Be consistent with state, regional and local plans and policies regarding transportation facility improvement<br>• Be inconsistent with Fresno County's open space policies |
| The No-Action/No-Project Alternative would: | |
| Have no effect. | Be inconsistent with Westside Economic development Action Plan. |

Sources: Community Impact Assessment (Addendum-July 2009) and Draft Relocations and Acquisitions Summary Report (Addendum-June 2009).

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative is inconsistent with the Westside Economic Development Action Plan because, without a route adoption, a direct connection from State Route 180 near the City of Fresno and Interstate 5 would not be established. Under this scenario, highway facilities within the study area would likely remain similar to present-day conditions.

## *Avoidance, Minimization, and/or Mitigation Measures*

### *Alignment Alternatives*

Alternative 1's adverse effect on the City of Kerman can be avoided by selecting either Variation 1B (Kerman Bypass) or 1C (Rolinda and Kerman Bypass). Selecting either Alternative 2 or Alternative 3 would avoid both Kerman and Rolinda.

No mitigation is available to offset impacts due to conflicts with state and local agricultural land preservation policies. Caltrans would consider refined alignments that would minimize impacts to farmland and associated land uses during subsequent projects.

### *No-Action/No-Project Alternative*

Although the No-Action/No-Project Alternative is in direct conflict with an initiative of the Westside Economic Development Action Plan, no mitigation would be required because it would not lead to construction of a highway.

### 3.1.1.3 Parks and Recreation

#### *Affected Environment*

A broad range of recreational activities are available throughout the study area. These recreational areas include three parks, a golf course, two ecological reserves and one open space reserve. Several recreational facilities are located in or near Alternative 1. Portions of the Kerman Ecological Reserve, Javier's Fresno West Golf and Country Club, Kiwanis Park, and Kerman High School are in this alternative. The Mendota Wildlife Area and Alkali Sink Ecological Reserve are next to Alternative 1. As shown in Figure 3-2, only the recreational facilities that are within or directly adjacent to the 1,000-foot-wide alignment alternatives are included in the impact analysis. A summary of these facilities is included in Table 3.3.

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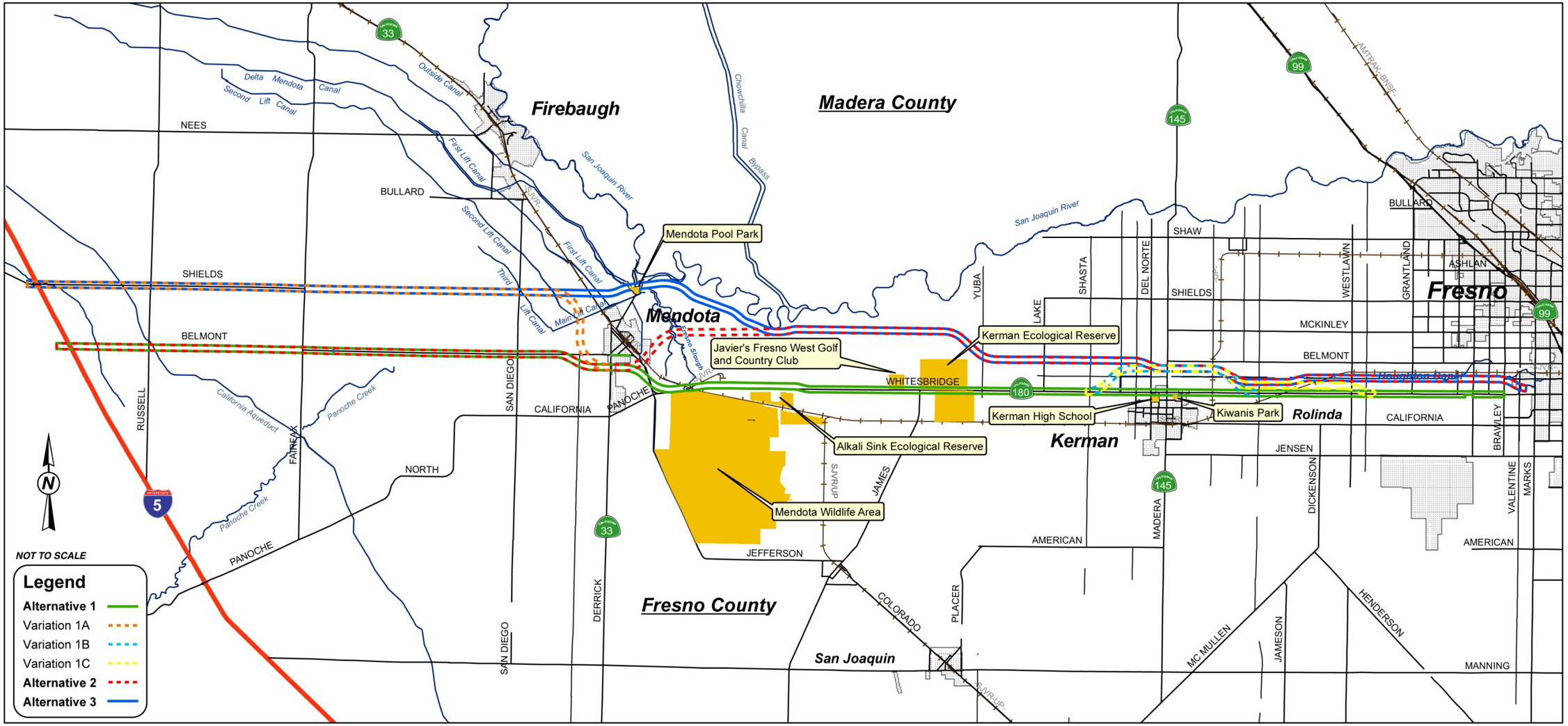


**Figure 3-2 Parks and Recreational Facilities within the Study Area**

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**Table 3.3 Parks and Recreational Facilities within the Study Area**

| Site | Location | Type of Facility | Activities/Facilities |
|---|---|---|---|
| Javier's Fresno West Golf and Country Club | State Route 180, west of Kerman | Golf Course | Golfing/18-hole course; club house, restaurant |
| Kiwanis Park | West San Joaquin and Merlot Avenues, City of Kerman | Pocket Park | Active-use recreation/ball field backstop; playground; basketball court |
| Kerman High School | 205 S. 1st Street, City of Kerman | School Park | Active-use recreation/baseball diamonds; softball diamonds; tennis courts; basketball courts; track; football stadium; gym; volleyball courts; swimming pool |
| Mendota Pool Park | City of Mendota | Park | Active-use recreation/playground; picnic tables; performance dome; boating |
| Mendota Wildlife Area | County of Fresno | Wildlife Area | Passive-use recreation/bird watching; camping; hunting |
| Alkali Sink Ecological Reserve | County of Fresno | Ecological Reserve | Bird watching |
| Kerman Ecological Reserve | County of Fresno | Ecological Reserve | Bird watching/hunting |

Sources: Community Impact Assessment (Addendum-July 2009) and Section 4(f) Evaluation.

### *Environmental Consequences*

#### *Alternative 1*

Subsequent projects associated with Alternative 1 would involve construction and operation of a large highway near the Mendota Wildlife Area and Alkali Sink Ecological Reserve. The wildlife area and reserve are located next to and south of the 1,000-foot-wide defined corridor of Alternative 1; therefore, direct impacts to these Section 4(f) properties would be avoided. Temporary impacts to existing access located on Whitesbridge Avenue at these facilities may occur during a future project.

Portions of the Kerman Ecological Reserve and Javier's Fresno West Golf and Country Club are within Alternative 1. Alternative 1 includes about 28 acres of Javier's Fresno West Golf and Country Club, which constitutes approximately 18 percent of the facility's total land area. Facilities that could be affected by this alternative include club access from Whitesbridge Avenue, Javier's Club House and Restaurant, parking, golf-cart access and trails, and at least one golf green and hole. If the 250-foot-wide to 350-foot-wide expressway is placed along or north of Whitesbridge Avenue, some or all of these facilities have the potential to be acquired

for future project right-of-way. This is considered a direct and substantial adverse impact to the recreational facility.

About 150 acres of the Kerman Ecological Reserve are included in Alternative 1, which constitutes approximately 8.5 percent of the reserve's total land area. All possible roadway placements within the alternative would require the acquisition of some portion of the preserved natural habitat at the Kerman Ecological Reserve to be converted to transportation uses. This is a direct and substantial adverse impact to the reserve. If the roadway is centered on existing State Route 180, about 24 acres, or approximately 1.4 percent of the reserve's total land area, would be acquired. If the roadway is aligned to the north of existing State Route 180, about 26.8 acres, or approximately 1.5 percent of the reserve's total land area, would be acquired. If the roadway is aligned to the south of the existing State Route 180, about 23.2 acres, or approximately 1.3 percent of the reserve's total land area, would be acquired. Aligning the roadway to the south of existing State Route 180 yields the least acreage of the reserve required for future project right-of-way.

This alternative also proposes to replace the existing two-lane highway with a new four-lane highway, increasing the distance between the northern and southern sections of the Kerman Ecological Reserve. The widened highway would adversely affect the natural movements of wildlife communities between the sections of the reserve. Future projects would increase speeds in the vicinity of the reserve, which may also increase the potential for wildlife to be injured or killed while crossing the roadway. Additionally, recreational activities at the reserve, such as bird watching and hunting may be affected.

About 0.34 acre, or approximately 16 percent of Kiwanis Park's total land area, lies in this alternative. The park's active-use open space has the potential to be converted to transportation uses if the final roadway alignment is placed along the southern boundary of Alternative 1. This is considered a direct and substantial adverse impact to the park. Access to Kiwanis Park would not be affected by the alternative, as parking and access are located outside the alternative.

About 5.9 acres, or approximately 21 percent of Kerman High School's total land area, is within Alternative 1. Facilities that may be affected include school buildings, a portion of a baseball diamond and recreational courts. Some or all of these recreational uses have the potential to be acquired for future project right-of-way and converted to transportation uses, if the 250-foot-wide to 350-foot-wide highway is

placed near the corridor alternative's southern boundary. This is a direct and substantial adverse impact to the recreational uses at the high school. Access to the recreational areas of Kerman High School could also be affected by the action, if it impedes access to Del Norte Avenue and 1st Street, which provide access to the through-road located at Kerman High School.

All variations by themselves would avoid recreational facilities within the study area. Incorporation of either Variation 1B or 1C to Alternative 1 would avoid impacts to Kiwanis Park and Kerman High School. Impacts to the Kerman Ecological Reserve cannot be avoided since existing State Route 180 runs through the reserve, bisecting it into two distinct portions.

Except for Javier's Fresno West Golf and Country Club, all properties mentioned in this discussion are considered Section 4(f) resources, which include parks, recreation areas, wildlife and waterfowl refuges, or historic sites. Section 4(f) of the federal Department of Transportation Act of 1966 does not allow approval of a transportation project unless there is no prudent and feasible alternative to using a Section 4(f) property. The project must also include all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use. A Section 4(f) Evaluation was completed to identify the Section 4(f) resources and describe the type of use that would result from future projects (see Appendix B).

### *Alternative 2*

All parks and recreational facilities would be avoided with Alternative 2 (Southern Route).

### *Alternative 3*

Alternative 3 avoids all parks and recreational facilities listed in Table 3.3 except Mendota Pool Park. About 8 acres of the northern portion of Mendota Pool Park, or approximately 10 percent of the park's total land area, are included in Alternative 3. Areas of the park that could be affected include: access at Bass Avenue, public parking, recreation field, picnic areas, boat launch, and the performance dome. If the 250-foot-wide to 350-foot wide expressway alignment is placed near the southern boundary of the alternative, then this portion of the park and its associated facilities would be acquired for future project right-of-way, and the recreational uses would be converted to transportation uses. This is a direct and substantial adverse impact to the park.

If the expressway is placed north and outside of Mendota Pool Park, within the northern portion of the Alternative 3, direct impacts to the recreational facilities and recreational uses would not occur. However, access to the park from Bass Avenue, north of the park, could be affected. Pursuant to the requirement of Section 4(f) of the U.S. Department of Transportation Act, placing the alignment to the north of Mendota Pool Park would be required as it avoids the use of the protected Section 4(f) resource. See Appendix B of this document for a more detailed discussion of this subject.

### *No-Action/No-Project Alternative*

Highway facilities within the study area would likely remain similar to present-day conditions because no projects, other than rehabilitation, are programmed by Caltrans for State Route 180. Thus, there would be no need to acquire parks or other recreational facility properties or construct any facilities that would affect the visibility or accessibility of any parks or other recreational facilities. Impacts to existing parks under the No-Action/No-Project Alternative are not expected.

## *Avoidance, Minimization, and/or Mitigation Measures*

### *Alternative 1*

Acquisition of land for future project right-of-way and the conversion of recreational uses to transportation uses within Javier's Fresno West Golf and Country Club could be avoided through placement of the highway to the south of Whitesbridge Avenue. Impacts to Kiwanis Park and Kerman High School would be avoided if the highway is placed along or north of Whitesbridge Avenue within Alternative 1.

Under Alternative 1, impacts to the Kerman Ecological Reserve would likely be unavoidable. Some portion of the reserve and bank would most likely be acquired for future projects, and recreational uses would be converted to transportation uses. However, acquisition impacts may be minimized through careful placement of the roadway. It is anticipated that impacts to wildlife communities would be addressed and mitigation measures, such as roadside barriers and wildlife movement tunnels, would be determined during the project design phase. Access impacts to Javier's Fresno West Golf and Country Club, Mendota Wildlife Area, and Kerman High School are anticipated to be addressed during the project design stage.

### *Alternative 2*

No adverse impacts to parks and recreational facilities are expected with Alternative 2; mitigation measures are not necessary.

#### *Alternative 3*

Direct impacts associated with the acquisition and conversion of recreational uses to transportation uses for portions of Mendota Pool Park would be avoided if the highway is placed along the northern boundary of Alternative 3. The alternative's effect on access is anticipated to be addressed during the project design stage.

#### *No-Action/No-Project Alternative*

No adverse impacts to parks and recreational facilities are expected with the No-Action/No-Project Alternative; therefore, mitigation is not required.

### 3.1.2 Growth

#### ***Regulatory Setting***

The Council on Environmental Quality regulations, which established the steps necessary to comply with the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The Council on Environmental Quality regulations, 40 Code of Federal Regulations 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act also requires the analysis of a project's potential to induce growth. California Environmental Quality Act guidelines, Section 15126.2(d), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…."

#### ***Affected Environment***

The information in this section is derived from the 2006 Growth Inducement Analysis Report, 2006 Community Impact Assessment, and 2009 Community Impact Assessment Addendum. As these reports indicate, the population in the Central Valley has grown dramatically from 1 million in 1940 to 3.5 million in 2003. Table 3.4 summarizes Fresno County population growth and population within the study area. It shows growth will occur at a rapid pace, with Fresno County's population projected to grow by 58 percent between 2005 and 2030. Growth within and near the study area is projected to be most concentrated in the cities of Fresno (62 percent growth rate), Mendota (71 percent growth rate), and Kerman (38 percent growth

rate). Except for the cities of San Joaquin and Tranquillity (56 percent growth rate), population in Firebaugh and the smaller towns in the area is projected to grow at slower rates.

**Table 3.4 Population Growth Forecast**

| Year | Fresno County | City of Fresno | City of Firebaugh | City of Kerman | City of Mendota |
|---|---|---|---|---|---|
| 2005 | 899,288 | 540,806 | 6,046 | 9,850 | 9,310 |
| 2010 | 992,351 | 600,658 | 6,190 | 10,479 | 10,676 |
| 2020 | 1,185,150 | 724,653 | 6,487 | 12,050 | 13,506 |
| 2030 | 1,419,290 | 873,593 | 6,876 | 13,621 | 15,937 |
| 25-year % Increase (2005-2030) | 58 | 62 | 14 | 38 | 71 |

Source: Community Impact Assessment (Addendum-July 2009).

Policies to manage this growth and provide appropriate facilities and infrastructure are defined in the General Plans for Fresno County and the incorporated cities (see fuller discussion of these plans in Section 3.1.1 Land Use). In general, those policies are intended to ensure that growth occurs in an orderly fashion outward from the existing cities and within their spheres of influence. Local governments recognize both the importance of agriculture to the economy and way of life in the study area as well as the need to provide safe and efficient regional transportation.

According to the Growth Inducement Analysis Report (growth report), primary factors that affect growth in a community include housing prices, local land use plans and policies, and the commute time to employment areas. Commute time is the factor most directly affected by transportation projects. The growth report investigated the potential for unplanned growth resulting from the route adoption by evaluating the following factors:

- Would the improved or enhanced accessibility provided by future projects increase residential growth beyond what is planned for northwest Fresno County or would it merely support planned growth?
- What effect would the route adoption have on environmental resources if future projects were to result in unplanned growth?

The growth report identified nine areas that could be affected and reviewed the general plans and land use policies for these areas. Current and future growth trends were reviewed, including local government plans and policies, commute time, and access, to determine the amount of growth currently planned within the study area. A key part of this step was locating jobs in the region based on population and employment forecast data prepared by the Council of Fresno County Governments.

Part of the study aimed at determining how much effect reducing commute times would have on encouraging people to move farther from job centers. Commute times between job locations and the potential growth zones were estimated for the future expressway to year 2030.

### *Environmental Consequences*

#### *Alignment Alternatives*

The unconstrained growth indices reflect growth pressures due only to access to jobs, while constrained growth indices show the combined effect of land use plans and improved access to jobs. The report concludes that even without the route adoption, the unconstrained growth pressures due to access to jobs for all areas, except Fresno, are higher than the planned population growth pressures. This shows that these communities have relatively good access to jobs, even without the route adoption; therefore future land use controls would play an important part in regulating growth in the region.

The growth report projects regional growth to be concentrated in the city of Fresno. This assumption is consistent with the population forecasts by the Council of Fresno County Governments. Overall, factors such as lower land values and housing costs, along with the increasing availability of jobs and other amenities in the smaller communities are more likely to contribute to growth in the outlying areas than eventual construction of this expressway would.

So, availability of an improved local transportation link is projected to have a relatively minor effect on planned growth within the study area and its surroundings. Growth pressures in Kerman and Mendota would increase slightly due to the travel time savings provided by the alignment alternatives. Growth pressures in rural areas like Mendota, San Joaquin, Tranquillity, and parts of Fresno would also increase at a much lesser degree. The growth potential associated with the alignment alternatives are relatively minor, as the study results indicate that the No-Action/No-Project

Alternative's growth potential would only be approximately 2 percent lower than the alignment alternatives.

If accessibility to jobs were the primary factor in residential growth, then many of the outlying residential areas along State Route 180 to the west of State Route 99, which are closer to the large job centers in Fresno, would be unable to control the size of their communities during periods of economic expansion. Major factors preventing unplanned growth in such areas are land use plan policies, underdeveloped infrastructure, economic considerations, and environmental conditions. Therefore, growth in various communities and unincorporated areas associated with the future expressway would be controlled by these factors rather than job accessibility.

All alignment alternatives would provide essentially the same level of travel time savings to commuters. No significant distinction exists among them regarding potential growth impacts. At this planning level, specific growth projections cannot be made until project details become known and available for analysis.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would involve neither the State Route 180 route adoption by the California Transportation Commission nor future expressway construction projects. As previously stated, the growth report indicates that the growth potential of the No-Action/No-Project Alternative would be approximately 2 percent lower than the alignment alternatives, and future projected growth is planned for and expected to occur, regardless of the route adoption. Therefore, growth inducement impacts are not anticipated for this alternative.

### *Avoidance, Minimization, and/or Mitigation Measures*

No mitigation is required.

## 3.1.3 Farmlands

### *Regulatory Setting*

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

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

### *Affected Environment*

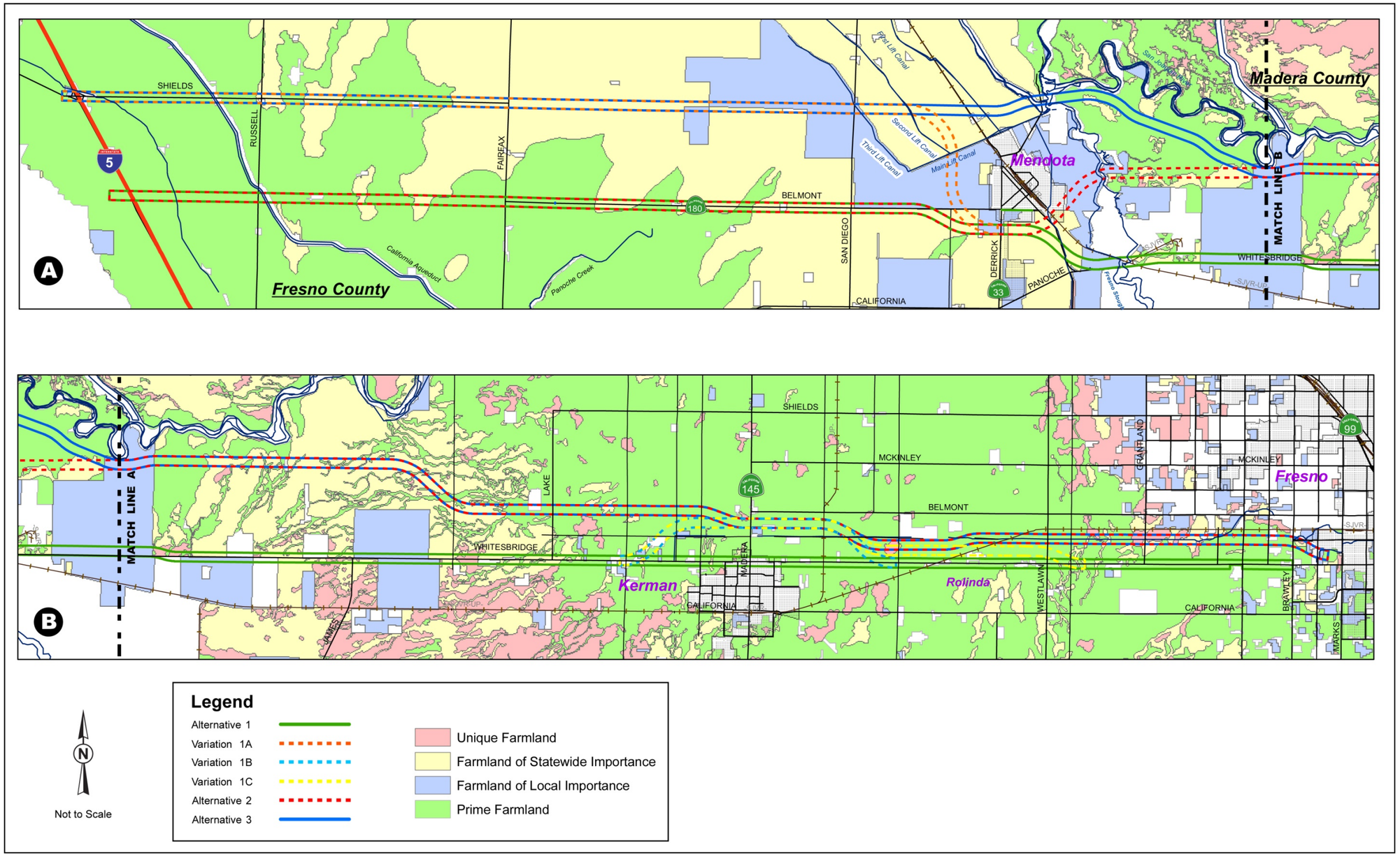
Information for this section is derived from the Community Impact Assessment originally completed in August 2006 and amended in July 2009 for this study.

Fresno County has been ranked first among all California counties in farm and ranch production value. In 2006, 2.2 million acres of agricultural land generated $4 billion. That rose to almost $5.67 billion of agricultural production value in 2008. The following are major agricultural commodities grown on the west side of Fresno County: grapes, nuts, cotton, tomatoes, cantaloupe, and milk (Fresno County Farm Bureau, 2010).

The state's Farmland Mapping and Monitoring Program provides information on important farmland areas, including resource quality and uniqueness. Prime farmland has the best combination of physical and chemical characteristics for producing agricultural crops and may include land currently used as cropland, pastureland, rangeland, or forestland. Land that is already committed to urban development does not qualify as prime farmland. Unique farmland has lesser-quality soils than land that qualifies as prime. Unique farmland is used for the production of high-value specialty crops, such as citrus or nuts. Farmland of statewide or local importance is land that does not qualify as prime or unique farmland but that is currently irrigated, is pastureland, or produces non-irrigated crops; its importance is determined by the state or local government. Most of the lands within and adjacent to the study area are classified by the California Department of Conservation as either prime farmland or farmland of statewide importance, with a small portion classified as farmland of local importance. Figure 3-3 shows farmland classifications for the alignment alternatives.

The California Land Conversion Act (Williamson Act Program) Technical Advisory Document indicated that in 2000, approximately 1.54 million acres of land in Fresno County was eligible for coverage by a Williamson Act contract. The California Department of Conservation estimates that the Williamson Act protects more than half the irrigated farmland in the state, by providing incentives to landowners through

reduced property taxes to deter the early conversion of agricultural and open space lands to other uses. Within the route adoption study area, the percentage of agricultural land protected by the Williamson Act is even higher—about 70 percent. Assessor's data indicate that the large majority of the designated agricultural land within the study area located outside each city's planning area is currently under Williamson Act contract.




Not to Scale

**Legend**

- Alternative 1
- Variation 1A
- Variation 1B
- Variation 1C
- Alternative 2
- Alternative 3
- Unique Farmland
- Farmland of Statewide Importance
- Farmland of Local Importance
- Prime Farmland

**Figure 3-3 Farmland Map**

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At the local level, loss of farmland has been a concern of the counties in the Central Valley over the past several years. This is reflected in local general planning policies. Fresno County's policy is to promote the long-term conservation of productive and potentially productive agricultural lands and to accommodate agricultural support services and agriculturally related activities that support the viability of agriculture. As continued growth is projected, growth policies will have to balance the needs of both urban and agricultural uses to preserve the character and continued productivity of the region.

According to online statistics from the California Department of Conservation, California annually converted an average of more than 36,000 acres of open land to urban use during the 2004 to 2006 mapping cycle. Annual agricultural land loss in Fresno County can vary widely from year to year, due in large part to the state of the national economy. The average annual acreage conversion from Important Farmland (includes farmland defined as Prime, Unique, or of Statewide or Local Importance) to urban use in Fresno County has generally been increasing from 698 acres per year between 1984 and 2000, 870 acres per year between 2000 and 2002, and about 6,500 acres per year between 2004 and 2006.

No forested land or timber production occurs within the study area.

### *Environmental Consequences*

Table 3.5 summarizes different types of farmland that reflect the most highly valued crops/commodities produced in the county-defined Westside Valley Area and the Eastside Valley Area west of State Route 99. The table also includes land that is not currently used for agricultural production. The data provided are based on a 1,000-foot-wide corridor for planning purposes. Depending on the alternative, the estimated farmland to be affected within any corridor alternative would be between approximately 4,128 to 5,268 acres. However, at the project level, only a 250-foot-wide to 350-foot-wide right-of-way would be acquired, so the farmland ultimately required for construction would be substantially less than the totals shown in the table. Those are estimated to be between 1,032 and 1,844 acres.

Taking a midpoint between 1,032 and 1,844 acres, it is assumed for this analysis that a total of 1,438 acres of agricultural land would be required for State Route 180 construction over a projected 50-year build-out period. This would be an average loss of about 29 acres per year (actual annual losses may vary greatly, depending upon individual project size, location, etc.). When compared to the average losses

discussed previously, 29 acres represents only 0.5 percent of the 6,500 acres per year consumption figure during the 2004 to 2006 "boom years."

### Table 3.5 Inventory of Farmland Type by Alternative (in acres)

| Alternative* | Orchard | Vineyard | Crops | Dairy Farm | Range land | Non-Agriculture | Total by Alternative | Total Agriculture Land by Alternative |
|---|---|---|---|---|---|---|---|---|
| Alternative 1 | 1,048 | 657 | 2,210 | 93 | 303 | 819 | 5,130 | 4,311 |
| With Variation 1A | 908 | 823 | 2,002 | 93 | 303 | 1,179 | 5,307 | 4,128 |
| With Variation 1B | 1,006 | 921 | 2,270 | 93 | 303 | 679 | 5,272 | 4,593 |
| With Variation 1C | 1,008 | 988 | 2,263 | 103 | 303 | 654 | 5,320 | 4,666 |
| Alternative 2 | 1,090 | 1,801 | 2,148 | 24 | 206 | 407 | 5,675 | 5,268 |
| Alternative 3 | 1,322 | 1,976 | 1,737 | 24 | 125 | 496 | 5,680 | 5,184 |
| * Includes area within 1000-foot-wide corridor across entire route. | | | | | | | | |

Source: Community Impact Assessment (Addendum-July 2009).

There are approximately 83,000 acres of agricultural land in the study area. The estimated 1,438 acres that would be potentially affected by the expressway construction is less than 2 percent of the 83,000-acre study area.

Completion of the U.S. Department of Agriculture Form AD-1006 is typically required to be in compliance with the Farmland Protection Policy Act, but it has not been prepared as part of this document because this study would not result in a project or acquisition of right-of-way in the near term, and is instead focused on examining broad-range impacts from the proposed alternatives. Project-level calculations of farmland conversion would be made as subsequent projects are proposed.

California Government Code Section 51295 specifies that only the portion of a parcel acquired for highway use would be removed from the Williamson Act program. In Fresno County, the remainder parcel must be at least 20 acres to qualify for Williamson Act protection. Table 3-6 lists the total acreage of Williamson Act land for each route adoption alternative. The data provided for the potentially affected Williamson Act land are based on the alternative's 1,000-foot corridor. Potentially affected Williamson Act land ranges from approximately 3,500 to 4,600 acres. At the project-level, the roadway would only be 250 to 350 feet wide and would therefore

affect between only 875 and 1,610 acres of Williamson Act land. This acreage range accounts for approximately 4 to 7 percent of the total Williamson Act parcels that are located within or intersect with the study area boundaries. The calculation of the total Williamson Act parcels is based on the averaged acreage shown in the second column of Table 3.6.

### Table 3.6 Inventory of Williamson Act Land

| Alternative | Total Williamson Act Land* (acres) | Potentially Affected Williamson Act Land Using 1,000-foot-wide Corridor (acres) | Percent Affected |
|---|---|---|---|
| Alternative1 | 21,722 | 3,567 | 16% |
| With Variation 1A | 22,621 | 3,423 | 15% |
| With Variation 1B | 21,790 | 3,726 | 17% |
| With Variation 1C | 21,435 | 3,769 | 18% |
| Alternative 2 | 24,911 | 4,643 | 19% |
| Alternative 3 | 26,165 | 4,551 | 17% |
| *The acreages reflect full parcels of Williamson Act Land, which may extend beyond the study area boundary. | | | |

Source: Community Impact Assessment (Addendum-July 2009).

Of the estimated 1,438-acre farmland impact, a substantial majority would be classified as either prime or farmland of statewide importance. Actual quantities of these losses would be calculated during subsequent projects. Regardless of the alternative, the future projects would result in adverse and immitigable impacts to farmlands.

A new expressway could also have substantial direct and indirect effects on access to certain properties within the study area. Property owners have expressed concern that even minor acquisition of their properties could increase operational costs and/or affect farm viability. This is based on two assumptions: (1) the remainder parcels would be too small to be viable for the intended production; and/or (2) accessibility across the expressway would be substantially more difficult or even impossible, thereby making farming operations too difficult or impracticable. These impacts would be further reviewed at the project stage when more detailed information about access to individual properties would be available. Neither remainder parcel size nor access difficulties can be accurately predicted at the current stage of project development.

The route adoption would not affect timberlands; so, there would be no impacts under the Timberland Productivity Act.

Since most of the study area is composed of agricultural land, the conversion to transportation use would be considerable and comparable in numbers of acres for all alternatives. The mix of crop type affected, however, would vary by alternative. Impacts associated with the route adoption are described below by alternative.

### *Alternative 1*

Alternative 1 would result in substantial agricultural land conversion, although it would be less overall than the conversion required by Alternative 2 or Alternative 3. However, to the west of Mendota, more orchards would be affected by this alternative than with Alternative 3. Alternative 1 would not affect vineyards west of the Fresno Slough. Between State Route 33 and Yuba Avenue, this alternative would affect the least amount of vineyards; however, it would affect dairy land within the same segment, unlike the other alignment alternatives. This alternative is estimated to encompass over 3,500 acres of land under Williamson Act contract within the 1,000-foot-wide corridor. Alternative 1 and Alternative 1 with Variation 1A would affect the fewest Williamson Act parcels because they are shorter in length and go through more urbanized and publicly owned land.

### *Alternative 2*

Similar to Alternative 1, to the west of Mendota more orchards would be affected by this alternative compared with Alternative 3. Similar to Alternative 1, this alternative would not affect vineyards west of the Fresno Slough. Across the entire corridor, combined orchard and vineyard losses would also greatly exceed losses within Alternative 1. Alternative 2 is estimated to encompass approximately 4,600 acres of land under Williamson Act contract within the 1,000-foot-wide corridor.

### *Alternative 3*

Alternative 3 would affect less rangeland compared to Alternative 1 or Alternative 2. However, this alternative would affect substantially more vineyards than Alternative 1. Alternative 3 is estimated to encompass approximately 4,500 acres of land under Williamson Act contract within the 1000-foot-wide corridor.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission nor involve future expressway construction projects; so, no impacts are anticipated for this alternative.

## *Avoidance, Minimization, and/or Mitigation Measures*

### *Alignment Alternatives*

Caltrans acquires only land that is needed for construction and right-of-way of a project. The 1,000-foot width of each corridor provides flexibility to place the 250-foot-wide to 350-foot-wide future expressway. This flexibility would allow avoidance of orchards, vineyards, dairies, and other high-value crops to the extent feasible.

Available mitigation would not fully offset impacts of agricultural land conversion, including important farmlands as classified by the California Department of Conservation and lands under Williamson Act contract. In accordance with state law, Caltrans would comply with notification and findings requirements for any proposed future acquisition of Williamson Act contracts. Property acquisition and compensation would be based on a demonstrated loss of value to the property owner.

Access issues would be addressed during the planning and design stages of subsequent projects. Appropriate placement and spacing of bridge crossings and the use of frontage roads to maintain parallel local access in certain areas would minimize potential adverse effects on access.

### *No-Action/No-Project Alternative*

No mitigation measures would be required for the No-Action/No-Project Alternative because it would not result in any impacts to farmland.

## *Cumulative Impacts*

Agriculture in western Fresno County received its impetus from the development of the rail lines and irrigation canals in the late 19th century. These canals transformed the predominantly arid lands of Fresno County into rich soil that enabled extensive wheat farming. It was also around this time when the successful raisin and fig industries developed. Farming communities would also become established as agriculture diversified and flourished. The Central Valley Project of the 1930s provided farmers water storage, hydroelectric power, and flood control with its 20 dams and reservoirs. Row crops and orchards gave way to urban development, particularly in the period after World War II (mid 1940s).

This transition period was particularly apparent in locations such as the Blackstone Avenue corridor. Grapes and cotton have been Fresno County's top crops since the earliest crop report of 1950. In more recent times cotton became a major crop in Fresno and the southern San Joaquin Valley, but recent drought and lower demand have lessened cotton's importance to the local economy.

Loss of farmland has been a concern of the counties within the Central Valley over the past two decades. This is reflected in local general planning policies to promote the long-term conservation of productive and potentially productive agricultural lands and to accommodate agricultural support services and agriculturally related activities. However, cumulative impacts to farmland are occurring from residential and commercial developments within the study area. See development projects listed on Table 3.1 in Section 3.1.1.1.

There are other factors affecting the conversion of farmland in the study area. Drought conditions as well as environmental regulations have led the Bureau of Reclamation to dramatically reduce the amount of water it delivers to Westside farmers. Increasing amounts of otherwise productive land have been rendered useless, and Westside farmers have had to retire or allow the land to lie fallow.

Westlands also faces significant drainage problems. Westlands Water District owns about 200,000 acres in the western Central Valley. About one-third of the district does not drain properly. As a result, salt present in the water imported from the Delta accumulates in the soil. The district owns land within the western portion of the study area between Russell Avenue and the city of Mendota. Some of this land has been retired or allowed to lie fallow due to high soil salinity caused by poor drainage.

Prime farmland within the study area occurs mostly between Lake Avenue and the western city limits of Fresno, an area just northeast of Mendota along the San Joaquin River between Interstate 5 and west of San Diego Avenue. Most of the land here is under Williamson Act contracts. But because construction of subsequent projects may not occur for another 50 years, some properties may no longer be under contract at that time.

The types of farmland that occur here mostly support orchards, cropland, and vineyards. Since these lands are valuable to the region's farm economy, the city of Kerman and Fresno County have strict policies regarding the protection of agricultural land from incompatible land uses.

At the ultimate project level, the land required to construct a four-lane expressway would be a maximum of 1,844 acres based upon a 350-foot-wide road. As almost all of the study area is composed of agricultural land, it would be impossible to build future projects without converting farmland.

Up to 1,610 acres of Williamson Act land could be affected by future projects. Although the total acreage to be permanently removed from the Williamson Act program cannot be accurately estimated at this stage of study, it is clear that the affected Williamson Act land would exceed 100 acres. Cancellation of 100 acres or more of Williamson Act land would be considered an impact of area wide significance.

It is possible that a new expressway would induce growth outside of city boundaries, especially in the vicinity of interchanges and intersections. Highway-oriented businesses such as gas stations, rest stops, and motels are more likely to develop near these proposed interchanges and intersections in rural areas where property values were originally low. Factors that would influence the likelihood and rate of development near rural interchanges and intersections include proximity to major urban areas and higher traffic volumes on the intersecting street. However, to accommodate development there must be other necessary infrastructure such as the availability of water, sewer, and frontage roads. It is up to the cities to approve any development. The intersection spacing requirement of 2 miles in rural areas may also minimize growth-inducing impacts to farmland.

Additionally, the Growth Inducement Study looked at worker commute time between cities as a factor in determining whether or not the alternatives would induce growth. The study showed the growth potential for the No-Action/No-Project and project scenarios to be similar. Growth pressures would increase by about 0.11 percent in Kerman and from 0.04 to 0.09 percent in Mendota from the combined effects of land use plans and access to employment.

The percent increase in growth in Firebaugh, Kerman, and Mendota between 2000 and 2005 was 21 percent, 29 percent, and 16 percent, respectively. Between 2005 and 2010, the increase in growth in Firebaugh, Kerman, and Mendota was 9 percent, 23 percent, and 20 percent, respectively. Except for Mendota, there appears to be a decrease in the rate of population growth for the ten-year period. This may be due to the downturn in the economy. Due to drought and court-imposed restrictions that turned off water to farmers on the west side of the valley, crop yields have decreased,

and many that were employed in agriculture have lost their jobs. Because of high operating costs compounded with drought in recent years, the Holly Sugar Company in Mendota that employed 200 workers closed in 2008.

It is not possible to add up the direct and indirect effects of the ultimate expressway project without available project-level design plans. The amount of farmland losses will be calculated at the project stage. Future projects would result in adverse and unmitigable effects to farmlands. Only an assessment of the quality of indirect impacts for the purpose of distinguishing between alternatives would be practical at this time.

After review of current general plans for the cities, unincorporated areas of the study area, and the projects listed in Table 3.1 in Section 3.1.1.1, it appears that planned development would occur only inside the sphere of influence boundary of each city. Projects completed in the last 5 years in the study area include a federal prison south of the city of Mendota, a wastewater treatment plant expansion in Mendota, the Fresno Irrigation District's expansion of the Waldron bank facility east of Kerman, seven residential tracts in Kerman, and two retail/commercial developments in Kerman. One roadway project was completed in 2008 that widened the existing lanes and shoulders along State Route 180 between Belmont Avenue and the San Joaquin Valley Railroad crossing just north of the Mendota Wildlife Area. This project improved the roadway structure to alleviate flooding problems in the area. There were also many development projects that were shelved or abandoned due to the declining market demand as shown in Table 3.1.

The preferred alternative was selected because it would have the least impact to farmland. This alternative, along with past, current, and future projects in the study area would cumulatively affect farmland but would not be considered significant for the following reasons:

- The preferred alternative would primarily acquire land adjacent to existing corridors of State Route 180 and Shields Avenue to the extent feasible to reduce effects to farmland.
- The strict policies of the cities and county preserve quality farmland.
- The cities have adopted goals and/or policies to restrict development within the sphere of influence boundary to prevent urban sprawl.

- The lack of infrastructure for development in rural areas.
- The considerable distance between urban areas along the future expressway.
- Access to the future expressway would be limited to intersections that are spaced 2 miles apart in rural areas.

### 3.1.4 Community Impacts

#### 3.1.4.1 Community Character and Cohesion

Community character is usually defined by socioeconomic factors such as ethnicity, income, and education. Community cohesion is 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 and the degree of interaction among them.

##### *Regulatory Setting*

The National Environmental Policy Act of 1969 as amended established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S. Code 4331[b][2]). The Federal Highway Administration in its implementation of National Environmental Policy Act (23 U.S. Code 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.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since future projects would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

##### *Affected Environment*

The information contained in the 2009 Community Impact Assessment Addendum forms the basis of the discussion in this section. The route adoption study area includes several incorporated cities and defined communities: the southwestern

corner of the city of Fresno, the northern edge of Kerman, all of Mendota and Rolinda, a culturally homogeneous community of Russian Molokans in the Kerman area, as well as unincorporated areas of Fresno County consisting mainly of farmland.

U.S. Census block group data would provide a more accurate look at the distribution of demographic characteristics since the block group is a subdivision of the tract group. Tract group data were used instead to assess demographic characteristics at a broad scale suitable for a planning study. A more detailed analysis using block groups would be required during subsequent projects.

United States Census 2000 data for Census Tracts 7, 19, 39, 40, 82, 83.01, 83.02, 84.01, and 84.02 (see Figure 3-4) were used to describe characteristics of the study area population. Census data were also available for the cities of Fresno, Firebaugh, Kerman and Mendota and Fresno County and used in comparisons where appropriate.

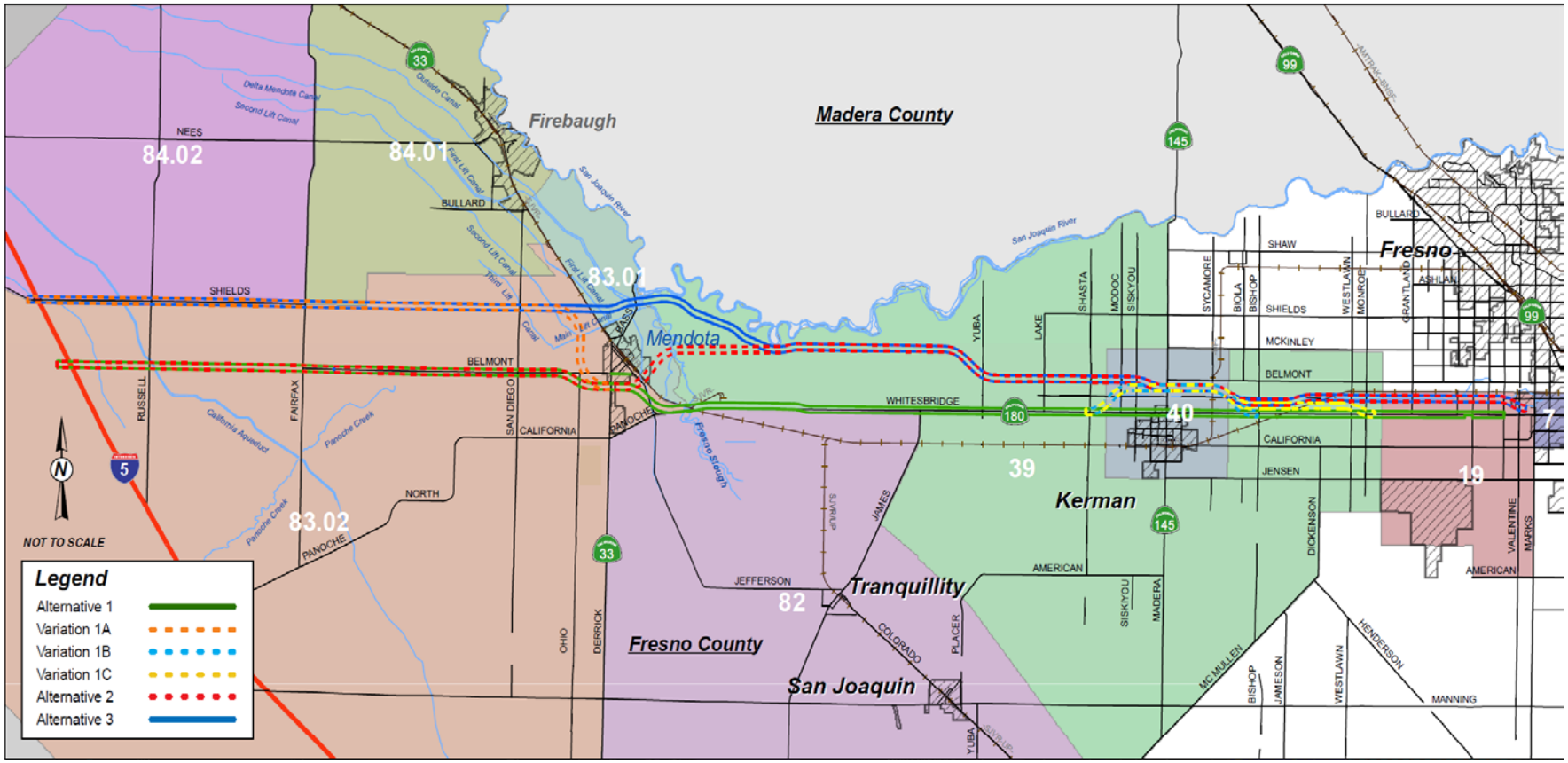


**Figure 3-4 Census Tracts**

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### *Family Size and Ages*

Table 3.7 shows that average family sizes in both the County and City of Fresno are comparable with approximately 3.5 individuals per family. Average family sizes within the study area (i.e., Firebaugh, Kerman, Mendota, and adjacent unincorporated Fresno County area) are slightly higher, ranging from 3.7 to 4.5 individuals per family. Household sizes (not shown in Table 3.6) tend to be slightly smaller than family size, but follow the same pattern. A household includes all people related or unrelated who occupy a housing unit. A family includes one or more other people living in the same household who are related by birth, marriage, or adoption.

Table 3.7 also shows age groups within the study area. In all census tracts except census tract 7, the percentage of individuals between the ages of 20 and 64 is between 51.3 and 56.8 percent. Census tract 7, on Fresno's west side and the eastern end of the study area, has both the lowest percentage (42 percent) of individuals in the 20 to 64 age group and the highest percentage (47 percent) in the 19 or under group. County of Fresno and City of Fresno have a higher percentage (over 9 percent) of residents aged 65 or older; the more rural cities, particularly Mendota, show percentages between 4 and 6. At 14.1 percent, census tract 19, just west of census tract 7 had the highest percentage of those 65 or older.

**Table 3.7 Study Area Family Size and Ages**

| Area | Total Population | Population 19 or less | Population 20 to 64 | Population 65 or over | Total Families | Average Family Size |
|---|---|---|---|---|---|---|
| Fresno County | 799,407 | 283,903 (35.5%) | 436,295 (54.6%) | 79,209 (9.9%) | 188,489 | 3.59 |
| Fresno (City) | 427.652 | 155,931 (36.5%) | 232,174 (54.3%) | 39,547 (9.2%) | 98,925 | 3.57 |
| Firebaugh | 5,743 | 2,431 (42.3%) | 2,945 (51.3%) | 367 (6.4%) | 1,251 | 4.28 |
| Kerman | 8,551 | 3,338 (39.1%) | 4,518 (52.8%) | 695 (8.1%) | 1,951 | 3.91 |
| Mendota | 7,890 | 3,050 (38.7%) | 4.427 (56.1%) | 413 (5.2%) | 1,521 | 4.38 |
| Census Tract 7 | 4,110 | 1,937 (47.1%) | 1,725 (42.0%) | 448 (10.9%) | 873 | 4.08 |
| Census Tract 19 | 2,645 | 869 (32.8%) | 1,405 (53.1%) | 372 (14.1) | 634 | 3.69 |
| Census Tract 39 | 5,503 | 1908 (34.7%) | 3,093 (56.2%) | 502 (9.1%) | 1,278 | 3.78 |
| Census Tract 40 | 9,539 | 3,659 (38.3%) | 5,044 (52.9%) | 836 (8.8%) | 2,221 | 3.89 |
| Census Tract 82 | 7,463 | 3,217 (43.1%) | 3,910 (52.4%) | 336 (4.5%) | 1,525 | 4.49 |
| Census Tract 83.01 | 3,936 | 1,559 (39.6%) | 2,222 (56.5%) | 155 (3.9%) | 749 | 4.53 |
| Census Tract 83.02 | 6,092 | 2,291 (37.6%) | 3,462 (56.8%) | 339 (5.6%) | 1,133 | 4.32 |
| Census Tract 84.01 | 7,142 | 3,044 (42.6%) | 3,663 (51.3%) | 435 (6.1%) | 1,515 | 4.25 |
| Census Tract 84.02 | 2,192 | 871 (39.8%) | 1,189 (54.2%) | 132 (6.0%) | 547 | 3.91 |

Source: Community Impact Assessment (Addendum-July 2009).

### *Income*

United States Census 2000 data compiled in Table 3.8 show that the per capita income of residents within the study census tracts ranges from $6,785 in census tract 83.01 (Mendota vicinity) to $13,540 in census tract 19 (next to the city of Fresno). These figures are lower than the numbers reported for the County and City of Fresno as a whole ($15,495 and $15,010, respectively). Firebaugh reported per capita income of $9,290; and Mendota, $6,967. The more rural census tracts—82, 83.01, 83.02, 84.01, and 84.02 tend to have the lowest per capita and family incomes. Similarly, the fewest families living below the poverty level were found in the County and City of Fresno (17.6 and 20.5 percent, respectively) and the most (35.2 percent) in the City of Mendota. The poverty threshold in 2000, established by the U.S. Department of Health and Human Services, was $13,290 per year for an average family size of three and $17,029 per year for an average family size of four. The percentages of individual earnings in 1999 below the poverty level range from 59 percent in census tract 19 (adjacent to the cities of Fresno and Kerman) to 98 percent in Mendota. These are higher percentages than Fresno County's overall average of 52 percent.

**Table 3.8 Study Area Income**

| Area | Total Population | Per Capita Income | Individuals Earning below Poverty Level Number (%) | Total Families | Median Family Income | Families below Poverty Level Number (%) |
|---|---|---|---|---|---|---|
| Fresno County | 799,407 | $15,495 | 179,085 (52.4) | 188,489 | $38,455 | 33,175 (17.6) |
| City of Fresno | 427.652 | $15,010 | 109,703 (60.9) | 98,925 | $35,892 | 20,325 (20.5) |
| Firebaugh | 5,743 | $9,290 | 1,301 (58.9) | 1,251 | $33,018 | 250 (20.0) |
| Kerman | 8,551 | $11,495 | 1,674 (50.4) | 1,951 | $34,120 | 372 (19.1) |
| Mendota | 7,890 | $6,967 | 3,274 (98.1) | 1,521 | $22,984 | 535 (35.2) |
| Census Tract 7 | 4,110 | $11,357 | 1,250 (83.4) | 873 | $24,077 | 248 (28.4) |
| Census Tract 19 | 2,645 | $13,540 | 670 (59.4) | 634 | $36,667 | 120 (18.9) |
| Census Tract 39 | 5,503 | $11,238 | 1,529 (68.9) | 1,278 | $27,300 | 272 (21.3) |
| Census Tract 40 | 9,539 | $11,023 | 2,248 (60.0) | 2,221 | $32,717 | 480 (21.6) |
| Census Tract 82 | 7,463 | $9,218 | 2,123 (73.3) | 1,525 | $27,149 | 392 (25.7) |
| Census Tract 83.01 | 3,936 | $6,785 | 1,425 (91.8) | 749 | $23,939 | 234 (31.2) |
| Census Tract 83.02 | 6,092 | $9,100 | 2,397 (87.9) | 1,133 | $24,275 | 371 (32.7) |
| Census Tract 84.01 | 7,142 | $9,038 | 1,849 (69.5) | 1,515 | $32,716 | 332 (21.9) |
| Census Tract 84.02 | 2,192 | $9,274 | 600 (69.6) | 547 | $27,734 | 127 (23.2) |

*Source: Community Impact Assessment (Addendum-July 2009).*

### *Race and Ethnicity*

As shown in Table 3.9, nearly half of the population of Fresno County (44 percent) identifies itself as Hispanic or Latino. In the city of Fresno, 40 percent of its population is Hispanic or Latino and 37 percent of its population is white. The cities of Kerman and Mendota, however, have much higher percentages of their populations reporting as Hispanic or Latino, at 65 and 95 percent, respectively. Mendota has the smallest white population (3 percent). Most of the study area census tracts exhibit a higher percentage of minority residents than do the County and City of Fresno.

While a high percentage of the population in the study area is either Hispanic or white, the city of Fresno contains the highest percentage of Asians in the study area (11 percent). Census Tract 7, closest to the city of Fresno in the study area, contains the largest proportion of African Americans (35 percent), while African Americans compose less than 10 percent of the population of the remainder of the census tracts in the study area.

## Table 3.9 Study Area Population Demographics*

| Area | Total Population | White | Black or African American | American Indian and Alaska Native | Asian | Native Hawaiian and other Pacific Islander | Some Other Race | 2 or More Races | Hispanic or Latino |
|---|---|---|---|---|---|---|---|---|---|
| Fresno County | 799,407 | 317,522 (39.7%) | 40,291 (5.0%) | 6,223 (0.8%) | 63,029 (7.9%) | 682 (0.1%) | 1,451 (0.2%) | 18,573 (2.3%) | 351,636 (44.0%) |
| Fresno (City) | 427,652 | 159,473 (37.3%) | 34,357 (8.0%) | 3,259 (0.8%) | 47,136 (11.0%) | 427 (0.1%) | 728 (0.2%) | 11,752 (2.7%) | 170,520 (39.9%) |
| Firebaugh | 5,743 | 565 (9.8%) | 61 (1.1%) | 17 (0.3%) | 38 (0.7%) | 0 (0.0%) | 1 (0.0%) | 35 (0.6%) | 5,026 (87.5%) |
| Kerman | 8,551 | 2,070 (24.2%) | 24 (0.3%) | 26 (0.3%) | 699 (8.2%) | 0 (0.0%) | 7 (0.1%) | 40 (0.5%) | 5,552 (64.9%) |
| Mendota | 7,890 | 248 (3.1%) | 38 (0.5%) | 32 (0.4%) | 57 (0.7%) | 0 (0.0%) | 7 (0.1%) | 40 (0.5%) | 7,468 (94.7%) |
| Census Tract 7 | 4,110 | 229 (5.6%) | 1,435 (34.9%) | 22 (0.5%) | 182 (4.4%) | 3 (0.1%) | 7 (0.2%) | 55 (1.3%) | 2,177 (53.0%) |
| Census Tract 19 | 2,645 | 878 (33.2%) | 195 (7.4%) | 22 (0.8%) | 196 (7.4%) | 1 (0.0%) | 11 (0.4%) | 63 (2.4%) | 1,279 (48.4%) |
| Census Tract 39 | 5,503 | 1,960 (35.6%) | 19 (0.3%) | 27 (0.5%) | 138 (2.5%) | 5 (0.1%) | 20 (0.4%) | 88 (1.6%) | 3,246 (59.0%) |
| Census Tract 40 | 9,539 | 2,492 (26.1%) | 26 (0.3%) | 29 (0.3%) | 784 (8.2%) | 1 (0.0%) | 30 (0.3%) | 163 (1.7%) | 6,014 (63.0%) |
| Census Tract 82 | 7,463 | 848 (11.4%) | 8 (0.1%) | 24 (0.3%) | 165 (2.2%) | 4 (0.1%) | 7 (0.1%) | 35 (0.5%) | 6,372 (85.4%) |
| Census Tract 83.01 | 3,936 | 105 (2.7%) | 23 (0.6%) | 10 (0.3%) | 25 (0.6%) | 0 (0.0%) | 3 (0.1%) | 21 (0.5%) | 3,749 (95.2%) |
| Census Tract 83.02 | 6,092 | 274 (4.5%) | 15 (0.2%) | 25 (0.4%) | 46 (0.8%) | 0 (0.0%) | 4 (0.1%) | 23 (0.4%) | 5,705 (93.6%) |
| Census Tract 84.01 | 7,142 | 700 (9.8%) | 82 (1.1%) | 23 (0.3%) | 42 (0.6%) | 0 (0.0%) | 1 (0.0%) | 45 (0.6%) | 6,249 (87.5%) |
| Census Tract 84.02 | 2,192 | 726 (33.1%) | 9 (0.4%) | 11 (0.5%) | 12 (0.5%) | 0 (0%) | 19 (0.9%) | 1,409 (64.3%) | 1,409 (64.3%) |

*Percent figures for total population may add up to more than 100% because individuals may report more than one racial background.

Community Impact Assessment (Addendum-July 2009).

### *Community Cohesion*

The study area is generally rural in nature, and residents who live in rural areas are typically more cohesive than in urbanized areas. They tend to know one another and meet frequently at local businesses, post offices, schools, and churches. This statement is supported by the 2000 census data, which reported higher percentages (52 to 63 percent) of residents in study area census tracts living in the same house in 1995 compared with the countywide number of 51 percent and the urbanized city of Fresno (47 percent). Among the three rural cities within the study area, only Kerman (46 percent) was lower than the countywide average for residents reported living in the same house in 1995.

The Russian Molokan community (an ethno-religious Russian enclave that migrated to the area in 1915), with an estimated population of over 1,000, resides within and adjacent to the city of Kerman. Cohesiveness within this community is characterized by ethno-religious based cultural traditions and customs among its members. This ethnic group of farming families has steadfastly maintained its privacy, unique culture, language and religion. The self-identified community is grouped around three churches to the north of Belmont Avenue and west of Del Norte Avenue.

Judging from the level of participation of community members attending the scoping and information meetings, and the comments heard at those meetings, it is evident that connectedness within the community is high throughout the study area. Many of the families have lived in the same community and even the same residence for more than a generation. This connectedness is especially high within the Russian Molokan community.

### ***Environmental Consequences***

As described in Section 2.2.1, route alignments have been developed and screened in part on the basis of avoiding established communities. This route adoption study would ultimately resolve the current 20-mile gap between State Route 33 in Mendota and Interstate 5 to the west. An improved transportation facility in this portion of the county has been promoted in adopted area land use plans (see Section 3.1.1). In general, the proposed route adoption would provide residents and adjacent communities with better access to various community service facilities, a beneficial impact. A proposed new highway would also provide residents within the study area and communities adjacent to it better access to various community service facilities where residents regularly meet.

Some alternatives cross clusters of homes or communities within the study area. Impacts on community cohesion can be minimized with careful placement of the final expressway. Actual acquisitions and resulting impacts cannot be determined with certainty until project-level engineering is completed, which would occur at a later date. Specific mitigation would be identified as subsequent projects are proposed to avoid or minimize the effects on neighborhood and community cohesion.

Construction of an expressway would result in impacts to residents associated with higher traffic volumes. Because of more traffic, people living near the expressway would be exposed to increased noise levels. Other environmental impacts from increased traffic volume would include air pollutant emissions and potential issues related to cross traffic, pedestrians and bicyclists. As long as cross traffic is properly separated and the roadway signs and signals are correctly designed and installed, traffic, pedestrian and cyclist safety should not suffer. Air quality and noise impacts and concept-level mitigation measures are discussed in Sections 3.2.6 and 3.2.7 of this document, respectively. Specific mitigation would be identified as subsequent projects are proposed.

Specific impacts are described below by alternative.

### *Alternative 1*

Alternative 1 would provide connectivity benefits between the cities of Fresno, Kerman, and Mendota comparable to Alternatives 2 and 3. This alternative would provide less direct access to the city of Firebaugh because it goes to the south of Mendota. This alternative would provide improved connectivity between Mendota and Kerman and between San Joaquin and Tranquillity via James Avenue.

Alternative 1 would substantially disrupt community cohesion within the city of Kerman. This route also goes directly through the community of Rolinda. Within the 1,000-foot corridor, there is estimated to be approximately 475 single- or multi-family residential units within Kerman and 107 businesses. While the actual loss of property would be much less assuming a 350-foot-wide right-of-way, the direct and indirect disruption to community life in Kerman and Rolinda would nevertheless be substantial and adverse.

This alternative has the potential to create a perceived barrier to interaction between parts of the Russian Molokan community, even though it may not directly affect any Russian Molokan-owned residences. Traversing either to the north or south of

Whitesbridge Avenue, Alternative 1 is farthest removed from the heart of the community when compared with the other alternatives.

Variation 1A, along Shields Avenue, would provide better connectivity to the city of Firebaugh to the north. However, this variation would add approximately 2 miles to Alternative 1, lengthening travel times. Alternative 1 would cause substantial community disruption through Kerman and Rolinda. Variation 1B would reduce community disruption to Kerman by bypassing it to the north, and Variation 1C bypasses both Kerman and Rolinda.

### *Alternative 2*

Alternative 2 would provide connectivity benefits between the cities of Fresno, Kerman, and Mendota comparable to Alternatives 1 and 3. This alternative would provide less direct access to Firebaugh because it goes south of Mendota. This alternative would not provide improved connectivity between the communities of Mendota and Kerman or between the communities of San Joaquin and Tranquillity south of the study area.

This alternative would not divide any city or town. While individual residences would have to be acquired, this alternative crosses to the north of Rolinda and Kerman, and to the south of Mendota.

Like Alternatives 1 and 3, Alternative 2 has the potential to create a barrier to interaction between parts of the Russian Molokan community. This alternative would appear to affect a similar number of Russian Molokan-owned residences (estimated at fewer than 15) as Alternative 3.

### *Alternative 3*

Alternative 3 would provide much needed transportation connectivity between the cities of Fresno, Kerman, Mendota, and Firebaugh, as well as areas of unincorporated Fresno County. Compared with the other alignment alternatives, this alternative would provide somewhat closer access to the city of Firebaugh because it goes north of Mendota. This alternative would not provide improved connectivity between Mendota and Kerman or between the communities of San Joaquin and Tranquillity south of the study area.

Alternative 3 does not divide any city or town. While individual residences would need to be acquired, this alternative crosses to the north of Rolinda, Kerman and Mendota.

The Russian Molokan group in and around Kerman regularly gather based on religious tenets. Russian Molokan residences, school, and other associated sites and/or buildings are dispersed throughout both the city of Kerman and the city's sphere of influence. Thus, the future expressway has the potential to create a perceived, if not actual, barrier to interaction between parts of the Russian Molokan community. While the number of affected Russian Molokan-owned residences is projected to be few (estimated at fewer than 15), this alternative and Alternative 2 appear to traverse closer to the heart of the community than Alternative 1.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission or construction of a new expressway. Under this scenario, highway facilities within the study area would likely remain similar to present-day conditions for the foreseeable future. Therefore, there would be no effect on community character or cohesion under the No-Action/No-Project Alternative.

### ***Avoidance, Minimization, and/or Mitigation Measures***

#### *Alignment Alternatives*

Although no mitigation measures are required for the route adoption, the construction of subsequent projects should consider measures that would minimize adverse impacts to established communities in the study area. For an unavoidable acquisition of a property, assistance would be provided to the property owner/tenant to find a replacement property/domicile within the community in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (see Appendix D for details).

Access issues would be addressed during the planning and design stages of subsequent projects. Proper placement of bridge crossings and use of frontage roads to maintain access in certain areas should minimize potential adverse economic and community effects.

#### *No Action/No Project Alternative*

No mitigation is required.

### 3.1.4.2 Relocations

#### *Regulatory Setting*

The Caltrans' Relocation Assistance Program is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations 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. See Appendix D 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 U.S. Code 2000d, et seq.). See Appendix C for a copy of Caltrans' Title VI Policy Statement.

#### *Affected Environment*

Information contained in two technical documents—the 2006 Relocations and Acquisitions Summary Report and the 2009 Relocations and Acquisitions Summary Report Addendum—form the basis of the discussion in this section.

The Relocations and Acquisitions Summary Report inventoried residential and nonresidential properties that may be subject to displacement as part of subsequent projects. Relocation opportunities were examined for the identified properties.

Socioeconomic characteristics were considered for census tracts within the immediate vicinity of the potentially affected area, and the surrounding census tracts where potential future residential and nonresidential displacements may relocate. This area is identified as the "replacement area." The replacement area for affected residences and businesses is much larger than the study area and is composed of census tracts with similar socioeconomic characteristics (see Figure 3-5).

It is important to note the potential affordability issues for owner-occupied properties throughout the replacement area, with median prices for listed new and resale homes exceeding $225,000 in 2009. However, single-family home prices started to decline around 2007 and continue to plummet due to the current state of the economy. Home prices have dropped significantly over the past year, and the unemployment rate has increased, leaving many residents in the study area and beyond living with financial

constraints that could affect their ability to cope with a residential displacement. Due to court-imposed restrictions that turned off water to farmers in the west side of the valley, unemployment and foreclosures continue to plague the area. The loss of jobs and farms go hand in hand because the labor force in the area is centered on agriculture. The unemployment rate in Westside communities such as Mendota has climbed to 38 percent as of 2009.

As discussed in Section 3.1.4.1 Community Character and Cohesion, the study area includes a very small corner of the city of Fresno, the northern side of Kerman, all of Mendota and the community of Rolinda, as well as extensive unincorporated areas consisting mainly of farmland.

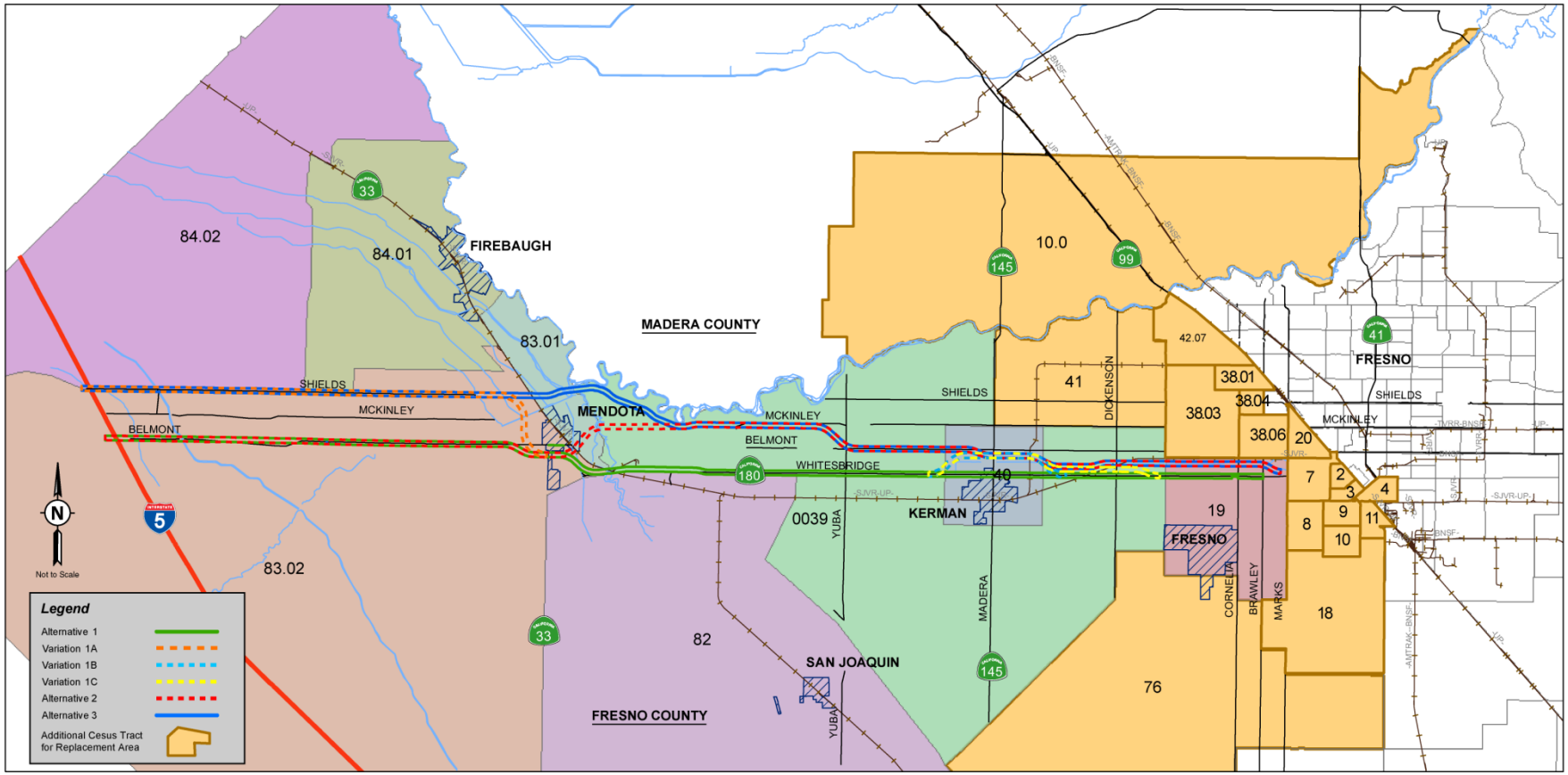



**Figure 3-5 Replacement Area Census Tracts**

### *Environmental Consequences*

Two types of displacements were considered in the Relocations and Acquisitions Summary Report—partial and full acquisitions. Partial residential and nonresidential displacements involve the acquisition of the uninhabited area of a property, such as portions of a back, side, or front yard. Acquisition would be considered partial if an alignment does not touch a home or barn building, if access to the property would remain intact after project construction and if the remainder parcel could be used at present.

There are few expected partial nonresidential displacements for any of the alignment alternatives because all of the affected businesses/operations lie along the major roads within the 1,000-foot-wide alternatives, and therefore are assumed to be subject to full acquisition, for purposes of this planning study.

Nonresidential parking areas are either located entirely within the corridor, or the parking lot is associated with a full-acquisition business; therefore, an analysis of partial-lot acquisitions was not conducted.

Table 3.10 summarizes the number of potentially affected residential properties and associated resident estimates by alternative.

**Table 3.10 Potential Residential Displacements by Alternative[1]**

| Type of Residence | Approximate Number of Units/ Residents[2] | Alt. 1 | With Variation 1A | With Variation 1B | With Variation 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| **Single-Family Residences** | Units | 289 | 281 | 138 | 117 | 89 | 61 |
| | Residents | 1283[3] | 927[3] | 455 | 386 | 294 | 201 |
| **Multi-Family Residences** | Units | 151 | 151 | 0 | 0 | 0 | 0 |
| | Residents | 378 | 378 | 0 | 0 | 0 | 0 |
| **Mobile Homes** | Units | 35 | 34 | 34 | 35 | 2 | 10 |
| | Residents | 70 | 68 | 68 | 70 | 4 | 20 |
| **Total by Alternative** | Units | 475 | 466 | 172 | 152 | 91 | 71 |
| | Residents | 1,732 | 1,373 | 523 | 456 | 298 | 221 |

[1]Calculations based on 1,000-foot-wide corridor; actual number of displacements to be determined at project level.
[2]Assumes following average occupancies: Single-Family Residential–3.3; Multi-Family Residential–2.5; Mobile Homes–2.0.
[3]At the time this report was prepared, 130 improved lots south of Whitesbridge Avenue between Del Norte Avenue and Siskiyou Avenue in the City of Kerman were undeveloped, so the number of residents that may occupy those units are not included in this table.

Source: Draft Relocations and Acquisitions Summary Report (Addendum-June 2009).

Table 3.11 summarizes the potentially affected businesses and associated displaced employees for each corridor alternative.

### Table 3.11 Potential Nonresidential Displacements by Alternative[1]

| Type of Property | Number of Units/ Approximate Number of Employees | Alt. 1 | With Variation 1A | With Variation 1B | With Variation 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| **Retail Trade** | Units | 18 | 18 | 1 | 0 | 0 | 0 |
| | Employees | 170 | 170 | 9 | 0 | 0 | 0 |
| **Services/Other Commercial** | Units | 58 | 58 | 12 | 6 | 3 | 3 |
| | Employees | 414 | 414 | 86 | 43 | 18 | 23 |
| **Government/ Nonprofit** | Units | 5 | 4 | 1 | 1 | 1 | 0 |
| | Employees | 45 | 35 | 9 | 9 | 10 | 0 |
| **Agricultural** | Units | 9 | 12 | 8 | 7 | 6 | 3 |
| | Employees | 255 | 516 | 344 | 301 | 169 | 170 |
| **Industrial/ Manufacturing** | Units | 7 | 7 | 7 | 3 | 1 | 7 |
| | Employees | 275 | 275 | 275 | 118 | 5 | 63 |
| **Unoccupied** | Units | 10 | 10 | 5 | 2 | 2 | 0 |
| **Total by Alternative** | Units | 107 | 109 | 34 | 19 | 13 | 13 |
| | Employees | 1,159 | 1,410 | 723 | 471 | 202 | 256 |

[1] Calculations based on 1,000-foot-wide corridor; actual number of displacements to be determined at project level.

Source: Draft Relocations and Acquisitions Summary Report (Addendum-June 2009).

Potential displacement impacts for the alignment alternatives would be considered adverse. These displacements, however, are based on the 1,000-foot-wide corridor for each corridor alternative. Future project-level right-of-way acquisition would accommodate a 250-foot-wide to 350-foot-wide expressway, depending on whether frontage roads are required along the expressway. Therefore, the actual number of displacements is expected to be considerably less than the totals shown in Table 3.10 and Table 3.11. Precise estimates would be determined during subsequent project-level studies.

Agricultural businesses could experience the highest number of property displacements within the study area west of Kerman. The largest industrial site that could be affected is the former Holly Sugar plant. The factory closed in 2008, and there are no current plans to revive it. The study area generally to the east of Kerman would experience the greatest impact from residential and nonresidential displacements from future projects.

Based on the 2009 Relocations and Acquisitions Summary Report Addendum, businesses acquired would likely be able to relocate near their original locations; therefore, loss of income by business owners, loss of associated business taxes by local jurisdictions, and loss of employment by local residents are expected to be temporary. In the long term, employment in the localities served by the future expressway would likely increase, since the expressway is one of the initiatives outlined in the Westside Economic Development Action Plan.

When only existing new and resale homes are considered, the number of replacement residential properties for the alternatives would be inadequate within the replacement study area. When future development is taken into account, as described in Section 3.1.1.1 Land Use, there appears to be more than an adequate supply of replacement housing and rental properties. Table 3.12 and Table 3.13 show available renter- and owner-occupied housing units within the replacement area in 2008.

Each alternative would require new right-of-way across various utility corridors. Major utility lines within the study area are listed in Table 3.15, Section 3.1.5. Caltrans attempted to minimize conflicts with public facilities during the route alignment process, including avoidance of Fresno Irrigation District's Waldron Banking Facility and the City of Mendota's Wastewater Treatment Plant Expansion area. Impacts associated with right-of-way acquisition at public and private utility crossings are not expected to be adverse.

## Table 3.12 Summary of Rental Property Availability

| Reference Source | Location | Type | Bed/Bath | Number Available | Cost Range ($/month) |
|---|---|---|---|---|---|
| The Fresno Bee September 3, 2008 | Fresno County and City | House, Unfurnished | 1/1 | 2 | 425, 450 |
| | | | 2/1 | 6 | 595–800 |
| | | | 2/2 | 2 | 850, 1,000 |
| | | | 3/1 | 4 | 675–1,000 |
| | | | 3/2 | 5 | 595–1,195 |
| | | | 4/2 | 2 | 680, 1,250 |
| | | | 4/3 | 1 | 1,595 |
| | | Apartment, Unfurnished | 2/1 | 1 | 695 |
| | | | 3/2 | 1 | 750 |
| | | | 4/2 | 1 | 895 |
| | | Apt. Complex | var. | 2 | Not Specified |
| The Kerman News September 3, 2008 | Kerman Area | Mobile Home | 2/1 | 2 | 550 |
| | Mendota | House, Unfurnished | 3/2 | 1 | 1,000 |
| | | Apartment, Unfurnished | 2/1 | 1 | 620 |
| | Kerman Area | House, Unfurnished | 3/2 | 1 | 1,100–1,300 |
| | | House, Unfurnished | 4/2 | 5 | 1,050–1,495 |
| Rent.com September 29, 2008 | West Fresno Area | Apartment, N/S | Studio/1 | 1 | 610 |
| | | | 1/1 | 2 | 455, 710 |
| | | | 2/1 | 3 | 590–790 |
| | | | 3/2 | 4 | 784–1,150 |
| | | | 4/2 | 2 | 860, 872 |
| | Firebaugh | Apartment, N/S | 1/1 | 2+ | Not Specified |

Source: Draft Relocations and Acquisitions Summary Report (Addendum-June 2009).

**Table 3.13 Current (September 2008) Housing Supply Characteristics within Replacement Area**

| Zip Code | Census Tract(s) | Jurisdiction | Number of Homes Available | Median House Square footage | Median Asking Price |
|---|---|---|---|---|---|
| 93620 | 84.02 | County (Dos Palos vicinity) | 232 | 1,275 | $184,000 |
| 93622 | 84.01, 84.02 | Firebaugh | 38 | Not Available | $175,000 |
| 93640 | 83.01, 83.02 | County, Mendota | 47 | Not Available | $160,000 |
| 93608, 93627 | 82 | County, San Joaquin | 21 | Not Available | $144,000 |
| 93668 | 82 | County, Tranquillity | 1 | Not Available | Not Available |
| 93630 | 39.00, 40.00 | Kerman | 138 | 1,607 | $206,000 |
| 93706 | 2.00, 3.00, 7.00, 8.00, 9.00, 10.00, 18.00, 19.00, 76.00 | County (Rolinda, Easton, Fresno County Airport) | 101 | 1,248 | $110,000 |
| 93722 | 20.00, 38.01, 38.03, 38.05, 38.06, 42.07 | County and Fresno | 130+ | 1,610 | $183,000 |

Source: Draft Relocations and Acquisitions Summary Report (Addendum-June 2009).

The following discussion about potential property effects due to the route adoption is provided for comparative purposes only at this planning stage. Actual property acquisition numbers would be much less, as the ultimate right-of-way required would be about one-third of the 1,000-foot-wide corridor used for this analysis. In this context, “affected” properties, as discussed below, does not necessarily mean that they would be located within the future right-of-way.

### *Alternative 1*

Alternative 1 would affect up to 475 residences, about 300 of which are located in the City of Kerman. This alternative would displace an estimated 1,732 residents. As with all the alternatives, the highest number of single-family residences to be acquired would occur east of Yuba Avenue because the western half of the study area is sparsely populated. There are also 151 units of multi-family housing in Kerman south of Whitesbridge Avenue. Alternative 1 would potentially affect 313 more residential units than Alternatives 2 and 3 combined.

Alternative 1 would affect up to 107 businesses and would potentially affect over 1,000 employees. Of the total nonresidential properties inventoried, most are in Kerman. Approximately 1,729 parking spaces associated with these nonresidential properties may be affected. Relocation impacts associated with this alternative are therefore considered to be substantial and adverse.

Relocation impacts associated with Variation 1A would be similar to Alternative 1. Variation 1B was drawn with the intent to avoid relocation impacts within Kerman, and Variation 1C was developed to avoid both Kerman and Rolinda. As shown in Table 3.9 and Table 3.10, potential impacts associated with both Variations 1B and 1C would be adverse, but those impacts would be substantially fewer compared to Alternative 1 or Variation 1A.

Nonresidential parking spaces may be reduced by 15 if Variation 1A were selected for Alternative 1. However, if Variation 1B or 1C were selected for Alternative 1, then about 567 parking spaces or 389 parking spaces, respectively, may be affected by the alternative.

Fewer than 10 residential properties are potentially subject to a partial acquisition under Alternative 1. There are no anticipated partial nonresidential acquisitions.

### *Alternative 2*

Alternative 2 would affect up to 91 residences and 13 businesses. This alternative would displace an estimated 298 residents. Using typical employment data, about 298 employees would be affected by this alternative. Approximately 222 nonresidential parking spaces may be affected by this alternative. Relocation impacts associated with this alternative are considered to be adverse.

Fewer than 10 residential properties are subject to a partial acquisition within the study area for Alternative 2. There are no anticipated partial nonresidential acquisitions for this alternative.

### *Alternative 3*

Alternative 3 would affect up to 71 residences and 13 businesses and displace approximately 221 residents. While comparable to Alternative 2, Alternative 3 would affect the fewest number of properties of all the alternatives. Using typical employment data, about 256 employees would be affected by Alternative 3. Approximately 192 nonresidential parking spaces may be affected by this alternative. Relocation impacts associated with this alternative are considered to be adverse.

The number of residential properties subject to a partial acquisition is probably fewer than 10 for Alternative 3. There are no anticipated partial nonresidential acquisitions for this alternative.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve route adoption of State Route 180 by the California Transportation Commission or construction of a new expressway. Under this scenario, no future highway facilities would be constructed within the study area for the foreseeable future, and there would be no impacts associated with right-of-way acquisitions.

## *Avoidance, Minimization, and/or Mitigation Measures*

### *Alignment Alternatives*

Caltrans' policy is to provide relocation assistance payments and counseling to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. Property owners would be compensated at the fair market value for their property, determined on the basis of the highest and best use. All eligible displaced persons would be entitled to moving expenses. All benefits and services would be provided equitably to all relocated residential and business properties without regard to race, color, religion, age, national origins, and disability as specified under Title VI of the Civil Rights Act of 1964.

Potential conflicts with some utilities, including irrigation canals, pipelines and power lines, could be avoided through alternative selection and by careful placement of future projects. When avoidance is not feasible, designing overcrossing or undercrossing structures could minimize impacts. Close coordination with utility providers would be done to identify possible relocations or interruptions in service.

Decisions on relocations and associated avoidance, minimization, and mitigation measures cannot be made at this planning level and would need to be addressed during subsequent projects.

### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative because there would be no route adoption and this alternative would not result in any relocation impacts.

### 3.1.4.3 Environmental Justice

#### *Regulatory Setting*

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Bill Clinton on February 11, 1994. This executive order 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 2009, this was $22,050 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 evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

#### *Affected Environment*

The 2009 Community Impact Assessment Addendum forms the basis for the discussion in this section. U.S. Census 2000 demographic data was analyzed for the study area to comply with Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The environmental justice assessment focused on census tracts in and around the study area. The census tracts displayed in Figure 3-4 of the Community Character and Cohesion section contains portions of census tracts 7, 19, 39, 40, 82, 83.01, 83.02, 84.01, and 84.02. The data for these census tracts were used to analyze the study area for environmental justice concerns. Income and ethnicity variables for the combined census tracts were compared with income and ethnic composition data from the cities of Firebaugh, Mendota, Kerman and Fresno as well as Fresno County to determine if the study area had a disproportionately large low-income or minority population.

The census reported that the racial composition of the study area is 16.9 percent white, 74.5 percent Hispanic or Latino, 3.7 percent black or African American, and 3.3 percent Asian. Specific demographic data for the study area, Fresno County, and adjacent cities are displayed on Table 3.14.

**Table 3.14 Study Area Demographics**

| Race | Study Area | Fresno County | Fresno City | Firebaugh | Kerman | Mendota |
|---|---|---|---|---|---|---|
| **White** | 8,212 (16.9%) | 317,522 (39.7%) | 159,473 (37.3%) | 565 (9.8%) | 2,070 (24.2%) | 248 (3.1%) |
| **Black or African American** | 40,291 (5.0%) | 40,291 (5.0%) | 34,357 (8.0%) | 61 (1.1%) | 24 (0.3%) | 38 (0.5%) |
| **American Indian and Alaska Native** | 6,223 (0.8%) | 6,223 (0.8%) | 3,259 (0.8%) | 17 (0.3%) | 26 (0.3%) | 32 (0.4%) |
| **Asian** | 63,029 (7.9%) | 63,029 (7.9%) | 47,136 (11.0%) | 38 (0.7%) | 699 (8.2%) | 57 (0.7%) |
| **Native Hawaiian and other Pacific Islander** | 682 (0.1%) | 682 (0.1%) | 427 (0.1%) | 0 (0.0%) | 1 (0.0%) | 0 (0.0%) |
| **Some other race** | 1,451 (0.2%) | 1,451 (0.2%) | 728 (0.2%) | 1 (0.0%) | 30 (0.4%) | 7 (0.1%) |
| **Two or more races** | 18,573 (2.3%) | 18,573 (2.3%) | 11,752 (2.7%) | 35 (0.6%) | 149 (1.7%) | 40 (0.5%) |
| **Hispanic or Latino** | 36,200 (74.5%) | 351,636 (44.0%) | 170,520 (39.9%) | 5,026 (87.5%) | 5,552 (64.9%) | 7,468 (94.7%) |
| **Total Population** | **48,622** | **799,407** | **427,652** | **5,743** | **8,551** | **7,890** |

Source: Community Impact Assessment (Addendum-July 2009).

According to the 2000 U.S. Census, the median household income in the study area was $27,300; the median household income in the cities of Firebaugh, Mendota, Kerman and Fresno were $33,018, $22,984, $34,120, and $35,892, respectively. The median household income for Fresno County as a whole was $38,455. The median household income within each jurisdiction was above the Department of Health and Human Services poverty threshold for a family of four, which was $17,029 in 2000.

### *Environmental Consequences*

#### *Alignment Alternatives*

Impacts described in this subsection apply only to route adoption and are therefore assessed at a planning level. Future environmental documentation would be required at a project level of analysis. Potential environmental justice impacts would be similar for each alternative and associated variation and are therefore evaluated for the study area as a whole rather than individually.

Potential environmental justice impacts are those adverse effects that would primarily affect a minority and/or low-income population or effects that would more negatively affect a minority and/or low-income population than they would a non-minority

and/or higher income population. Environmental justice is also concerned with the possibility for disparate positive impacts that would primarily accrue to the non-minority or higher income residents of the study area.

The study area has a high proportion of minority residents, as shown in Table 3.14; however, these populations appear to be distributed fairly uniformly over the study area. Moreover, census tracts with lower percentages of minority populations compared to the county of Fresno, such as those adjacent to the city of Fresno, also exist within the study area.

The median family income for families within the study area census tracts is generally lower than for families in Fresno County and the city of Fresno. However, it is higher than the poverty threshold for an average family of the same size established by the U.S. Department of Health and Human Services. Therefore, by definition, the study area population is not characterized as a low-income population within the meaning of Executive Order 12898. As with the population distribution, the low- and moderate-income populations appear to be distributed uniformly over the study area, based on the census tract data.

Though not denoted in the census tract data, the Russian Molokan community is an ethno-religious community that is composed of more than one hundred homes relatively dispersed throughout Kerman. This community is generally located in an area bounded east and west by Butte Avenue and Jameson Avenue and north and south by the San Joaquin River and the San Joaquin Valley Railroad. The Russian Molokan community does not fall under the Title VI definition of a minority group.

There are likely to be concentrations of either minority and/or low-income residents in certain parts of the overall study area. Analysis of these would require a more focused sub-area analysis using census block group data. This level of detail would be addressed when subsequent expressway projects are proposed. Even though proposed future projects may result in adverse effects to some individual groups of people, it would also provide benefits to all communities within the study area.

There are high concentrations of minority residents within the study area that may be characterized as environmental justice populations. However, the area affected by the potential route adoption also contains areas with lower percentages of minority populations compared to Fresno County, and these populations are evenly distributed. At this planning-level analysis, it is concluded, pursuant to Executive Order 12898,

that no disproportionately high or adverse human health or environmental effects would occur to the minority or low-income populations in the study area.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve adoption of State Route 180 by the California Transportation Commission or construction of a new expressway. Under this alternative, highway facilities within the study area would likely remain similar to present-day conditions for the foreseeable future. Therefore, there would be no environmental justice issues under this alternative.

## *Avoidance, Minimization, and/or Mitigation Measures*

### *Alignment Alternatives*

The Russian Molokan community does not fall under the Title VI definition of a minority group; however, Caltrans has made efforts to minimize impacts to the community. Caltrans coordinated with Russian Molokan community members during the scoping and environmental processes of the project study. This effort resulted in changing the alignment for Alternatives 2 and 3 between Lake Avenue and Siskyou Avenue to avoid these locations and minimize effects to Russian Molokan-owned parcels. Although not all Russian Molokan-owned properties can be avoided, a good faith effort was made to minimize effects to Russian Molokan-owned properties within the study area.

Several potential population displacement impacts could likely be avoided by selecting alternatives that minimize effects, in particular, those alignments that avoid residential neighborhoods in the cities of Kerman, Mendota and Firebaugh. It is possible to further reduce impacts to minority or low-income populations through localized avoidance once an alternative is selected because the 1,000-foot-wide corridor would allow for careful placement of the ultimate roadway.

It is concluded that no disproportionately high or adverse human health or environmental effects would occur to minority or low-income populations; therefore, other than avoidance, no mitigation measures are recommended at this time.

### *No-Action/No-Project Alternative*

No mitigation is required under this alternative.

### 3.1.5 Utilities/Emergency Services

#### *Affected Environment*

The information contained in the 2009 Community Impact Assessment Addendum forms the basis of the discussion in this section. This section addresses potential impacts to utilities and public services within the study area provided by the cities of Fresno, Kerman, and Mendota, and the County of Fresno.

#### *Natural Gas, Electricity, and Telephone Services*

Pacific Gas and Electric Company provides gas and electric service to most of Fresno County. Two 500-kilovolt electric transmission lines cross the study area from north to south parallel to and midway between Interstate 5 and the California Aqueduct. AT&T and the Kerman Telephone Company provide telephone service in the study area.

#### *Water and Sewer*

The cities of Mendota, Kerman, Fresno and Firebaugh provide water service and sewage treatment for their residents. In the large unincorporated parts of the study area, private wells and septic systems are used to provide water and sewage disposal, respectively.

The city of Mendota added three wells in 2002 to help meet the water demand in the growing community. To accommodate growth in Mendota, the city completed construction of its wastewater treatment plant expansion in July 2011 and is pursuing additional funds to build another pond in the near future. For its water supply, Kerman relies on groundwater from five water wells in combination with two 750,000-gallon water storage tanks. Kerman owns and operates a wastewater treatment plant on the south side of the city. The Fresno/Clovis Regional Water Reclamation Facility is located on Jensen Avenue in southwest Fresno. All of these publicly owned facilities are located outside of the potentially affected area.

#### *Irrigation*

Most of the land in the study area is irrigated farmland crossed by a network of major and minor canals vital to agriculture. The Fresno Irrigation District's service area covers about 245,000 acres, extending across the geographical center of Fresno County and serving the eastern end of the study area. The irrigation district operates roughly 800 miles of canals and pipelines, and delivers about 500,000 acre-feet of irrigation water annually. Most of this water is delivered to agricultural users,

although an increasing share is used for groundwater recharge. The Fresno Irrigation District also operates the Waldron Banking Facility, which is a groundwater recharge and recovery facility intended to supplement the district's water supplies. The district owns and operates the large Houghton Canal No. 78, which conveys water at approximately 200 cubic feet per second and runs along a part of the Alternatives 2 and 3 parallel with Nielsen Avenue.

The San Luis and Delta-Mendota Water Authority operates and maintains the Delta-Mendota Canal and the Mendota Pool. Central Valley Project contractors and exchange contractors divert their entitlements directly out of the Delta-Mendota Canal and/or Mendota Pool. The exchange contractors in Fresno County hold significant water rights to the San Joaquin River waters that were historically diverted for irrigation on behalf of their landowners.

As the largest agricultural water district in the United States, the Westlands Water District, manages the water supply and distribution along the west side of the San Joaquin Valley in Fresno and Kings counties. The district boundary roughly extends between Interstate 5 and the San Luis Drain and from Mendota southerly to Kettleman City.

Table 3.15 summarizes the owner/operation and location of the major linear utilities in the study area.

**Table 3.15 Major Linear Utilities**

| Facility Name | Owner/Operator | Location |
|---|---|---|
| San Luis Canal/California Aqueduct | U.S. Bureau of Reclamation/ California Department of Water Resources | Facility crosses all alternative routes at the western end of the study area |
| Delta-Mendota Canal/Mendota Pool/San Joaquin River | San Luis and Delta-Mendota Water Authority | Facility crosses Alternative 3 north of Mendota Wastewater Treatment Plant |
| San Joaquin Valley Railroad | San Joaquin Valley Railroad | Facility crosses all alternatives two times: east of Kerman and in Mendota vicinity |
| Houghton Canal | Fresno Irrigation District | Facility crosses alternatives 2, 3, and Variations 1B and 1C |
| PG&E transmission lines | Pacific Gas & Electric Company | Transmission lines are parallel to and midway between Interstate 5 and the California Aqueduct, crossing all alternatives |
| Power line | Pacific Gas & Electric Company | Located along San Diego Avenue, the power line crosses all alternatives |

**Table 3.15 Major Linear Utilities**

| Facility Name | Owner/Operator | Location |
|---|---|---|
| First Lift Canal | Firebaugh Canal Water District | Alternative 3 |
| Second Lift Canal | Firebaugh Canal Water District | Alternative 3, Variation 1A |
| Third Lift Canal | Firebaugh Canal Water District | Alternative 3, Variation 1A |
| Main Intake Canal | Firebaugh Canal Water District | Variation 1A |
| Outside Canal | Central California Irrigation District | Alternative 3 |

Source: Community Impact Assessment (Addendum-July 2009).

### *Fire Protection*

The Fresno County Fire Protection District serves most of the study area, with additional support provided by volunteer stations. The City of Mendota contracts service from the Fresno County Fire Protection District, which operates out of Station Number 96, at 101 McCabe Avenue in Mendota. The City of Kerman maintains its own fire protection service as part of the North Central Fire Protection District, with district headquarters and the main fire station at 15850 West Kearney Boulevard, about a half-mile south of the southern edge of the study area. The Fresno City Fire Department provides fire protection services within the city limits of Fresno and for the North Central Fire District. The department maintains several fire stations within Fresno near the eastern end of the study area.

The Fresno-Kings Ranger Unit of Cal Fire provides state fire protection responsibility within the study area. CalFire stations in the cities of Mendota and Tranquillity use State Route 180 as a primary response route.

### *Police Protection*

The Fresno County Sheriff's Office is responsible for policing the unincorporated areas of Fresno County throughout the study area, with stations at 5717 East Shields Avenue in Fresno and 21925 West Manning in San Joaquin. The City of Fresno Police Department maintains several police stations within the city limits near the eastern end of the study area. The Kerman Police Department is located adjacent to City Hall in downtown Kerman, which is outside the potentially affected area of the proposed route adoption. The City of Mendota provides municipal police services out of the City Hall.

### *Emergency Medical Services*

American Ambulance provides paramedic services for all of Fresno County. No emergency medical facilities are located within the route adoption study area. The closest hospitals to the proposed alignment alternatives are Community Regional Medical Center (2823 Fresno Street, Fresno), Saint Agnes Medical Center (1303 East Herndon Avenue, Fresno), and Kaiser Permanente Medical Center (7300 North Fresno Street, Fresno). Community Regional Medical Center operates the only combined burn and Level 1 trauma center between Sacramento and Los Angeles, the only high-risk pregnancy unit in the region, and is the state's largest and second busiest emergency department. It is approximately 17 miles east of Kerman in the city of Fresno. Saint Agnes Medical Center and Kaiser Permanente Medical Center are less than 20 miles east of Kerman.

### *Solid Waste*

The American Avenue Landfill is at 18950 West American Avenue in Kerman and serves Fresno County. Mid-Valley Disposal hauls solid waste in the study area.

## ***Environmental Consequences***

### *Alignment Alternatives*

#### ***Natural Gas, Electricity, Telephone, Water, Irrigation, and Sewer Services***

Project-level alignments for all alignment alternatives would cross several linear utility rights-of-way, as well as canal, power, and rail facility crossings throughout the study area.

Easement acquisitions would be required for right-of-way across canals, utility line corridors, other government- or utility-owned property, and railroads. Numerous canals flow in open channels and pipelines along and across the proposed alignments. Specific impacts would be addressed at the individual project level.

Alternatives 1 and 3 have the benefit of avoiding any conflicts associated with the expansion of the Mendota Wastewater Treatment Plant. Although, at this stage, Alternative 3's 1,000-foot-wide footprint crosses the Mendota Pool, any future projects would avoid direct impacts by placing the actual roadway (250 feet wide) north of the Mendota Pool.

#### ***Fire and Police Services***

Temporary delays are possible during construction of subsequent projects; however, a Traffic Management Plan and coordination with emergency service providers would

minimize any delays. Response time for emergency service providers is expected to improve as future project phases are completed.

### *No-Action/No-Project Alternative*

With the No-Action/No-Project Alternative, highway facilities within the study area would likely remain similar to present-day conditions because only rehabilitation projects have been programmed for State Route 180 between State Route 99 and Interstate 5. However, if traffic congestion increases as projected, emergency response times may increase with the No-Action/No-Project Alternative.

## ***Avoidance, Minimization, and/or Mitigation Measures***

The impact assessment in this planning-level document presents general conclusions based on general information available. General mitigation strategies applicable to future projects to offset utilities/emergency services impacts are discussed herein. More specific mitigation strategies will be presented in the project-level documentation.

### *Alignment Alternatives*

#### ***Natural Gas, Electricity, Telephone, Water, Irrigation, and Sewer***

Caltrans procedures are designed to minimize right-of-way impacts and associated easement acquisition costs by carefully selecting the alignment, designing perpendicular crossings where feasible, and acquiring only the area necessary for the intended use. In some instances, complete avoidance of utilities may be possible. For example, this may be the case for the Houghton Canal. When an impact is identified as unavoidable, Caltrans and the affected utility provider should begin coordinating well in advance, preferably during the project design phase, to develop methods to minimize potential service disruptions.

#### ***Fire and Police Services***

Caltrans would notify police and fire departments with jurisdiction over the study area of future project construction schedules well in advance of any detour plans to ensure that the emergency response time is not disrupted. Traffic Management Plans would be prepared in accordance with Caltrans' requirements including measures to minimize emergency service disruptions within the highway right-of-way.

### *No-Action/No-Project Alternative*

No mitigation is required for utilities and public services.

### 3.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

#### *Regulatory Setting*

Caltrans, as assigned by the Federal Highway Administration, 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 Code of Federal Regulations 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 issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 Code of Federal Regulations Part 27) implementing Section 504 of the Rehabilitation Act (29 U.S. Code 794). The Federal Highway Administration has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the 1990 Americans with Disabilities Act requirements to federal-aid projects, including Transportation Enhancement Activities.

#### *Affected Environment*

No technical report was prepared for this study as the study involves only a route adoption decision at this time. Technical studies would be prepared to assess traffic and transportation conditions for future design projects as they are proposed. Traffic counts conducted by Caltrans for the 2004 *State Route 180 Transportation Concept Report* were used for the analysis in this section. Individual traffic analysis using the most current traffic counts would be completed during subsequent projects.

The study area begins at Interstate 5 near Shields Avenue and goes east through unincorporated Fresno County, the cities of Mendota and Kerman, and the community of Rolinda to the western edge of the city of Fresno where it ends near Valentine Avenue. As shown in Figure 1-2, the study area is generally bounded by Interstate 5 on the west; County Route J-1/Shields, the San Joaquin River, and Belmont Avenue on the north; Valentine Avenue on the east; and Belmont and

Whitesbridge Avenues on the south. Interstate 5 interchanges exist at Panoche Road, Shields Avenue, and Nees Avenue.

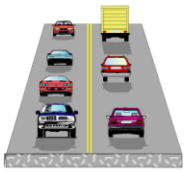
State Route 180 does not exist between Interstate 5 and State Route 33. The existing State Route 180 begins as a four-lane conventional highway at State Route 33 in Mendota. About 1 mile south from here, State Route 180 becomes a two-lane conventional highway until it reaches Kerman. The highway is four lanes in Kerman before it once again becomes a two-lane conventional highway from just outside Kerman to just west of the Fresno city limits. A conventional highway contains at-grade intersections with full access from businesses and residences. Two passing lanes, one westbound and one eastbound, exist along State Route 180 between Kerman and Fresno. State Route 180 becomes a freeway beginning at Brawley Avenue. Freeways have no at-grade intersections with other roads, railroads or multi-use trails.

### *Level of Service*

Level of service is a measurement used to evaluate the overall operating conditions of a given roadway segment or intersection. Level of service is expressed in terms of letters on a scale of A to F. The typical two-lane highway scale is similar to that of a multi-lane highway, although average traffic speeds for a multilane highway are generally higher until a level of service F condition is reached. Figure 3-6 describes the changing conditions as they relate to level of service criteria for a typical two-lane highway.

# LEVELS OF SERVICE

for Two-Lane Highways

| Level of Service | Flow Conditions | Operating Speed (mph) | Technical Descriptions |
|---|---|---|---|
| A | | 55+ | Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed. **No delays** |
| B | | 50 | Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. **No delays** |
| C | | 45 | Stable traffic flow, but less freedom to select speed, change lanes or pass. **Minimal delays** |
| D | | 40 | Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. **Minimal delays** |
| E |  | 35 | Unstable traffic flow. Speeds change quickly and maneuverability is low. **Significant delays** |
| F | | | Heavily congested traffic. Demand exceeds capacity and speeds vary greatly. **Considerable delays** |

Source: 2000 HCM, Exhibit 20-2, LOS Criteria for Two-Lane Highways in Class 1

**Figure 3-6 Levels of Service for a Typical Two-Lane Highway**

On a normal day, peak-hour level of service (i.e., morning, afternoon) within the study area is within the acceptable range of C or better. However, traffic congestion varies from the west end of the corridor to the east end as described below:

- Between Interstate 5 and State Route 33 in western Fresno County, State Route 180 does not exist. Motorists must access Interstate 5 via Panoche Road, via Shields Avenue, or via Belmont Avenue to Fairfax Avenue to Shields Avenue. Existing traffic volumes are approximately 10,600 vehicles per day in Mendota.

- Between Mendota and Kerman, traffic volumes on State Route 180 are in the 6,800 to 10,600 average daily traffic ranges. The level of service degrades to C along this two-lane highway. About 15 percent of vehicles using this segment are trucks. State Route 180 offers the only direct route between the two cities.

- Between Kerman and Fresno, traffic volumes on State Route 180 are in the 7,500 to 9,000 average daily traffic range. For each roadway section, morning and afternoon peak-hour volumes are generally about 10 percent of the total average daily traffic. Approximately 5 to 9 percent of the vehicles using the road daily are heavy-duty trucks. The level of service on the four-lane highway in Kerman is B but degrades to C after it narrows to two lanes east of town. Belmont Avenue parallels State Route 180/Whitesbridge Avenue to the north and offers alternative access between Kerman and Fresno.

### *Other Transportation Modes*

Amtrak, via its San Joaquin Route, runs six passenger trains daily through the San Joaquin Valley, with stops in Bakersfield, Wasco, Corcoran, Hanford, and Fresno; however, the route does not cross the study area boundary. The San Joaquin Valley Railroad freight line crosses the study area, with two at-grade crossings: one near the Fresno Slough and another at Jameson Avenue.

The alignment for the California High-Speed Rail project through downtown Fresno is approximately 2.5 miles east of the study area's eastern end. This 800-mile rail line would serve as a transportation backbone for the state by connecting Los Angeles to San Francisco with trains that would reach high speeds of 220 miles per hour. The two segments—Merced to Fresno and Fresno to Bakersfield as of spring 2012—are in the draft and final environmental impact report/environmental impact statement project phases. A portion of the Merced to Fresno segment is expected to begin construction in late 2012.

Both fixed-route and dial-a-ride bus services are available to local transit riders/commuters in Fresno and Madera counties. Fresno County Rural Transit Agency provides bus services within the Westside region Monday through Friday from 7:00 a.m. to 5:30 p.m. Its transit services are available to the elderly, disabled, low-income, and general public patrons within 13 rural incorporated study area cities in Fresno County, including Firebaugh, Kerman, and Mendota. Fresno Area Express provides bus and paratransit service to areas within the eastern portion of the study area near State Route 99. While regional carriers provide service to Fresno, there is no direct regional service to westside cities within the study area.

Nonmotorized travel is typically allowed on all state highways, except as prohibited under California Vehicle Code Section 21960. Figure 3-7 illustrates the Fresno County General Plan's rural bikeways plan for the study area. It shows a continuous planned bikeway route extending west from Fresno along Whitesbridge Avenue to State Route 33, then northerly to Belmont Avenue, west to Fairfax Avenue, then north to Shields Avenue, then west across Interstate 5. Bikeways along State Route 33 and State Route 145 also cross the study area north to south through Mendota and Kerman, respectively.

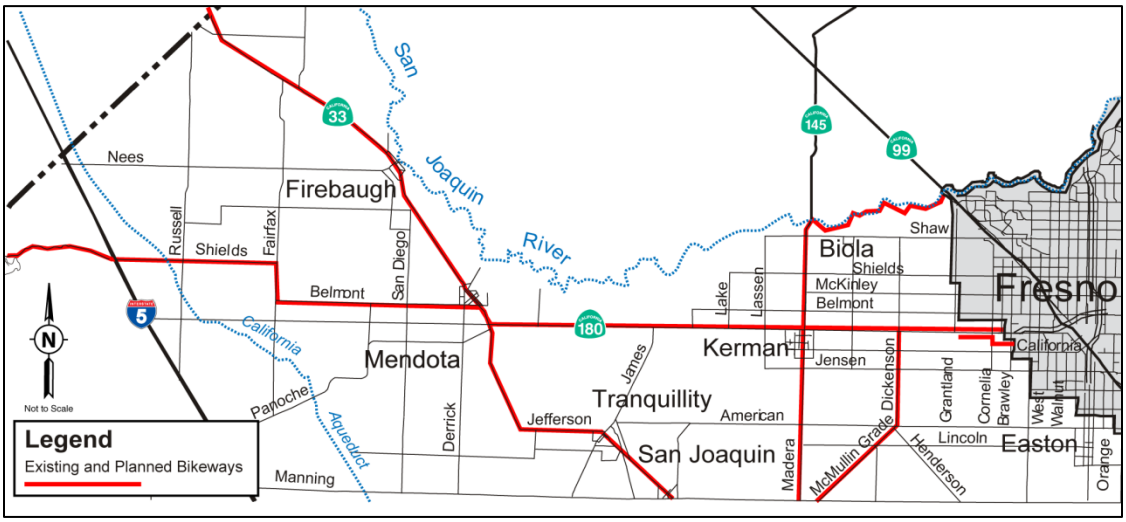



**Figure 3-7 Fresno County Rural Bikeways Plan for the Study Area**

Pedestrian and Americans with Disabilities Act concerns are mostly focused on urbanized areas within the study area where pedestrian crossings exist. Under Title II of the Americans with Disabilities Act, all federal-aid projects must provide curb ramps at pedestrian crossings to allow safe wheelchair access.

### *Intelligent Transportation Systems*

Current Intelligent Transportation Systems technology along the State Route 180 corridor includes weather stations, changeable message signs, closed-circuit television, and highway advisory radio. The Caltrans Central Valley Transportation Management Center monitors specific traffic locations from its headquarters at the district office in Fresno.

## ***Environmental Consequences***

Future level of service was calculated for conditions as they are expected to look in the years 2015 and 2030 to determine potential impacts to transportation and circulation. Table 3.16 shows average daily and peak-hour traffic volumes plus level of service for 2015 and 2030 conditions along segments of the State Route 180 corridor.

## Table 3.16 Projected Traffic Conditions

| Location Limits[1] | Interstate 5 to State Route 33 | State Route 33 to 0.3-mile east of Belmont Avenue | 0.3-mile east of Belmont Avenue to Panoche Road | Panoche Road to James Road | James Road to Del Norte Road | Del Norte Road to 0.1-mile west of Vineland Avenue | 0.1-mile west of Vineland Avenue to Brawley Avenue |
|---|---|---|---|---|---|---|---|
| **Post Mile** | 9.0–23.5 | 23.5–24.9 | 24.9–26.1 | 26.1–34.6 | 34.6–42.1 | 42.1–43.0 | 43.0–53.6 |
| **Level of Service** | | | | | | | |
| **Existing (2004)** | N/A | A | C | C | B | C | C |
| **No Project (2015)** | N/A | B | D | D | C | D | C |
| **No Project (2030)** | N/A | B | E | E | D | D | D |
| **No Project - Year Deficient** | N/A | N/A | 2015 | 2015 | 2030 | N/A | 2030 |
| **4-Lane Expressway Target (2030)[2]** | N/A | C | C | C | C | D | C |
| **Average Daily Traffic Projections without Project (vehicles, including trucks)** | | | | | | | |
| **2004** | N/A | 10,600 | 8,900 | 8,900 | 6,800 | 9,000 | 7,500 |
| **2015** | 6,600[3] | 14,300 | 13,100 | 13,100 | 9,000 | 11,300 | 10,000 |
| **2030** | 10,000[4] | 18,700 | 19,100 | 18,400 | 11,600 | 14,000 | 13,100 |
| **Peak-Hour Volume Projections without Project (vehicles, including trucks)** | | | | | | | |
| **2004** | N/A | 920 | 800 | 800 | 630 | 840 | 700 |
| **2015** | N/A | 1,240 | 1,180 | 1,180 | 830 | 1,060 | 930 |
| **2030** | 900[5] | 1,620 | 1,720 | 1,660 | 1,080 | 1,310 | 1,220 |

[1]Segment limits are approximate
[2]Target level of service is the minimum acceptable level of service for this type of highway.
[3]Projection based on design designation year 2013
[4, 5]Projection based on design designation year 2033

Source: Caltrans Route 180 Transportation Concept Report (August 2004) and Design Designation Memo (January 26, 2007).

### *Alignment Alternatives*

The route adoption would lead to subsequent design and construction of new, limited-access freeway projects within the approximately 45-mile-long corridor between the city of Fresno and Interstate 5. It is expected that future projects would be built in phases until the four-lane expressway is completed.

With adoption of a route and ultimate completion of an expressway, there would be considerably less traffic congestion on existing State Route 180. There would also be a reduction of trips via local roadways within the study area, such as Shields Avenue and Belmont Avenue; however, other local roadways and State Route 145 would become feeder streets to the new expressway, resulting in localized increases in traffic volumes. North-south streets that become cul-de-sacs would experience decreased local traffic. It may take longer for some motorists to access the new freeway because the cul-de-sacs would block direct access. In specific cases where properties are bisected by the new expressway, access from one side of the farm or other business to the other may be eliminated or impaired.

One interchange is on Interstate 5 within the study area limits, at Shields Avenue. If Alternative 3 or Variation 1A were selected, then this interchange would need to be reconstructed to accommodate an expressway facility. If Alternative 1 or Alternative 2 were selected, a new interchange would be required at Belmont Avenue, approximately 2 miles south of the existing Shields Avenue/Interstate 5 interchange. The federal policy for interchange spacing on rural interstate highways is 3 miles. To comply with the standard, this would require the closure and removal of ramps at the Shields Avenue/Interstate 5 interchange. Motorists approaching from the east on Shields Avenue would access Interstate 5 from Nees Avenue or State Route 180. Motorists approaching from the west on Little Panoche Road would access Interstate 5 via Russell Avenue to either Nees Avenue or State Route 180, adding 13.5 miles for northbound travel or 6.5 miles for southbound travel.

There would be no substantial difference in level of service between alignment alternatives. Major controlling factors affecting level of service include highway capacity, number and location of intersections, and timely completion of roadway improvements along congested segments. Optional routing within rural areas would not have a substantial effect on level of service.

As subsequent projects are completed, there would be considerably less traffic on the existing parallel segments of State Route 180/Whitesbridge Avenue. This would

result in a safer facility for pedestrians, bicyclists, and vehicles, including farm equipment, attempting to cross it.

Future project improvements within the corridor would reduce potential conflict points that exist under current conditions, including unsafe vehicle passing, and the potential risk of rear-end collisions, especially during foggy conditions. Access to the highway would be limited to interchanges and intersections and improved drainage would also create safer conditions. In addition, potential conflicts caused by heavy truck traffic through urban areas in Mendota and Kerman would be greatly reduced. Rapid transit service within the corridor should be more efficient and safer under future conditions. Potential safety issues at railroad crossings would be reduced because the expressway would not have any at-grade crossings.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption or construction of a new expressway. Roadways within the study area would remain similar to present-day conditions, and level of service conditions would worsen because no other transportation improvement projects (other than maintenance) are programmed by Caltrans for State Route 180 west of State Route 99.

Congestion within the entire existing corridor is projected to continue to increase, with expected level of service on State Route 180 at D and E between Mendota and Fresno by 2030 if a route is not adopted and projects built. It is projected that there is inadequate capacity to accommodate both local and regional travel demand associated with the projected growth in this area through the planning year 2030. Future degradation of traffic flow to this level would be considered an adverse impact. Current transportation safety issues would also be expected to exacerbate as traffic increases under the No-Action/No-Project Alternative.

The Public Transportation Infrastructure Study Steering Committee, which includes Caltrans, Fresno County, the Council of Fresno County Governments, and other key stakeholders, has explored the feasibility of mass transit for Fresno County in its 2006 Fresno Public Transportation Infrastructure Study. According to this study, rural cities in western Fresno County do not have major job or housing clusters in need of transit service. Residential and employment uses outside of the cities of Fresno and Clovis are largely concentrated in small, distinct clusters of activity or nodes. Outside of these existing nodes, both residential and employment uses are so dispersed that it

would be difficult to serve with transit, particularly fixed-route transit, especially in the western part of Fresno County.

#### *Construction Impacts*

During construction of future projects, State Route 180 would continue to be maintained and kept operational, as would local roadways. Subsequent projects would temporarily affect motor vehicle, bicycle and pedestrian traffic during construction. This disruption would primarily occur during construction of major interchanges and intersections, and would include temporary lane closures and detours. Traffic and safety impacts associated individual project construction work would be assessed in subsequent project-level environmental documents. As described below, Traffic Management Plans are a required component of construction projects.

#### *Avoidance, Minimization, and/or Mitigation Measures*

##### *Alignment Alternatives*

Traffic Management Plans would be prepared for subsequent projects to reduce traffic delays, congestion, and the likelihood of accidents during construction. Standard Caltrans construction practices include information on highway conditions, portable changeable message signs, lane and road closures, alternate routes, reverse and alternate traffic control, and a traffic contingency plan for unforeseen circumstances and emergencies. More specific traffic safety measures that would be implemented during construction would be identified in subsequent environmental documents at the project level.

##### *No-Action/No-Project Alternative*

The decrease in level of service along State Route 180 to unacceptable level of service E between Mendota and Kerman would not be mitigated under the No-Action/No-Project Alternative.

### 3.1.7 Visual/Aesthetics

#### *Regulatory Setting*

The National Environmental Policy Act of 1969 as amended establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings (42 U.S. Code 4331[b][2]). To further emphasize this point, the Federal Highway Administration in its implementation of the National Environmental Policy Act (23 U.S. Code 109[h])

directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act establishes that it is the policy of the state to take all action necessary to provide the people of the state "with . . . enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code Section 21001[b]).

### *Affected Environment*

The 2006 Visual Impact Assessment Report and the 2009 Visual Impact Assessment Addendum form the basis of the discussion in this section.

The overall visual character of the study area is typical of Central Valley agricultural landscapes, consisting primarily of flat cropland, vineyards, orchards, and some feedlots and dairies. Residential properties are generally rural in character and scattered across the sparsely populated study area. Views of distant hills to the west of Interstate 5 are visible from much of the western portion of the area. Three large natural resource reserves located between Mendota and Kerman enhance the visual character of the corridor. Commercial properties are primarily located on Whitesbridge Avenue (State Route 180) within the city of Kerman. No roads or highways within the study area are designated as scenic.

The study was developed using guidelines provided in the Federal Highway Administration's *Visual Impact Assessment for Highway Projects*. The affected environment includes both the visual resources that are described in terms of their visual character and quality, and the viewers, who are described in terms of the extent of their exposure to the resource and their sensitivity to changes in that resource. The visual resources were analyzed by landscape types and distinct visual features within the region. The evaluation of viewer characteristics addresses the study area's visual influence zone or viewshed (i.e., the overall area from which the alternatives would be potentially visible); the important views and viewing conditions; and viewer numbers, types, and activities.

All alternatives go through three landscape types; therefore, the study area was divided into three corridor segments that correspond to three landscape units: Western Landscape Unit (Interstate 5 to State Route 33), Middle Landscape Unit (State Route 33 to Yuba Avenue), and Eastern Landscape Unit (Yuba Avenue to Valentine

Avenue). Each landscape unit has a distinct visual character based on the land uses and features that form it.

Each landscape unit generally contains a mix of image types or smaller-scale land uses or features. The seven visual image types in the study are as follows:

- **Agricultural –** A typical Central Valley agricultural landscape consists primarily of flat land characterized by crop fields, farm roads, fence and pole lines, and agriculture-related structures. Other agricultural image types within the study area include orchard crops and grazing land. The dominant visual feature in most of the agricultural segments of the study area is the horizontal ground plane.

- **Distant Hills –** The Diablo Hills are visible in the distance from the western portion of the study area. This image type consists of grassy undeveloped hillsides dotted with native trees and vegetation.

- **Water Conveyance Infrastructure –** The water conveyance infrastructure image type is associated with the San Luis Canal segment of the California Aqueduct and the Delta-Mendota Canal. The Shields Avenue Bridge crosses the California Aqueduct in the Western Landscape Unit, and the Bass Avenue Bridge crosses the Delta-Mendota Canal in the Middle Landscape Unit.

- **Natural Resource Area –** The natural resource area image type is characterized by several ecological areas located primarily within the Middle Landscape Unit. These include the Mendota State Wildlife Area, Fresno Slough, Alkali Sink Ecological Reserve, Kerman Ecological Reserve, and San Joaquin River.

- **Residential –** Residential properties in the study area are usually rural in character and sparsely located. Single-family homes, farmhouses, and trailers are included in this image type.

- **Recreational –** The recreational image types include Javier's Fresno West Golf Course, the Mendota Pool Park, and other recreational facilities associated with the natural resource areas in the corridor.

- **Commercial –** Commercial businesses within the study area are located primarily along Whitesbridge Avenue (State Route 180) in Kerman and east to the city of Fresno. This image type is characterized by storefront businesses with some strip mall development in Kerman.

Five viewer groups—motorists, residents, agricultural employees, commercial employees, and recreational viewers—frequent the study area. Viewers are people who live in, or travel through, the study area and would have a certain degree of sensitivity to changes in the visual environment. Viewers may be present in some landscape units and not in others, as land uses and travel patterns may vary between landscape units within the study area

Photographs of 11 viewpoints (seven from the 2006 Visual Impact Assessment and four from the 2009 Visual Impact Assessment Addendum) were used in this analysis for familiarizing the public with the existing landscape environment in the study area. The viewpoints represent the different image types and visual character and quality of each landscape unit. Locations of the viewpoints are shown in Figure 3-8. These viewpoints are shown in Figure 3-9, Figure 3-10, and Figure 3-11.

❖

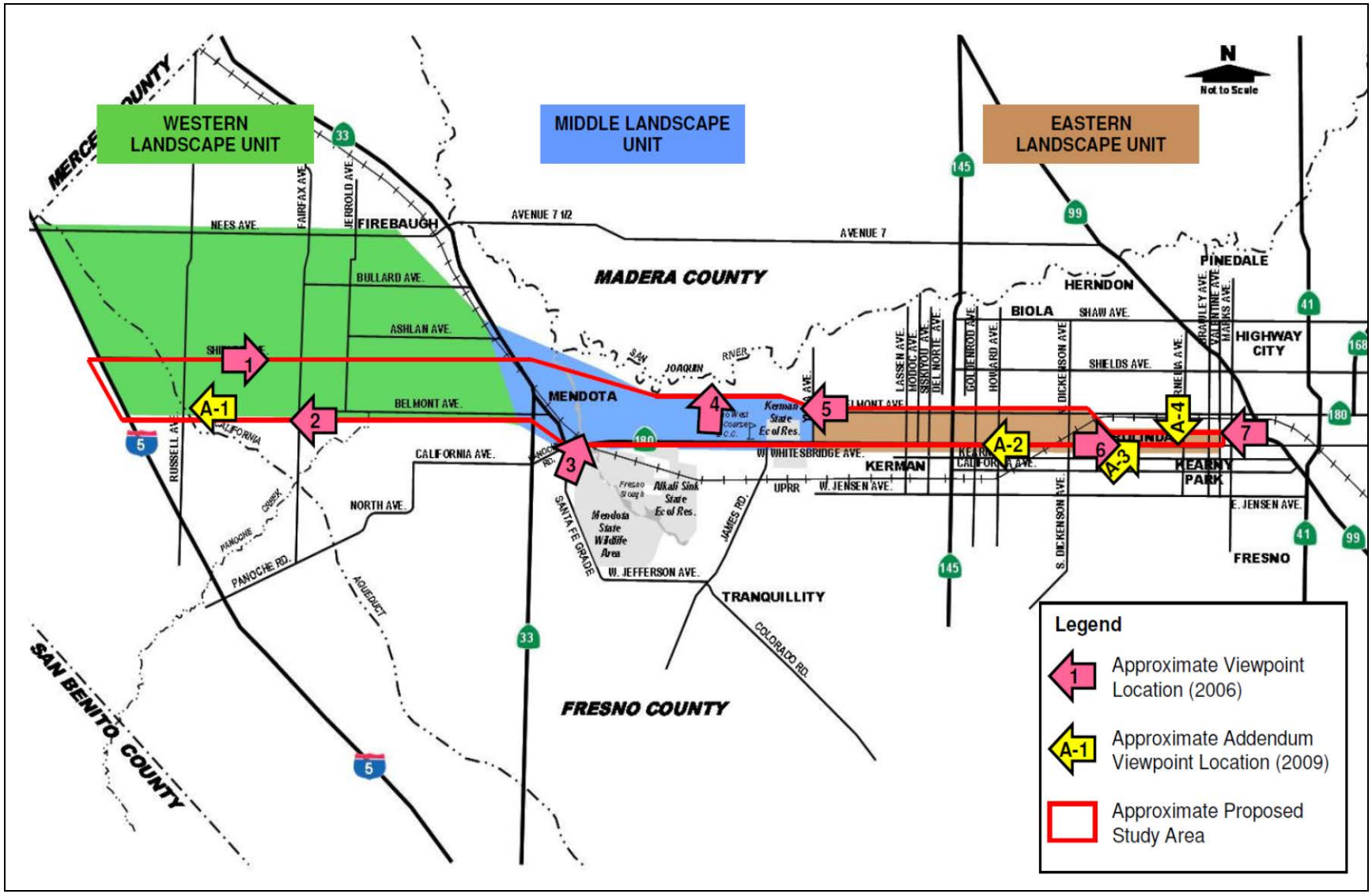



**Figure 3-8 Viewpoint Locations**

**Viewpoint 1 — Shields Avenue (looking east)**

**Viewpoint 2 — Belmont Avenue at Fairfax Avenue (looking west)**

**Viewpoint 3 — State Route 180 (looking north towards Fresno Slough)**

**Viewpoint 4 — Napa Avenue (looking north towards San Joaquin River)**

Source: Visual Impact Assessment (July 2006).

**Figure 3-9 Photographs of Viewpoints 1 through 4**

**Viewpoint 5 — Belmont Avenue at Yuba Avenue (looking west)**

**Viewpoint 6 — Rolinda Avenue (looking southeast)**

**Viewpoint 7 — Valentine Avenue at Nielsen Avenue (looking west)**

Source: Visual Impact Assessment (July 2006).

**Figure 3-10 Photographs of Viewpoints 5 through 7**

**Addendum Viewpoint 1 — Belmont Avenue at Russell Avenue (looking west)**

**Addendum Viewpoint 2 — Goldenrod Avenue and Whitesbridge Avenue (looking west)**

**Addendum Viewpoint 3 — Whitesbridge Avenue at Hayes Avenue (looking northeast)**

**Addendum Viewpoint 4 — Whitesbridge Avenue at Cornelia Avenue (looking south)**

Source: Visual Impact Assessment Addendum (March 2009).

**Figure 3-11 Photographs of Addendum Viewpoints 1 through 4**

The visual quality for each landscape unit within the study area was evaluated and rated using three evaluative criteria: vividness, intactness, and unity. These criteria are defined as follows:

- Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-made landscape of the immediate surroundings and its freedom from encroaching elements.
- Unity is the visual coherence and compositional harmony of the viewshed. The viewshed includes all natural and human-made features found within the normal view range. In human-altered landscapes, it frequently attests to the careful design or fit of individual components in the landscape.

The three evaluative criteria were averaged to determine overall visual quality for each viewpoint. Seven levels, from very low to very high, were used to describe the quality of the visual resources. Overall visual quality for the Western Landscape Unit varies from average to moderately high, moderately high to high for the Middle Landscape Unit, and average to moderately high for the Eastern Landscape Unit. Viewpoint 3 in the Middle Landscape Unit scored high for intactness and unity because the landscape consists of natural and recreational areas, the San Joaquin River, the Fresno Slough, agricultural land, and rural residences.

### *Environmental Consequences*

Predicted impacts to visual and aesthetic resources are generally consistent with the goals and policies of the affected jurisdictions because there are no unique landscaped areas or landmark trees for the majority of the study area.

The 11 viewpoints representing each landscape unit were evaluated for the potential changes in visual quality with construction of a four-lane expressway. In all cases, the visual quality would either stay the same or be negatively affected. The degree of visual quality change and viewer response to existing and future conditions was rated with the evaluative criteria to determine the significance of the impacts. These significance ratings ranged from moderate (not adverse) to high (adverse). Viewer response ranges from no impact to potentially adverse.

Impacts to visual and aesthetic resources are potentially adverse as a result of future construction projects. These impacts are associated with a new, wide urban roadway through rural agricultural and open space areas that would occur with future projects. Enhanced roadway lighting would be required, especially in the westernmost portion of the corridor, thus increasing nighttime lighting in the area. However, given the agricultural nature and sparse settlement of the land in the

western portion of the corridor, there would be no major impacts provided that appropriate lighting standards are followed. Increased lighting in the urbanized eastern portion of the study area would potentially affect more people than in the western portion.

Because the future visual environment cannot be predicted with certainty, impacts would have to be reassessed at the individual project stage. Photo simulations of key views would be done for subsequent projects since they cannot be done in this analysis using only conceptual design.

### *Alternative 1*

Between State Route 33 and Yuba Avenue, this alternative would potentially be inconsistent with the Fresno County General Plan Open Space Policy OS-F because a new urban roadway would be introduced and would require the removal of visually sensitive terrain and natural vegetation. Ecological reserves and other natural resources dominate the visual quality of this segment. It may also be potentially inconsistent with the 2007 Kerman General Plan's Land Use policies related to community image. Widening of State Route 180 would detract from Kerman's four major entryways and its small-town character. The widening would occur through the city of Kerman and require the removal of trees and agricultural crops. The removal of businesses and associated structures and trees within the Kerman central business district would affect its visual appearance.

The degree of visual quality change for this alternative ranges from moderate to moderately high. Viewer response from residents to future conditions was moderately high.

### *Alternative 2*

Similar to Alternative 1, this alternative would potentially be inconsistent with the Fresno County General Plan Open Space Policy OS-F between State Route 33 and Yuba Avenue for the same reasons.

The degree of visual quality change for this alternative ranges from moderate to high. Viewer response from residents to future conditions ranged from moderately high to high.

### *Alternative 3*

Similar to Alternatives 1 and 2, this alternative would also potentially be inconsistent with the Fresno County General Plan Open Space Policy OS-F between State Route 33 and Yuba Avenue.

The degree of visual quality change for this alternative ranges from moderate to high. Viewer response from residents to future conditions is high.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not affect the visual and aesthetic character of the study area because neither the State Route 180 route adoption by the California Transportation Commission nor future construction of a new expressway would take place.

## *Avoidance, Minimization, and/or Mitigation Measures*

Specific mitigation measures are deferred to visual impact assessments associated with future individual projects proposed along the adopted alignment. This study should be referenced in the subsequent project associated visual impact assessments; however, the project specific visual impact assessments would be independent documents associated with each specific project.

### *Alignment Alternatives*

The impact assessment of the route adoption presents general conclusions based on available information. Visual and aesthetic impacts would be similar for all alignment alternatives. General mitigation strategies applicable to future projects to offset visual and aesthetic impacts are listed below.

- Design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and developments. Locate or design projects to minimize their intrusion into important viewsheds.
- Develop interchanges, to the extent feasible, at the grade of the surrounding land to limit view blockage. Contour the edges of major fill slopes to provide a more natural-looking finish profile.
- Use natural landscaping to minimize the contrast between the project and surrounding areas. Plan landscaping to complement existing natural and man-made features, including the dominant landscaping of surrounding areas. Design landscaping to add significant natural elements and visual interest to soften the hard-edged, linear travel experience that would otherwise occur.
- Maintain the agricultural character of the study area where possible, including limiting the impact to orchards, vineyards, and grazing land that create the rural atmosphere.
- Preserve naturally occurring features of the study area where possible, including the wetland and recreational areas.

- Construct soundwalls of materials where the color and texture of the construction material complements the surrounding landscape and development. Use color, texture, and alternating façades to "break up" large walls and provide visual interest.

- Incorporate design measures to reduce potential glare and night-lighting impacts. Where appropriate, this should include provisions for shielding lights to prevent light spilling throughout the area and specifying light intensity (specifically the number of lights, lumens, and wavelengths).

- Design a bridge with the shortest span necessary to cross the Fresno Slough and adjacent wetland areas.

- Plan the project along a route that is as far as possible from the San Joaquin River, giving due consideration to potentially conflicting issues associated with sensitive habitat avoidance and other resource conservation.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve route adoption of State Route 180 by the California Transportation Commission or construction of a new expressway. Under this scenario, future highway facilities would not be built within the study area for the foreseeable future, and there would be no impacts associated with right-of-way acquisitions. Given these considerations, no mitigation measures would be required for the No-Action/No-Project Alternative.

### 3.1.8 Cultural Resources

This section is based on studies that identified and evaluated the potential for impacts to historic and archaeological resources. Because the eligibility of historic resources for listing in the National Register of Historic Places has not been determined, this document assumes that all such resources could be eligible.

Please refer to Appendix B of this document for information related to the potential "use" of Section 4(f) historic properties.

#### ***Regulatory Setting***

The term "cultural resources" as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include the following.

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2004, a Section 106 Programmatic Agreement between the Advisory Council, the Federal Highway Administration, State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The programmatic agreement implements the Advisory Council's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the programmatic agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 U.S. Code 327) (July 1, 2007).

The Archaeological Resources Protection Act applies when a project may involve archaeological resources located on federal or tribal land. This act requires that a permit be obtained before excavation of an archaeological resource on such land can take place. The need for this permit would be determined during subsequent projects.

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 B for specific information on Section 4(f).

Historical resources are considered under the California Environmental Quality Act, as well as California Public Resources Code Section 5024.1, which established the California Register of Historical Resources. Public Resources Code Section Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California historical landmarks.

### *Affected Environment*

Historic Resources Sensitivity and Preliminary Assessment of Archaeological Sensitivity studies were completed in August 2006 to assess cultural resources within the study area. A Historic

Property Survey Report was completed in 2008 to summarize the results of those studies as well as present the eligibility findings of those studies.

Only eight percent of the study area has been systematically inventoried for cultural resources. A field visit to each alignment was done in December 2005 to determine which properties may require consideration as potential historical resources. The sensitivity assessments mainly relied on information attained from the review of previous determinations of eligibility for the built environment (buildings and structures) and archaeological resources. Another field visit was done in January 2009 to assess an expansion of the study area. This survey did not include portions of the area of potential effects that are inaccessible by road.

The area of potential effects established and approved by Caltrans on October 29, 2008, is described as follows:

- Bounded on the west by Interstate 5.
- Bounded on the east by Marks Avenue.
- The northern boundary between Interstate 5 and Mendota is Shields Avenue; and from Mendota to Yuba Avenue, the San Joaquin River. The northern boundary continues along Belmont Avenue between Yuba Avenue and Howard Avenue and along McKinley Avenue between Howard Avenue and Marks Avenue.
- The southern boundary from Interstate 5 to Mendota is Belmont Avenue, and it's Whitesbridge Avenue (existing State Route 180) between Mendota and Marks Avenue.

A sensitivity score of "high," "moderate," or "low" was assigned to portions of each alternative based on the likelihood of encountering surface or subsurface archaeological resources within the area of potential effects. Considerations included:

- Proximity to a water source
- Estimated age of landforms
- Known associated archaeological features

A sensitivity score of "high," "medium-to-high," "medium," "low-to-medium," or "low" was assigned to portions of each alternative based on the likelihood of encountering historic architectural resources within the area of potential effects. Considerations included:

- The potential for historic architectural resources to exist as observed in the field, as previously identified, and/or as identified in the historic record
- The potential for those existing resources to have historic significance and historic integrity

### *Archaeological Resources*

The records search identified 14 archaeological sites: 13 prehistoric and one historic. Prehistoric archaeology involves ancient cultures that did not have writing of any kind. Historic archaeology, on the other hand, is the human past documented in some form of writing. Because there are no written records for prehistory, prehistorians rely entirely on material remains for evidence. Three of the prehistoric sites were within the area of potential effects; the remaining 11 sites are outside the area of potential effects.

The three prehistoric sites within the area of potential effects include two habitation sites with human burials (FRE-45 and -398) and one habitation site with no reported burials (FRE-538). The prehistoric artifact scatter at site FRE-538 includes broken rock, reed-impressed baked clay, projectile points and beads. However, Extended Phase I excavations at FRE-538 in 2001 found only fill and no evidence of a site in the Caltrans right-of-way; therefore, a site record update was not done, nor was the site evaluated for significance or eligibility for the National Register of Historic Places. Sites FRE-45 and -398, although unevaluated, are highly likely to be significant resources. The FRE-398 site is described as a mound, with many burials and grave goods, and may represent the Native American ethnographic village of Gewachiu.

Of the 11 sites located in the records search outside the area of potential effects, 10 are prehistoric sites and one is an historic-era site. Human remains have been reported at five of these sites, which include five habitation areas, a burial area, and various types of surface scatter (fragments).

### *Historic Architectural Resources*

Comprehensive formal identification and evaluation of historic architectural resources were not done for this planning-level study. A records search looked at U.S. Geological Survey maps from the 1920s and 1950s and at General Land Office parcel maps from the 1850s to identify potential historic-era resources in the area of potential effects. These maps showed more than 500 buildings and structures in clusters within the study area. Of these, 285 are near the city of Fresno; the remainder is composed mostly of settlement and ranch clusters elsewhere within the area of potential effects.

The Central Valley Project Delta-Mendota Canal and the San Luis Canal, a segment of the California Aqueduct State Water Project, are the two statewide water conveyance systems crossing the west end of the area of potential effects. For the purposes of this study only, both structures were assumed eligible for listing in the National Register of Historic Places.

The investigation of historic-era bridges determined that bridges built during the initial development of the canal systems require evaluation. Three bridges were surveyed and appear to be eligible for the National Register of Historic Places as well as for the California Register of Historical Resources. Resources that are 50 or more years old are generally evaluated for eligibility; however, in rare instances, provisions under the National Register of Historic Places allow for the listing of younger properties that display exceptional significance. Three of the bridges are less than 50 years old, but have been evaluated for their association with the California Aqueduct and the Central Valley Project and were determined eligible for listing in the National Register of Historic Places and the California Register of Historical Resources.

The two bridges—42C0140 and 42C0141—appear to be eligible for listing in the National Register of Historic Places as contributing elements of the potential historic resource, the San Luis Canal segment of the California Aqueduct. Bridge 42C0399 also appears to be eligible as a contributing element of the potential historic resource, the Delta-Mendota Canal. The canal is potentially eligible as a component of the important Central Valley Project and for its role as a part of a larger comprehensive state water system built under the supervision of the U.S. Bureau of Reclamation. The canal is also potentially eligible as an example of a type and method of construction.

The Sheldon residence, also known as the Ben Gefvert Ranch Historic District, is listed in the National Register of Historic Places under Criterion A in the area of agriculture for its association with the practice of viticulture and the beginnings of the raisin industry in Fresno County.

No other architectural resources within the area of potential effects have been previously listed, previously determined eligible for listing, or previously found to appear eligible for listing in the National Register of Historic Places, California Register of Historical Resources, or the Fresno County and City List of Historic Places. Staff at the Southern San Joaquin Valley Information Center did a revised records search on June 1, 2009 that supported this finding.

### *Environmental Consequences*

The only known historic architectural resources within the area of potential effects are the canals, bridges, and the Sheldon residence. Portions of all alignment alternatives have the potential to

contain other historic-era resources. Additional study would be necessary to identify and evaluate the specific resources that could be affected by proposed future projects. Therefore, this document assumes that cultural resource impacts could be significant for all alternatives.

The overall results identify two "high-sensitivity" zones within the study area of all alternatives:

- The area between State Route 33 and James Road for overall archaeological sensitivity
- The area between generally between Yuba Avenue and Valentine Avenue for historic-era archaeological sites

Both of these zones have the highest likelihood of containing archaeological sites of potential significance. Low-sensitivity zones characterize the remainder of the study area.

### *Alternative 1*

This alternative would have moderate archaeological resource sensitivity between Interstate 5 and State Route 33. There is high archaeological resource sensitivity between State Route 33 and Yuba Avenue since it contains a site where ancient people may have lived (FRE-538). Future construction may adversely affect the site.

Between Interstate 5 and State Route 33, this alternative would not require replacement of the Russell Avenue Bridge (No. 42C0141), which crosses the California Aqueduct at Russell Avenue near Belmont Avenue. This bridge appears to be eligible for the National Register of Historic Places and is considered to be a historical resource for the purposes of the California Environmental Quality Act. While Variation 1A would avoid this bridge, it would affect the bridge (No. 42C0140) at Shields Avenue that crosses over the California Aqueduct. The variation to Alternative 1 would require the replacement of bridge (No. 42C0140) at Shields Avenue and would result in adverse effects. Additionally, this area was rated high for potential resources (e.g., locks and pumping facilities) related to the San Luis segment of the California Aqueduct. Alternative 1 and Variation 1A cross the San Luis segment of the California Aqueduct. Construction of a new bridge in Alternative 1 may require the placement of bridge supports within and around the canal, which may affect the historic integrity of the canal, while widening bridge No. 42C0140 at Shields Avenue in Variation 1 would be a temporary use of the canal.

Between State Route 33 and Yuba Avenue, this alternative was rated high for potential historic resources related to the Delta-Mendota canal (e.g., locks and pumping facilities). Between Yuba Avenue and Valentine Avenue, this alternative had historic resource sensitivity levels that ranged from medium to high related to the Sheldon residence at State Route 180 and Cornelia Avenue as

well as other historic-era sites. Construction of a future expressway within this alternative could constitute an adverse effect of the National Register of Historic Places-listed Sheldon residence.

### *Alternative 2*

This alternative would have moderate archaeological resource sensitivity between Interstate 5 and State Route 33. There would be moderate and high archaeological resource sensitivity between State Route 33 and Yuba Avenue due to the existence of two sites where ancient people may have lived and been buried (FRE-45 and 398). Between Yuba Avenue and Valentine Avenue, this alternative has moderate and high archaeological sensitivity levels related to historic-era sites. Future construction may adversely affect the site.

This alternative would not require replacement of Russell Avenue Bridge (No. 42C0141) that crosses the California Aqueduct at Russell Avenue near Belmont Avenue. It would require construction of a new bridge over the San Luis Canal segment of the aqueduct near Belmont Avenue. Construction of a new bridge may require the placement of bridge supports within and around the canal, which may affect the historic integrity of the canal.

### *Alternative 3*

This alternative would have moderate archaeological resource sensitivity between Interstate 5 and State Route 33. This alternative would have moderate and high archaeological resource sensitivity between State Route 33 and Yuba Avenue due to the existence of sites where ancient people may have lived and been buried (FRE-45 and 398). Future construction may adversely affect the site.

This alternative could require replacement of the bridge (No. 42C0140) that crosses over the National Register-eligible San Luis segment of the California Aqueduct at Shields Avenue. This bridge appears to be eligible for the National Register of Historic Places and to be a historical resource for the purposes of the California Environmental Quality Act. Replacement of this bridge would result in adverse effects to the bridge. The area between Interstate 5 and State Route 33 was rated high for potential resources (specifically locks and pumping facilities) related to the San Luis segment of the California Aqueduct. Replacement would be a temporary use of the San Luis segment of the California Aqueduct, but that use would be isolated to the Shields Avenue Bridge and its immediate vicinity. Areas of temporary uses would be restored to their pre-existing condition.

This alternative was rated high for potential resources related to the National Register-eligible Delta-Mendota Canal, specifically locks and pumping facilities. A new bridge would be built over the canal that would require placement of bridge supports in and around the canal, which

may affect the historic integrity of the canal. Replacement of the bridge (No. 42C0399) at Bass Avenue that crosses over the Delta-Mendota Canal could be required under this alternative. This bridge appears to be eligible for the National Register of Historic Places for its association with the Delta-Mendota Canal and is considered to be a historical resource for the purposes of the California Environmental Quality Act.

Additionally, this alternative could require replacement of the bridge (No. 42C0399) at Shields Avenue and Bass Avenue. This bridge appears to be eligible for the National Register of Historic Places and is considered to be a historical resource for the purposes of the California Environmental Quality Act.

Finally, between Yuba Avenue and Valentine Avenue, this alternative has moderate and high archaeological sensitivity levels related to historic-era sites.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not result in adverse effects on archaeological or historic architectural resources because no construction or transportation improvements would occur.

### *Consultation*

If a future project may affect a historic property, consultation with the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and any other consulting parties, would be done when the project is initiated. Additional studies would be required as specific projects are programmed.

The Historic Property Survey Report prepared for this study was submitted to the State Office of Historic Preservation in 2008, which found the following resources eligible for listing in the National Register: California Aqueduct, Delta-Mendota Canal, Bridge No. 42C0140, Bridge No. 42C0141, and Bridge No. 42C0399. No other resources in the study area were determined to appear eligible for listing in the National Register. In a letter dated December 12, 2008, Caltrans requested the State Historic Preservation Officer review the determination of eligibility (see Appendix F for this letter). Pursuant to the Section 106 Programmatic Agreement, Caltrans assumed concurrence once the State Historic Preservation Officer had not responded within the 30-day review period.

Caltrans has been in contact with Native American representatives in an effort to determine the potential for Native American resources. On October 31, 2005, the Native American Heritage Commission was advised of the route adoption study. The Native American Heritage Commission responded on November 10, 2005, stating that its search of sacred land files

revealed no indication of the presence of Native American sacred lands in the immediate study area; however, the commission also recommended that other Native American individuals and organizations be contacted to verify the findings of the Native American Heritage Commission. Notification letters were sent to these Native American tribes on January 31, 2006. No responses were received. There is no indication that Native American sacred lands are present in the study area, but additional studies and continuation of consultation would take place when the route adoption alignment is refined during subsequent projects.

No historical society/interested party consultation letters were sent out during the preparation of the Historic Resources Sensitivity Study. However, as part of the environmental review process, residents within the study area have been provided an opportunity to voice their concerns and provide input on the selection of route alignments throughout the public scoping process.

### *Avoidance, Minimization, and/or Mitigation Measures*

Because cultural resources would not be affected by the route adoption decision, mitigation is not required at this time. However, site-specific studies would be done when individual future projects are proposed, pursuant to Caltrans guidelines and specifications, in accordance with the Section 106 Programmatic Agreement. If future construction results in adverse effects to cultural resources, a Memorandum of Agreement would be executed to describe how impacts would be minimized and mitigated. At minimum, the following cultural resource measures would be implemented with future projects:

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

- If human remains are discovered, State 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 contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendent. At this time, the person who discovered the remains would contact the Caltrans District 6 Native American Coordinator, so that he or she may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

## 3.2 Physical Environment

### 3.2.1 Hydrology and Floodplain

#### *Regulatory Setting*

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A. To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

#### *Affected Environment*

Hydrology and floodplain impacts have been evaluated based on the May 2006 Location Hydraulic Study completed for this route adoption study.

Most of the study area is designated in the Federal Emergency Management Agency's Flood Insurance Rate Maps as Zone B (areas protected by levees from the 1-percent-annual-chance flood) and Zone X (areas determined to be outside the 100- and 500-year floodplains). The term "100-year flood," once in common use, is misleading. It is more accurately expressed as the flood that has a 1 percent chance of being equaled or exceeded each year. The so-called 100-year flood could, in fact, occur more than once in a relatively short period of time. Because this term is misleading, the Federal Emergency Management Agency has also defined it as the "1-percent-annual-chance flood," and this is the term that is now used by most federal and state agencies and by the National Flood Insurance Program.

Several waterways and their floodplains exist within the study area. Within these floodplains, the alternatives have the potential to encroach onto the following flood hazard zones designated on the Flood Insurance Rate Maps and shown in Figure 3-12.

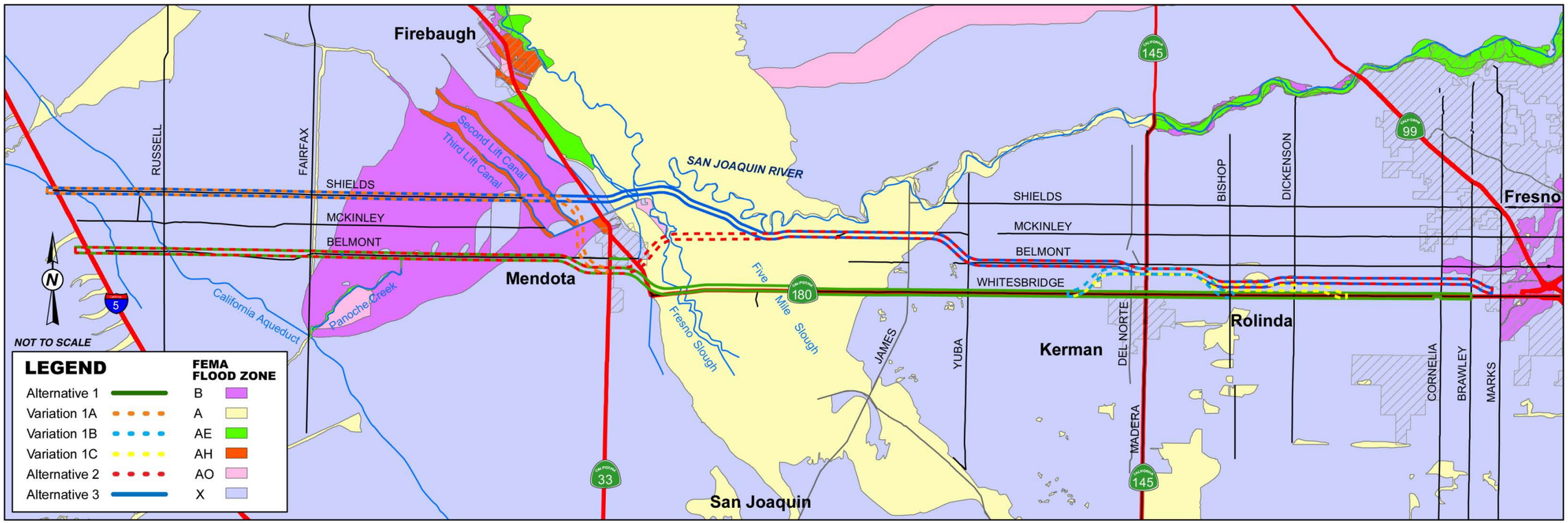



**Figure 3-12 Federal Emergency Management Act Flood Insurance Rate Map**

❖

**Zone A.** This zone has been determined by approximate methods to have a 1 percent annual chance of inundation by flood waters. It is not typical for planned development to occur in this zone, so detailed analyses are not performed in areas within these zones. The Fresno Slough floodplain and other isolated floodplains are designated as Zone A. The Fresno Slough is the largest perennial water body within the study area. It receives flood flow releases from the North Fork course of the Kings River and serves as a storage reservoir for federal irrigation water from the Delta Westlands Canal. The Fresno Slough also occasionally receives flood flows from Panoche Creek.

**Zone AE.** This zone is defined as special flood hazard areas inundated by the 1-percent-annual-chance flood with base flood elevations determined. The Panoche Creek floodplain, which runs roughly along the alignment of Belmont Avenue, is designated as Zone AE with base flood elevations derived from detailed hydraulic analyses. Panoche Creek is an intermittent stream on the west side of the San Joaquin River basin and, except during major floods, its flows rarely reach the San Joaquin River.

**Zone AH.** This zone is subject to the 1-percent-annual-chance flood that is typically shallow, usually in the form of a pond. The average depth ranges from 1 to 3 feet. Base flood elevations are determined from detailed analyses that are shown at selected intervals within these zones. The floodplains of the Second and Third Lift Canals are designated as Zone AH.

**Zone AO.** These are river or stream flood hazard areas, and areas with 1 percent or greater chance of shallow flooding each year. Average depth ranges from 1 to 3 feet. A portion of the Fresno Slough floodplain is designated as Zone AO.

### *Environmental Consequences*

As part of the floodplain evaluation, several factors were reviewed for potential impacts at each bridge that might be affected by future projects within the adopted corridor. The evaluation included: longitudinal (lengthwise) encroachment of the base floodplain; possibility of significant risks of future projects; incompatible floodplain development; significant impacts on the natural and beneficial floodplain values; special mitigation measures to minimize impact or restore and preserve natural and beneficial floodplain values; or significant floodplain encroachment as defined in 23 Code of Federal Regulations 650. None of these factors were determined to have a negative effect on the floodplain within the study area.

A 1,000-foot-wide corridor is shown in Figure 3-12 to illustrate the area of encroachment used in this route adoption study for each corridor alternative. Precise encroachment calculations cannot be determined until project-level analyses are done. However, assuming a full-width, 88-foot-wide paved surface and two 24-foot-wide frontage roads across the corridor, approximately 750 new acres of impermeable surfaces (paved areas that produce runoff) would be created by the future expressway. This is not substantial when compared with the approximately 150 square miles (14.4 million acres) of mostly unpaved land within the study area. At the project design stage, a detailed hydraulic study that addresses various structure sizes (and various flood control structures if necessary) is required to ensure that there are no adverse floodplain impacts with regard to flood heights and limits.

Table 3.17 summarizes the approximate floodplain encroachments from the alignment alternatives.

**Table 3.17 Potential Floodplain Encroachment Summary**

| Alternative | Flood Insurance Rate Maps Category | Crossing Type | Approximate Distance Affected[1] |
|---|---|---|---|
| Alternative 1 | Zone A | Transverse | 7.7 miles |
| | Zone AE | Longitudinal | 5.5 miles |
| With Variation 1A | Zone A | Transverse | 7.7 miles |
| | Zone AE | Transverse | 200 feet |
| | Zone AH | Transverse | 2,500 feet |
| With Variation 1B | Zone A | Transverse | 7.9 miles |
| | Zone AE | Longitudinal | 5.5 miles |
| With Variation 1C | Zone A | Transverse | 8.0 miles |
| | Zone AE | Longitudinal | 5.5 miles |
| Alternative 2 | Zone A | Transverse | 10.3 miles |
| | Zone AE | Longitudinal | 5.5 miles |
| Alternative 3 | Zone A | Transverse | 11 miles |
| | Zone AH | Transverse | 2,500 feet |

[1]Distances are approximate pending additional, project-level analyses

Source: Location Hydraulic Study Report (May 2006).

### *Alternative 1*

In the westernmost portion of the study area, this alignment parallels the Panoche Creek floodplain along Belmont Avenue. This alternative would also cross a north-to-south channel near Fairfax Avenue according to the Flood Insurance Rate Map.

The alternative crosses almost 8 miles of the Fresno Slough floodplain and the Five Mile Slough floodplain. At the eastern end of the study area, the alternative crosses about 900 feet of minor isolated floodplains located both west of Modoc Avenue and between Bishop and Dickenson avenues.

Floodplain flows, both beneficial and adverse, would be affected by this alternative on the western end of the study area. The Panoche Creek floodplain extends east to west along both sides of a channel parallel to Belmont Avenue to the west of Mendota. Alternative 1 extends longitudinally along this floodplain. An expressway through this corridor, assuming it were slightly elevated, would act as a levee, preventing 1-percent-annual-chance flood flows from inundating land north of the alignment, including Belmont Avenue. These floodwaters would likely be redirected to the east into the Fresno Slough. This alternative would address safety hazards to motorists driving during major floods on Belmont Avenue to the west of Mendota because the expressway would be designed at the project level to control flood waters and would be outside the 1-percent-annual-chance flood zone.

Farther east, Alternative 1 would require construction of a new bridge over the Fresno Slough. The supports for a new bridge typically require placement of fill within the waterway being crossed. Placing additional fill within the Fresno Slough would adversely affect the flow and flood storage area of the slough; however, the extent of this impact cannot be determined until a specific project is proposed across this floodplain.

Variation 1A, which would connect Alternative 1 to Shields Avenue west of Mendota, would cross up to 2,500 feet of Zone AH floodplain associated with potential canal overflows during major storms. This variation would eliminate about 5.5 miles of longitudinal Zone AE encroachment that would result by selecting Alternative 1 or 2.

In addition to Alternative 1 floodplain impacts described above, Variations 1B and 1C would have minor isolated encroachments on Zone A floodplains of about 900 and 1,750 feet, respectively.

### *Alternative 2*

Impacts of this alternative in the western portion of the study area are identical to those discussed for Alternative 1 because both alignments end at the same place. This alignment crosses the Panoche Creek floodplain as well as the unnamed north-south

channel that is shown on Federal Emergency Management Agency maps as Zone A on the east side of Fairfax Avenue. The Fresno Slough and Five Mile Slough floodplains are on open land with no existing roadways.

This alternative would require construction of a new bridge over the Fresno Slough. The supports for a new bridge typically require placement of fill within the waterway being crossed. Placing additional fill within the Fresno Slough would adversely affect the flow and flood storage area of the slough, but the extent of this impact cannot be determined until a specific project is proposed across this floodplain.

At the eastern end of the study area, the alignment crosses isolated floodplains between Bishop and Dickenson Avenues. Alternative 2 would encroach onto about 15.8 miles of floodplains.

### *Alternative 3*

At the study area's western end, Alternative 3 also crosses the unnamed Zone A channel along the east side of Fairfax Avenue, as well as crossing Zone AH floodplains associated with the Second and Third Lift Canals. A portion of this alignment, approximately between east of State Route 33 and east of James Avenue, is entirely within Zone A. The Alternative 3 alignment encroaches on the San Joaquin River floodplain as well as the Fresno Slough floodplain.

Farther east, this alternative would also require construction of a new bridge over the Fresno Slough. The supports for a new bridge typically require placement of fill within the waterway being crossed. Placing additional fill within the Fresno Slough would adversely affect the flow and flood storage area of the slough, but the extent of this impact cannot be determined until a specific project is proposed across this floodplain.

At the easternmost end of the study area, Alternative 3 crosses isolated Zone A floodplains between Bishop and Dickenson Avenues. This encroachment is relatively minor, involving only about 1,750 feet. Compared to the other alignment alternatives, Alternative 3 would cross more floodplain areas and have the largest transverse floodplain encroachment—about 11.5 miles.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption or the California Transportation Commission or future expressway construction projects, so no impacts are anticipated for this alternative.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

While floodplain impacts cannot be fully assessed until individual projects are proposed, there are standard Caltrans design features such as bridges or viaducts and culverts or underpasses that would be incorporated into those future projects to minimize impacts associated with floodplain crossings. Placement of bridge piers in the same alignment as the existing bridge piers would minimize hydraulic impacts to the Fresno Slough. Permanent best management practices would also be designed for erosion and associated sedimentation control. These features would be incorporated to avoid or minimize floodplain impacts at transverse crossings and to minimize the longitudinal encroachment impacts of Alternative 1 and 2 along Belmont Avenue west of Mendota.

Access to the highway would be controlled (i.e., limited to authorized proposed interchanges and intersections that connect to existing public streets) and, where needed, it would be built on fill to meet the Federal Emergency Management Agency standard of 2-foot clearance above the 1-percent-annual-chance flood level. In this regard, the route adoption would not be expected to expose people or property to new risks associated with development in a floodplain.

Building the roadway on fill above the floodplain elevation can minimize its encroachment into the Panoche Creek floodplain. There is no practicable avoidance alternative for impacts to the Fresno Slough, although impacts can be minimized at the project stage through application of design features.

The future expressway would be designed to include additional storm water conveyance facilities to control increased surface runoff. The proposed drainage systems would be designed so that the hydraulic grade line would be no higher than existing conditions during all floods up to a return period of 100 years. In addition, the hydraulic efficiency of the storm water control and drainage system would be maintained and/or improved under the proposed system.

During construction, all earthmoving activities involving heavy construction equipment should be limited to the dry season, to the extent that this does not interfere with the breeding season of any protected species. Best management practices for erosion and other pollution control practices would be followed. Permanent treatment for urban pollutants caused by vehicles and landscaping

activities would be incorporated into the designs of the facilities at the project stage to minimize long-term water quality impacts in the floodplain.

In areas where floodplain encroachment cannot be avoided, floodplain equalization culverts would be considered during design and incorporated into the project where appropriate to minimize impacts as they allow floodwaters to flow freely from one side of the future highway to the other. In some areas, it may be possible to avoid floodplain encroachment by selecting a different alternative. Impacts to the isolated floodplains may be avoidable through alignment placement during the individual project stage. Design features for storm water runoff control mentioned previously would also apply to the variations.

#### *No-Action/No-Project Alternative*

No mitigation is required for the No-Action/No-Project Alternative.

### 3.2.2 Water Quality and Storm Water Runoff

#### ***Regulatory Setting***

#### *Federal Requirements: Clean Water Act*

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

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) of any

pollutant into waters of the U.S. Regional water quality control boards administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (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.

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

U.S. Army Corps of Engineers issues two types of 404 permits: Standard and General 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.

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

"significant degradation" to waters of the U.S. In addition, every permit from the U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 Code of Federal Regulations 320.4. A discussion of the least environmentally damaging practicable alternative determination, if any, for the document is included in the Wetlands and Other Waters section.

### *State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)*

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

The State Water Resources Control Board and regional water quality control boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable regional water quality control board 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. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the State Water Resources Control Board identifies waters failing to meet standards for specific pollutants, which are state listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls (National Pollutant Discharge Elimination System permits or Waste Discharge Requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads. Total Maximum Daily Loads specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

### *State Water Resources Control Board and Regional Water Quality Control Boards*

The State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and National Pollutant Discharge Elimination System permits. Regional water quality control boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

### *National Pollutant Discharge Elimination System Program*

#### ***Municipal Separate Storm Sewer Systems (MS4)***

Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination System permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. Environmental Protection Agency defines an MS4 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 are designed or used for collecting or conveying storm water." The State Water Resources Control Board has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltran's MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The State Water Resources Control Board or the regional water quality control board issues National Pollutant Discharge Elimination System permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltran's MS4 Permit, under revision at the time of this update, contains three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);

2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and

3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices, to the Maximum Extent Practicable, and other

measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

### *Construction General Permit*

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a disturbed soil area of 1 acre or greater, and/or are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the Construction General 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 regional water quality control board. 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. In accordance with Caltran's Standard Specifications, a Water Pollution Control Plan is necessary for projects with disturbed soil areas less than one acre.

### *Section 401 Permitting*

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate regional water quality control board, dependent on the project location, and are required before U.S. Army Corps of Engineers issues a 404 permit.

In some cases the regional water quality control board may have specific concerns with discharges associated with a project. As a result, the regional water quality control board may issue a set of requirements known as Waste Discharge Requirements under the State Water Code (Porter-Cologne Act) that 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. Waste Discharge Requirements can be issued to address both permanent and temporary discharges of a project.

### *Affected Environment*

This section is based on the 2006 Final Water Quality Study Report for the State Route 180 Westside Expressway Route Adoption Study.

The entire study area sits within Region 5 of the Central Valley Regional Water Quality Control Board's jurisdiction and is largely encompassed by the Tulare Lake Basin watershed management area. This watershed management area includes the drainage area of the San Joaquin Valley south of the San Joaquin River. In most years, the watershed is a closed basin; however, during years of extreme rainfall, water from the Kings River reaches the San Joaquin River as surface overflow through the Fresno Slough.

A portion of the western end of the study area, between Interstate 5 and east of State Route 33, is within the Grassland Drainage Area of the San Joaquin River Basin. As its name implies, this basin includes the entire area drained by the San Joaquin River. Land generally between State Route 33 and the east end of the Alkali Sink Ecological Reserve, to the north of the Main Lift Canal, and between Interstate 5 and east of Russell Avenue is within the San Joaquin River Basin.

In August 1995, the Central Valley Regional Water Quality Control Board adopted a Second Edition of the Tulare Basin Water Quality Control Plan (Basin Plan), which was most recently updated in January 2004. The Fourth Edition of the Sacramento and San Joaquin River Basin Plan was published in 1998 and updated in September 2009.

#### *Surface Water*

Major surface water bodies within the study area include the San Joaquin River, Fresno Slough, Panoche Creek, Mendota Pool, San Luis Canal, Delta-Mendota Canal, and California Aqueduct. There are numerous smaller canals and irrigation ditches in

the study area, some of which are unnamed. The natural drainage in the area west of Mendota is generally to the east and northeast. East of Fresno Slough, the general drainage pattern is to the west and southwest. The western portion of Alternative 3 and a portion of Variation 1A go through the Grassland Watershed of the San Joaquin River Basin. The hydrology of this watershed has been irreversibly altered by water projects. The main uses for the water supply in this watershed are agricultural activities and managed wetlands. The alluvial fans of this area contain salts and selenium, which must be properly managed to avoid negatively affecting the beneficial uses of surface waters and wetlands.

Alternatives 1, 2, and a portion of Alternative 3 and Variation 1A at the western end of the study area are on the downstream side of the Panoche Creek Watershed. Panoche Creek is an intermittent stream on the west side of the San Joaquin River Basin. Panoche Creek's upper watershed is in the hills west of Interstate 5. Downstream (east) of Interstate 5, Panoche Creek flows into the Panoche alluvial fan through stream channels, over low levees, in roadside ditches, storm sewers, and overland flow (across farm fields). During storms, the sediment carried in Panoche Creek contains high levels of selenium and arsenic, which sometimes degrades the water quality within the Mendota Wildlife Area.

Fresno Slough is the largest perennial water body near the study area site; it receives flood flow releases from the north fork of the Kings River and serves as a storage reservoir for federal irrigation water from the Delta Westlands Canal. North of the slough, flow diversions are made from the Mendota Pool to the lift canals of the Firebaugh Canal Water District and to the Main and Outside Lift Canals. The State Water Resources Control Board lists Mendota Pool as "impaired for selenium associated with agricultural irrigation, agricultural return flows, and groundwater withdrawals."

The Central Valley Regional Water Quality Control Board has designated beneficial uses for waters in the Tulare Lake Hydrologic Basin, South Valley Floor Hydrologic Unit, which are listed in the Basin Plan, as amended. Beneficial uses applicable to Valley Floor Waters (Hydro Units 551.20 and 551.30) are as follows: agricultural supply; groundwater recharge; industrial service and industrial process water supply; water contact and non-contact recreation; warm freshwater habitat; wildlife habitat; and rare, threatened or endangered species habitat. In the San Joaquin Basin, the designated beneficial uses are as follows: municipal and domestic supply; agricultural

supply; industrial service, process and power water supply; water contact and non-contact recreation; and wildlife habitat.

Surface water quality objectives are defined in the Porter-Cologne Water Quality Control Act as "… the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Water quality objectives for the study area are provided in both basin plans, as well as in the technical report for this route adoption.

### *Groundwater*

In general, the groundwater in the region is suitable for drinking, irrigation and manufacturing processes, although there are some areas with local water quality problems. The region is heavily dependent on groundwater, which represents about 30 percent of the annual supply used for agricultural and urban purposes.

The study area is underlain by the San Joaquin Valley Groundwater Basin, which is subdivided into two sub-basins—the Delta-Mendota Basin that underlies the western part of the study area to a point just east of State Route 33, and the Kings Basin that underlies the remaining eastern part of the study area. In addition to surface water, groundwater within the Kings Basin (generally west of Yuba Avenue in the study area) is supplied for agricultural, industrial, and recreational uses as well as wildlife habitat and groundwater recharge.

Groundwater depths along State Route 180 range from about 10 feet below ground surface at the western end of the study area to about 100 feet below ground surface at the east end of the study area. Within the San Joaquin Valley Groundwater Basin, groundwaters are considered suitable or potentially suitable, at minimum, for municipal and domestic water supply, agricultural supply, and industrial service and process supply. For approximately 20 miles, groundwater depths range from about 10 to 20 feet below ground surface east of the Interstate 5/Shields Avenue interchange to about 44 feet below ground surface at State Route 33 in the City of Mendota. From about 5 miles east of the Fresno Slough to the east end of the study area the groundwater surface varies from approximately 70 to 100 feet deep.

The Kings Basin is for the most part a closed basin, so groundwater in it does not generally flow to other basins. Consequently, salts come into the basin as water flows into it and accumulate through evaporation. Groundwater on the west side of the San

Joaquin Valley is degraded from the buildup of salts, selenium, boron, and other naturally occurring elements caused by evaporation and poor drainage. Fine-textured soil and dense, shallow clay layers allow the buildup of these salts and trace elements because they prevent unused irrigation water from percolating into the aquifer. This is the prevailing groundwater quality problem within the basin.

Several groundwater wells near the alignment alternatives between State Route 33 and Yuba Avenue are used for domestic, municipal, and agricultural purposes.

### *Environmental Consequences*

#### *Alignment Alternatives*

Future environmental documentation would contain project-level analyses when detailed design plans are definite. The route adoption itself would not lead directly to construction of a project, and therefore would not affect established water quality objectives and beneficial uses of waters of the U.S. or waters of the state. No environmental impacts would occur until subsequent projects within the adopted route are constructed. Potential permanent and temporary impacts described in this section are based on general assumptions of future projects along the corridor alternatives.

The water bodies impaired in the study area, according to the 2010 303(d) list, include Mendota Pool and a portion of the San Joaquin River between Friant Dam and Mendota Pool. The key pollutants identified for the Mendota Pool are mercury and selenium and their sources have been identified as resource extraction and agriculture. The impairment for the San Joaquin River has been identified as invasive species with unknown sources. Total Maximum Daily Loads are required according to the 303(d list).

Subsequent projects would result in an increase in impermeable surfaces in the study area. The effective drainage area of the future expressway would be increased because of topographic and storm water system changes. These changes would mean that pollutants from future expressway operation would be discharged from a larger surface area. Table 3.18 presents the estimated net increase in impermeable surfaces predicted for each route adoption alternative.

**Table 3.18 Estimated Increase in Impermeable Surfaces**

| Alternatives | Approximate Length (mile) | Impervious Area (acres) | | |
|---|---|---|---|---|
| | | Existing[1] (acre) | Proposed[2] (acre) | Net Increase (acre) |
| Alternative 1 | 47.5 | 138 | 506 | 368 |
| With Variation 1A | 50.0 | 145 | 533 | 388 |
| With Variation 1B | 48.0 | 140 | 512 | 372 |
| With Variation 1C | 47.9 | 139 | 511 | 372 |
| Alternative 2 | 48.9 | 41 | 521 | 480 |
| Alternative 3 | 49.7 | 50 | 530 | 480 |

[1] Assuming two 12-foot lanes with no shoulders for existing roadways.
[2] Assuming two 12-foot lanes with two 10-foot shoulders in each direction.

Source: Final Water Quality Study Report (2006).

Future projects would result in a net increase in vehicle traffic, landscaping activities, and other sources of urban pollutants when construction is complete. Typical urban pollutants from roadways and landscaped areas include fuels, oils, rubber particles, pesticides, herbicides, fertilizers, and heavy metals. Pollutants would be carried in surface runoff from roadways and landscaped areas and discharged to surface water bodies, which would be a potentially adverse impact. Impervious surfaces such as roadways prevent the natural soaking of rain water into the ground that gradually seeps into streams and other surface water bodies. Instead, the water accumulates and is conveyed rapidly into storm drains. This large volume of water may convey pollutants of concern (including sediment) into impaired waters and may affect aquatic and terrestrial habitats, and water quality objectives or beneficial uses. There is the potential for flooding and bank erosion unless Best Management Practices are put in place.

Impacts to potential jurisdictional Waters of the U.S. would result from road construction, bridge construction, alteration of wetland drainage patterns, and disturbance or relocation of existing channels, ditches and ponds, triggering the need to obtain Clean Water Act Section 401 and Section 404 permits. The area where all alternatives cross the Fresno Slough appears to have the most potential for significant impacts to wetlands and other waters. The Fresno Slough is an important aquatic waterway and migration corridor containing perennial open water habitat, with intermittent fringes of riparian and freshwater marsh habitats. See section 3.2.2, Wetlands and Other Waters, for a detailed discussion of these impacts.

As shown in Table 3.18, the expressway would result in a sizable increase in impermeable surface area due to newly paved lanes and shoulders. It is not expected that the new impermeable surfaces would have an adverse effect on groundwater capacity for the following reasons: 1) impacts associated with increased runoff would be distributed across the 45-plus-mile-long corridor; 2) precipitation falling on these areas would quickly run off to permeable areas or storm water basins and be available for groundwater recharge; and 3) the groundwater table about 5 miles east of the Fresno Slough to the east end of the study area is more than 50 feet deep, providing extensive natural filtration of recharging water. Therefore, future projects would not result in a demonstrable and/or sustained reduction of groundwater recharge capacity.

Water would be required for landscape irrigation, but the supplies required for these activities would be incidental and minor in nature and would not result in impacts to either groundwater elevations or quality.

No adverse impacts are expected with regard to well abandonment in advance of construction activities. If there is a need to abandon any groundwater wells, then proper procedures would be followed according to the Department of Water Resources Well Standards or Fresno County regulations for well abandonment.

### *Construction Impacts*

Excavation, grading, and construction activities associated with future projects would expose and disturb soils, resulting in an increased potential for erosion and siltation in and downstream of construction zones. Silt discharges from construction activities would result in increased nutrient loading and total suspended solids concentration in surface water. Without appropriate controls, these construction impacts would affect all drainages downstream of the study area, and pose a potentially significant impact to water quality.

Construction activities typically generate pollution and waste discharges that would result in additional polluted runoff. Pollutants associated with construction activities, which include gasoline, oil, rubber particles, herbicides, pesticides, paint, adhesives, tar, and other chemicals, and the generation of construction-related waste materials, have the potential to affect surface water quality downstream of a project construction site. The chemical contamination of site runoff during construction activities would pose a potentially adverse impact to water quality.

The study area is uniformly flat to gently sloping; therefore, extensive site grading is not anticipated. The depth to groundwater would be well below the excavation depth required for the roadbed for most of the study area, and construction activities would not increase the likelihood of groundwater depletion. There would be extensive grading at specific locations for the excavation of storm water basins. This work would stay above the water table. However, piles required for bridge footings may encounter the groundwater table in localized areas such as near the Fresno Slough, Mendota Pool, and the San Joaquin River. Dewatering during construction would take place in these areas only where the groundwater table is within 20 feet of the ground surface and only where excavating below the water table is necessary and just during the initial phases of excavation and construction of roadways. The resulting discharge would likely contain a high sediment concentration and may contain construction-related pollutants. Impacts associated with localized dewatering activities would be minimized through compliance with Central Valley Regional Water Quality Control Board National Pollutant Discharge Elimination System permit requirements.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve route adoption of State Route 180 by the California Transportation Commission or construction of a new expressway, so water quality impacts associated with the route adoption would not occur under this alternative. Degradation of water quality due to pollutant discharges from the existing transportation system within the study area would continue under this alternative. Water quality issues could also arise during roadway maintenance work or from future-programmed transportation projects within the subject corridor.

### *Avoidance, Minimization, and/or Mitigation Measures*

To reduce potentially significant erosion and discharges of silt, a Storm Water Pollution Prevention Plan would be prepared and implemented during construction in accordance with Caltrans' National Pollutant Discharge Elimination System permit. The Storm Water Pollution Prevention Plan would include best management practices to control erosion and associated sedimentation during construction. There would be restrictions on construction in and along federal waterways including special best management practices such as flow diversion (if construction is within the waterway while flows are occurring), appropriate sediment and erosion control along the waterways, containment for non-storm water pollution, and placement of hazardous material storage facilities away from the waterways. Caltrans would require the contractors to follow all Regional Water Quality Control Board regulations and

procedures for discharging wastewater, including dewatering discharge. Additional information about appropriate control practices would be developed at the project design stage, at which time an increased level of detail for best management practices would be provided.

As required by the Regional Water Quality Control Board, Caltrans would develop and implement a Water Quality Technical Report for project operation that would contain measures to reduce polluted runoff. The Water Quality Technical Report would include measures for the control of potential pollutant sources, control and treatment of runoff, and to protect water quality resources. Specific best management practices included in the Water Quality Technical Report for project operation would include some or all of the following: permanent storm water pollutant treatment controls such as biofiltration devices and/or infiltration devices; litter controls; cleaning/maintenance measures; outdoor storage controls; landscaping controls; and erosion controls.

Future projects would be designed to include permanent best management practices, such as storm water conveyance and retention facilities to control contaminated surface runoff from the facility. It is anticipated that the hydraulic efficiency of the storm water control and drainage system would be improved under future projects, resulting in a system capable of treating water to the standard for water quality flows as required in Caltrans' Project Planning and Design Guide. This would be an overall benefit to the environment compared to the existing system with no permanent controls.

#### *No-Action/No-Project Alternative*

No mitigation would be required under this alternative.

### 3.2.3 Geology/Soils/Seismic/Topography

#### ***Regulatory Setting***

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible

for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated maximum credible earthquake, from young faults in and near California. The maximum credible earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

### *Affected Environment*

The discussion in this section is based on the Geotechnical Assessment for the State Route 180 Westside Expressway Route Adoption Study prepared in June 2006.

#### *Regional Geology*

The study area is in the San Joaquin Valley, which comprises the southern portion of the Great Valley geomorphic province. The San Joaquin Valley is drained by the Sacramento-San Joaquin Delta, which flows into San Francisco Bay. The northern portion of the San Joaquin Valley drains toward the Delta via the San Joaquin River and its main tributaries include the Stanislaus, Tuolumne and Merced rivers. The valley is internally drained south of the San Joaquin River, with rivers such as the Kings and Kern rivers draining the southern Sierra Nevada flowing into the Tulare drainage basin, presently an area of dry lakebeds.

The San Joaquin Valley is a trough filled with more than 30,000 feet of marine and continental sediment. Marine deposits stopped when the progressive uplift of the Coast Ranges and changes in sea level caused the withdrawal of the ocean from valley areas during the Pleistocene epoch. Continental deposits into the valley continue today with ongoing erosion of the Sierra Nevada and Coast Ranges. The Sierra Nevada is a tilted block of Mesozoic granitic with remnants of sedimentary Paleozoic and volcanic Mesozoic rock. The Coast Ranges are mostly Mesozoic marine sedimentary rocks that have been uplifted, folded and faulted during the Tertiary period. The continental valley sediment consists mostly of sands and gravels interbedded and mixed with clay and silt.

The western and easternmost reaches of the study area, generally between Interstate 5 and the California Aqueduct on the west, and from about James Road eastward on the eastern end, are underlain by older Pleistocene alluvium including fan and stream terrace deposits. Just west of Interstate 5 and the study area, Pliocene to Pleistocene alluvial deposits of the Tulare Formation include the Corcoran Clay Member, which helps to confine water within the local groundwater basin. Between these areas of older alluvium on both ends of the study area, the land is underlain by younger Holocene alluvium described as unconsolidated stream, channel, levee, floodplain,

basin, terrace, fan, mudflow, and landslide deposits. Within the limits of the study area, however, it is likely that most of the younger alluvium consists of fan, stream and floodplain deposits.

### *Soils*

The near-surface and deeper soils vary across the study area. Most of the study area consists of clay, silt, sand, and gravel, interbedded and mixed to varying degrees.

Surface soils east of Yuba Avenue are mostly silty sands (loam-sandy loam) with minor silt. The surface soil between Interstate 5 and Yuba Avenue is mostly clay and clay loam. Localized areas are underlain by soils that show low soil strength and higher expansion potential (that is, they swell and shrink as they get wet and dry out) and thus, would not be suitable roadway subgrade material. In addition, the dry clayey soils along the western margin of the study area could also be subject to subsidence and settlement.

Settlement can be caused by many factors, including loading and compression of weak or loosely consolidated soils (specifically alluvium); seismically induced liquefaction of loose, saturated shallow soils, hydrocompaction of dry clayey alluvial fan deposits, or from larger-scale regional subsidence.

Subsidence is the sinking or settling of land in response to various natural and human-made conditions. The principal causes are excess pumping from an aquifer system (removal of groundwater), drainage of organic soils, underground mining, hydrocompaction, natural compaction, sinkholes, and thawing permafrost. Subsidence resulting from groundwater pumping affected large areas of the San Joaquin Valley up until the early 1970s. As shown in Figure 3-13, most of the study area west of State Route 33 has experienced considerable subsidence due to this phenomenon.

Hydrocompactible deposits occur locally west of State Route 33, and they occur as near-surface alluvial fan deposits that are above the water table along the western margin of the valley. The weakening of clays in these soils can compact when initially saturated for an extended period.

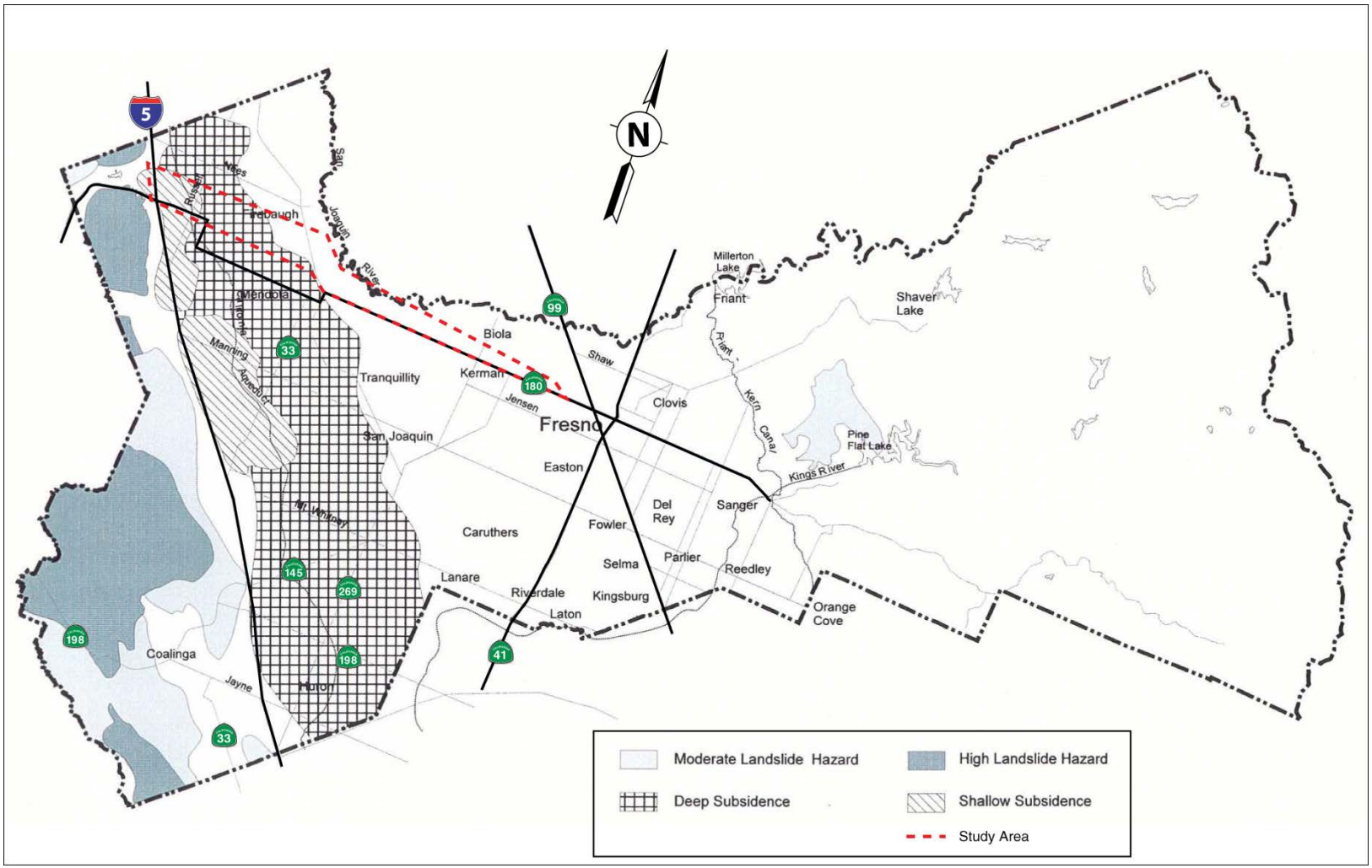



**Figure 3-13 Areas of Historic Deep and Shallow Subsidence**

### *Seismicity*

The study area has relatively low-to-moderate seismicity, and no active faults are known to cross it. The nearest zoned fault is the southern segment of the Ortigalita fault zone, about 9 miles west of the junction of Interstate 5 and Nees Avenue. This fault is considered capable of generating a magnitude 7.1 earthquake. The creeping segment of the San Andreas Fault is 28 miles to the southwest and is considered capable of generating a magnitude 6.2 earthquake.

As shown in Table 3.19, the maximum credible earthquake in the study area would be a magnitude 7.0 event resulting along the Great Valley Thrust system at a distance of approximately 6.5 miles from the west end of the study area. At that distance, this earthquake would produce a peak ground acceleration of 0.41g at Interstate 5. The peak ground acceleration measures how hard the earth shakes in a given geographic area, unlike the Richter magnitude scale, which measures the total amount of energy released in an earthquake.

**Table 3.19 Major Faults, Distance from Study Area and Maximum Earthquake Magnitudes**

| Fault/ Source | Historical Seismicity | | Maximum Credible Earthquake | Approximate Distance to Study Area | | Peak Ground Acceleration (g[1]) | |
|---|---|---|---|---|---|---|---|
| | Date | Mag | | Interstate 5 (in miles) | Valentine Avenue (in miles) | Interstate 5 | Valentine Avenue |
| Great Valley Thrust | 1983 | 6.7 | 7.0 | 6.5 | 48 | 0.45 | 0.05 |
| Ortigalita | Unknown | | 7.1 | 8.5 | 55 | 0.31 | 0.03 |
| San Andreas Fault (creeping segment) | -- | 6.0 | 6.2 | 28 | 65 | 0.04 | 0.01 |

[1] Sadigh, *et al.* 1997.
g – peak acceleration
Mag – Magnitude

Source: Geotechnical Assessment Report (May 2006).

### *Topography*

The steepest part of the study area occurs near Interstate 5 where the elevation is more than 500 feet above sea level. From there, elevations fall to about 330 feet above sea level at the California Aqueduct and gradually flatten to about 160 feet above sea level next to the Fresno Slough near State Route 33. From there, the ground

surface rises gradually eastward from the slough, to elevations of up to about 200 feet above sea level near Yuba Avenue. The terrain east of Yuba Avenue is relatively flat, with ground elevations gradually rising to about 270 feet above sea level near Brawley and Valentine avenues.

The study area is underlain by the San Joaquin Valley Groundwater Basin. Within the limits of the study area, that basin is subdivided into two sub-basins—the Delta-Mendota Sub-basin that underlies the western part of the study area to a point just east of State Route 33, and the Kings Sub-basin that underlies the remaining eastern part of the study area. For more information about limits of these sub-basins, see Section 3.2.2, Water Quality and Storm Water Runoff.

### *Environmental Consequences*

#### *Alignment Alternatives*

Potential permanent and temporary impacts related to geology and soils would be similar for each corridor alternative; therefore, impacts are evaluated for the study area as a whole. The following impact discussion is separated into two categories: erosion and sedimentation and geologic hazards.

#### ***Erosion and Sedimentation***

Future highway construction for all alignment alternatives would require grading, site preparation, temporary dewatering, and other earthwork activities. In the absence of specific details on the proposed design and/or construction practices, temporary erosion and dewatering-relating impacts are considered potentially adverse. These impacts, as well as appropriate mitigation, are discussed in Section 3.2.2 Water Quality and Storm Water Runoff of this document.

#### ***Geologic Hazards***

Most of the soils along the alternative alignments would be suitable to support appropriately engineered and designed roadways, bridges, and associated structures. Geologic hazards that may affect the future projects include settlement/subsidence, expansive soils, ground shaking, liquefaction-induced settlement, slope instability, and flooding.

Settlement can damage structures, crack asphalt pavements, trap rainwater, and deteriorate roadway pavements. In addition, road fills and bridge embankments can settle because of consolidation. The location of any of the alignment alternatives on soil that could be subject to settlement/subsidence could result in potentially adverse impacts unless appropriate mitigation measures are incorporated in the project design.

Portions of the alternatives are underlain by soils that are moderately to highly expansive. Because expansive soil swells and shrinks with seasonal changes in moisture content, some structures or pavements placed directly on these soils could be damaged.

The severity of ground shaking is influenced by many factors, including how long and how intense the earthquake is, the nearness to the earthquake source, and the type of material (for example, hard rock or deep soil) underlying the site. Given the nearness of the western end of the study area to faults in the Coast Ranges, the western part of the study area is expected to experience stronger ground shaking during an earthquake than the eastern portion. As previously noted, the maximum credible earthquake for this area is a magnitude 7.0 earthquake on the Great Valley Thrust system fault. The potential for ground shaking could expose people and property to geologic hazards.

Liquefaction can occur during strong ground shaking as unstable soils lose their strength and can move both horizontally and vertically. Liquefaction can cause displacement or buckling of roadway pavement and retaining walls or the settlement of bridge foundations. The Fresno Slough and the San Joaquin River areas are likely to be affected by liquefaction because of unconsolidated deposits that occur along the stream channels. These deposits are the most susceptible to liquefaction. Areas of known or suspected high groundwater (specifically, less than 50 feet below ground) occur throughout the study area, and they could also be subject to liquefaction.

Most slopes throughout the study area are too flat to pose a landslide hazard. However, since alluvial soils are very susceptible to erosion throughout the study area, any temporary or permanent excavations, including road cuts that are too steep, could be prone to localized slumping.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not result in temporary geology/soils impacts because no construction would occur. No geologic or seismic hazards above the current level would occur under this alternative.

## ***Avoidance, Minimization, and/or Mitigation Measures***

### *Alignment Alternatives*

To avoid, minimize, and/or mitigate seismic hazards near future projects, site-specific investigations, seismic hazard engineering analysis, and engineering

recommendations for landslide prevention, expansive soil treatment, cuts and fills, and bridge foundation elements would be done during final design. The following specific mitigation measures are proposed for future projects:

- Conduct a site-specific geotechnical investigation to identify the potential hazards resulting from settlement or construction on expansive soils and necessary project planning, design, and construction features to avoid, minimize, or prevent such hazards.
- Structures associated with future projects must meet maximum credible earthquake standards, as established by the Caltrans Office of Earthquake Engineering to minimize potential damage from ground shaking.
- Groundwater-level data would be obtained during site-specific design investigations of the liquefaction potential of roadway, bridge or embankment foundations. Liquefaction potential would also be determined through these design investigations and design measures would be incorporated into the project, if appropriate.
- Site-specific engineering recommendations to minimize landslide impacts would be defined by field testing, incorporated into the final design, and implemented during construction of the individual projects.

#### *No-Action/No-Project Alternative*

No mitigation is required for the No-Action/No-Project Alternative.

### 3.2.4 Paleontology

#### ***Regulatory Setting***

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. (e.g., Antiquities Act of 1906 [16 U.S. Code 431-433], Federal-Aid Highway Act of 1956 [23 U.S. Code 305]). Under California law, paleontological resources are protected by the California Environmental Quality Act.

#### ***Affected Environment***

A Paleontological Resources Technical Report was prepared in April 2006 using geologic maps, existing reports of the study area and a review of paleontological

literature. No field surveys of the study area were conducted. Most of the area is under cultivation, and there is no exposed rock that can be surveyed for fossil remains.

The study area lies in the northern San Joaquin Valley, an alluvial plain underlain by comparatively unconsolidated and undisturbed strata of the Quaternary Period. The Quaternary Period extends from 1.8 million years ago to the present. The Quaternary includes two geologic subdivisions—the Holocene and the Pleistocene epochs. The Holocene extends from the present day back about 10,000 calendar years, and the Pleistocene has been dated from the end of the Holocene to 1.8 million years ago.

Four sedimentary rock units underlie the study area and are shown in Figure 3-14 in relation to the alternatives:

- Pleistocene non-marine sedimentary deposits (Qc)
- Pleistocene to Holocene alluvial fan deposits (Qf)
- Pleistocene to Holocene basin deposits (Qb)
- Pleistocene to Holocene river and major stream channel deposits (Qsc)

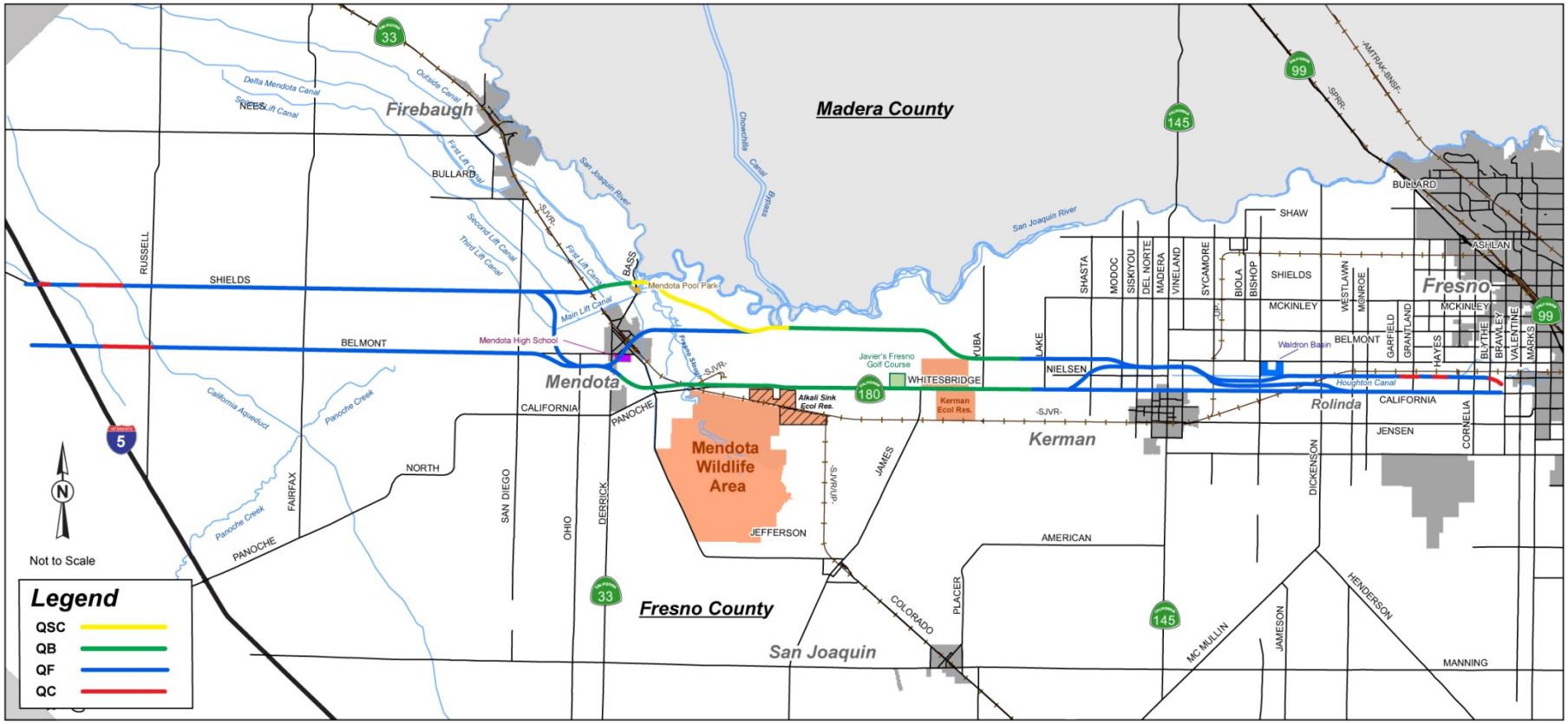



**Figure 3-14 Surficial Geology of Alternatives**

The criteria for establishing the potential paleontological productivity of a rock unit exposed in the study area are as follows:

- High potential: rock unit contains comparatively high density of fossil sites and has yielded numerous fossil remains in the study area and vicinity; therefore, it likely contains additional similar remains in the study area.

- Low potential: rock unit contains no or comparatively low density of fossil sites and has yielded very few or no fossil remains in the study area and vicinity; therefore, it is not likely to contain any remains in the study area. Such rock units would include those that are very coarse grained or are too young to contain remains old enough to be considered fossilized.

- Undetermined potential: rock unit has limited or no exposure in the study area, but it might be present in the shallow subsurface; is poorly studied; contains very few or no fossil sites; and has yielded very few or no fossil remains in the study area and vicinity.

- No potential: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units with no potential for containing any fossil remains.

### *Pleistocene Non-Marine Sedimentary Deposits (Unit Qc)*

These deposits are Pleistocene in age, even at the ground surface. This rock unit has a comparatively high density of fossil sites and has yielded numerous fossil remains in the study area and vicinity. The Riverbank Formation in the eastern San Joaquin Valley is an example of Pleistocene non-marine sedimentary deposits. This formation consists of sand silt and clay.

Fossilized bones and teeth representing several extinct species from the middle to late Pleistocene (Ice Age) have been reported from many fossil sites in the Riverbank Formation and from other areas underlain by Pleistocene non-marine sedimentary deposits. These vertebrate species include freshwater fishes, bullfrogs, tortoises, pond turtles, snakes, waterfowl, moles, Jeffersen’s giant ground sloths, Harlan’s ground sloths, Shasta ground sloths, cottontails, jackrabbits, squirrels, pocket gophers, pocket mice, kangaroo rats, harvest mice, woodrats, voles, dire wolves, Armbruster’s wolves, coyotes, red foxes, saber-toothed cats, scimitar-toothed cats, American cheetahs, Columbian mammoths, western horses, llamas, sother camels, pronghorns, deer, and antique bison.

The fossil sites in these deposits are scattered across the northern San Joaquin and southern Sacramento valleys. The fossils from these deposits are scientifically important because they have allowed the documentation of the middle to late Pleistocene age of the deposits and the paleoenvironmental reconstruction of the San Joaquin Valley during that time period. Many previously recorded fossil sites in these deposits of the San Joaquin and southern Sacramento valleys suggest that there is a high potential for fossil remains to be encountered during project earth-moving activities.

### *Pleistocene to Holocene Alluvial Fan Deposits (Unit Qf)*

These deposits include the Modesto Formation in the eastern San Joaquin Valley, which consists of sand and silt. Pleistocene to Holocene alluvial fan deposits are found mostly between Interstate 5 and State Route 33 and east of Lake Avenue.

Presence of Rancholabrean fossil remains indicates that the alluvial fan deposits are partly middle to late Pleistocene in age. Fossilized bones and teeth representing several extinct species of the middle to late Pleistocene land mammal species have been reported from many fossil sites in the Modesto Formation and from other areas underlain by Pleistocene to Holocene alluvial fan deposits. The mostly extinct species represented by the remains include Jeffersen's giant ground sloths, elephants, horses, southern camels, and bison. Remains of a bird have also been found in the deposits.

At depths fewer than 3 feet below the ground surface, this rock unit is too young (Holocene epoch) to contain remains old enough to be considered fossilized. Deeper than 3 feet below the ground surface, however, there would be high potential for encountering fossilized remains in the alluvial fan deposits.

The fossils sites in these deposits are scattered across the northern San Joaquin Valley, and they are scientifically important because they have allowed for the documentation of the middle to late Pleistocene (Rancholabrean) age for the older portion of these deposits and the paleoenvironmental reconstruction of the San Joaquin Valley for this time period.

### *Pleistocene to Holocene Basin Deposits (Qb)*

These consist of flood deposits laid down between stream channel levees and alluvial fan deposits. Pleistocene to Holocene basin deposits underlie alternatives in the Fresno Slough and Kerman Ecological Reserve areas.

Recorded San Joaquin Valley sites in this deposit have yielded the fossilized remains of a variety of extinct species of middle to late Pleistocene land-based vertebrate species. The mostly extant species include freshwater fishes, pond turtles, rattlesnakes, loons, moles, jackrabbits, pocket gophers, pocket mice, woodrats, voles, coyotes, red and grey foxes, badgers, Columbian mammoths, horses, southern camels, elk, deer, and bison. The fossil sites in these deposits occur in the northern San Joaquin Valley and are scientifically important because they have allowed the documentation of the middle to late Pleistocene (Rancholabrean) age for the older portion of these deposits, and the paleoenvironmental reconstruction of the San Joaquin Valley during this time period.

Because the basin deposits are considered to be Holocene in age at the surface and the fossils found are middle to Late Pleistocene, in may be assumed that the fossil sites were encountered in the subsurface. At shallower depths, however, the potential for encountering remains old enough to be fossilized is “low,” meaning a deposit contains no fossils or a comparatively low density of fossil sites, and has yielded very few or no fossil remains in the study area and vicinity. Therefore, above a depth of 5 feet, this unit is unlikely to contain any remains.

Pending further investigation, the potential for similar fossil remains being encountered deeper than 5 feet below ground surface in these deposits is “undetermined.” An “undetermined” rating indicates a rock unit that has not been sufficiently studied or lacks good exposures to warrant a definitive rating. This rating is treated initially as having a high sensitivity. After study or monitoring, the unit may be redefined into one of the other categories.

### *Pleistocene to Holocene River and Major Stream Channel Deposits (Unit Qsc)*

These consist of sediments laid down in channels and on adjacent channel levees. Within the study area, this deposit is primarily east of the Fresno Slough. All alternative alignments cross this area.

One fossil site was found to occur in an area underlain by the river and major stream channel deposits. This site in the northern San Joaquin Valley has yielded the remains of Harlan’s ground sloth and horse. Although considered to be only Holocene in age, the presence of fossil remains of probable Rancholabrean age indicates that these deposits also are partly middle to late Pleistocene in age. These fossil remains are scientifically important because they have allowed the documentation of the middle

to late Pleistocene (Rancholabrean) age for the older portion of these deposits, and the paleoenvironmental reconstruction of the San Joaquin Valley during this time period.

These deposits are considered to be Holocene in age at the surface. At depths less than 5 feet, the potential for encountering remains old enough to be fossilized is considered "low." As described previously, only one recorded fossil site is recorded from these deposits. Pending further study, there is an "undetermined" potential for similar fossil remains being encountered in these deposits at depths greater than 5 feet below ground surface.

### *Environmental Consequences*

#### *Alignment Alternatives*

Unless otherwise noted, all alignment alternatives would have similar impacts on each of the deposits described below.

Impacts to Pleistocene non-marine sedimentary deposits as a result of earthmoving activities in areas underlain by this rock unit would be potentially adverse because of the paleontological resources that could be lost to such activities. Earthmoving activities would have a high potential for destroying fossil remains and making them inaccessible for recovery. Pleistocene non-marine sedimentary deposits are crossed by Alternative 1 near the California Aqueduct on Belmont Avenue at the western end of the study. If Variation 1A was selected for Alternative 1, these deposits instead would be crossed between Interstate 5 and the California Aqueduct. Alternative 2 crosses the deposits at three locations: along Belmont Avenue near the California Aqueduct, along Nielsen Avenue between Modoc and Del Norte avenues, and along Nielsen between Blythe and Valentine avenues. Alternative 3 crosses these deposits at three locations: along Shields Avenue between Interstate 5 and the California Aqueduct, along Nielsen Avenue between Modoc and Del Norte avenues, and along Nielsen between Blythe and Valentine avenues.

Impacts to Pleistocene to Holocene alluvial fan deposits as a result of earthmoving activities that go deeper than 3 feet below the ground surface in areas underlain by this rock unit would be potentially adverse because of the high potential for encountering fossilized remains from middle to late Pleistocene land mammals. At depths shallower than 3 feet, however, impacts are unlikely to be adverse as this rock unit is too young to contain remains old enough to be considered fossilized. These deposits are crossed by each of the alternatives and variations.

Impacts to Pleistocene to Holocene Basin Deposits and Major Stream Channel Deposits as a result of earthmoving activities deeper than 5 feet in areas underlain by these rock units would be of undetermined potential because these rock units have not been sufficiently studied to warrant a definitive rating. Because the potential for fossilized remains is undetermined, they should be treated initially as having a high sensitivity. After study or monitoring, the units may be redefined into one of the other categories. At shallower depths, however, the potential for encountering remains old enough to be considered fossilized is "low." While each of the route adoption alternatives cross areas underlain by these deposits, the variation segments by themselves do not.

Although earthmoving activities would be temporary and would end with construction, these activities could result in the permanent loss of fossil remains, an unrecorded fossil site, and the loss of associated fossil specimen data and corresponding geologic and geographic site data. Table 3.20 shows the rock units and their level of sensitivity for each alternative.

### Table 3.20 Paleontological Sensitivity of Alternatives

| Alternative | Rock Unit Sensitivity | | | |
|---|---|---|---|---|
| | Pleistocene non-marine sedimentary deposits | Pleistocene to Holocene alluvial fan deposits | Pleistocene to Holocene basin deposits | Pleistocene to Holocene river and major stream channel deposits |
| Alternative 1 | high | low/high[1] | low/undetermined[2] | - - |
| Variation 1A* | high | low/high[1] | - - | - - |
| Variation 1B* | - - | low/high[1] | - - | - - |
| Variation 1C* | high | low/high[1] | - - | - - |
| Alternative 2 | high | low/high[1] | low/undetermined[2] | low/undetermined[2] |
| Alternative 3 | high | low/high[1] | low/undetermined[2] | low/undetermined[2] |

* Sensitivity assessment applies only to the variation segment itself and not the entire length of Alternative 1.
- - Rock unit does not occur in segment.
[1] Low at depths less than 3 feet below present ground surface; high at depths greater than 3 feet below present ground surface.
[2] Low at depths less than 5 feet below present ground surface; undetermined at depths greater than 5 feet below present ground surface.

Source: Paleontological Resources Technical Report (April 2006).

Since all alignment alternatives include rock units of high or indeterminate sensitivity, construction of future projects would have substantial adverse paleontological resources impacts. In general, major excavation activities have a

greater potential to impact paleontological resources. Work activities within most of the study area would occur at relatively shallow depths required to develop a roadbed. Major excavation activities would primarily occur within localized areas (for example, when building storm water basins and preparing bridge crossings). Additional analysis would be required at the design stage of subsequent projects to determine specific areas that would require monitoring.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not result in adverse impacts on paleontological resources because no construction or transportation improvements would occur.

## *Avoidance, Minimization, and/or Mitigation Measures*

Paleontological mitigation is recommended during construction of future projects associated with all alignment alternatives due to the possibility of encountering fossils that have been identified as having paleontological importance. These mitigation measures would be implemented in those parts of the alignment that are underlain by:

- Pleistocene non-marine sedimentary deposits
- Pleistocene to Holocene alluvial fan deposits where excavation and other earth-moving activities would extend to depths at least 3 feet below the present ground surface
- Pleistocene to Holocene basin deposits and Pleistocene to Holocene river and major stream channel deposits where these activities would extend to a depth greater than 5 feet below the present ground surface

Adverse impacts to paleontological resources from future projects cannot be avoided because each proposed route alternative goes through an identified paleontological resource. However, the impacts could be minimized by implementing a well-designed paleontological resource mitigation plan. Proper paleontological mitigation could actually result in a better understanding of the paleontological resources through the discovery of fossils that would not have been exposed without construction and, therefore, would not have been available for study. To minimize potentially significant impacts to a less than significant level, the following mitigation measures are required:

- A nonstandard special provision for paleontology mitigation would be included in the construction contract special provisions section to advise the construction

contractor of the requirement to cooperate with the paleontological salvage.

- A qualified principal paleontologist (MS or PhD in paleontology or geology familiar with paleontological procedures and techniques) will be retained to prepare a detailed paleontological mitigation plan before the start of construction. All geologic work would be performed under the supervision of a California professional geologist.
- The qualified principal paleontologist would be present at pre-grading meetings to consult with grading and excavation contractors.
- Near the beginning of excavations, the principal paleontologist would conduct an employee environmental awareness training session for all persons involved in earthmoving for the project.
- A paleontological monitor, under the direction of the qualified principal paleontologist, would be onsite to inspect cuts for fossils at all times during original grading involving sensitive geologic formations.
- When fossils are discovered, the paleontologist (or paleontological monitor) would recover them. Construction work in these areas would be halted or diverted to allow recovery of fossil remains in a timely manner.
- Bulk sediment samples will be recovered from fossiliferous horizons and processed for microvertebrate remains as determined necessary by the principal paleontologist.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be prepared adequately enough for general identification, sorted, and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, would then be deposited in a scientific institution with paleontological collections.
- A final report would be completed to outline the results of the mitigation program and would be signed by the principal paleontologist and professional geologist.

### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative because there would be no earthmoving activity to disturb fossil-bearing strata.

### 3.2.5 Hazardous Waste or Materials

#### *Regulatory Setting*

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

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

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

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

Hazardous waste in California is regulated mainly under the authority of the federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

### *Affected Environment*

Discussion in this section is based on the May 2006 Initial Site Assessment, a 2007 Hazardous Waste Recommendation and Estimate memo (updated March 2009), the State Water Resources Control Board GeoTracker, the Department of Toxic Substances Control EnviroStor database, and Environmental FirstSearch™ database reports collected in May 2009 that identified locations of potential or known hazardous waste sites along each alternative alignment. Site remediation information was referenced from the State Water Resources Control Board GeoTracker for current open leak cases.

The Initial Site Assessment, memo and environmental database reports were based solely on the review of data obtained from local, state, and federal environmental databases. At this planning level, it is not practical to do project-level hazardous material/waste assessments over such an extensive study area. An additional Initial Site Assessment would be conducted for each subsequent project prior to conducting the necessary studies for a more current and accurate representation of hazardous waste concerns. Coordination and consultation with regulatory agencies, local agencies, and property owners would also occur at the time future projects are proposed.

The study area contains primarily agricultural uses and businesses that support agriculture, but also commercial, industrial, rural residential, community facilities, and public utilities, as well as undeveloped (vacant) land. Major agri-business operations are scattered across the study area between Interstate 5 and Yuba Avenue. Commercial uses occur all along the corridor, but are concentrated along Whitesbridge Avenue/State Route 180 in Kerman. There are several industrial businesses toward the east end of the study area. Holly Sugar Company once operated a sugar beet processing plant on Whitesbridge Avenue just west of San Mateo Avenue before closing in December 2008. The Mendota Airport, a small airport along Airport Boulevard within Mendota, is also in the study area.

### *Environmental Consequences*

The environmental database searches done in 2009 identified 362 known or potential hazardous waste sites encompassed by the study area. Figure 3-15 shows the hazardous materials/waste sites along the alternatives and variations. Table 3.21 lists the hazardous waste that may be encountered with the construction of the future expressway by alternative. Avoidance may be possible in all instances.

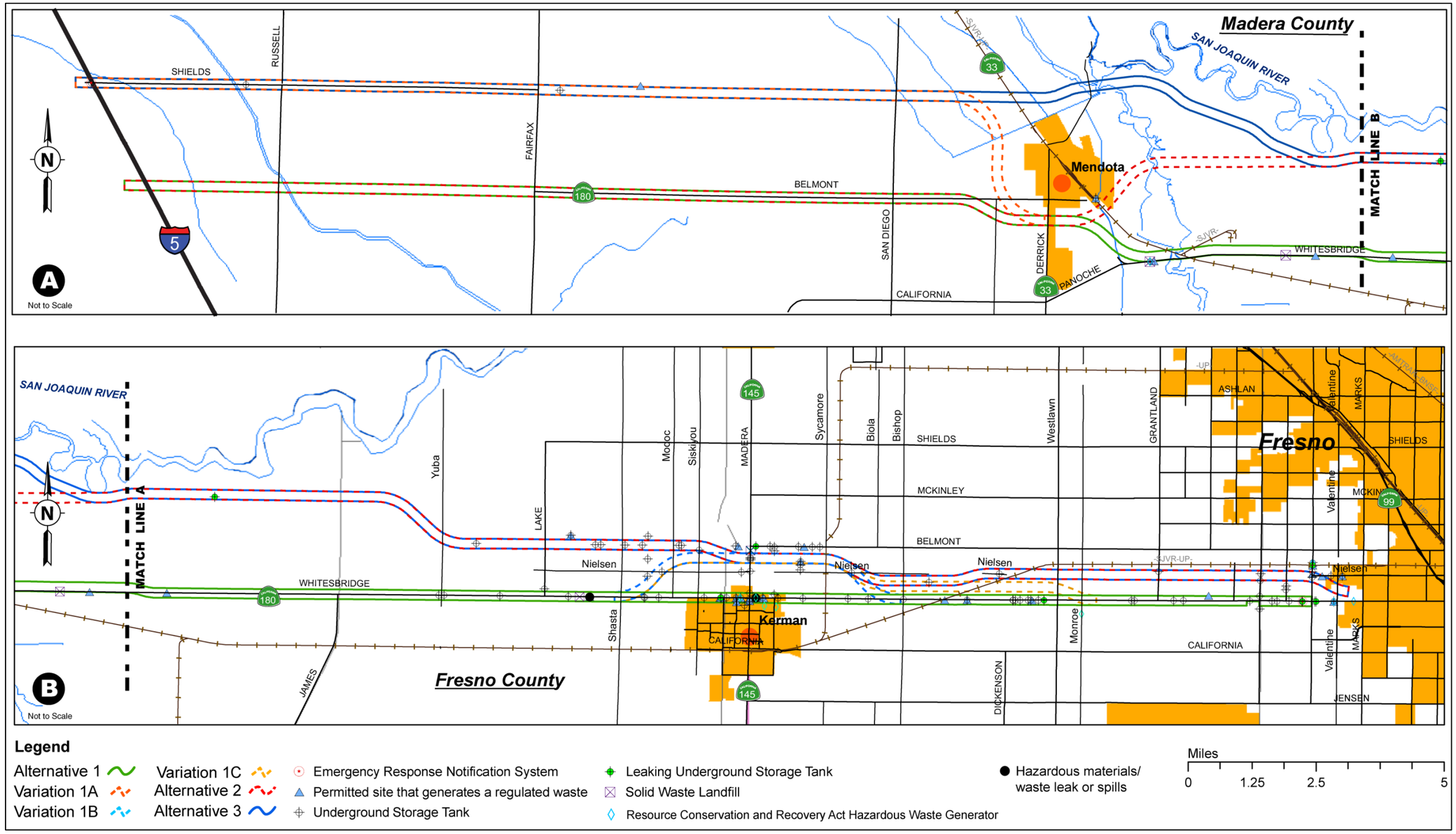



**Figure 3-15 Hazardous Waste/Materials Sites**

❖

## Table 3.21 Hazardous Waste Impacts by Alternative

| | |
|---|---|
| **Alternative 1** | 2 identified contaminated sites<br>64 underground storage tanks<br>3 leaking underground storage tanks<br>20 facilities with a hazardous materials/waste permit<br>3 solid waste landfill facilities<br>3 generators of hazardous materials/wastes<br>1 release notification to the Emergency Response Notification System of oil and hazardous substances<br>1 event involving spilled hazardous materials/waste |
| **With Variation 1A** | 2 identified contaminated sites<br>66 underground storage tanks<br>3 leaking underground storage tanks<br>20 facilities with a hazardous materials/waste permit<br>3 solid waste landfill facilities<br>3 generators of hazardous materials/wastes<br>1 release notification to the Emergency Response Notification System of oil and hazardous substances<br>1 event involving spilled hazardous materials/waste |
| **With Variation 1B** | 2 identified contaminated sites<br>75 underground storage tanks<br>3 leaking underground storage tanks<br>21 facilities with a hazardous materials/waste permit<br>3 solid waste landfill facilities<br>3 generators of hazardous materials/wastes<br>1 release notification to the Emergency Response Notification System of oil and hazardous substances<br>1 event involving spilled hazardous materials/waste |
| **With Variation 1C** | 2 identified contaminated sites<br>75 underground storage tanks<br>3 leaking underground storage tanks<br>21 facilities with a hazardous materials/waste permit<br>3 solid waste landfill facilities<br>3 generators of hazardous materials/wastes<br>1 release notification to the Emergency Response Notification System of oil and hazardous substances<br>1 event involving spilled hazardous materials/waste |
| **Alternative 2** | 1 identified contaminated site<br>30 underground storage tanks<br>2 leaking underground storage tanks<br>3 facilities with a hazardous materials/waste permit<br>1 generator of hazardous materials/wastes |
| **Alternative 3** | 1 identified contaminated site<br>32 underground storage tanks<br>2 leaking underground storage tanks<br>3 facilities with a hazardous materials/waste permit<br>1 generator of hazardous materials/wastes<br>1 release notification to the Emergency Response Notification System of oil and hazardous substances |

Source: Environmental FirstSearch™ (May 2009).

### *Alternative 1*

This alternative may affect numerous hazardous waste sites listed in Table 3.21 and two contaminated sites in Table 3.22. Alternative 1 and all variations of the alternative have significantly more hazardous waste sites compared to either Alternative 2 or 3. One contamination site, the Holly Company, has been placed on the California Environmental Protection Agency's Cortese list because it is a hazardous waste facility that is subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code. The site operated as a sugar refinery from 1961 to 2008, and waste materials were disposed of onsite. Soil and groundwater have been significantly affected. The Central Valley Regional Water Quality Control Board has an open case with the owner to remediate the site. There are approximately 33 monitoring wells in place to periodically monitor contaminants.

The Unocal site is on 2.9 acres about 2 miles west of Kerman. From 1976 until 1985, it was operated as a fertilizer plant that manufactured sulfur. Contaminants of concern in soil include sulfate, dichlorodiphenyltrichloroethane (DDT), total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as motor oil (TPHmo), and acidic or basic water (pH). Contaminants of concern in groundwater include sulfate, lead, molybdenum, nickel, vanadium, total petroleum hydrocarbon, 1,2-Dichloropropane (1,2-DCP), and nitrate. The Central Valley Regional Water Quality Control Board has an open case with the owner to monitor the extent of groundwater contamination and remediate the site.

Three sites reported with leaky underground storage tanks that involved gasoline are located within Alternative 1—Arco/Beacon (15000 W. Whitesbridge), Rolinda Auto Parts (9191 W. Whitesbridge), and Mary's Place (4010 W. Whitesbridge). All are considered closed cases by the Central Valley Regional Water Quality Board and do not require further action/cleanup. One release notification to the Emergency Response Notification System of a natural gas leak at Mary's Place occurred in 1991. Another release notification of a diesel spill occurred in 1992 at Interstate 5 and Shields within Variation 1A.

This alternative contains three reported solid waste landfill sites—Sanchez Tire (17306 W. Whitesbridge), Pete Navarro Tire (25965 W. Whitesbridge), and Holly Sugar Company (29400 W. Whitesbridge). The two tire disposal sites are considered low risk, while the landfill at the Holly Sugar Company may be high risk. These landfill sites are currently inactive. Three sites are reported to be small generators of hazardous materials—Butch's Auto Parts Inc. (14695 W. Whitesbridge), Holly Sugar

Company (29400 W. Whitesbridge), and FMC Corp Agri Chem Group (14451 W. Whitesbridge). The only reported event involving a spill or leak occurred in 1995 at United Agri Products (14451 W. Whitesbridge). This is a closed case because the site requires no further action according to the Central Valley Regional Water Quality Control Board.

Alternative 1 and all variations of the alternative have twice the number of underground storage tanks and seven times as many facilities that have hazardous materials/waste permits than Alternative 2 or Alternative 3. These permits are issued to facilities that handle, generate, or treat hazardous materials/waste, and the Fresno County Certified Unified Program Agency oversees their compliance with federal, state, and local regulations.

**Table 3.22 Summary of Contaminated Sites**

| Alternative 1 | | |
|---|---|---|
| **Site Name** | **Address** | **Concerns** |
| Unocal (Chevron) | 17134 W. Whitesbridge Road, Kerman | Ongoing investigation. Groundwater is contaminated. |
| Holly Sugar Company | 29400 W. Whitesbridge Road, Mendota | This is a Cortese site. Several holding and evaporation ponds onsite. Industrial/manufacturing process wastes are generated onsite.Contaminants include lime sludge, petroleum hydrocarbons, and high turbidity/shallow groundwater degradations.<br>No violations reported as a Resource Conservation and Recovery Act Generator site. The underground storage tanks have no violations associated with them. |
| **Alternatives 2 and 3** | | |
| **Site Name** | **Address** | **Concerns** |
| Fresno Poultry | 441 N. Brawley Avenue, Fresno | Diesel fuel has contaminated the soil. Remediation efforts are ongoing.<br>The other underground storage tanks at this site have not reported leaks. |

Sources: State Water Resources Control Board Geotracker (2011) and Environmental FirstSearch™ (May 2009).

Nine bridges within this alignment could be replaced or reconstructed. Future projects would require the acquisition and demolition of numerous buildings and structures. Bridges and structures, including several homes and businesses built before 1979, may contain hazardous wastes such as lead-based paint and asbestos-containing

materials. Construction workers and the general public could be exposed to asbestos fibers and dust from lead-based paint. This alignment along with Variations 1A, 1B, and 1C could potentially require the replacement or reconstruction of 10, 9, and 9 bridges, respectively.

In 2000, aerially deposited lead studies were done on State Route 180 between post miles 31.4 and 36.6 and between post miles 54.4 and 54.8 to determine if hazardous levels of lead exist in surface soils along the roadway. The results indicated that lead was present, but not at hazardous levels. Soil from the surrounding area would also not likely be considered hazardous. Aerially deposited lead may still be a concern along Interstate 5 near a future Belmont Avenue interchange since Interstate 5 has been in existence in this area since before cars and trucks began using unleaded fuel.

The Southern Pacific railroad crossing at Whitesbridge Avenue may contain creosote, a wood preservative that is potentially carcinogenic. Concentrations of petroleum hydrocarbons and heavy metals have also been found next to railroad crossings. Variation 1C would cross this railroad on a new alignment and may also be subject to these contaminants.

### *Alternatives 2 and 3*

These alternatives have similar counts of hazardous waste sites that may be affected (see Table 3.21). Fresno Poultry is the only known contaminated site shared by Alternatives 2 and 3 as shown in Table 3.22. This site is reported to be a leaking underground storage tank cleanup site with ongoing investigations by the Central Valley Regional Water Quality Control Board. During removal of underground storage tanks in 1991, it was reported that a high concentration of diesel-range petroleum hydrocarbons was detected in a soil sample collected from beneath the fuel dispenser. An excavation to 23 feet below ground surface beneath the dispenser in 1995 failed to reach an acceptable level of remediation.

At the same location (441 N. Brawley) is General Automotive, a small generator of hazardous materials. Another leaking underground storage tank cleanup site is the Rio Seco Ranch at 24500 McKinley Avenue. According to the Fresno County Certified Unified Program Agency, this site is considered a closed case because remediation work was completed. The same release notification of a diesel spill that occurred in 1992 at Interstate 5 and Shields within Variation 1A is also within Alternative 3.

Two bridges could potentially be replaced or reconstructed as a result of adopting Alternative 2 or 3. Bridges and structures, including several homes and businesses built before 1979, may contain lead-based paint and asbestos-containing materials. Construction workers and the general public could be exposed to asbestos fibers and dust from lead-based paint.

Aerially deposited lead may be a concern along Interstate 5 near the Shields Avenue and future Belmont Avenue interchanges, due to the earlier use of leaded fuel.

These two alternatives share an alignment along Nielsen Avenue where the Southern Pacific railroad crosses. Creosote, petroleum hydrocarbons, and/or heavy metals may also be present near Nielsen Avenue.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would neither result in temporary nor permanent hazard and public safety impacts because no construction or transportation improvements would occur.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

There is a potential that contaminated soil and/or groundwater exists within the boundaries of the study area, and asbestos, lead-based paint, aerially deposited lead and other hazardous waste could be encountered during construction. It may be possible to avoid these areas as only a maximum width of 350 feet of the 1,000-foot-wide alignment is needed for the future expressway. It is not possible to determine specific areas of avoidance and/or mitigation and their associated costs without detailed engineering design and thorough hazardous materials/waste site investigations. Further, the route adoption would not involve right-of-way acquisition. Specific measures and right-of-way estimates would be determined and coordination with appropriate regulatory agencies and property owners would occur after the route adoption at the time future projects are proposed. Coordination with appropriate agencies would depend on the site. Coordination with the Central Valley Regional Water Quality Control Board and the Department of Toxic Substances Control would occur when monitoring wells would be destroyed or when determining use at a Cortese site. The State Water Resources Control Board and the Central Valley Regional Water Quality Control Board would be consulted for data on remediation sites and monitoring wells and for projects requiring dewatering. For these reasons,

the following general measures would apply to all alternatives and would be implemented for future projects:

- Remediate any identified environmental site conditions that could represent a risk to public health and safety.
- Do further investigations if new contamination is found.
- Remove underground storage tanks and aboveground storage tanks and any associated piping within the right-of-way. The owner would ultimately be responsible for the removal, notification, and permits as well as any site cleanup.
- Do surveys for asbestos-containing materials and lead-based paint before any demolition of buildings or structures and/or the replacement of existing bridges built before 1979 to determine the level of risk posed to construction workers and the public and to identify appropriate protection measures. Notification would be made to the San Joaquin Valley Unified Air Pollution Control District before renovation/demolition of structures or buildings containing asbestos.
- Require the construction contractor(s) to prepare and implement a Lead Compliance Plan and/or an Asbestos Abatement Plan.
- Require the construction contractor(s) to prepare a Worker Health and Safety Plan for items such as petroleum hydrocarbons and heavy metals, if necessary. The plan would be approved by Caltrans and the Department of Toxic Substances Control. They may also review the plan if waste sites regulated by the Department of Toxic Substances Control are involved before the onset of construction activities.
- Properly dispose of potentially contaminated soils identified from the additional studies of the preferred alternative per federal, state and local requirements.

#### *No-Action/No-Project Alternative*

No mitigation is required for the No-Action/No-Project Alternative.

### 3.2.6 Air Quality

#### ***Regulatory Setting***

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level,

these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns. The criteria pollutants are carbon monoxide, nitrogen dioxide, ozone, particulate matter, lead, and sulfur dioxide.

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to a State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and, second, at the project level. The proposed project must conform at both levels to be approved.

Regional-level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, regional transportation plans are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the regional transportation plan, an air quality model is run to determine whether the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as the Council of Fresno County Governments for Fresno County and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the regional transportation plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the regional transportation plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the regional transportation plan, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy

Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated, and in "nonattainment" areas the project must not cause any increase in the number and severity of violations. If a known carbon monoxide or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

### *Affected Environment*

This discussion is based on the 2009 Air Quality Impact Technical Report prepared for the route adoption study. Information related to air quality regulations and study methodology can be found in the technical report.

The study area is in Fresno County, California, within the San Joaquin Valley Air Basin, which includes the counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the western portion of Kern. The San Joaquin Valley Unified Air Pollution Control District is the agency principally responsible for air pollution control within the basin. The air district is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to reach and maintain state and federal ambient air quality standards in the district.

The basin is bordered by the Sierra Nevada Mountain Range on the east, the coastal ranges on the west, and the Tehachapi Mountains on the south, but is open to the north all the way to the Sacramento Valley Air Basin.

The region's topography restricts air movement through and out of the air basin. Prevailing wind patterns, periodic high-pressure systems and inversion layers limit the dispersal of air pollutants.

#### *Air Monitoring*

The San Joaquin Valley Unified Air Pollution Control District and California Air Resources Board maintain a network of air quality monitoring stations located throughout the San Joaquin Valley Air Basin. The Fresno1st Street Monitoring Station is about 5 miles northeast of the study area at 3425 North First Street in the city of Fresno. Air quality data monitored at this station was used to describe ambient air quality in the study area and its vicinity.

As shown in Table 3.23, between 2009 and 2011, carbon monoxide and nitrogen dioxide readings from this station did not exceed the state or federal standards,

although ozone did exceed them. Particles smaller than 10 micrometers ($PM_{10}$) only exceeded the state 24-hour standard.

**Table 3.23 2009-2011 Criteria Pollutant Monitoring Data**

| Pollutant | Pollution Concentration & Standards | Measured Values or Number of Days Above Federal or State Standards | | |
|---|---|---|---|---|
| | | 2009 | 2010 | 2011 |
| Ozone | Maximum 1-hour concentration | 0.121 | 0.127 | 0.119 |
| | Maximum 8-hour concentration | 0.104 | 0.107 | 0.096 |
| | Days above 0.09 ppm (state 1-hour standard) | 36 | 16 | 14 |
| | Days above 0.075 ppm (federal 8-hour standard) | 0 | 2 | 0 |
| Carbon monoxide | Maximum 8-hour concentration (ppm) | 2.07 | 2.03 | 2.29 |
| | Days above 9.0 ppm (state and federal 8-hour standard) | 0 | 0 | 0 |
| $PM_{2.5}$ | Maximum 24-hour concentration | 82.3 | 58.3 | 77.3 |
| | Estimated days above federal 24-hour standard | 35.8 | 21.7 | 39 |
| $PM_{10}$ | Maximum 24-hour concentration | 71.9 | 88.6 | 94.3 |
| | Estimated days above 50 $\mu g/m^3$ (state 24-hour standard) | 50.2 | 30.6 | 53.9 |
| | Estimated days above 150 $\mu g/m^3$ (federal 24-hour standard) | 0 | 0 | 0 |
| Nitrogen dioxide | Maximum 1-hour concentration | 0.068 | 0.077 | 0.062 |
| | Days above 0.18 ppm (state standard) | 0 | 0 | 0 |
| ppm: parts per million<br>$\mu g/m^3$: micrograms per cubic meter | | | | |

Source: California Air Resources Board

## *Environmental Consequences*

### *Regional Air Quality Conformity*

The route adoption is included in Chapter 4, Needs Assessment and Action Element, of the Council of Fresno County Government's 2011 Regional Transportation Plan. Only a segment between Interstate 5 and State Route 33 of the corridor has been identified as a long-range candidate project and has been modeled for air quality conformity and is financially constrained based on anticipated available revenues over the life of the Regional Transportation Plan. However, it is not in the 2013 Federal Transportation Improvement Plan financially constrained list because it is not

part of the Regional Transportation Plan's short-range program and no source of funding has been identified. Future projects would need to be included in the Regional Transportation Plan and Federal Transportation Improvement Plan.

Activities listed in the category "Other" of Table 2—Exempt Projects in Code of Federal Regulations 93.126 are exempt from the requirement to determine conformity because they do not involve or lead directly to construction, such as planning and technical studies. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and Transportation Improvement Plan. The route adoption is exempt from the requirement to determine conformity because it is a planning-level activity that does not involve or lead directly to construction. For this study, however, a hot spot analysis was conducted for regional and project-level conformity.

### *Project-Level Conformity*

The San Joaquin Valley Air Basin is currently classified as a nonattainment area based on National Ambient Air Quality Standards for 8-hour ozone and $PM_{2.5}$ (airborne particulates measuring less than 2.5 micrometers in diameter). Nonattainment designations for the basin are: nonattainment for $PM_{2.5}$; serious nonattainment for 8-hour ozone; and maintenance attainment for carbon monoxide and $PM_{10}$ (airborne particulates 10 micrometers or less in diameter). As such, carbon monoxide and particulate matter hot spot analyses are required to determine whether future projects would cause or contribute to any localized violation of the ambient air quality standards. Refer to Table 3.24 for Federal and State Ambient Air Quality Standards and attainment status of the San Joaquin Valley Air Basin.

#### ***Ozone***

The study area sits in an ozone nonattainment area. Ozone is formed by a photochemical reaction in the atmosphere and is a regional pollutant, which makes site- or project-specific analysis not possible at this time using current tools. The U.S. Environmental Protection Agency has not provided hot spot analysis guidelines and approved modeling tools; therefore, a hot spot analysis for ozone cannot be performed at this time. If the U.S. Environmental Protection Agency develops guidance for hot spot analysis for ozone by the time future projects are proposed (if the region is still a nonattainment area for ozone), then a hot spot analysis would be required for these projects.

### ***Carbon Monoxide Hot Spot Analysis***

Although the ultimate build-out of the State Route 180 corridor may not occur for as many as 50 years in the future, years 2015 and 2030 are used for this analysis. Overall, carbon monoxide concentrations in years 2015 and 2030 are expected to be lower than existing conditions because of stringent state and federal mandates for lowering vehicle emissions. Although traffic volumes would be higher in the future, carbon monoxide emissions from vehicles are expected to be much lower because of technological advances in vehicle emissions systems and use of cleaner fuel.

Carbon monoxide concentrations are typically used as an indicator of conformity because carbon monoxide levels are directly related to traffic volumes, the main source of air pollutants, and localized carbon monoxide concentrations can be modeled using U.S. Environmental Protection Agency approved methods. Operational air quality impacts associated with a project are generally best reflected through estimated changes in carbon monoxide concentrations.

## Table 3.24 Federal and State Ambient Air Quality Standards and Attainment Status for San Joaquin Valley Air Basin

| Pollutant | Averaging Time | State Standard | State Attainment Status | Federal Standard | Federal Attainment Status | Health and Atmospheric Effects | Typical Sources |
|---|---|---|---|---|---|---|---|
| Ozone ($O_3$) | 1 hour<br>8 hour | 0.09 ppm<br>0.070 ppm | Severe/Nonattainment<br>Nonattainment | ---<br>0.075 ppm | ---<br>Extreme/ Nonattainment[a] | High concentrations irritate lungs. Long-term exposure may cause lung tissue damage. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include a number of known toxic air contaminants. | Low-altitude ozone is almost entirely formed from reactive organic gases (ROG) and nitrogen oxides ($NO_X$) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes. Biologically produced ROG may also contribute. |
| Carbon Monoxide (CO) | 8 hour<br>1 hour | 9.0 ppm<br>20 ppm | Attainment | 9 ppm<br>35 ppm | Attainment/ Maintenance | Asphyiant. Carbon monoxide interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. | Combustion sources, especially gasoline-powered engines and motor vehicles. Carbon monoxide is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale. |

[a] On April 15, 2010, EPA's Region 9 Regional Administrator signed a final rule to reclassify the San Joaquin Valley's 8-hour ozone status from nonattainment "serious" to "extreme".

$\mu g/m^3$: micrograms per cubic meter ppm: parts per million

Source: California Air Resources Board, Ambient Air Quality Standards, June 7, 2012; http://www.epa.gov/, (2012).

## Table 3.24 Federal and State Ambient Air Quality Standards and Attainment Status for San Joaquin Valley Air Basin

| Pollutant | Averaging Time | State Standard | State Attainment Status | Federal Standard | Federal Attainment Status | Health and Atmospheric Effects | Typical Sources |
|---|---|---|---|---|---|---|---|
| Respirable Particulate Matter ($PM_{10}$) | 24 hour<br>Annual Average | 50 µg/m$^3$<br>20 µg/m$^3$ | Nonattainment | 150 µg/m$^3$<br>--- | Attainment/ Maintenance[b] | Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of $PM_{10}$. | Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; and unpaved road dust and re-entrained paved road dust; natural sources (windblown dust, ocean spray). |
| Fine Particulate Matter ($PM_{2.5}$) | 24 hour<br>Annual Average | ---<br>12 µg/m$^3$ | Nonattainment | 35 µg/m$^3$<br>15.0 µg/m$^3$ | Nonattainment | Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter—considered a toxic air contaminant—is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$. | Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including $NO_X$, sulfur oxides ($SO_X$), ammonia, and ROG. |
| Nitrogen Dioxide ($NO_2$) | Annual Average<br>1 hour | 0.030 ppm<br>0.18 ppm | Attainment | 0.053 ppm<br>0.100 ppm | Attainment | Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. | Motor vehicles and other mobile sources; refineries; industrial operations. |

[b] On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the $PM_{10}$ National Ambient Air Quality Standard (NAAQS) and approved the $PM_{10}$ Maintenance Plan.

µg/m$^3$: micrograms per cubic meter ppm: parts per million

Source: California Air Resources Board, Ambient Air Quality Standards, June 7, 2012; http://www.epa.gov/, (2012).

## Table 3.24 Federal and State Ambient Air Quality Standards and Attainment Status for San Joaquin Valley Air Basin

| Pollutant | Averaging Time | State Standard | State Attainment Status | Federal Standard | Federal Attainment Status | Health and Atmospheric Effects | Typical Sources |
|---|---|---|---|---|---|---|---|
| Sulfur Dioxide ($SO_2$) | 1 hour<br>3 hours<br>24 hours<br>Annual | 0.25 ppm<br>---<br>0.04 ppm<br>--- | Attainment | 0.075 ppm<br>0.5 ppm<br>0.14 ppm<br>0.030 ppm | Attainment | Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility. | Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing. |
| Lead (Pb) | Monthly<br>Quarterly<br>Rolling 3-month average | 1.5 µg/m$^3$<br>---<br>--- | Attainment | ---<br>1.5 µg/m$^3$<br>0.15 µg/m$^3$ | Attainment | Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also considered a toxic air contaminant. | Primary: lead-based industrial process like batter production and smelters. Past: lead paint, leaded gasoline. Moderate to high levels of aerially deposited lead from gasoline may still be present in soils along major roads, and can be a problem if large amounts of soil are disturbed. |
| Sulfates | 24 hours | 25 µg/m$^3$ | Attainment | --- | State only | Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles. | Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas. |
| Hydrogen Sulfide ($H_2S$) | 1 hour | 0.03 ppm | Unclassified[c] | --- | State only | Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. | Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs. |
| Visibility Reducing Particles (VRP) | 8 hours | Visibility of 10 miles or more | Unclassified[c] | --- | State only | Reduces visibility. Produces haze. | See particulate matter above. |

[c] There is insufficient monitoring data for determining attainment or nonattainment status in areas that are unclassified.

µg/m$^3$: micrograms per cubic meter ppm: parts per million

Source: California Air Resources Board, Ambient Air Quality Standards, June 7, 2012; http://www.epa.gov/, (2012).

## Table 3.24 Federal and State Ambient Air Quality Standards and Attainment Status for San Joaquin Valley Air Basin

| Pollutant | Averaging Time | State Standard | State Attainment Status | Federal Standard | Federal Attainment Status | Health and Atmospheric Effects | Typical Sources |
|---|---|---|---|---|---|---|---|
| Vinyl Chloride | 24 hours | 0.01 ppm | Attainment | --- | State only | Neurological effects, liver damage, cancer. Also considered a toxic air contaminant. | Industrial processes |
| µg/m$^3$: micrograms per cubic meter ppm: parts per million | | | | | | | |

Source: California Air Resources Board, Ambient Air Quality Standards, June 7, 2012; http://www.epa.gov/, (2012).

The study area is in an attainment/maintenance area for the federal carbon monoxide standards. As part of the air quality analysis performed for this study, a screening exercise following the Carbon Monoxide Hot Spot Analysis Protocol was performed to determine whether the route adoption requires a qualitative or quantitative analysis or that none would be necessary.

Caltrans' CALINE4 dispersion model was used to calculate carbon monoxide concentrations at a distance of 25 feet from the proposed study area route alignments in years 2015 and 2030. Traffic volumes for the route alignments were derived from the Caltrans 2004 *Transportation Concept Report: State Route 180*.

One-hour carbon monoxide concentrations would range from approximately 7.0 parts per million to 7.2 parts per million in 2015 and 4.8 parts per million to 4.9 parts per million in 2030. Eight-hour concentrations are expected to range from approximately 4.2 parts per million to 4.3 parts per million in 2015 and stay constant at 2.9 parts per million in 2030. With or without the State Route 180 project, the state and federal 1- and 8-hour standards would not be exceeded.

### ***Particulate Matter Hot-Spot Analysis***

Particles smaller than 10 micrometers ($PM_{10}$) pose a potential health concern because they can be inhaled and accumulate in the respiratory system. Particles smaller than 2.5 micrometers ($PM_{2.5}$) probably present an even greater health risk, because their smaller size makes them easier to inhale deep into lung tissue. The study area is in a federal $PM_{10}$ maintenance area and a federal $PM_{2.5}$ nonattainment area. A qualitative hot spot analysis would be required under the U.S. Environmental Protection Agency's Transportation Conformity Rule for projects of air quality concern, as described in the U.S. Environmental Protection Agency's Final Rule of March 10, 2006. A new quantitative $PM_{10}$ and $PM_{2.5}$ hot spot analysis requirement released by the U.S. Environmental Protection Agency in 2010 will become effective after December 2012. This new quantitative analysis will involve detailed dispersion modeling for projects determined to be Projects of Air Quality Concern (POAQC). A local hot spot analysis for $PM_{10}$ and $PM_{2.5}$ would be required when future projects are proposed, if the area is still in maintenance or nonattainment for $PM_{10}$ and/or $PM_{2.5}$.

Ambient 24-hour $PM_{10}$ concentrations in 2015 and 2030 are projected to be approximately 99.2 $\mu g/m^3$ (micrograms per cubic meter) and 121.6 $\mu g/m^3$, respectively. Based on Caltrans guidance, the allowable threshold would be the National Ambient Air Quality Standards minus the background concentration. This

would result in a $PM_{10}$ significance threshold of approximately 28 µg/m$^3$ (150 µg/m$^3$–122 µg/m$^3$).

The U.S. Environmental Protection Agency ISCST3 model was used to estimate project-related concentrations of $PM_{10}$ and $PM_{2.5}$ at a distance of 25 feet from the proposed alignments. Traffic volumes were derived from the Caltrans *Transportation Concept Report: State Route 180*. Results of the model runs indicate that the proposed State Route 180 alignments would incrementally increase $PM_{10}$ concentrations by a maximum of 0.8 µg/m$^3$ in 2015 and 0.7 µg/m$^3$ in 2030, which would be less than the 28-µg/m$^3$ threshold.

Ambient 24-hour $PM_{2.5}$ concentrations in 2015 and 2030 are projected to be approximately 81.1 µg/m$^3$ and 99.46 µg/m$^3$, respectively. Based on Caltrans guidance, an adverse impact would occur if project-related $PM_{2.5}$ concentrations exceed 5 percent of the National Ambient Air Quality Standards, which would be 1.75 µg/m$^3$. $PM_{2.5}$ concentrations would incrementally increase by a maximum of 0.6 µg/m$^3$ in 2015 and 0.5 µg/m$^3$ in 2030, which are within 5 percent of the projected $PM_{2.5}$ concentrations. Thus, less than significant impacts are anticipated, although the basin would still be in nonattainment status for $PM_{2.5}$.

The State Implementation Plan for $PM_{2.5}$ and the San Joaquin Valley Unified Air Pollution Control District continue to implement regulations and requirements that should result in a decrease of this pollutant over time. Diesel vehicles are a significant source of this pollutant. Measures include cleaner-burning diesel, diesel retrofit and replacement programs.

### ***Asbestos***

The study area is in an area that may include naturally occurring asbestos. Asbestos-containing materials may also be in structures and bridges. Air District Rule 7050 (Asbestos-Containing Materials for Surface Applications) regulates the disturbance of naturally occurring asbestos.

The California Environmental Quality Act requires that environmental documents address human exposure to both naturally occurring and structural airborne asbestos. The U.S. Environmental Protection Agency, the California Air Resources Board, and most air pollution control districts regulate asbestos as an airborne toxic material. If structures containing asbestos are to be demolished, future projects would be required to comply with all local, state, and federal regulations guiding the removal of naturally occurring asbestos.

### ***Mobile Source Air Toxics***

In addition to the criteria pollutants discussed above, the U.S. Environmental Protection Agency also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (such as airplanes), area sources (such as dry cleaners) and stationary sources (such as factories or refineries). Mobile source air toxics are a subset of the 188 air toxics defined by the Clean Air Act. They are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear and from impurities in oil or gasoline.

Studies conducted by the Health Effects Institute on exposure and health effects of mobile source air toxics in proximity to roadways are inconclusive; however, the U.S. Environmental Protection Agency has yet to establish air quality standards or guidelines for assessing the project level effects of mobile source air toxics. Such limitations make the study of mobile air toxic concentrations, exposures, and health impacts difficult and uncertain, especially on a qualitative basis.

This Environmental Impact Report/Tier I Environmental Impact Statement includes a basic analysis of the likely impacts of future projects from emission of mobile source air toxics. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this Environmental Impact Report/Tier I Environmental Impact Statement. Even though reliable methods do not exist to accurately estimate the health impacts of mobile air toxics at the project level, it is possible to qualitatively assess the levels of future emissions from mobile source air toxics under future projects. Although a qualitative analysis cannot identify and measure health impacts from mobile source air toxics, it can give a basis for identifying and comparing the potential differences among mobile source air toxic emissions, if any, from the various alternatives.

The Federal Highway Administration has issued interim guidance on how mobile source air toxics should be addressed. The Federal Highway Administration has developed a tiered approach for analyzing mobile source air toxics. Depending on the specific project circumstances, the Federal Highway Administration has identified three levels of analysis:

1. No analysis for exempt projects with no potential for meaningful mobile source air toxic effects.
2. Qualitative analysis for projects low potential mobile source air toxic effects.
3. Quantitative analysis to differentiate alternatives for projects with higher potential mobile source air toxics.

Based on the Federal Highway Administration's tiered approach in its interim guidance document, the future projects in the study area would be considered to have low potential for mobile source air toxic effects.

The current modeling tools do not provide a reliable method of predicting emissions to a receptor based on location relative to the freeway. The one certainty is that the more vehicle miles traveled in any given year, the more emissions. However, each year the total mobile source air toxics emitted per vehicle mile traveled are expected to decrease based on stronger regulations.

The U.S. Environmental Protection Agency projections indicate a continuing downward trend of the six primary mobile source air toxics. The study of mobile source air toxics, health effects, and modeling tools are currently in a state where accurate information is incomplete or unavailable. This is relevant to making an accurate prediction of any reasonably foreseeable adverse effects on the human environment. There is currently no specific significance level for receptor exposure. Without a significance level for exposure, one cannot accurately and scientifically predict the effects on the human environment. Studies are currently being conducted to clarify some of these unknowns; however, the information is not currently available.

For each corridor alternative, the amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled, assuming that other variables, such as fleet mix, are the same for each alternative. Because estimated countywide vehicle miles traveled under each of the alternatives would be the same, it is expected there would be no appreciable difference in overall mobile source air toxic emissions among the various alternatives. Also, regardless of the alternative chosen, emissions would likely be lower than present levels in the design year as a result of the U.S. Environmental Protection Agency's national control programs that are projected to reduce mobile source air toxic emissions. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle miles traveled growth rates, and local control measures. However, the magnitude of the U.S. Environmental

Protection Agency's projected reductions is so great (even after accounting for vehicle miles traveled growth) that mobile source air toxic emissions in the study area are likely to be lower in the future in nearly all cases.

With the No-Action/No-Project Alternative, some improvements would be expected due to better future vehicle emission characteristics. There is no distinction among alignment alternatives for air quality impacts. The design and scope of subsequent projects would be in conformity with federal Clean Air Act. Localized emission impacts are expected to be lower than under present conditions. Project-specific analysis would be required for all subsequent projects associated with the alignment alternatives.

### *Construction Impacts*

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and various other activities. Emissions from construction equipment also are anticipated and would include carbon monoxide, nitrogen oxides, volatile organic compounds, directly-emitted particulate matter ($PM_{10}$ and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from nitrogen oxides and volatile organic compounds in the presence of sunlight.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with excavation, handling, and transporting soils to and from the site. If not properly controlled, these activities would temporarily generate $PM_{10}$, $PM_{2.5}$, and small amounts of carbon monoxide, sulfur dioxide, nitrogen oxides, and volatile organic compounds. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be a source of airborne dust after it dries. $PM_{10}$ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. $PM_{10}$ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the Environmental Protection Agency to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent.

In addition to dust-related $PM_{10}$ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate carbon monoxide, sulfur dioxide, nitrogen oxides, volatile organic compounds and some soot particulate ($PM_{10}$ and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, carbon monoxide 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.

Sulfur dioxide is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 parts per million of sulfur, whereas on-road diesel is restricted to less than 15 parts per million of sulfur. Under California law and Air Resources Board regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so sulfur dioxide related issues due to diesel exhaust would be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site.

Most of the construction impacts to air quality are short-term in duration and, therefore, would not result in adverse or long-term conditions.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

Implementation of the following measures derived from the Caltrans' Standard Specifications Sections 7 and 10 and San Joaquin Valley Air Pollution Control District's Regulation VIII guidelines would reduce any air quality impacts resulting from construction activities associated with future projects:

- The construction contractor shall comply with Caltrans' Standard Specifications Section 7 and Section 10 of Caltrans' Standard Specifications (1999).
  - —Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibility on many items of concern, such as: air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; and convenience of the public; and damage or injury to any person

or property as a result of any construction operation.

—Section 7-1.01F 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 10 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.

- Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.
- Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.
- Wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- Establish environmentally sensitive areas for sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited, to the extent that is feasible.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce $PM_{10}$ and deposit of particulate matter during transport.
- Remove dust and mud that are deposited on paved roads due to construction activity and traffic to decrease particulate matter.

- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not require any mitigation measures because no construction would occur.

### *Climate Change*

Climate change is analyzed in Chapter 4. Neither the Environmental Protection Agency nor Federal Highway Administration has promulgated explicit guidance or methodology to do project-level greenhouse gas analysis. As stated on Federal Highway Administration's climate change website—www.fhwa.dot.gov/hep/climate/index.htm—climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process would facilitate decision-making and improve efficiency at the program level, and would support the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in the California Environmental Quality Act chapter of this environmental document and may be used to support the National Environmental Policy Act decision. The four strategies set forth by Federal Highway Administration to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours traveled.

### 3.2.7 Noise and Vibration

#### *Regulatory Setting*

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between the National Environmental Policy Act and the California Environmental Quality Act.

#### *California Environmental Quality Act*

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality Act, then that act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the National Environmental Policy Act 23 Code of Federal Regulations 772 noise analysis; see Chapter 4 of this document for further information on noise analysis under the California Environmental Quality Act.

#### *National Environmental Policy Act and 23 Code of Federal Regulations 772*

For highway transportation projects with Federal Highway Administration (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. 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 contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criterion for residences, 67 dBA (A-weighted decibels), is lower than the noise abatement criterion for commercial areas (72 dBA). Table 3.25 lists the noise abatement criteria for use in the National Environmental Policy Act 23 Code of Federal Regulations 772 analysis.

## Table 3.25 Activity Categories and Noise Abatement Criteria

| Activity Category | Noise Abatement Criteria, A-weighted Noise Level, Leq(h) | Description of Activities |
|---|---|---|
| **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 |
| **B** | 67 Exterior | Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals |
| **C** | 72 Exterior | Developed lands, properties, or activities not included in Categories A or B above |
| **D** | -- | Undeveloped lands |
| **E** | 52 Interior | Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums |
| A-weighted decibels are adjusted to approximate the way humans perceive sound. Leq(h) is the steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over one hour. | | |

Source: Caltrans Traffic Noise Analysis Manual (1998).

Figure 3-16 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.

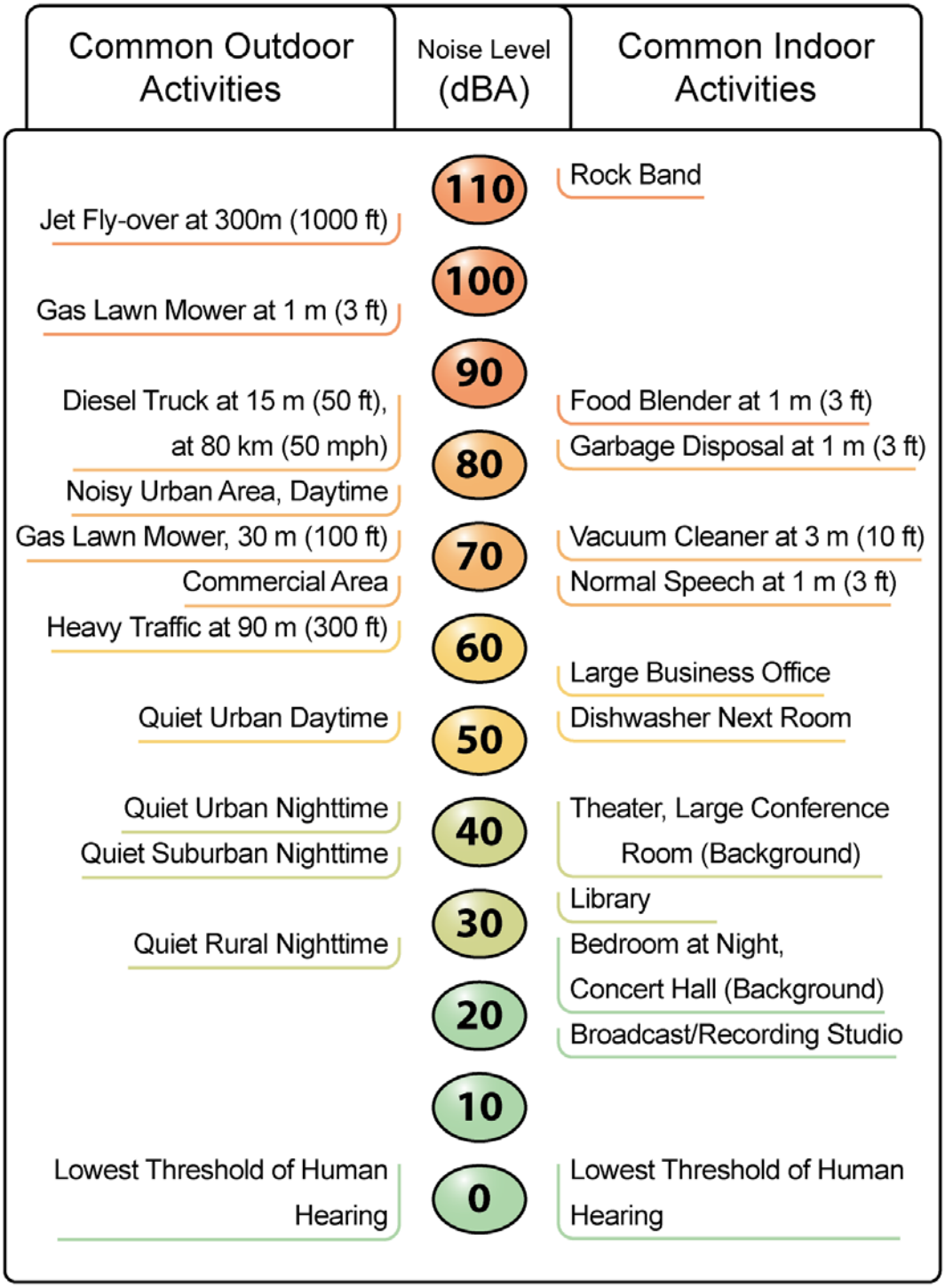



**Figure 3-16 Typical Noise Levels**

In accordance with Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. Approaching the noise abatement criteria is defined as coming within 1 dBA of the noise abatement criteria.

If it is determined that a 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 future projects.

Caltrans' Traffic Noise Analysis Protocol sets forth criteria for determining when an abatement measure is reasonable and feasible. Feasibility is an engineering concern. A minimum 5-dBA reduction in future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is a cost-benefit analysis. Factors used in determining reasonableness include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agency input, newly built versus pre-1978 development and the cost per benefited residence.

### *Affected Environment*

A Noise Study Report was prepared in August 2009. This noise study was prepared for the purpose of a route adoption and evaluated potential noise impacts on nearby noise-sensitive areas that may be affected by the construction and/or operation of subsequent projects within the 1,000-foot-wide corridor alternatives. Additional noise studies would be required when subsequent projects are proposed. Roadway traffic noise was modeled with the Federal Highway Administration Traffic Noise Model version 2.5 (TNM 2.5).

Land use within the study area is predominantly agricultural, and the area is sparsely populated outside the cities of Mendota, Kerman, and Fresno. Noise measurements were taken at selected noise-sensitive locations to determine existing noise levels, calibrate the computer noise model, and model future noise impacts. Figure 3-17 shows the noise study area and noise measurement locations. Noise measurements were taken during or adjusted to reflect peak-hour traffic volumes.

❖

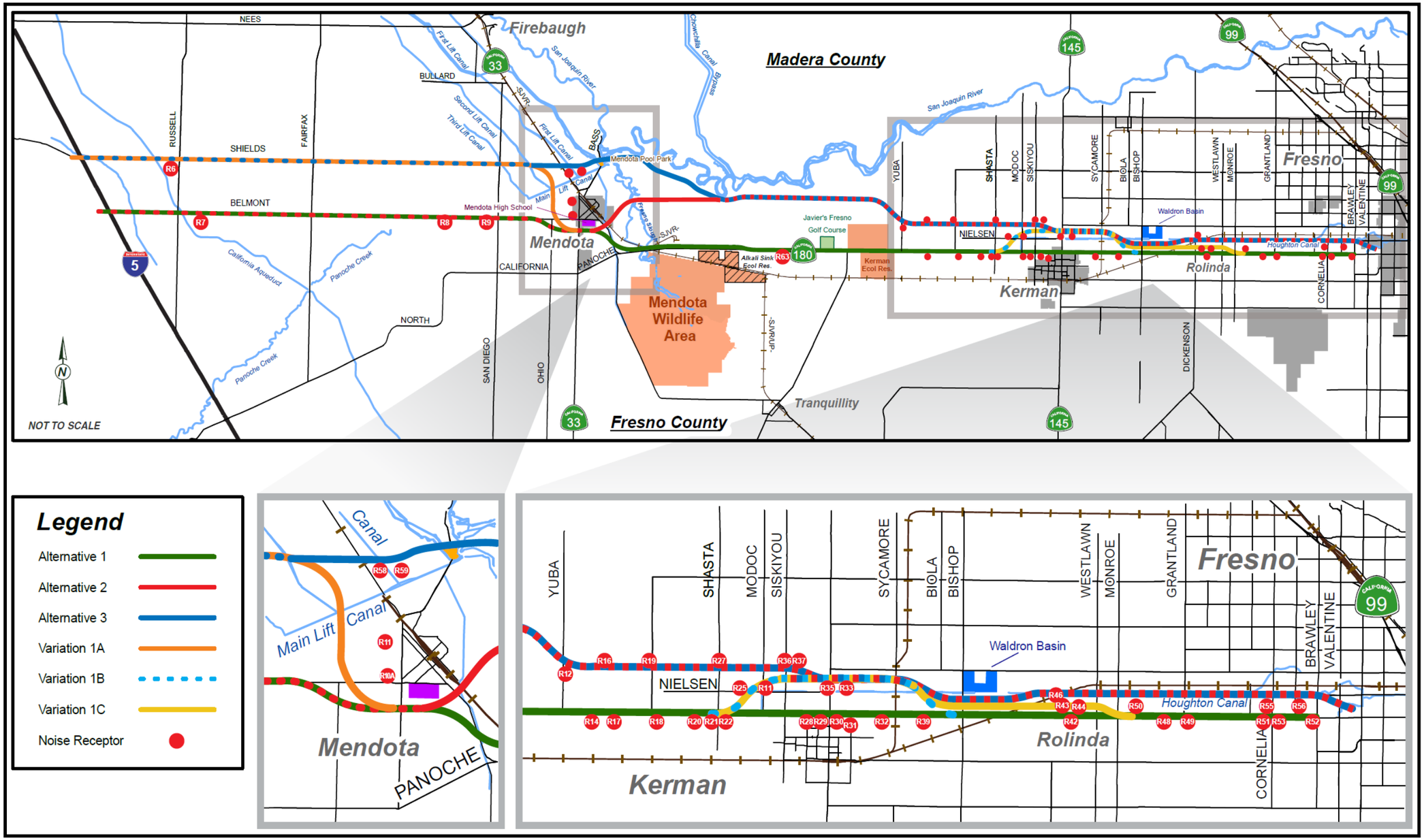



**Figure 3-17 Noise Study Area and Sensitive Receptors**

❖

### *Environmental Consequences Under the National Environmental Policy Act*

The Federal Highway Administration traffic noise model was used to assess potential traffic noise impacts at sensitive receptors within the boundaries of the study area. To determine the noise levels generated by traffic, the model required data on traffic volumes, speeds, and vehicle types. Three vehicle types—cars, medium trucks, and heavy trucks—were used in the model.

Levels of service C or better were used to obtain potential noise impacts for future build projects since high noise levels are normally generated with these traffic conditions, thus assuring a worst-case analysis. Traffic on local surface streets was not modeled because the dominant noise source would be the proposed expressway.

Since detailed engineering drawings are not available, the typical cross-section (Figure 2-4) was used as the basis for the geometric factors, along with aerial photographic maps. Distances from the centerline of the corridor to sensitive receptors were estimated from aerial photography maps. The proposed future expressway was assumed to be located to either side of the 1,000-foot-wide corridor, closest to the receptors, rather than in the center of the corridor, therefore extending noise level predictions out to their maximum extent.

#### *Alternative 1*

Modeling results indicate that noise impacts are expected at 14 receptor sites along Alternative 1 where predicted noise levels would be either substantially higher than existing levels by at least 12 decibels (dB), or would approach or exceed the noise abatement criteria (see Table 3.26). These receptor sites are R7, R14, R17, R18, R21, R22, R28, R32, R42, R48, R49, R50, R52, and R53. These receptor sites represent 73 residential properties or units, including a mobile home park at the intersection of Whitesbridge and Shasta avenues. Additional sensitive receptors that would likely be affected by future projects, but not accounted for in this study, would be the residential developments that were being built (at the time this noise study was done) along Whitesbridge Avenue to the west of Del Norte Avenue. This alternative could result in the acquisition and removal of some of these homes that would otherwise experience increased noise levels because of their proximity to the existing highway.

Noise impacts at four single-family residences represented by Receptors R25, R33, and R35 were found to occur for either Variation 1B or 1C to this alternative.

## Table 3.26 Existing and Predicted Noise Levels (Alternative 1)

| Receptor Number | Receptor Site Location | Existing / No-Project noise level (dBA)[1] | Predicted noise level with project (dBA) | Number of affected residences | Future noise substantially increases, approaches or exceeds threshold criteria |
|---|---|---|---|---|---|
| R7 | Belmont Avenue east of CA Aqueduct | 38 | 63 | 6 single-family residences | Yes |
| R8 | Belmont Avenue west of Washoe Avenue | 62 | 59 | None | No |
| R9 | Belmont Avenue between Washoe and San Diego Avenues | 62 | 64 | None | No |
| R14 | Whitesbridge Avenue west of Butte Avenue | 58 | 66 | None | Yes |
| R17 | Whitesbridge Avenue east of Butte Avenue | 58 | 71 | 8 single-family homes | Yes |
| R18 | Whitesbridge Avenue east of Lake Avenue | 58 | 66 | None | Yes |
| R20 | Whitesbridge Avenue at Trinity Avenue | 58 | 65 | None | No |
| R21 | Whitesbridge Avenue at Shasta Avenue | 58 | 71 | 18 single-family or mobile homes | Yes |
| R22 | Whitesbridge Avenue between Shasta and Lassen Avenues | 58 | 71 | 10 single-family homes | Yes |
| R28 | Whitesbridge Avenue east of Del Norte Avenue | 69 | 67 | None | Yes |
| R29 | Whitesbridge Avenue east of First Avenue | 60 | 58 | None | No |
| R30 | Whitesbridge Avenue east of Madera Avenue | 58 | 56 | None | No |
| R31 | Whitesbridge Avenue west of Vineland Avenue | 58 | 56 | None | No |
| R32 | Whitesbridge Avenue east of Goldenrod Avenue | 56 | 70 | 6 single-family homes | Yes |

## Table 3.26 Existing and Predicted Noise Levels (Alternative 1)

| Receptor Number | Receptor Site Location | Existing / No-Project noise level (dBA)[1] | Predicted noise level with project (dBA) | Number of affected residences | Future noise substantially increases, approaches or exceeds threshold criteria |
|---|---|---|---|---|---|
| R39 | Whitesbridge Avenue at Howard Avenue | 56 | 63 | None | No |
| R42 | Whitesbridge Avenue east of Dickenson Avenue | 60 | 70 | 9 single-family homes | Yes |
| R48 | Whitesbridge Avenue at Garfield Avenue | 74 | 67 | 3 single-family homes | Yes |
| R49 | Whitesbridge Avenue east of Grantland Avenue | 74 | 70 | 4 single-family homes | Yes |
| R50 | Chateau Fresno Avenue between Whitesbridge and Belmont Avenues | 59 | 68 | None | Yes |
| R52 | Whitesbridge Avenue at Brawley Avenue | 75 | 67 | 2 single-family homes | Yes |
| R53 | Whitesbridge Avenue east of Cornelia Avenue | 75 | 70 | 7 single-family homes | Yes |
| R63 | Whitesbridge Avenue west of Sonoma Avenue | 65 | 64 | None | No |
| Variation 1A: These replace the following receptors—R7, R8, and R9 in Alternative 1. | | | | | |
| R6/LT1 | Shields Avenue west of Russell Avenue | 57 | 59 | None | No |
| R10A | Ash Avenue, southwest Mendota city limit | 57 | 64 | None | No |
| Variation 1B: These replace the following receptors—R28, R29, R30, R31, R32, and R39 in Alternative 1. | | | | | |
| R11 | Gregg Court South, west Mendota city limit | 57 | 59 | None | No |
| R25 | Nielsen Avenue at Lassen Avenue | 60 | 67 | None | Yes |
| R33 | Nielsen Avenue north on Vineland Avenue | 61 | 68 | 3 single-family homes | Yes |

## Table 3.26 Existing and Predicted Noise Levels (Alternative 1)

| Receptor Number | Receptor Site Location | Existing / No-Project noise level (dBA)[1] | Predicted noise level with project (dBA) | Number of affected residences | Future noise substantially increases, approaches or exceeds threshold criteria |
|---|---|---|---|---|---|
| R35 | Nielsen Avenue at Madera Avenue | 61 | 71 | 1 single-family home | Yes |
| Variation 1C: These replace the following receptors—R28, R29, R30, R31, R32, R39, and R42 in Alternative 1. | | | | | |
| R11 | Gregg Court South, west Mendota city limit | 57 | 59 | None | No |
| R25 | Nielsen Avenue at Lassen Avenue | 60 | 67 | None | No |
| R33 | Nielsen Avenue north on Vineland Avenue | 61 | 68 | 3 single-family homes | Yes |
| R35 | Nielsen Avenue at Madera Avenue | 61 | 71 | 1 single-family home | Yes |
| R43 | Whitesbridge Avenue at Dickenson Avenue | 59 | 58 | None | No |
| R50 | Chateau Fresno Avenue between Whitesbridge and Belmont Avenues | 59 | 68 | None | Yes |
| [1]Future noise levels with the No-Action/No-Project Alternative should be similar to existing conditions. | | | | | |

Source: Noise Technical Report (August 2009).

### *Alternative 2*

Predicted noise levels at five receptor sites along Alternative 2 exceeded the "12 dB or higher over existing level" threshold criterion or approached or exceeded the noise abatement criteria (see Table 3.27). These receptor sites are R7, R12, R36, R46, and R51A. One site (R7), located along an unpaved extension of Belmont Avenue to the east of the California Aqueduct, is projected to have a future noise increase of 25 dB with the project. The reason for such a large increase is because existing conditions are very quiet in this area, and there is no through traffic or interchange at Interstate 5 and Belmont Avenue. These five receptor sites represent 11 single-family residences.

## Table 3.27 Existing and Predicted Noise Levels (Alternative 2)

| Receptor Number | Receptor site location | Existing / No-Project noise level (dBA)[1] | Predicted noise level with project (dBA) | Number of affected residences | Future noise substantially increases, approaches or exceeds threshold criteria |
|---|---|---|---|---|---|
| R7/ST2 | Belmont Avenue east of CA Aqueduct | 38 | 63 | 6 single-family homes | Yes |
| R8/ST6 | Belmont Avenue west of Washoe Avenue | 62 | 59 | None | No |
| R9 | Belmont Avenue between Washoe and San Diego Avenues | 62 | 64 | None | No |
| R12 | Nielsen Avenue at Yuba Avenue | 60 | 66 | 2 single-family homes | Yes |
| R16 | Belmont Avenue west of Butte Avenue | 50 | 54 | None | No |
| R19 | Belmont Avenue east of Lake Avenue | 50 | 60 | None | No |
| R27 | Belmont Avenue west of Shasta Avenue | 50 | 52 | None | No |
| R36 | Belmont Avenue at Siskiyou Avenue | 50 | 70 | 1 single-family home | Yes |
| R37 | Belmont Avenue at Del Norte Avenue | 50 | 61 | None | No |
| R44 | Rolinda Avenue, between Whitesbridge and Belmont Avenues | 59 | 60 | None | No |
| R46 | Belmont Avenue at Dickenson Avenue | 59 | 67 | 1 single-family home | Yes |
| R51A | Belmont Avenue west of Chateau Fresno Avenue | 50 | 70 | 1 single-family home | Yes |
| R55 | Cornelia Avenue at Belmont Avenue | 60 | 62 | None | No |
| R56 | Belmont Avenue east of Blythe Avenue | 60 | 64 | None | No |

[1]Future noise levels with the No-Action/No-Project Alternative should be similar to existing conditions.

Source: Noise Technical Report (August 2009).

### *Alternative 3*

Six receptor sites along Alternative 3 were found to have noise impacts that could exceed the 12 dB threshold criteria resulting in a substantial noise increase or that approach or exceed the noise abatement criteria (see Table 3.28). These receptor sites (R12, R36, R46, R51A, R58, and R59) consist of 20 single-family residences and 42 multi-family residences.

Noise impacts to the Mendota Pool Park from an elevated highway across or in the vicinity of the park would be likely to exceed the 12 dB threshold criterion, depending on how close the ultimate facility would be aligned to the existing park.

## Table 3.28 Existing and Predicted Noise Levels (Alternative 3)

| Receptor Number | Receptor site location | Existing / No-Project noise level (dBA)[1] | Predicted noise level with project (dBA) (dBA) | Number of affected residences | Future noise substantially increases, approaches or exceeds threshold criteria |
|---|---|---|---|---|---|
| R6 | Shields Avenue west of Russell Avenue | 57 | 59 | None | No |
| R12 | Nielsen Avenue at Yuba Avenue | 60 | 66 | 2 single-family residences | Yes |
| R16 | Belmont Avenue west of Butte Avenue | 50 | 54 | None | No |
| R19 | Belmont Avenue east of Lake Avenue | 50 | 60 | None | No |
| R27 | Belmont Avenue west of Shasta Avenue | 50 | 52 | None | No |
| R36 | Belmont Avenue at Siskiyou Avenue | 50 | 70 | 1 single-family residence | Yes |
| R37 | Belmont Avenue at Del Norte Avenue | 50 | 61 | None | No |
| R44 | Rolinda Avenue, between Whitesbridge and Belmont Avenues | 59 | 60 | None | No |
| R46 | Belmont Avenue at Dickenson Avenue | 59 | 67 | 1 single-family residence | Yes |
| R51A | Belmont Avenue west of Chateau Fresno Avenue | 50 | 70 | 1 single-family residence | Yes |
| R55 | Cornelia Avenue at Belmont Avenue | 60 | 62 | None | No |
| R56 | Belmont Avenue east of Blythe Avenue | 60 | 64 | None | No |
| R58 | Gomez Street, Mendota | 61 | 72 | 42 multi-family residences | Yes |
| R59 | Lozano Street, Mendota | 61 | 71 | 17 single-family residences | Yes |

[1]Future noise levels with the No-Action/No-Project Alternative should be similar to existing conditions.

Source: Noise Technical Report (August 2009).

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve a State Route 180 route adoption or future expressway construction projects, so no impacts are anticipated for this alternative.

## ***Construction Impacts***

Noise resulting from future construction of an expressway with any of the alignment alternatives would be intermittent and its intensity would vary depending on the nature and extent of construction activities in any one area.

Highway construction is accomplished in several phases, such as clearing and grubbing, demolition, earthwork and grading, structure construction, and paving. Overall noise levels at 50 and 100 feet from the centerline of a roadway typically range from 82 to 89 dB for these phases of construction. Construction noise levels have not been calculated for this document, because information, such as the type of equipment, and number of each equipment type, is not yet available. For purposes of this document, construction noise impacts are considered to be potentially adverse for each of the alignment alternatives.

## ***Avoidance, Minimization, and/or Abatement Measures under the National Environmental Policy Act***

### *Alignment Alternatives*

Future conditions are going to change, so no matter which of the alignment alternatives were to be selected, additional review would be required during subsequent projects. Avoidance or minimization of potential noise impacts would be a primary consideration in selecting a 250-foot-wide to 350-foot-wide roadway within the 1,000-foot-wide corridor when subsequent projects are proposed. Noise attenuation, including construction of a soundwall is required when there is an adverse noise impact, unless this approach is not feasible (technically effective) or reasonable (cost-effective). Many of the affected receptors represent individual residences or a small number of residences that may not meet the cost effectiveness criteria of Caltrans' noise abatement measures.

A preliminary soundwall analysis was done to analyze areas where there are a number of homes that may qualify for soundwalls. Results indicated that soundwalls would reduce noise levels by at least 5 dB at locations where predicted noise levels would meet or exceed noise abatement criteria requirements. The soundwall heights, end points, and placement at each of the affected locations could not be determined at

this level of document. The feasibility and reasonability of soundwalls would be determined as design plans become available in the future.

During construction of subsequent projects, the following measures would be implemented to reduce noise and vibration disturbances at sensitive receptors:

- Using newer equipment with improved noise muffling
- Using construction methods or equipment that would provide the lowest level of noise and ground vibration impact, such as alternative low-noise pile installation methods
- Turning off idling equipment
- Using temporary noise barriers, as needed, and protecting sensitive receptors against excessive noise from construction activities

#### *No-Action/No-Project Alternative*

No mitigation measures would be required for the No-Action/No-Project Alternative because it would not result in any adverse noise impacts.

### 3.2.8 Energy

#### *Regulatory Setting*

The California Environmental Quality Act Guidelines, Appendix F, Energy Conservation, state that environmental impact reports are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

The National Environmental Policy Act (42 U.S. Code Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

#### *Affected Environment*

The number of vehicle miles traveled and congestion are directly related to transportation fuel demand. The Council of Fresno County Governments estimates the vehicle miles traveled within the county will increase 32 percent between 2010 and 2030. Traffic after 2030 would approach or exceed 20,000 vehicles per day along

the expressway between Mendota and Kerman. Congestion within the study area is also expected to increase.

Freeway congestion is rated using grades called levels of service that range from "A" to "F." Level of service A describes free traffic flow with short delays, while level of service F indicates congested traffic flow with long delays. Levels of service on existing State Route 180 and local roadways across the study area were determined by Caltrans staff using existing 2004 volumes for the peak hours (heavy traffic periods) in both morning and afternoon. Currently, levels of service within the study area generally fall within the acceptable range of C or better. For this level of study, travel forecast and level of service data were taken from the 2004 *State Route 180 Transportation Concept Report*. However, a traffic analysis would be required to accurately determine existing current and future year travel forecast and levels of service for future projects.

### *Environmental Consequences*

#### *Alignment Alternatives*

With future transportation projects, traffic flow would improve as each phase is completed. Traffic would not have to slow down for cross traffic or queue behind slower-moving vehicles, and safer conditions would allow motorists to maintain a more constant speed. Better traffic flow improves gas mileage, which increases energy efficiency. When vehicles are idling or driving slower due to congestion, more fuel is burned than when vehicles are driving in freer-flowing traffic conditions. With the projects within the study area completed, 2030 levels of service are anticipated to be at least C along the route, allowing travelers to attain maximum fuel efficiency.

Other factors to consider in energy consumption include, but are not limited to, materials extraction; product manufacturing (e.g., asphalt, concrete); transporting materials to the site; construction worker vehicle miles traveled during construction; and fuel consumption by construction vehicles. Due to differing lengths and project components, these requirements would vary somewhat depending on the alternative selected. A more focused analysis of energy use would be required in subsequent environmental documents. While additional study is required, future long-term savings in operational energy requirements should offset the construction energy requirements.

#### *No-Action/No-Project Alternative*

Without future transportation projects, conditions are expected to degrade to levels of service D and E between Mendota and Fresno by 2015. Due to insufficient highway capacity for the forecast volumes, bottlenecks and queues would develop at certain locations. Such congested traffic conditions could contribute to higher-than-necessary energy consumption as vehicles use extra fuel while idling in stop-and-go traffic or moving at slow speeds.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

During project design and construction, there are several measures that may assist in reducing energy demand for future projects. These include, but are not limited to, selecting energy-efficient project features such as lighting and pavement surface; selecting energy-efficient design by reducing grades and decreasing out-of-direction travel; and including bicycle and pedestrian facilities.

#### *No-Action/No-Project Alternative*

No mitigation is required for the No-Action/No-Project Alternative.

## 3.3 Biological Environment

The discussion in this section is based on the May 2009 Biological Resources Study Report prepared for this study, a preliminary analysis containing background information and detailed species accounts suitable for a route adoption. Further biological review and preparation of a Natural Environment Study and/or Biological Assessment would be done as future projects are proposed. The Biological Resource Study Report is intended to identify potential biological resources from a general review of the study area (field visits, records searches/reviews of existing data) and determine the potential for significant effects on the biological environment.

Special-status species lists were obtained from the U.S. Fish and Wildlife Service website (see Appendix G). Lists of species with potential for occurrence within the project study area were compiled by reviewing the California Natural Diversity Database for the purpose of examining reported occurrences of special-status plant and animal species and sensitive habitats within the 16 U.S. Geological Survey quadrangle maps encompassing the study area. The California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California also was reviewed to provide information on rare plants that have potential to occur in the study area.

Impacts to biological resources were evaluated by determining the sensitivity, significance, and potential for occurrence for each resource that may be adversely affected by the future expressway. A constraints rating system was used to define the degree of impact and complexity of required mitigation. The rating ranged from "low" to "high." The rating of a resource as low, moderate or high in the analysis indicates the likelihood of the evaluated species being present in the given habitat and the expected potential for impacts to the species based on species-habitat associations. In other words, although predicted impacts to habitats are quantified, it is not possible to quantify impacts to particular species in this planning-level analysis.

### 3.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation divides sensitive habitat, lessening its biological value.

Habitat areas that have been designated as critical under the Federal Endangered Species Act are discussed in Threatened and Endangered Species, Section 3.3.5. Wetlands and other waters are discussed in Section 3.3.2.

#### *Affected Environment*

This discussion is based on the Biological Resources Study Report prepared for this in May 2009. Natural communities/habitats were evaluated for the potential to support special-status plant species, special-status wildlife species, and natural communities of concern. No protocol surveys were conducted as part of this planning-level survey effort.

Table 3.29 summarizes the occurrence of mapped habitats by alternative. Figures 3-19 and 3-20 show a generalized habitat map for the study area.

## Table 3.29 Habitat Occurrence by Alternative

| | Urban | Ruderal | Agricultural | | | Windrows | Non-native Annual Grass-land | Chenopod Scrub | Riparian | Engineered channels |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Intensive Agriculture | Orchard/ Vineyard | Pasture | | | | | |
| **Alternative 1** | X | X | X | X | X | X | X | X | X | X |
| **With Variation 1A** | X | X | X | X | X | X | X | X | X | X |
| **With Variation 1B** | X | X | X | X | X | X | X | X | X | X |
| **With Variation 1C** | X | X | X | X | X | X | X | X | X | X |
| **Alternative 2** | X | X | X | X | X | X | X | | X | X |
| **Alternative 3** | X | X | X | X | X | X | X | | X | X |

Source: Biological Resources Study Report (May 2009)

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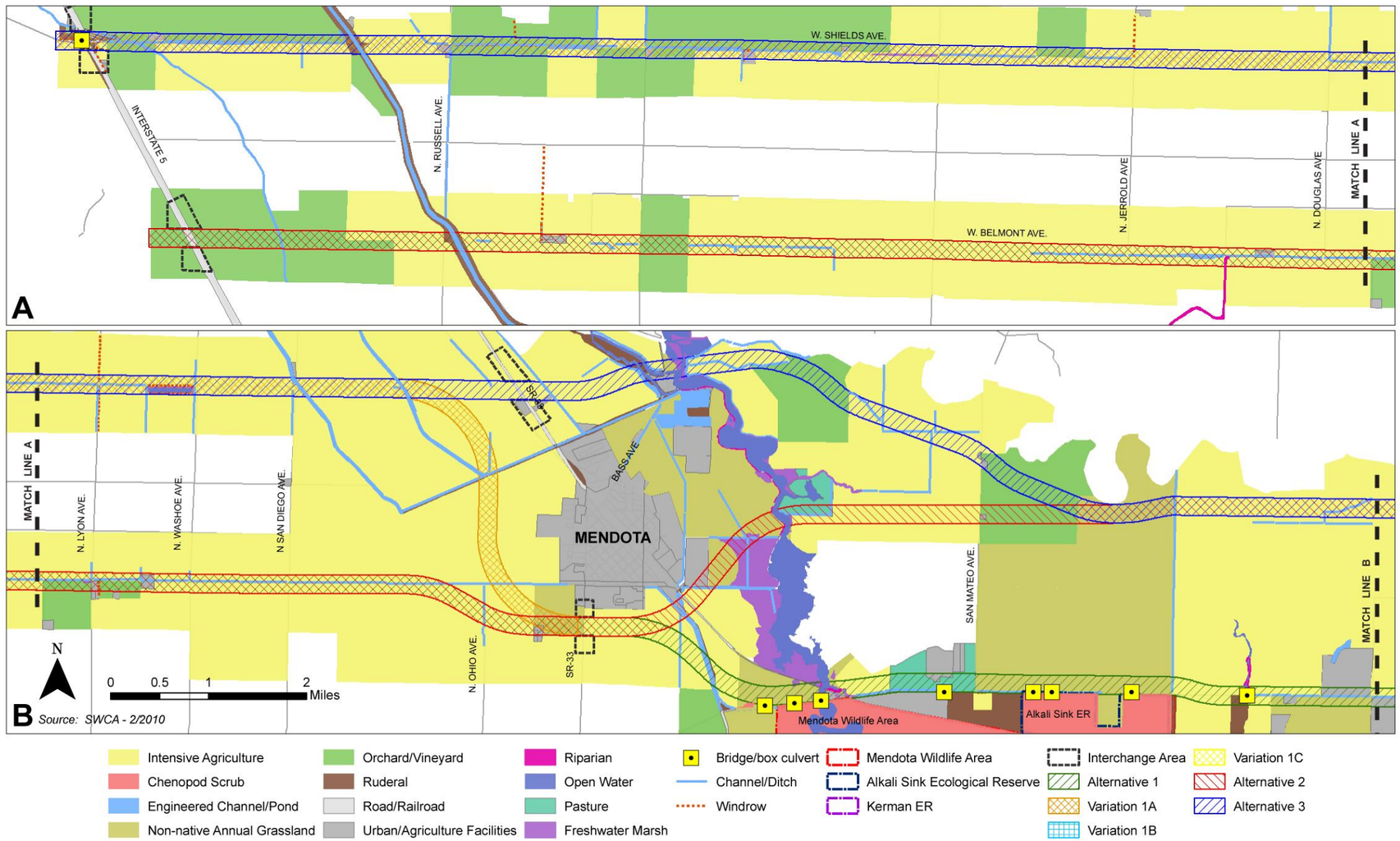


**Figure 3-18 Generalized Habitat for the Study Area—Sheet 1 of 2**

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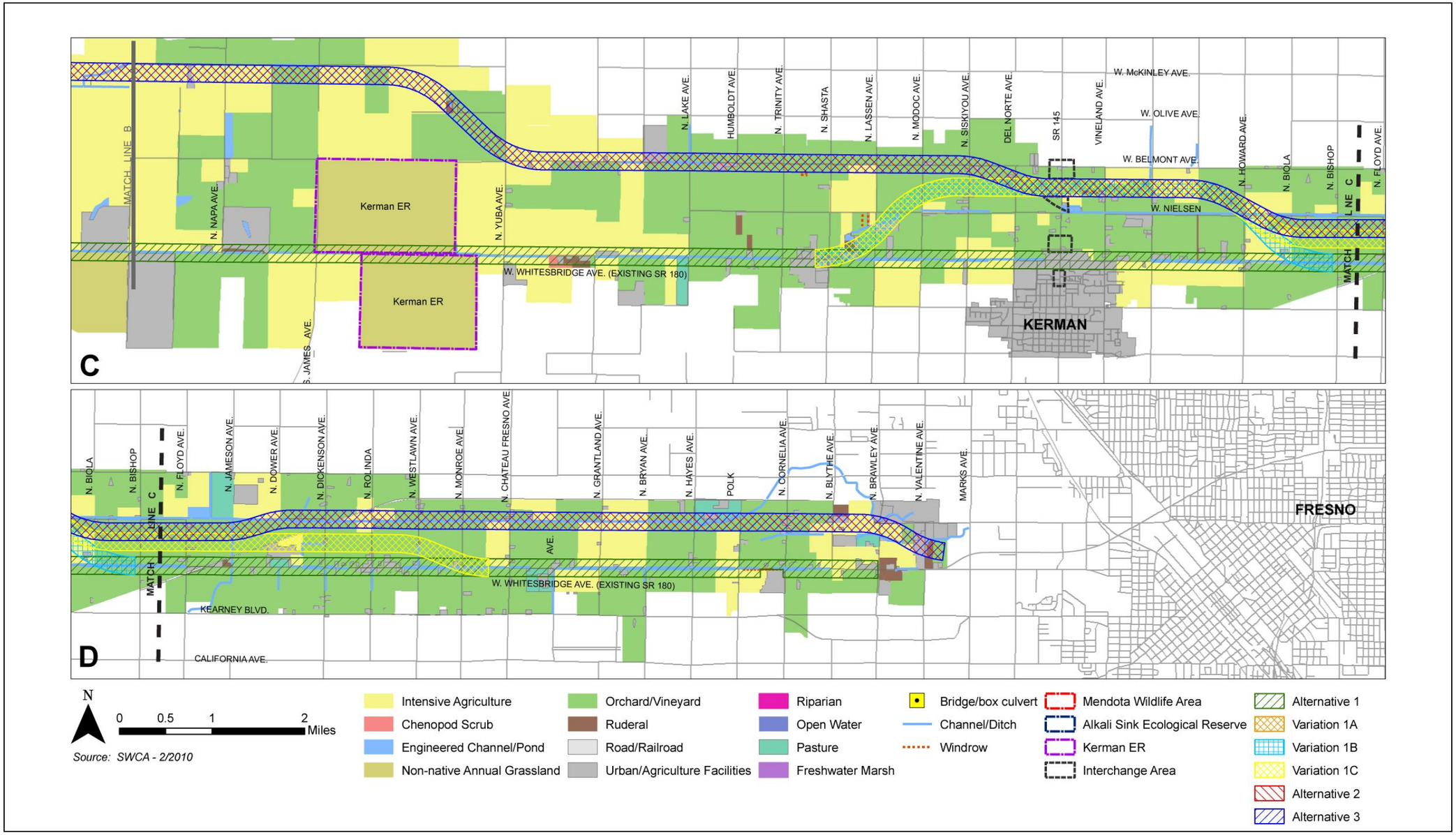


**Figure 3-19 Generalized Habitat for the Study Area—Sheet 2 of 2**

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The following habitat types are found in the study area:

### *Urban*

Urban habitats include human-made structures, such as buildings and bridges as well as introduced ornamental vegetation planted near residences and other areas throughout the study area. Communities, buildings, and agricultural structures have been mapped as urban habitat. These structures contain features such as eaves and openings in roofs/attics that can provide habitat for nesting birds and roosting bats.

There are several bridges in Alternative 1 and its variations, including bridges along Whitesbridge Avenue over the Fresno Slough and several smaller drainages. Some of these bridges contain cliff swallow colonial mud nests. Eaves, corners, and recessed areas under bridges may also provide habitat for roosting bat species. The Shields Avenue interchange at Interstate 5 within Variation 1A and Alternative 3 also has bridge structures suitable for nesting and roosting.

Numerous ornamental trees and landscaped areas can provide habitat for common species such as house mice, roof-rats, various insects, weedy plants, migratory birds, nesting birds and roosting bats. While special-status species do not proliferate in ornamental vegetation, opportunistic species may use it for shelter or foraging.

Urban habitat areas are concentrated in Mendota, Kerman and east toward Fresno with sparsely scattered agriculture buildings and facilities throughout the study area.

### *Ruderal (Disturbed) Areas*

Plants found within this habitat are typically introduced weedy, often invasive, Mediterranean species that have adapted to disturbed lands. Ruderal habitats are usually found in disturbed areas that have been significantly altered by agricultural, construction, landscaping, or other types of land-clearing activities. Ruderal habitats are common throughout the study area, occurring along road edges, canal berms and other areas. Because they are subject to disturbance, ruderal areas do not typically support special-status species, but may be inhabited by species tolerant of disturbance.

### *Agricultural Areas*

Agricultural fields dominate the landscape of the study area. These areas may provide habitat for rodents such as the California vole and California ground squirrel.

Agricultural areas are separated into three categories—intensive agriculture, orchards and vineyards, and pastures.

Intensively cultivated agricultural fields are unlikely to support habitat for most special-status plant and animal species, although, when plowed, these fields may provide habitat for species such as mountain plover. Agricultural fields that are occasionally flooded may provide habitat for species that forage in wet areas, such as the white-faced ibis. Orchards may offer opportunities for foraging raptors and mammalian carnivores. Pastures support grazing livestock and contain mostly introduced annual grasses that may support habitat for several special-status plant and animal species, such as the mountain plover and American badger.

### *Windrows*

Windrows and other groupings of large trees may support nesting habitat for various bird species. A windrow in this context is a group of trees used to protect structures or other plantings from the effects of wind. These are common throughout the study area, which is generally flat with great distances between structures or topographical features. In this area, windrows are typically made up of non-native eucalyptus (*Eucalyptus* spp.), various introduced ornamental species and cottonwood (*Populus* spp.).

### *Non-Native Annual Grasslands*

Several of the special-status plant and animal species known to be present in the region can be found in non-native annual grasslands. A relatively large area of annual grassland habitat is at the southwest corner of Derrick Avenue (State Route 33) and Belmont Avenue. Other notable annual grasslands occur at the Kerman Ecological Reserve, the Alkali Sink Ecological Reserve, and a large parcel of private land north of the Alkali Sink Ecological Reserve.

### *Chenopod Scrub*

Chenopod scrub communities commonly include associations of several special-status species. Chenopods are plants of the goosefoot family, which includes spinach and beets, and pigweed (*Chenopodium* and *Amaranthus* spp.). Two chenopod scrub communities that occur within the study area—valley saltbush scrub and valley sink scrub—support habitat for several special-status plant and wildlife species.

Valley saltbush scrub is present at the Mendota Wildlife Area and the Alkali Sink Ecological Reserve. Minimal saltbush scrub within areas dominated by annual

grassland habitat also occurs at the Kerman Ecological Reserve and a large privately owned parcel north of the Alkali Sink Ecological Reserve and north of existing State Route 180.

Valley sink scrub communities support low succulent shrublands dominated by alkali-tolerant chenopods, especially iodine bush and seepweed species, and saltbush species. Valley sink scrub occurs mostly at the Alkali Sink Ecological Reserve. The dominant species in these areas include big saltbush (*Atriplex lentiformis* ssp. *lentiformis*) and allscale saltbush (*Atriplex polycarpa*), along with iodinebush (*Allenrolfea occidentalis*) in the valley sink scrub areas. These communities may also appear sporadically along road edges, drainage ditches, berms, and abandoned lots throughout the study area, especially along Whitesbridge Avenue.

### *Riparian*

Riparian habitats are typically associated with the banks of natural watercourses. These exist in some areas along the Fresno Slough, in a small amount of elderberry shrub habitat in a canal east of the Fresno Slough and north of the Alternative 3 Alternative, and also at Mowry Draw. These habitats serve as important migration corridors for a variety of wildlife species. Wildlife corridors are important links between habitats, particularly fragmented habitats in a disturbed setting. These “safe” corridors increase exchanges among populations, helping to maintain diversity, increase population size, decrease likelihood of extinction, increase foraging areas, and provide more opportunities for escape or refuge from predators, fire, and other disturbances.

Typical plant species within riparian habitats include willows (*Salix* spp.) and cottonwoods (*Populus* spp.), with a variable understory of cocklebur, horseweed, various other forbs, and various annual grasses. Wildlife using riparian habitats includes herons/egrets, many species of small, nesting perching birds, various insects, and roosting bats. Land mammals typically found in these areas include the opossum, raccoon, striped skunk, and wood rat.

### *Engineered Channels/Ponds*

Numerous canals, agricultural drainage ditches, and other human-made drainage features occur throughout the study area. These include the California Aqueduct, which crosses from north to south in the western portion of the study area. The aqueduct and canals may support habitat for water-dwelling species such as the

western pond turtle. When filled with water, agricultural drainage ditches and other small human-made drainages may also support habitat for these species.

### *Environmental Consequences*

There are habitats within the study area that may support special-status species and impacts to these species must be mitigated to various degrees to remain in compliance with environmental regulatory laws. For instance, habitat that support a California Fully Protected species, for which no incidental take permit can be issued, were weighted and risk-assessed as the highest or most difficult biological constraints and would be given an overall constraint level of "high."

Corridor-level impacts of a general nature are described in the following paragraphs. Table 3.30 lists habitat types along each alternative, and the amount of impact is indicated for an assumed 1,000-foot wide corridor. Effects on wetlands, Waters of the U.S. and related habitats are summarized in Table 3.30. Impacts have been quantified for comparison of alternatives for route selection and do not represent actual totals for future project construction. Precise impact quantification can only occur at the project stage when plans are definite.

**Table 3.30 Habitat Impacts (acres)**

| Alternative | Urban | Ruderal | Agricultural | | | Windrows (linear feet) | Non-native Annual Grassland | Cheno-pod Scrub | Riparian | Engineered channels/ ponds | Engineered channels (miles) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Intensive Agriculture | Orchard/ Vineyard | Pasture | | | | | | |
| Alternative 1 | 499 | 65 | 2,797 | 1,567 | 124 | 3,606 | 616 | 16 | 3 | 14 | 37 |
| With Variation 1A | 481 | 100 | 2,883 | 1,716 | 124 | 15,788 | 623 | 16 | 2 | 33 | 41 |
| With Variation 1B | 398 | 74 | 2,724 | 1,793 | 124 | 3,606 | 616 | 16 | 3 | 14 | 33 |
| With Variation 1C | 357 | 70 | 2,717 | 1,846 | 113 | 3,606 | 616 | 16 | 3 | 16 | 29 |
| Alternative 2 | 180 | 43 | 3,107 | 2,196 | 57 | 1,411 | 272 | 0 | 1 | 15 | 21 |
| Alternative 3 | 161 | 77 | 3,058 | 2,458 | 24 | 13,592 | 133 | 0 | <1 | 22 | 26 |

Source: Biological Resources Study Report (May 2009)

#### *Alternative 1*

This alternative goes through diverse habitats that include urban habitat, ruderal lands, intensive agricultural fields, orchards/vineyards, several engineered channels (including the California Aqueduct), non-native annual grassland, riparian habitat,

freshwater marshes, open water habitat, and windrows. Small parcels with chenopod scrub are just west of Butte Ave and along the Whitesbridge Road right-of-way fronting the Alkali Sink Ecological Reserve. These parcels with chenopod scrub are relatively disturbed as they sit right next to Whitesbridge Road. While these parcels remain capable of supporting sensitive species, this potential would be lower than the large parcels of undisturbed, high-quality habitat associated with the Mendota Wildlife Area and the Alkali Sink Ecological Reserve.

The Kerman Ecological Reserve occupies property on both sides of existing State Route 180 between James Road and Yuba Avenue. It contains mainly annual grassland habitat and supports several special-status species. The Mendota Wildlife Area and the Alkali Sink Ecological Reserve are south of existing State Route 180, outside the 1,000-foot-wide alignment. Overall constraints rating for the Fresno Slough area would be considered “high” for this alternative, while the eastern and western portions of the alignment range from “low to moderate.” Habitats mapped in the Biological Study Report for this alternative are assigned to entire parcels, including the adjacent existing State Route 180 (Whitesbridge Avenue). Impact quantities for Alternative 1 do not account for habitat already disturbed by the construction of existing Whitesbridge Avenue which, if considered, would result in a reduction of impacts to the mapped habitat types.

Variation 1A between Interstate 5 and State Route 33 would cross intensive agricultural fields, ruderal lands, orchards/vineyards, engineered channels (including the Main Lift Canal), windrows, freshwater marsh, and non-native annual grassland. Freshwater marsh, open water habitats and mature windrows are present at a large agricultural pond on the south side of Shields Avenue just west of Washoe Avenue. Compared to Alternative 1, Variation 1A includes a four-fold increase in windrows affected along Shields Avenue, a 1-acre reduction in riparian impacts because Panoche Creek is avoided, and increased impacts to engineered channels and ponds.

Variation 1B and 1C by themselves have similar habitat types that include ruderal lands, orchard/vineyard, intensive agriculture, engineered channels, and urban habitats. In terms of habitat acreage affected, Variation 1B and Variation 1C are similar to Alternative 1. The overall rating for Variations 1A, 1B, and 1C is “low to moderate,” based on the relative amounts of habitats affected and the relative constraints on mitigating effects on the special-status species that could potentially occupy them.

### *Alternative 2*

This alternative goes through the same habitats as Alternative 1 at the western end of the study area. The types of habitats include orchards and vineyards, urban areas, intensive agricultural fields, riparian habitat, ruderal land, engineered channels, and windrows. The overall constraints level here at the western end is "low to moderate."

As the alignment moves east to the Fresno Slough, open water with riparian and freshwater marsh habitats occur along the edges of the slough. The slough is an important aquatic waterway and migration corridor. Agricultural fields, orchards and vineyards, pastures, non-native annual grasslands, and seasonal wetlands dominate the landscape east of the slough. The overall constraints rating for this area is "moderate to high."

Between Yuba Avenue and the end of the study area, this alternative goes through urban areas, minimal ruderal habitats, intensive agricultural fields, orchards and vineyards, minimal pastureland, and some agricultural drainage ditches and minor waterways. The overall constraints rating for this east end of the alternative is "low."

Compared to the other alternatives, Alternative 2 affects more agricultural cropland habitat acreage and affects lesser amounts of ruderal, pasture, non-native grassland, riparian and windrow habitats. Alternative 2 does not affect mapped chenopod scrub habitat.

### *Alternative 3*

This alternative alignment goes through urban habitats, intensive agricultural fields, orchards and vineyards, several engineered channels, and windrows at the western end of the study area. Freshwater marsh and open water habitats are present at a large pond on the south side of Shields Avenue, just west of Washoe Avenue. The overall constraints level of this western end of the alternative is "low to moderate."

East of State Route 33, the alignment spans the Fresno Slough just south of Mendota Pool and affects diverse habitats, including ruderal areas, intensive agricultural fields, orchards and vineyards, pastures, non-native annual grasslands, seasonal wetlands, and engineered channels. Open water, riparian, and coastal and valley freshwater marsh habitats associated with the Fresno Slough would be affected. The Mendota Pool, near the confluence of the Fresno Slough and the San Joaquin River, is a popular spot for bird watching. East of the Fresno Slough, agricultural fields, orchards and vineyards, pastures, non-native annual grasslands, and seasonal

wetlands dominate the landscape. Habitat impacts for this area are considered "moderate."

Between Yuba Avenue and the east end of the study area, this alternative goes through urban areas, minimal ruderal habitats, intensive agricultural fields, orchards and vineyards, minimal pastureland, and some agricultural drainage ditches and minor waterways. The overall constraints rating for this eastern end of the alternative is "low."

Compared to the other alternatives, Alternative 3 affects more agricultural cropland habitat acreage and more windrows and affects fewer acres of pasture, non-native grassland, and riparian habitats. Alternative 3 does not affect mapped chenopod scrub habitat.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve a route adoption of State Route 180 by the California Transportation Commission or future expressway construction projects, so no impacts are anticipated for this alternative.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

When future projects are programmed for funding and/or approval, specific studies and surveys (for example, natural environment studies, wetland delineations, and biological assessments) would be done. The studies would identify project-specific impacts to habitat and special-status species, including permanent, temporary, direct, indirect, and cumulative impacts; identify regulatory permit requirements; and describe mitigation agreements.

Caltrans would obtain all necessary permits, approvals, and authorizations from jurisdictional agencies. Future projects would require coordination with the U.S. Fish and Wildlife Service and California Department of Fish and Game regarding a design that would allow wildlife to safely cross the proposed highway. The U.S. Fish and Wildlife Service has a Programmatic Biological Opinion with Caltrans/Federal Highway Administration for smaller projects and upland species. The U.S. Fish and Wildlife Service suggests that Caltrans use compensation ratios established in the programmatic biological opinion. These compensation ratios may be superseded by larger compensation ratios required by other agencies, such as California Department

of Fish and Game mitigation ratio requirements for impacts to agricultural lands, to offset loss of foraging habitat for the state threatened Swainson's hawk.

Natural communities and habitats would be disturbed as little as possible during construction of future projects. An environmental commitments record would be prepared outlining monitoring and compliance with federal and state permits, agreements, or other authorizations. Caltrans would prepare and implement a revegetation and restoration plan that meets the requirements of jurisdictional agencies to mitigate adverse effects to natural communities and habitats.

#### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative.

### *Cumulative Impacts*

Before the San Joaquin Valley transformed into the vast agricultural landscape that exists today, it was an arid expanse of land punctuated by incidental marshlands, rivers, grass fields, and oak groves. The valley was once part of a great wooded prairie covered with tall grass and valley oaks. Groundwater was close to the surface.

Rivers flowed from the mountains and created a great alluvial fan that is the valley floor. This fan resulted in numerous sloughs and swamps, all hosting plant and animal life. Many of the swamps and marshlands have been filled in. Rivers were diverted and dammed primarily for agriculture. The hardpan that occurs on the Westside is a geologic reminder of when the climate in the valley was much wetter than it is today. The Fresno Slough area is part of an alluvial fan and is reminiscent of what the landscape was like before the agricultural transformation.

Although these habitats have significantly diminished, along with the many plant and animal species they supported, many species today have adapted to man-made urban, agricultural, and ruderal environments.

Any alignment through the Fresno Slough and areas surrounding it has the potential for impacts to both wetlands and waters and to natural land that contains diverse habitats; substantial effects would accrue with all alternatives. With the introduction of new infrastructure and access, growth-related impacts must be considered. The conceptual design for Alternative 3 proposes two new intersections just north of the Mendota Pool Park and at San Mateo Avenue, while Alternatives 1 and 2 would each have a new intersection at San Mateo Avenue. Indirect impacts such as growth-

related effects would be negligible here because the area is rural and outside of a city's sphere of influence. Fresno County's land use policies would prevent incompatible development within floodplain areas and land uses for the preservation of wildlife.

Although Alternative 1 would directly affect the most aquatic resources such as vernal pool habitat due to its close proximity to the wildlife reserves, the alignment follows an existing corridor. Alternative 2 and 3 would build a new corridor that would affect aquatic resources as well as create another barrier to the movement of wildlife between the reserves and the San Joaquin River riparian corridor. Alternative 2 would bisect the California Department of Fish and Game's proposed Alkali Sink conservation bank.

Alternatives 2 and 3 may impede conservation recovery strategies identified in the U.S. Fish and Wildlife Service's Recovery Plan for Upland Species of the San Joaquin Valley (1998). One strategy for Fresno kangaroo rat recovery includes protecting the large block of natural land north of and between the Alkali Sink Ecological Reserve and the San Joaquin River. For this reason, using the existing alignment through this area of the Fresno Slough would have the least indirect impacts to natural communities.

In coordination with the U.S. Environmental Protection Agency, California Department of Fish and Game, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service, Caltrans has proposed the inclusion of a viaduct along the existing State Route 180 alignment as part of the preferred alternative to avoid adverse effects to the Alkali Sink Ecological Reserve, Kerman Ecological Reserve, and the proposed Alkali Sink Conservation Bank. To allow safe migration and promote genetic exchange of species, the viaduct would improve connectivity between both sides of the reserves. Since the viaduct would be built within the existing Caltrans right-of-way, it would avoid direct impacts and minimize indirect impacts to the reserves.

There is an ongoing conservation effort to restore natural habitats in the study area. The San Joaquin River Restoration Project is a comprehensive long-term effort to restore flows and self-sustaining populations of salmon and other fish to the San Joaquin River from Friant Dam to the confluence of the San Joaquin and Merced rivers. Improvements on the San Joaquin River will focus on ecosystem restoration to return the river to more natural conditions. Also, the Department of Fish and Game is in the final approval process to expand the Alkali Sink Ecological Reserve.

After review of current general plans for the cities, the unincorporated areas of the study area, and the proposed development projects listed in Table 3.1 in Section 3.1.1.1, it appears that planned development would occur only inside the sphere of influence boundary of each city. With mitigation factored in, future effects from the expressway along with other planned projects would not cause significant cumulative impacts to natural communities. Riparian habitat such as Fresno Slough, Panoche Creek, Four-Mile Slough, and Mowry Draw are far from urban spheres of influence.

### 3.3.2 Wetlands and Other Waters

Jurisdictional waters of the U.S. within the study area are regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and include wetlands and other non-wetland waters associated with rivers, lakes, streams, both perennial and seasonal, and any adjacent wetlands supported by the following three indicators: 1) they must be regularly overrun with water, typically through seasonal flooding due to rains; 2) they must contain soils subject to repeated, periodic submersion in water; and 3) they must support water-loving plants. Jurisdictional wetlands must contain all three of these markers, plus they must be connected by water with other jurisdictional areas. Non-wetland other waters typically consist of open water, non-vegetated or seasonal channel areas, and beaches.

#### *Regulatory Setting*

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S. Code 1344) is the main law regulating wetlands and surface waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States 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 Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the

U.S. Army Corps of Engineers with oversight by the U.S. Environmental Protection Agency.

Caltrans, the Federal Highway Administration, the Army Corps of Engineers, the U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service entered into a memorandum of understanding to integrate National Environmental Policy Act and the Clean Water Act for environmental impact statement projects that have 5 or more acres of permanent impact to Waters of the United States. Under this memorandum of understanding, the signatory agencies agree to coordinate at three checkpoints: 1) purpose and need; 2) identification of range of alternatives; and 3) preliminary determination of the least environmentally damaging practicable alternative and conceptual mitigation plan. The goal of the memorandum of understanding process is to allow the Army Corps of Engineers to more efficiently adopt the environmental impact statement for their Section 404 permit action.

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, 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.

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

area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Game.

The regional water quality control boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The regional water quality control boards also issue water quality certifications in compliance with Section 401 of the Clean Water Act. See the Water Quality section for additional details.

### *Affected Environment*

Over the years, extensive agricultural changes have eliminated seasonal flooding and lowered groundwater levels to allow for year-round agricultural activities in much of the study area. As a result, potentially jurisdictional areas are limited to the following: 1) natural channel areas, such as the Fresno Slough, Panoche Creek, Four-Mile Slough, Mowry Draw, and their tributaries, 2) unplowed areas containing soils subject to repeated, periodic submersion and vegetation adjacent to established creeks and drainages, and 3) irrigation canals, ditches, and farm ponds that are connected to surface water sources.

Natural and human-made channels, ditches, ponds, and other features that contain water and harbor plant species provide food, shelter, and movement opportunities for a variety of wildlife species in the study area, including the federally and state threatened giant garter snake (*Thamnophis gigas*). Due to ongoing agricultural disturbance and the limited habitat areas present in the study area, both natural and human-made habitat areas should be considered to have high function and value for support of wildlife species.

Main wildlife corridors within the study area include the Fresno Slough, Panoche Creek, seasonal drainages east of Mendota along Whitesbridge Avenue, and to a lesser extent, the various engineered channels (agricultural drainages and canals) that run through the project area.

The Fresno Slough is a deep perennial channel that supports year-round movement of aquatic species. Riparian areas and freshwater marsh vegetation along the fringes of the Fresno Slough provide habitat for migratory birds. Bird species such as the red-winged blackbird (*Agelaius phoeniceus*), mallard (*Anas platyrhynchos*), and American coot (*Fulica americana*) are expected to be found in freshwater marsh habitats associated with the Fresno Slough. Sensitive species that may use open water

and freshwater marsh habitats within the study area include the western pond turtle (*Emys [=Clemmys] marmorata)* and giant garter snake.

Panoche Creek is seasonal, but has a well-developed riparian canopy and provides a migration corridor to the Panoche Hills to the south. This area provides potential nesting habitat for a variety of bird species.

Four-Mile Slough, Mowry Draw, and the seasonal drainage channels bridged by Whitesbridge Avenue east of Mendota have limited vegetative cover, but provide a link between grazing lands and the Mendota Wildlife Area and Alkali Sink Ecological Reserve for various terrestrial species such as the coyote (*Canis latrans*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and woodrat (*Neotoma* spp). Vernal pool areas associated with the Kerman Ecological Reserve could provide habitat for several species of fairy shrimp, including the federally protected vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*).

The larger agricultural canals and ponds within the study area may provide habitat for aquatic species such as the western pond turtle and giant garter snake. When inundated, smaller agricultural drainage ditches and other small human-made drainages may also support habitat for these species.

Within the study area, biologists saw burrowing owls (*Athene cunicularia*) in dry ponds and irrigation pipes. Biologists also saw white-faced ibis (*Plegadis chihi*) in flood-irrigated fields.

A Wetland Evaluation Study (July 2009) prepared for this route adoption study contains a preliminary evaluation of potential jurisdictional waters. Known and potential jurisdictional areas within the study area, as identified by that evaluation, are noted in Figure 3-20. Mapped wetlands on this figure should be considered as a general indication of potentially jurisdictional wetlands that require additional study to determine jurisdictional status. Because actual conditions in the field can vary significantly over time, only project-level wetlands/waters delineations are appropriate for final agency verification and would be done at the time individual projects are proposed.

The following wetland habitat types that may also support sensitive species occur in the study area: coastal and valley freshwater marshes, seasonal wetlands, northern claypan vernal pools, open water habitats, and riparian habitats.

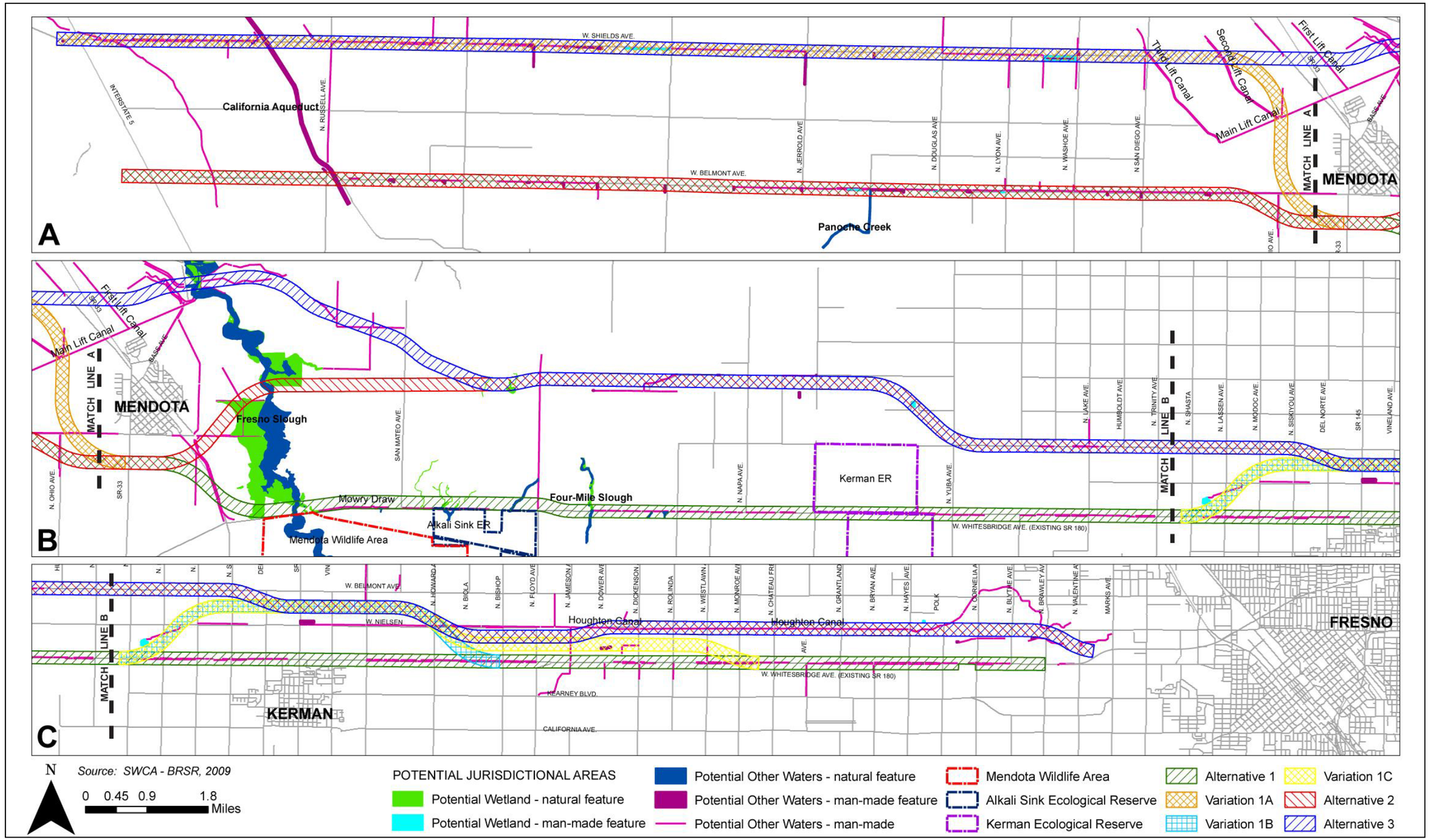


**Figure 3-20 Wetland Jurisdictional Areas**

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### *Coastal and Valley Freshwater Marshes*

Several areas with coastal and valley freshwater marsh habitats occur in the study area. Fringes of a large agricultural pond on Shields Avenue west of Washoe Avenue, several smaller agricultural ponds near the end of Panoche Creek, and margins along the Fresno Slough are vegetated with freshwater marsh species such as broadleaf cattail (*Typhalatifolia*) and bulrush (*Scirpus acutus*). Another site within the study area that supports these habitats is along the fringes of Mendota Pool.

### *Seasonal Wetlands*

Seasonal wetlands typically fill with water during the rainy season, but dry out when the rains end for the year. Several seasonal wetlands, in the form of seasonally inundated drainages, such as Mowry Draw, occur along Whitesbridge Avenue (existing State Route 180). These drainages pass under the road via bridges and exhibit some degree of connectivity with the Fresno Slough.

### *Northern Claypan Vernal Pools*

Vernal pools are seasonally inundated pools that support habitat for special-status plant species and/or special-status animals such as the western spadefoot toad. Notable pools occur within non-native grassland habitat at the Kerman Ecological Reserve, Alkali Sink Ecological Reserve and the privately owned parcel north of the Alkali Sink Ecological Reserve along Whitesbridge Avenue. Certain ruderal areas could also support fairy shrimp species, in seasonal ponded or low areas as well as road ruts with standing water.

### *Open Water Habitats*

Open water habitats are mainly associated with the Fresno Slough and include expansive aquatic areas that are not vegetated. Within the study area, open water habitats occur within the middle of the large agricultural pond on Shields Avenue, in Four-Mile Slough (north of Whitesbridge Avenue), and in the Fresno Slough. These areas could potentially be inhabited by a number of aquatic wildlife species, such as the western pond turtle, white-faced ibis, and various introduced fish species.

### *Riparian Habitats*

Riparian habitats (habitats associated with watercourses) were seen in some areas along the Fresno Slough, in a small amount of elderberry shrub habitat in a canal east of the Fresno Slough, at Mowry Draw and Four-Mile Slough and along Panoche Creek. These habitat areas serve as important migration corridors for a variety of wildlife species. Refer to Natural Communities discussion of Section 3.3.1 for details.

### *Environmental Consequences*

Potential impacts to the aforementioned wetlands and waters of the U.S. are quantified by acreage in Table 3.31. Acreages of impact are for an assumed 1,000-foot-wide expressway corridor.

**Table 3.31 Wetlands and Other Waters within the Project Study Area that May be Impacted in Acres**

| Alternative | Habitat Types | | | | Jurisdictional Designation | |
|---|---|---|---|---|---|---|
| | Freshwater Marsh | Open Water | Engineered Channel/ Pond | Combined Vernal Pool Habitat* | Potential Wetlands | Potential Other Waters |
| Alternative1 | 7 | 11 | 14 | 756 | 29 | 29 |
| With Variation 1A | 15 | 23 | 33 | 763 | 38 | 38 |
| With Variation 1B | 7 | 11 | 14 | 756 | 29 | 29 |
| With Variation 1C | 7 | 11 | 16 | 745 | 29 | 31 |
| Alternative 2 | 23 | 11 | 15 | 329 | 60 | 24 |
| Alternative 3 | 17 | 30 | 22 | 157 | 23 | 31 |
| **Combined acreage includes pastures, non-native grassland and chenopod scrub habitats.* | | | | | | |

Source: Wetland Evaluation Study (July 2009).

Impacts to potential jurisdictional Waters of the U.S. would result from road construction, bridge construction, alteration of wetland drainage patterns, and disturbance or relocation of existing channels, ditches and ponds. Wetlands could be affected during any crossing of the Fresno Slough or other defined natural channel areas, and as a result of road construction in marshlands or seasonally wet annual grassland or pasture areas. Jurisdictional human-made channels, ditches, and ponds could be eliminated, or be converted to underground pipes, be removed and replaced in another location, or undergo changes in usage patterns.

The area where all alternatives cross the Fresno Slough appears to have the most potential for significant impacts to wetlands and other waters. The Fresno Slough extends roughly north to south through this segment. It is an important aquatic waterway and migration corridor containing perennial open water habitat, with intermittent fringes of riparian and freshwater marsh habitats. East of the Fresno Slough, the landscape is dominated by intensive agricultural fields, orchards and vineyards, pastures, non-native annual grasslands, and seasonal wetlands. Vernal

pools are present in association with habitats on the Kerman Ecological Reserve and are likely to be found in the grassland areas north of the Mendota Wildlife Area and Alkali Sink Ecological Reserve. There is a low potential for vernal pool occurrence within pastures and non-native annual grasslands near the Mendota Wastewater Treatment Plant. Project impacts could affect both natural and human-made jurisdictional areas and could also result in sensitive species and habitat loss.

### *Alternative 1*

Alternative 1 crosses the northern end of Panoche Creek along Belmont Avenue, several engineered channels (including the California Aqueduct), and agricultural ponds and ditches on the western portion of the study area. A new box culvert may be proposed to cross the Panoche Creek, which is a natural seasonal waterway that provides a migration corridor to the Panoche Hills to the south.

This alternative crosses the Fresno Slough along and north of Whitesbridge Avenue. The Mendota Wildlife Area and Alkali Sink Ecological Reserve are on the south side of Whitesbridge Avenue, next to but outside the 1,000-foot bandwidth of the alternative. The route crosses four natural wetland drainages, which flow from non-native annual grassland south into the Alkali Sink Ecological Reserve. It would also affect Mowry Draw, Four-Mile Slough and additional engineered channels/ponds along Whitesbridge Avenue. This alternative also goes through the Kerman Ecological Reserve, which contains mostly annual grassland habitat. There is a moderate to high potential for vernal pools within non-native annual grasslands and chenopod scrub habitats, and a low to moderate potential for vernal pools to be present within pastures. As shown in Table 3.30, Alternative 1 would affect much more habitat with potential for supporting vernal pools than Alternative 2 (2.3 times) or Alternative 3 (4.8 times).

East of Yuba Avenue, Alternative 1 encounters minimal open water habitat, agricultural and roadside drainage ditches and minor waterways. There is low potential for vernal pools and seasonal wetlands in pasture lands.

Alternative 1, due to its close proximity, would have the most significant impacts to the vernal pool habitat at the Mendota Wildlife Area, Alkali Sink Ecological, and Kerman Ecological Reserve. Six bridges on Whitesbridge would need to be rebuilt between State Route 33 and Napa Avenue. These bridges cross important natural waterways such as the Fresno Slough, Mowry Draw, and Four-Mile Slough, which

serve as migration corridors. Temporary construction impacts may alter drainage patterns, resulting in habitat loss and fragmentation and wildlife population decline.

Alternative 1 with Variation 1A would affect more waters of the U.S. and wetlands than Alternative 1, by including impacts to the large agricultural pond on Shields Avenue and by crossing the Main, Second Lift and Third Lift canals. Potential vernal pool impacts for Variation 1A are essentially the same as for Alternative 1.

Alternative 1 with Variations 1B and 1C are not substantially different than Alternative 1 in terms of waters and wetland habitats affected and include some agricultural drainage ditches and minor waterways for which impacts would be considered low. Potential vernal pool impacts for Variations 1B and 1C are essentially the same as for Alternative 1.

### *Alternative 2*

The western portion of Alternative 2 would have the same impacts as Alternative 1.

There is a higher potential for affecting freshwater marsh within this alignment than with Alternatives 1 and 3. This alternative would likely have about 50 percent fewer impacts than Alternative 1 and double the impacts of Alternative 3 to habitats that could support vernal pools.

The alignment goes through an area that includes agricultural drainage ditches and minor waterways east of Yuba Avenue. Habitat impacts are be considered low.

### *Alternative 3*

Similar to Alternative 1, this alignment crosses several engineered channels (including the California Aqueduct) and minor waterways on the western portion of the study area. In addition, this alternative would cross three canals between San Diego Avenue and State Route 33—Main Lift Canal, Second Lift Canal, and Third Lift Canal. West of Mendota, this alternative does not contain any habitat that would support vernal pools. Freshwater marsh and open water habitats are present at a large agricultural pond on the south side of Shields Avenue just west of Washoe Avenue.

Alternative 3 would affect seasonal wetlands, open water, riparian, and coastal and valley freshwater marsh habitats associated with the Fresno Slough. However, impacts to habitat that supports vernal pools would be only 20 percent of those in Alternative 1 and less than half of Alternative 2. Alternative 3 would potentially affect less freshwater marsh habitat than Alternative 2.

Approximately 1.3 miles east of San Mateo Avenue, Alternative 3 follows the Alternative 2 route alignment, habitat impacts are identical, and impacts are considered to be of low constraints due to low habitat quality and low potential for supporting special-status species.

#### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission or future expressway construction projects, so no impacts to wetlands or waters of the U.S. are anticipated for this alternative.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

Measures may be required to offset habitat impacts to resources that, in some situations, may or may not qualify as jurisdictional wetlands, such as northern claypan vernal pools, coastal and valley freshwater marshes, seasonal wetlands, and engineered channels.

Mitigation may be required for non-jurisdictional seasonal wetlands and engineered channels that may support habitat for the federal and state endangered giant garter snake. Measures to offset impacts to potential giant garter snake habitat are outlined in Section 3.3.5, Threatened and Endangered Species.

It is likely that some impacts to jurisdictional waters of the U.S. can be avoided or minimized with the following measures:

- Careful route selection
- Bridge and roadway design features
- Consideration of project specific approaches during project development such as: avoidance of wetland areas; enhancement or restoration of existing wetlands; creation of new wetlands; contribution of in-lieu fees for restoration/preservation of existing wetlands; and purchase of existing wetlands through a wetland mitigation bank
- Compliance with local, state, and federal permit and mitigation requirements
- Inclusion of all practicable measures to minimize harm to wetlands in the project

Significant impacts to wetland and other waters areas can be mitigated by use of the following general measures individually or in combination, on or off the project site:

- Avoidance of wetland areas
- Enhancement or restoration of existing wetlands
- Creation of new wetlands
- Contribution of in-lieu fees for restoration/preservation of existing wetlands
- Purchase of existing wetlands through a wetland mitigation bank

### *No-Action/No-Project Alternative*

With no impacts to wetlands or waters of the U.S., no mitigation is required.

### ***Least Environmentally Damaging Practicable Alternative/Wetland Only Practicable Finding***

According to Executive Order 11990, a federal or state agency such as Caltrans cannot construct a project in wetlands unless it is determined that there is no practicable alternative to the project, and that the project includes all practicable measures to minimize harm. As depicted in Figure 3-20, the Fresno Slough and its tributaries run in a northwesterly fashion across Fresno County, away from the Kings River. Therefore, there is no practicable alternative to the project that would avoid wetlands associated with the Fresno Slough.

One criterion used in the alternatives screening process was to move forward for consideration only the alternatives that had the fewest impacts to resources of concern, including wetlands. The project would not result in the construction of an expressway since this report is for a route adoption only. Also without a detailed project design, adding up impacts to wetlands at the project-level cannot be made at this time. The preferred alternative does not have the fewest impacts according to Table S.1, especially for impacts to habitat that could support vernal pools; however, it is the alternative that would impose the least overall harm when indirect and cumulative impacts are factored in.

These calculations are not based on protocol-level wetland delineations that involve investigations of soil characteristics and hydrologic connectivity but are based on assumptions made using available information collected from databases and field visits to the study area. Formal wetland analyses would be done during subsequent

Tier II projects. Caltrans is not seeking any permits for the route adoption. Further, Caltrans has complied with the checkpoints under Section 6002 (23 U.S. Code 139) of the Safe, Accountable, Flexible, Efficient, Transportation Equality Act: A Legacy for Users Memorandum of Understanding that mirrors the agreement points of the National Environmental Policy Act/404 as modified for a Tier I project. For these reasons, Caltrans did not pursue the National Environmental Policy Act/Clean Water Act Section 404 Integration process as modified for a Tier I project. The formal National Environmental Policy Act/Clean Water Act Section 404 Integration process would be initiated at the time a subsequent Tier II project(s) is proposed.

Construction of subsequent Tier II projects would affect wetlands and other waters if there is no practicable alternative to the construction of these projects that would meet the purpose and need of the project. Caltrans would include all practicable measures to minimize harm to wetlands during subsequent Tier II projects. The preferred alternative uses the existing Interstate 5 interchange at Shields Avenue as well as the existing State Route 180 and Shields Avenue corridors to the greatest extent feasible. These measures, along with the proposed viaduct near the Alkali Sink Ecological Reserve and the Kerman Ecological Reserves, would minimize impacts to wetlands.

Caltrans believes that after coordination with resource and regulatory agencies, during the environmental review process, the preferred alternative is the corridor likely to contain the potential “least environmentally damaging practicable alternative.” See Chapter 5 for details of this coordination.

### *Cumulative Impacts*

California has made substantial progress over the last 10 years in efforts to identify, acquire, restore, and enhance wetlands. California was one of the first states in the nation to set a “no-net loss” policy for wetlands. The state currently has about 2.9 million acres of wetlands, roughly one tenth the wetland area present two centuries ago. The responsibilities for protecting, restoring, and managing California’s wetlands are shared among nearly a dozen state and federal programs, including regulatory, non-regulatory, and land-management programs.

An example of this effort includes the San Joaquin River Restoration Project, a comprehensive long-term effort to restore flows and self-sustaining populations of salmon and other fish from Friant Dam to the confluence of the San Joaquin and Merced rivers. Additionally, the Department of Fish and Game is in the final approval processes of acquiring land to expand the Alkali Sink Ecological Reserve.

Historically, much of the Central Valley consisted of seasonally inundated, marshy wetland areas. Many soil types within the study area are listed as hydric (formed in water) soils by the Natural Resources Conservation Service. Extensive agricultural modification consisting of drainage improvements, levee construction, and deep-well pumping have eliminated seasonal flooding and lowered groundwater levels. Much of the study area is now used for year-round agricultural activities.

These activities have altered the soil, hydrology, and vegetative conditions in large portions of the Valley floor. As a result, potentially jurisdictional portions within the study area are limited to natural channel areas such as the Fresno Slough, Panoche Creek, Four-Mile Slough, Mowry Draw, and their tributaries. Irrigation canals, ditches, and farm ponds connected to surface-water sources are potential jurisdictional waters. Potential wetland areas include unplowed land containing hydric soils and vegetation adjacent to natural channel areas.

When agricultural lands function as wetlands that provide valuable habitat, these lands are threatened not only by urban and suburban development but also by crop conversion. There is a developing trend to shift from field and forage crops to higher intensity crops such as vegetables, vineyards and orchards. These not only will provide less habitat for listed species, they also will make land more expensive to purchase for restoration as new crops increase the value of the land.

Projects completed in the last 5 years in the study area include a federal prison south of the city of Mendota, a wastewater treatment plant expansion in Mendota, the Fresno Irrigation District's expansion of the Waldron bank facility east of Kerman, seven residential tracts in Kerman, and two retail/commercial developments in Kerman. One roadway project was completed in 2008 that widened the existing lanes and shoulders along State Route 180 between Belmont Avenue and the San Joaquin Valley Railroad crossing just north of the Mendota Wildlife Area. This project improved the roadway structure to alleviate flooding problems in the area. There were also many development projects that were shelved or abandoned due to the declining market demand as shown in Table 3.1. Because of high operating costs compounded with drought in recent years, the Holly Sugar Company in Mendota that employed 200 workers closed in 2008.

The Fresno Slough area has the potential for impacts to aquatic resources, which include both wetlands and waters; substantial impacts would accrue with all alternatives. With the introduction of new infrastructure and access, growth-related

impacts must be considered. The conceptual design for Alternative 3 proposes two new intersections just north of the Mendota Pool Park and at San Mateo Avenue, while Alternatives 1 and 2 would each have a new intersection at San Mateo Avenue. Indirect impacts such as growth-related impacts would be negligible here because the area is rural and outside of a city's sphere of influence. Fresno County's land use policies would prevent incompatible development within floodplain areas and land uses for the preservation of wildlife.

Although Alternative 1 would directly affect the most aquatic resources, such as vernal pool habitat due to its close proximity to the wildlife reserves, the alignment follows an existing corridor. Alternatives 2 and 3 would build a new corridor that would affect aquatic resources as well as create another barrier to the movement of wildlife between the reserves and the San Joaquin River riparian corridor. In fact, Alternative 2 would bisect the California Department of Fish and Game's proposed Alkali Sink conservation bank.

Alternatives 2 and 3 may impede conservation recovery strategies identified in U.S. Fish and Wildlife Service's Recovery Plan for Upland Species of the San Joaquin Valley, California (1998). One recovery strategy for the Fresno kangaroo rat includes protection of the large block of natural land north of and between the Alkali Sink Ecological Reserve and the San Joaquin River. For this reason, using the existing alignment through this area of the Fresno Slough would have the fewest indirect impacts to natural habitat, including aquatic resources.

In coordination with the U.S. Environmental Protection Agency, California Department of Fish and Game, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service, Caltrans has proposed the inclusion of a viaduct along the existing State Route 180 alignment as part of the preferred alternative to avoid adverse effects to the Alkali Sink Ecological Reserve, Kerman Ecological Reserve, and the proposed Alkali Sink Conservation Bank. To allow safe migration and promote genetic exchange of species, the viaduct would improve connectivity between both sides of the reserves. Since the viaduct would be built within the existing Caltrans right-of-way, it would avoid direct impacts and minimize indirect impacts to the reserves. Elevating the highway would remove the existing roadway that acts as a water-flow barrier between lands on the south and north. This would allow improved sheet flow between north and south properties and enhance movement of many aquatic species.

After review of current general plans for the cities, unincorporated areas of the study area, and the projects listed in Table 3.1 in Section 3.1.1.1, it appears that planned development would occur only inside the sphere of influence boundary of each city. Cumulative impacts to potentially jurisdictional areas from past, present, and planned projects would be negligible since areas such as the Fresno Slough, Panoche Creek, Four-Mile Slough, and Mowry Draw are far from urban spheres of influence. The previously mentioned roadway widening project occurred in the Fresno Slough that contains freshwater marsh and emergent wetland habitat for the state and federal listed giant garter snake. Caltrans mitigated for impacts to wetland habitat for this species by purchasing credits from an approved conservation bank.

### 3.3.3 Plant Species

#### *Regulatory Setting*

The U.S. Fish and Wildlife Service and California Department of Fish and Game share regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (the federal act) and/or the California Endangered Species Act (the state act). See the Threatened and Endangered Species section (Section 3.3.5) in this document for detailed information on these species.

This section of the document discusses all the other special-status plant species, including California Department of Fish and Game fully protected species and species of special concern, U.S. Fish and Wildlife Service candidate species, and non-listed California Native Plant Society rare and endangered plants.

The regulatory requirements for the federal act can be found at 16 U.S. Code 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the state act can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

### *Affected Environment*

Special-status plant species occurring in the study area are discussed in the Biological Resources Study Report (May 2009) prepared for this route adoption study.

Suitable habitat that could potentially support special-status plant species is sporadically distributed in the study area. There are 14 special-status plant taxa, as identified in Table 3.32, for which suitable habitat exists within the study area. Figure 3-21 shows the record locations of special-status plant species in the vicinity of the study area, as mapped by California Natural Diversity Database (February, 2009).

All special-status plant species have a moderate potential to occur within Alternative 1 and its variations. All special-status plant species have a low potential to occur within Alternatives 2 and 3.

The California Native Plant Society classifies plants into lists according to rarity, endangerment and distribution. All plants in the following table except Hoover's eriastrum (*Eriastrum hooveri)* are on List 1B and are considered to be rare, threatened or endangered in California and elsewhere. Hoover’s eriastrum is on List 4 of the California Native Plant Society’s limited distribution watch list. Although the plant is considered fairly endangered in California, it was federally de-listed in October 2003.

## Table 3.32 Potential for Occurrence of Special-Status Plants

| **Common Name** ***Genus species*** | **California Native Plant Society Status** |
|---|---|
| Caper-fruited *Tropidocarpum capparideum* | **List 1B.1 Seriously endangered in California** |
| Showy madia *Madia radiata* | |
| Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus* | |
| Lesser saltscale *Atriplex minuscula* | |
| Heartscale *Atriplex cordulata* | **List 1B.2 Fairly endangered in California** |
| Brittlescale *Atriplex depressa* | |
| Vernal pool smallscale *Atriplex persistens* | |
| Subtle orache *Atriplex subtilis* | |
| Lost Hills crownscale *Atriplex vallicola* | |
| Recurved larkspur *Delphinium recurvatum* | |
| Munz's tidy-tips *Layia munzii* | |
| Panoche pepper-grass *Lepidium jaredii* ssp. *album* | |
| Valley sagittaria *Sagittaria sanfordii* | |
| Hoover's eriastrum *Eriastrum hooveri* | **List 4.2 Limited distribution in California** |

*Source: Biological Resources Study Report (May 2009).*

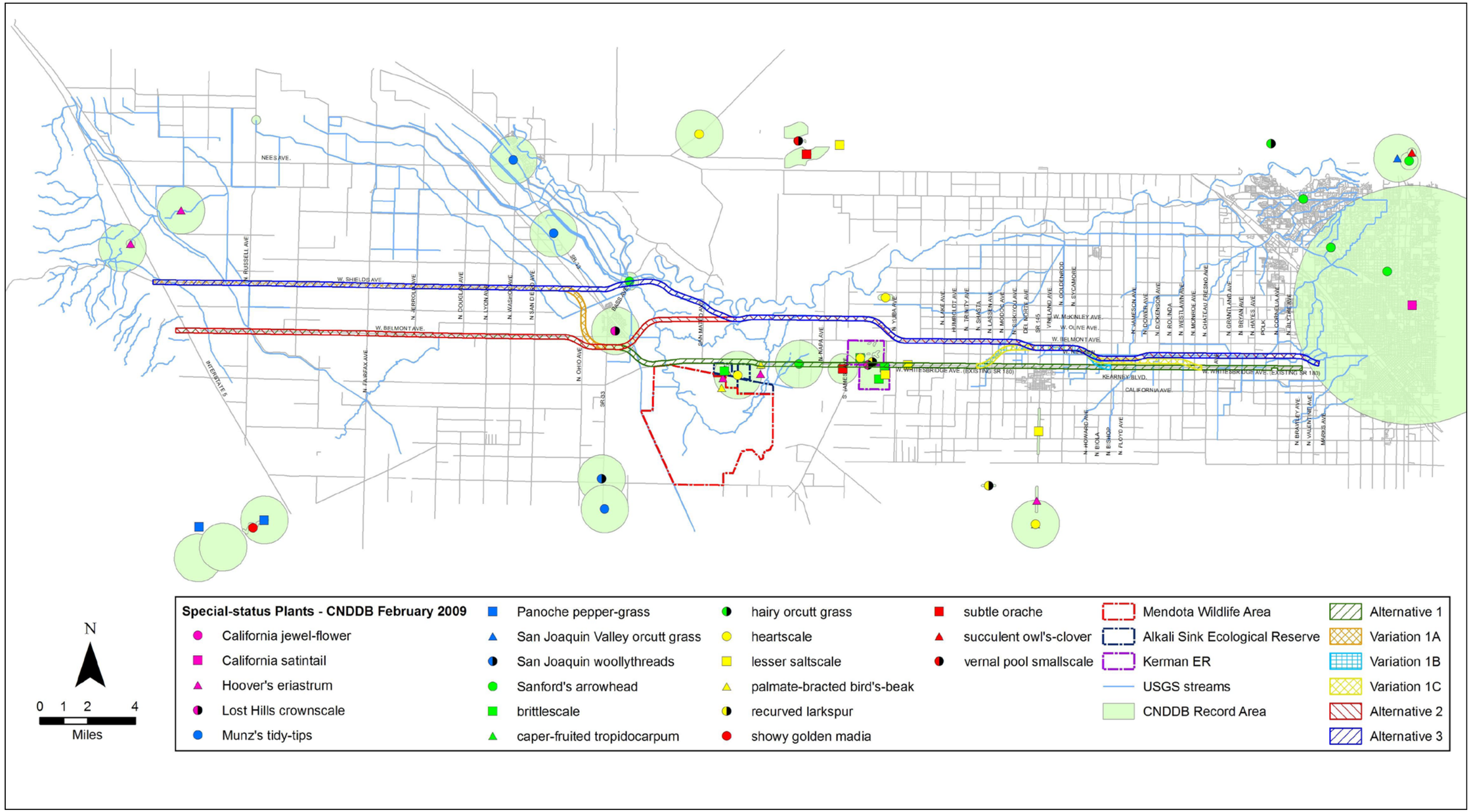


**Figure 3-21 California Natural Diversity Database Special-Status Plants**

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Of the 14 special-status plant species that are known to occur inside the U.S. Geological Survey quadrangle maps that encompass the study area, only five have been recorded as occurring inside the study area. Details of plant species listed on Table 3.32 can be found in the Biological Resources Study Report.

The following paragraphs briefly describe the types of environment and known number of occurrences of the five special-status plant species.

### *Lesser Saltscale (Atriplex minuscula)*

Lesser saltscale is an annual herb in the Chenopodiaceae family that is endemic to California. The species flowers from May to October and grows at an elevation range of 50 to 655 feet. This species occurs in chenopod scrub, meadows, playas, and valley and foothill grassland, in sandy, alkaline soils. Three lesser saltscale populations have been found in the Kerman Ecological Reserve.

### *Lost Hills Crownscale (Atriplex vallicola)*

Lost Hills crownscale is an annual herb in the Chenopodiaceae family that is endemic to California. It occurs in chenopod scrub, valley and foothill grassland, and vernal pools, in alkaline soils. The species flowers from April to August and grows at an elevation range of 164 to 2,083 feet. It is known from two occurrences within the study area. One of these populations is within the Kerman Ecological Reserve on both sides of Whitesbridge Avenue at James Road Junction. The second population is just west of State Route 33 in Mendota along Alternative 1.

### *Recurved Larkspur (Delphinium recurvatum)*

Recurved larkspur is an annual herb in the Ranunculaceae family that is endemic to California. It occurs in chenopod scrub, cismontane woodland, and valley and foothill grassland in alkaline soils. The species flowers from March to May and grows at an elevation range of 10 to 2,461 feet. One population has been documented at the Kerman Ecological Reserve north of State Route 180.

### *Hoover's eriastrum (Eriastrum hooveri)*

Hoover's eriastrum is an annual herb in the Polemoniaceae family that is endemic to California. It occurs in chenopod scrub, pinyon-juniper woodland, and valley and foothill grasslands, and is associated with areas that have silty to sandy soil and relatively low vegetative cover. This species flowers between March and July. Its elevation range is from 164 to 3,002 feet. Hoover's eriastrum was listed as federally threatened in 1990 and was de-listed on October 13, 2003. The California Natural

Diversity Database search identified seven known occurrences of Hoover's eriastrum within the study area.

### *Valley Sagittaria (Sanford's Arrowhead) (Sagittaria sanfordii)*

Valley sagittaria is a perennial herb in the Alismataceae family that is endemic to California. It occurs in marshes and swamps. The species flowers from May to October and grows at an elevation range of 0 to 2,001 feet. One population is within the study area near Mendota Pool along Alternative 3.

## ***Environmental Consequences***

Construction activities, such as heavy equipment operation and earthmoving could result in injury or mortality to individual special-status plants, which could reduce their populations. Potential for this type of damage varies from low to high for these species. These impacts, which are difficult to predict with precision, would apply to a greater or lesser degree to all the alternatives and variations.

Special-status plant species have federal or state regulatory protection, or both, and may have on-site or off-site mitigation requirements as enforced by regulatory agencies and per the California Environmental Quality Act requirements. Impacts specific to the California Environmental Quality Act are evaluated in Chapter 4.

### *Alternative 1*

There is a low potential for taking of any of the special-status plant species along this alternative within the western portion of the study area because of the relative low quality of habitat. All 15 plant species included in Table 3.32 have a moderate potential to occur within this alternative approximately between State Route 33 and Yuba Avenue. Fringes of habitat next to the Mendota Wildlife Area and the Alkali Sink Ecological Reserve within Caltrans right-of-way and the Kerman Ecological Reserve that occur along Whitesbridge Avenue could provide suitable habitat for these species. Only three of the listed species (brittlescale, vernal pool smallscale, and valley sagittaria) have potential habitat along the eastern portion of this alternative (between Yuba Avenue and Brawley), and potential for their occurrence is estimated to be low.

All variations to this alternative east of Yuba Avenue would have a low potential of affecting any of the special-status listed plant species.

### *Alternative 2*

Special-status species have a low potential for occurrence along this alignment due to relatively lower habitat quality compared to Alternative 1. Similar to Alternative 1, only three species out of the 15 (brittlescale, vernal pool smallscale, and valley sagittaria) have potential habitat along the eastern portion of this alternative (between Yuba Avenue and Valentine Avenue), and potential for their occurrence is estimated to be low.

### *Alternative 3*

Special-status species have a low potential for occurrence along this alignment due to relatively lower habitat quality compared to Alternative 1. Similar to Alternatives 1 and 2, only three species out of the 15 included (brittlescale, vernal pool smallscale, and valley sagittaria) have potential habitat along the eastern portion of this alternative (between Yuba Avenue and Valentine Avenue), and potential for their occurrence is estimated to be low.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission or future expressway construction projects, so no impacts are anticipated for this alternative.

## ***Avoidance, Minimization, and/or Mitigation Measures***

### *Alignment Alternatives*

The approach described below includes general measures to reduce impacts in advance of and during future construction of the expressway within all alignment alternatives. Additional measures to offset impacts would be determined during subsequent environmental analyses.

Potential impacts to special-status plant species can be mitigated with proper design, by using construction windows, through selecting an alternative that minimizes impacts, and by obtaining required regulatory permits. However, at this project planning stage, the mitigation measures recommended to avoid, lessen, and mitigate potential impacts to special-status species are as follows:

- Prior to ground disturbance, floristic surveys would be conducted in previously undisturbed natural habitats and engineered channels to determine presence or absence of special-status plant species. Caltrans would coordinate with the U.S. Fish and Wildlife Service and California Department of Fish and Game regarding

specific listed species of concern, and the need for a Biological Opinion, Incidental Take Statement, and/or Section 2081 permit.

- If avoidance of sensitive plant species is not feasible, Caltrans would work with the agency having jurisdiction to develop a mitigation plan at the project level. Mitigation may be performed on-site or off-site and may include long-term monitoring.

#### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative.

### 3.3.4 Animal Species

#### ***Regulatory Setting***

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration Fisheries and the California Department of Fish and Game are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 3.3.5 below. All other special-status animal species are discussed here, including California Department of Fish and Game fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

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

In addition to state and federal laws regulating impacts to wildlife, there are often local regulations (county or city) that need to be considered when developing projects. If work is being done on federal land (Bureau of Land Management or

Forest Service, for example), then those agencies' regulations, policies, and Habitat Conservation Plans are followed.

### *Affected Environment*

The discussion in this section is based on information taken from the 2009 Biological Resources Study Report.

Suitable habitat exists for 53 wildlife species that have the potential to occur in the study area. They include 7 invertebrates, 2 amphibians, 6 reptiles, 18 birds, and 20 mammals. Figure 3-22 shows the record locations of special-status animal species in the vicinity of the study area, as mapped by California Natural Diversity Database. A total of 40 of these species are designated as California special concern or fully protected species, or California Natural Diversity Database special animals and are included in Table 3.33.

## Table 3.33 Potential for Occurrence of Special-Status Animals

| Species | Status | Alt. 1 | With Var. 1A | With Var. 1B | With Var. 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| **Invertebrates** | | | | | | | |
| Midvalley fairy shrimp *Branchinecta mesovallensis* | SA | M | M | M | M | L | L |
| California linderiella fairy shrimp *Linderiella occidentalis* | SA | M | M | M | M | L | L |
| Molestan blister beetle *Lytta molesta* | SA | L | L | L | L | L | L |
| Morrison's blister beetle *Lytta morrisoni* | SA | L | L | L | L | L | L |
| **Amphibians** | | | | | | | |
| Western spadefoot *Spea hammondii* | CSC | M | M | M | M | M | L |
| **Reptiles** | | | | | | | |
| Western pond turtle *Actinemys marmorata* | CSC | H | H | H | H | H | H |
| Coast (California) horned lizard *Phrynosoma coronatum (frontale)* | CSC | M | M | M | M | L | L |
| Silvery legless lizard *Anniella pulchra pulchra* | CSC | M | M | M | M | L | L |
| San Joaquin whipsnake *Masticophis flagellum ruddocki* | CSC | M | M | M | M | L | L |
| Two-striped garter snake | CSC | L | L | L | L | L | L |
| **Birds** | | | | | | | |
| White-faced ibis *Plegadis chihi* | CSC | M | M | M | M | L | L |
| Aleutian Canada goose *Branta canadensis leucopareia* | FD | M | M | M | M | L | L |
| Merlin *Falco columbarius* | CSC | L | L | L | L | L | L |
| Ferruginous hawk *Buteo regalis* | CSC | L | L | L | L | L | L |
| Northern harrier *Circus cyaneus* | CSC | H | H | H | H | H | H |
| White-tailed kite *Elanus leucurus* | FP | M | M | M | M | M | M |
| Mountain plover *Charadrius montanus* | CSC | L | L | L | L | L | L |
| Long-billed curlew *Numenius americanus* | CSC | L | L | L | L | L | L |
| Black tern *Chlidonius niger* | CSC | L | L | L | L | L | L |
| Burrowing owl *Athene cunicularia* | CSC | M | M | M | M | L | L |
| Costa's hummingbird *Calypte costae* | CSC | L | L | L | L | L | L |
| Loggerhead shrike *Lanius ludovicianus* | CSC, | H | H | H | H | M | M |
| Grasshopper sparrow *Ammodramus savannarum* | CSC | M | M | M | M | L | L |
| Tricolored blackbird *Agelaius tricolor* | CSC | M | M | M | M | L | L |

## Table 3.33 Potential for Occurrence of Special-Status Animals

| Species | Status | Alt. 1 | With Var. 1A | With Var. 1B | With Var. 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| **Mammals** | | | | | | | |
| Pallid bat<br>*Antrozous pallidus* | CSC | L | L | L | L | L | L |
| Pacific western (Townsend's) big-eared bat<br>*Corynorhinus townsendii townsendii* | CSC | L | L | L | L | L | L |
| Spotted bat<br>*Euderma maculatum* | CSC | L | L | L | L | L | L |
| Western red bat<br>*Lasiurus blossevillii* | CSC | L | L | L | L | L | L |
| Hoary bat<br>*Lasiurus cinereus* | CSC | L | L | L | L | L | L |
| Small-footed myotis<br>*Myotis ciliolabrum* | SA | L | L | L | L | L | L |
| Long-eared myotis<br>*Myotis evotis* | SA | L | L | L | L | L | L |
| Fringed myotis<br>*Myotis thysanodes* | SA | L | L | L | L | L | L |
| Long-legged myotis<br>*Myotis volans* | SA | L | L | L | L | L | L |
| Yuma myotis<br>*Myotis yumanensis* | SA | L | L | L | L | L | L |
| Greater (western) mastiff bat<br>*Eumops perotis* | CSC | L | L | L | L | L | L |
| Short-nosed kangaroo rat<br>*Dipodomys nitratoides brevinasus* | CSC | M | M | M | M | L | L |
| San Joaquin pocket mouse<br>*Perognathus inornatus inornatus* | SA | M | M | M | M | L | L |
| Southern grasshopper mouse<br>*Onychomys torridus ramona* | CSC | M | M | M | M | L | L |
| Tulare grasshopper mouse<br>*Onychomys torridus tularensis* | CSC | M | M | M | M | L | L |
| American badger<br>*Taxidea taxus* | CSC | M | M | M | M | L | L |

H: High potential for presence
M: Moderate potential for presence
L: Low potential for presence
FP: Fully Protected
SA: State Special Animal
CSC: California Species of Concern
Alt: Alternative
Var.: Variation

Source: Biological Resources Study Report (May 2009).

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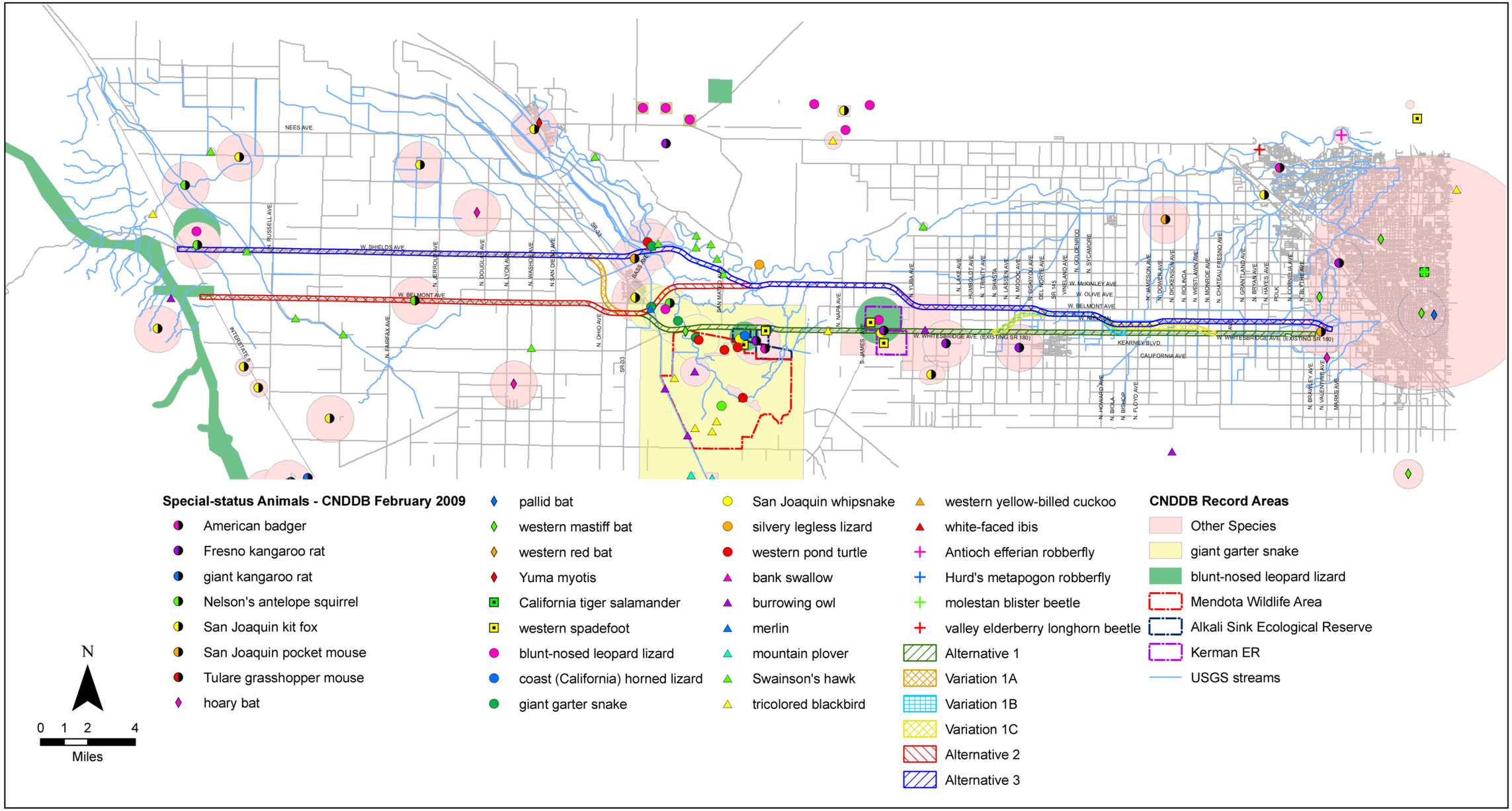


**Figure 3-22 California Natural Diversity Database Special-Status Animals**

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California special concern status applies to animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the California Department of Fish and Game and others during the environmental review process.

California Department of Fish and Game fully protected animals may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

"Special animal" is a general term that refers to all of the animal species the California Natural Diversity Database is interested in tracking, regardless of their legal or protection status.

All bird species listed in Table 3.33 are protected during their nesting period under the provisions of the federal Migratory Bird Treaty Act and Fish and Game Code Section 3503, as well as a number of other nesting bird species (Class Aves) that have the potential for nesting within the study area.

Wildlife species that were observed during field surveys were all birds—the white-faced ibis, northern harrier, burrowing owl, and cliff swallow nests. Several white-faced ibis and northern harriers were observed foraging in agricultural fields. A burrowing owl was seen in a drainage ditch culvert. Several cliff swallows (*Hirundo pyrrhonota*) were observed on the sides of bridges along Whitesbridge Avenue.

Descriptions of the listed species and their life cycle within the study area can be reviewed in the 2009 Biological Resources Study Report for this route adoption study. Suitable habitat that could potentially support special-status mammal species is sporadically distributed in the study area. The following provides species status and potential locations where they could found within the study area broken down by taxonomic group.

### *Invertebrates*

- **Midvalley fairy shrimp** (*Branchinecta mesovallensis).* This species is considered a California special concern species by the California Department of Fish and Game. The species has been found in shallow vernal pools, vernal swales and

various artificial ephemeral wetland habitats. Land near the Mendota Wildlife Area, Alkali Sink Ecological Reserve and Kerman Ecological Reserve is known to support vernal pools. In addition, an area near Mendota Pool supports annual grassland and is seasonally inundated by overflows from the San Joaquin River and the Fresno Slough.

- **California linderiella fairy shrimp** (*Linderiella occidentalis*). This species appears on the California Department of Fish and Game Special Animal List. This species has been found in vernal pools and other seasonal puddles. Land near the Mendota Wildlife Area, Alkali Sink Ecological Reserve and Kerman Ecological Reserve is known to support vernal pools.
- **Molestan blister beetle** (*Aegialia concinna).* This species appears on the California Department of Fish and Game Special Animal List. Two known occurrences of Molestan blister beetle have been identified within the study area and its adjoining U.S. Geological Survey quadrangle maps near the city of Fresno.
- **Morrison's blister beetle** (*Lytta morrisoni).* This species appears on the California Department of Fish and Game Special Animal List. No known occurrences of Morrison's blister beetle have been identified within the study area or its adjoining U.S. Geological Survey quadrangle maps. Several locations within the study area have habitats that may support Morrison's blister beetle.

### *Amphibians*

- **Western spadefoot** (*Spea hammondii).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database documents five known occurrences of western spadefoot toads within the U.S. Geological Survey quadrangle maps that encompass the study area.

### *Reptiles*

- **Western pond turtle** (*Actinemys marmorata).* Both the northern and southern subspecies of the western pond turtle are considered to be California special concern species by the California Department of Fish and Game. Five known occurrences of western pond turtles have been documented near the study area. One occurrence was within the study area boundaries.
- **Coast (California) horned lizard** (*Phrynosoma coronatum frontale).* The California horned lizard ("coast" horned lizard) is a California endemic that is considered a California special concern species by the California Department of

Fish and Game. The California Natural Diversity Database documents two known occurrences within 1 mile of the study area.

- **Silvery legless lizard** (*Anniella pulchra pulchra).* This lizard is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented one occurrence of silvery legless lizards within the U.S. Geological Survey quadrangles that encompass the study area. This occurrence was north of the study area boundary.
- **San Joaquin whipsnake** (*Masticophis flagellum ruddocki*). This reptile is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database documents three known occurrences of San Joaquin whipsnakes within 1 mile of the study area.
- **Two-striped garter snake** *(Thamnophis hammondii)*. The two-striped garter snake is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database documents one known occurrence within Alternative 1 at the crossing of Panoche Road and the Fresno Slough.

*Birds*

- **White-faced ibis** (*Plegadis chihi).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented one nesting record of white-faced ibis within the U.S. Geological Survey quadrangle maps that encompass the study area. This occurrence is documented in the Mendota Wildlife Area just south of the study area boundaries. Since 1978, the white-faced ibis breeding population at Mendota Wildlife Area has expanded considerably.
- **Aleutian Canada goose** (*Branta canadensis leucopareia*). The Aleutian Canada goose is a former federally endangered species, which was de-listed on March 20, 2001. The California Natural Diversity Database has not documented any occurrences of Aleutian Canada geese within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries.
- **Merlin** (*Falco columbarius*). The merlin is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented one known occurrence of merlin within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries. This occurrence is southeast of Mendota.

- **Ferruginous hawk** (*Buteo regalis).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of ferruginous hawks within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries.
- **Northern harrier** (*Circus cyaneus*). This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of northern harriers within the U.S. Geological Survey quadrangle maps that encompass the study area; however, during the reconnaissance surveys, a northern harrier was foraging near the Mendota Pool, and several others near the study area.
- **White-tailed kite** (*Elanus leucurus).* This species is recognized as a Fully Protected species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of white-tailed kites within the U.S. Geological Survey quadrangle maps that encompass the study area; however, during the reconnaissance surveys, several individual white-tailed kites were seen in various locations.
- **Greater sandhill crane** (*Grus canadensis tabida).* This crane is a state threatened species and is considered a Fully Protected species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of greater sandhill cranes within the U.S. Geological Survey quadrangle maps that encompass the study area.
- **Mountain plover** (*Charadrius montanus*). This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented two known occurrences of wintering mountain plovers within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries.
- **Long-billed curlew** (*Numenius americanus).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of long-billed curlews within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries.

- **Black tern** (*Chlidonias niger*). This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of black terns within the U.S. Geological Survey quadrangle maps that encompass the study area.
- **Burrowing owl** (*Athene cunicularia*). This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented several known occurrences of burrowing owls within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries. One burrowing owl was identified standing in an agricultural culvert, about 2 miles southeast of Nees Avenue.
- **Costa's hummingbird** (*Calypte costae).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of Costa's hummingbirds within the U.S. Geological Survey quadrangle maps that encompass the study area.
- **Loggerhead shrike** (*Lanius ludovicianus).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of loggerhead shrike within the U.S. Geological Survey quadrangle maps that encompass the study area. During reconnaissance surveys, a loggerhead shrike was observed in open annual grassland on Nees Avenue just west of the California Aqueduct and on a separate occasion near the Mendota Wildlife Area.
- **Grasshopper sparrow** (*Ammodramus savannarum).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has not documented any occurrences of grasshopper sparrows within the U.S. Geological Survey quadrangle maps that encompass the study area; however, suitable habitat is present near the Mendota Wildlife Area, Alkali Sink Ecological Reserve and Kerman Ecological Reserve.
- **Tricolored blackbird** (*Agelaius tricolor).* This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented eight occurrences of tricolored blackbirds within the U.S. Geological Survey quadrangle maps that encompass the study area.

### *Mammals*

- **Pallid bat** (*Antrozous pallidus*). This species is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has identified one known occurrence of pallid bat within the study area near Fresno. Sites that may harbor pallid bats within the study area include buildings, bridges, ornamental vegetation, orchards/vineyards, windrows, and riparian areas.
- **Pacific western (Townsend's) big-eared bat** (*Corynorhinus townsendii townsendii).* This subspecies is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has identified no known occurrences of Pacific western big-eared bats within the study area or its vicinity. There may be roosting habitat for this species in the numerous buildings and bridges within the study area.
- **Spotted bat** (*Euderma maculatum*). The spotted bat is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has identified no known occurrences of spotted bats within the study area. Based on Natural Heritage Records, at least one occurrence of spotted bats has been documented in Fresno County.
- **Western red bat** (*Lasiurus blossevillii*). This bat is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented two known occurrences of western red bat within the U.S. Geological Survey quadrangle maps that encompass the study area. One location is near Firebaugh; the other is near the Fresno Slough.
- **Hoary bat** (*Lasiurus cinereus*). The hoary bat is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented three known occurrences of hoary bat (old records) within the U.S. Geological Survey quadrangle maps that encompass the study area.
- **Small-footed myotis** (*Myotis ciliolabrum).* This species is included on the California Department of Fish and Game Special Animals list. The California Natural Diversity Database has identified no known occurrences of small-footed myotis bats within the study area. Based on Natural Heritage Records, at least one occurrence of small-footed myotis bats has been documented in Fresno County.

- **Fringed myotis** (*Myotis thysanodes*). This species is included on the California Department of Fish and Game Special Animals list. The California Natural Diversity Database has identified no known occurrences of fringed myotis bats within the study area. Based on Natural Heritage Records, at least one occurrence of fringed myotis bats has been documented in Fresno County.
- **Long-legged myotis** (*Myotis volans).* This species is included on the California Department of Fish and Game Special Animals list. The California Natural Diversity Database has identified no known occurrences of long-legged myotis bats within the study area.
- **Yuma myotis** (*Myotis yumanensis*). This species is included on the California Department of Fish and Game Special Animals list. The California Natural Diversity Database has identified two known occurrences of Yuma myotis within the study area. One record is near Firebaugh; the other is near the Fresno Slough.
- **Greater (western) mastiff bat** (*Eumops perotis).* This bat is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has identified six known occurrences of Yuma myotis within the study area.
- **Short-nosed kangaroo rat** (*Dipodomys nitratoides brevinasus*). This rat is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database identified no occurrences of short-nosed kangaroo rats within the U.S. Geological Survey quadrangle maps that encompass the study area, although it has been documented in the Panoche region of Fresno County.
- S**an Joaquin pocket mouse** (*Perognathus inornatus inornatus*). This species is included on the California Department of Fish and Game Special Animals list. The California Natural Diversity Database has documented eight known occurrences of San Joaquin pocket mouse within the U.S. Geological Survey quadrangle maps that encompass the study area. The area generally between State Route 33 and Yuba Avenue within the 1,000-foot bandwidth of Alternative 1 is known to support suitable habitat for San Joaquin pocket mice.
- **Southern grasshopper mouse** (O*nychomys torridus Ramona).* This mouse is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has identified no known occurrences of southern grasshopper mice within the study area. Sites that

may harbor these mice are found within the study area and include scrub communities and grasslands.

- **Tulare grasshopper mouse** (*Onychomys torridus tularensis*). This mouse is considered a California special concern species by the California Department of Fish and Game. The California Natural Diversity Database has documented three known occurrences of Tulare grasshopper mice within the U.S. Geological Survey quadrangle maps that encompass the study area. All occurrences are outside of the study area boundaries, in the Panoche Creek area.
- **American badger** (*Taxidea taxus).* The American badger is included on the California Department of Fish and Game Special Animals list. The California Natural Diversity Database has documented four known occurrences of American badgers within the U.S. Geological Survey quadrangle maps that encompass the study area, two within the study area.

### *Environmental Consequences*

The future expressway may establish a large wildlife corridor barrier by displacing natural habitats and restricting movement of wildlife between the foothills to the west and areas to the east. Future traffic speeds would increase near the reserve, which may also increase the potential for wildlife to be injured or killed while crossing the roadway.

The U.S. Fish and Wildlife Service is concerned with providing structures that enable wildlife to cross the future highway. Structures such as large culverts that are needed for water conveyance and would allow wildlife to cross safely could be installed below the future highway.

Construction activities such as heavy equipment operation and earthmoving may 1) directly affect habitats and special-status animal species, potentially resulting in injury or death to individual special-status animals and reduction of special-status animal populations, and 2) indirectly affect special-status animal species, through noise and disturbance, by disrupting sheltering behaviors, reproduction, and foraging behaviors, because of loss of access through adjacent habitat, or loss of migration or dispersal corridors. These impacts could be adverse and would apply, to a greater or lesser degree, to all alternatives and variations.

The potential for occurrence of these species in each alternative alignment varies from low to high, and potential impacts to the special-status animal species discussed herein are related to their potential for occurrence.

### *Alternative 1*

There is mostly a low potential to affect special-status animal species in the western and eastern portions of the study area, except for the western pond turtle and northern harrier. These species are locally common and have a high potential for occurrence throughout the study area. There is a moderate potential that Alternative 1 could result in the take of the following 17 animal species within an area generally between State Route 33 and Yuba Avenue: midvalley fairy shrimp, California linderiella fairy shrimp, western spadefoot, coast horned lizard, silvery legless lizard, San Joaquin whipsnake, white-tailed ibis, Aleutian Canada goose, white-tailed kite, burrowing owl, grasshopper sparrow, tricolored blackbird, short-nosed kangaroo rat, San Joaquin pocket mouse, southern grasshopper mouse, Tulare grasshopper mouse, and American badger.

Impacts to the white-tailed kite must be avoided, since this is a fully protected species and no Section 2081 Incidental Take Permit provision can be granted. There is also a high potential that other miscellaneous nesting birds could be affected because of the large number of species that could potentially nest in these areas.

Construction activities would affect pastures, non-native annual grasslands, chenopod scrub, intensive agricultural fields, coastal and valley freshwater marshes, seasonal wetlands, riparian areas, ruderal areas, open water, engineered channels, and agricultural infrastructure. These habitats each have the potential to support one or more of the species included above.

### *Alternative 2*

Like Alternative 1, Alternative 2 would have a mostly low potential to affect special-status species on the western and eastern ends of the study area. Most impacts are anticipated to occur generally in the area between State Route 33 and Yuba Avenue. The types of habitats that could be affected by future project construction are similar to those listed for Alternative 1. There is a high potential for this alternative to affect the western pond turtle and northern harrier. The potential for impacts to special-status animal species along Alternative 2 is slightly lower than Alternative 1, based on the presence of lower quality habitat.

### *Alternative 3*

High potential for impacts is anticipated for the western pond turtle and northern harrier from the construction of this alternative. Low to moderate potential for impacts is anticipated for the other special-status animal species in Table 3.33. The potential for impacts to special-status animal species along Alternative 3 is slightly lower than Alternative 1, based on the presence of lower quality habitat.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission or future expressway construction projects, so no impacts are anticipated for this alternative.

## ***Avoidance, Minimization, and/or Mitigation Measures***

### *Alignment Alternatives*

General and species-specific measures to avoid, minimize, or mitigate impacts to species listed in Table 3.33 that are designated as California special concern species or California Natural Diversity Database special animals, with no other federal or state status or protection, are discussed in this subsection. Caltrans would follow all required guidance and protocol, as described in the Biological Resources Study Report for this study. The approach described in this section includes general measures to reduce impacts of future projects associated with all alignment alternatives:

- Caltrans would consult with California Department of Fish and Game to determine if species-specific mitigation to offset impacts to California special concern species and California Natural Diversity Database Special Animals would be necessary.
- Caltrans would coordinate with California Department of Fish and Game to discuss project design options that would avoid direct “take” of fully protected species.
- Caltrans would coordinate with U.S. Fish and Wildlife Service and California Department of Fish and Game regarding a project design that would allow for safe wildlife crossings from one side of the future highway to the other.

The following measures apply to other fully protected bird species, California special concern birds (other than burrowing owl), and all birds protected by the Migratory Bird Treaty Act:

- If construction activities are proposed to occur during the typical bird-nesting season (February 15 to September 1), Caltrans would conduct nesting bird surveys and work activities would be avoided within 100 feet of active nests until the young birds have fledged and left the nest.
- If fully protected birds are found nesting within the project site, all work would be postponed until the California Department of Fish and Game and U.S. Fish and Wildlife Service could be consulted for additional guidance.
- Caltrans would coordinate with California Department of Fish and Game regarding project design options that would address bat roosting habitat along the new expressway.

The special concern species that often draws close attention from regulatory agencies is the burrowing owl. The following are general mitigation strategies that would offset impacts to the burrowing owl:

- Impacts to ruderal areas, agricultural infrastructure, pastures, non-native annual grasslands, and chenopod scrub would be minimized to the extent feasible during project design.
- If construction activities would occur within any of the above habitats, Caltrans would coordinate with California Department of Fish and Game regarding protocol surveys, mitigation guidance, and authorization to passively relocate burrowing owls, if necessary.
- If protocol surveys are required, Caltrans would conduct surveys as outlined in *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium, 1993) and *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game, 1995), or the most recent guidelines, before project approval.
- If surveys confirm occupation by burrowing owl, mitigation would be carried out before the burrowing owl breeding season, as outlined in the guideline publications above. Agency coordination would be used to determine appropriate mitigation strategies for offsetting impacts to the burrowing owl.
- A burrowing owl monitoring plan would be prepared by Caltrans to include mitigation success criteria and an annual report that would be submitted to the California Department of Fish and Game.

### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative.

## 3.3.5 Threatened and Endangered Species

Historically, this region of the Central Valley supported habitat for numerous plant and wildlife species, several of which have experienced population declines because of habitat loss or other factors and are now considered threatened and endangered species by regulatory agencies.

This section focuses on only Federal Endangered Species Act and California Endangered Species Act listed species. A more general discussion of special-status species is included in the Plant and Animal Sections, 3.3.3 and 3.3.4, respectively.

### ***Regulatory Setting***

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S. Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend.

Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species.

The outcome of consultation under Section 7 is a Biological Opinion or an Incidental Take statement. Section 3 of Federal Endangered Species Act defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

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

The California Department of Fish and Game is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the California Department of Fish and Game.

For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, California Department of Fish and Game may also authorize impacts to California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

### *Affected Environment*

The discussion in this section is based on the 2009 Biological Resources Study Report prepared for this study.

The names and legal status of the 19 threatened and/or endangered species with suitable habitat within the study area, as well as the potential for their occurrence within the study area, are shown in Table 3.34. These species include five plants, three invertebrates, one amphibian, two reptiles, four birds, and four mammals.

## Table 3.34 Potential for Occurrence of Threatened and Endangered Species

| Species | Status | Alt. 1 | With Var. 1A | With Var. 1B | With Var. 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| Blunt-nosed leopard lizard *Gambelia sila* | FE, SE, FP | M | M | M | M | L | L |
| Bald eagle *Haliaeetus leucocephalus* | FD, SE, FP | L | L | L | L | L | L |
| Greater sandhill crane *Grus canadensis tabida* | ST, FP | M | M | M | M | L | L |
| Succulent owl's clover *Castilleja campestris* ssp. *succulenta* | FT, CNPS 1B.2 | L | L | L | L | L | L |
| California jewelflower *Caulanthus californicus* | FE, SE, CNPS 1B.1 | L | L | L | L | L | L |
| San Joaquin Valley Orcutt grass *Orcuttia inaequalis* | FT, SE, CNPS 1B.1 | L | L | L | L | L | L |
| San Joaquin woollythreads *Lembertia (Monolopia) congdonii* | FE, CNPS 1B.2 | M | M | M | M | L | L |
| Palmate-bracted bird's-beak *Cordylanthus palmatus* | FE, SE, CNPS 1B.1 | M | M | M | M | L | L |
| Hairy Orcutt grass *Orcuttia pilosa* | FE, SE, CNPS 1B.1 | L | L | L | L | L | L |
| Vernal pool fairy shrimp *Branchinecta lynchi* | FT, CH | L | L | L | L | L | L |
| Vernal pool tadpole shrimp *Lepidurus packardi* | FE, CH | L | L | L | L | L | L |
| Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* | FT, CH | L | L | L | L | L | L |
| California tiger salamander *Ambystoma californiense* | FT, CH, ST, CSC | L | L | L | L | L | L |
| Giant garter snake *Thamnophis gigas* | FT, ST | M | M | M | M | L | L |
| Giant kangaroo rat *Dipodomys ingens* | FE, SE | M | M | M | M | L | L |
| Fresno kangaroo rat *Dipodomys nitratoides exilis* | FE, CH, SE | M | M | M | M | L | L |
| San Joaquin kit fox *Vulpes macrotis mutica* | FE, ST | M | M | M | M | M | M |
| Swainson's hawk *Buteo swainsoni* | ST | M | M | M | M | M | H |
| Bank swallow *Riparia riparia* | ST | L | L | L | L | L | L |
| San Joaquin antelope squirrel *Ammospermophilus nelsoni* | ST | L | L | L | L | L | L |

Alt.: Alternative Var.: Variation
H: High potential for presence M: Moderate potential for presence L: Low potential for presence
FE: Federal Endangered FP: Fully Protected SE: State Endangered
FD: Federal De-listed ST: State Threatened FT: Federal Threatened
CNPS: California Native Plant Society CH: Federally Designated Critical Habitat

Source: Biological Resources Study Report (May 2009).

The following discussion provides additional details about the growing season for plants and breeding season for animals, habitat requirements, and recorded occurrences within the study area. Details about these threatened and endangered species are provided in the 2009 Biological Resources Study Report.

### *Blunt-nosed Leopard Lizard (Gambelia sila)*

The blunt-nosed leopard lizard is federally and state listed as endangered. No federal critical habitat has been designated for the species. The California Department of Fish and Game recognizes this species as Fully Protected under California Fish and Game Code Section 5050, which means that no take authorization can be granted for the species, other than for scientific purposes.

This lizard inhabits semiarid grasslands, alkali flats, and washes of the San Joaquin Valley, and nearby valleys and foothills.

The U.S. Fish and Wildlife Service mapped numerous leopard lizard occurrences near the study area, concentrated between the northern bank of the San Joaquin River and Firebaugh. The California Natural Diversity Database has documented 14 occurrences of the lizard within the U.S. Geological Survey quadrangle maps within the vicinity of the study area. Details about these occurrences are provided in the Biological Resources Study Report.

### *Bald Eagle (Haliaeetus leucocephalus)*

The bald eagle was listed as federally and state endangered in 1971 and then proposed for de-listing in 1999. The species was recently federally de-listed but is still recognized as a state endangered species and a Fully Protected species by the California Department of Fish and Game. In most of California, the breeding season lasts from about January through July or August. Bald eagles winter throughout the state in areas near medium to large bodies of water.

The California Natural Diversity Database has not documented any occurrences of bald eagles within the U.S. Geological Survey quadrangle maps that encompass the study area. According to Natural Heritage records, at least one bald eagle occurrence was documented in Fresno and Madera counties. While nesting activity is uncommon in the Central Valley, bald eagles could winter in various areas of the study area from October to April, particularly along the Fresno Slough. Any such occurrences would be associated with foraging or migratory activities and would not affect the breeding

behaviors of the eagle. Within the study area, there may be additional roosting habitat in windrows and riparian areas, and foraging habitat over open water.

### *Greater Sandhill Crane (Grus canadensis tabida)*

The greater sandhill crane is a state threatened species and is considered a Fully Protected species by the California Department of Fish and Game. Favorable roost sites and an abundance of cereal grain crops characterize Central Valley wintering ground. Communal roost sites consisting of open expanses of shallow water are a key feature of wintering habitat. The California Natural Diversity Database has not documented any occurrences of these cranes within the U.S. Geological Survey quadrangle maps that encompass the study area. There are potential roosting sites in intensive agricultural fields, pastures, non-native annual grasslands, and seasonal wetlands within the study area.

### *Succulent Owl's-clover (Castilleja campestris* ssp*. succulenta)*

Succulent owl's-clover is federally threatened, and the California Native Plant Society also considers this species rare and fairly endangered in California (List 1B.2). It is an annual herb in the Scrophulariaceae family that is endemic to California. It occurs in northern claypan and northern hardpan vernal pools, often in acidic soils. The plant discontinuously occurs in the San Joaquin Valley over a range of 66 miles extending through northern Fresno, western Madera, eastern Merced, southeastern San Joaquin, and Stanislaus counties.

The California Natural Diversity Database search identified two known occurrences of succulent owl's-clover within the U.S. Geological Survey quadrangle maps that encompass the study area. Both are north of the study area near the intersection of Friant Road and the Southern Pacific railroad tracks. Although no known occurrences are in the study area, Whitesbridge Avenue near the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve have suitable vernal pool habitat.

### *California jewelflower (Caulanthus californicus)*

The California Jewelflower is federally and state listed as endangered, and the California Native Plant Society considers this species seriously endangered (List 1B.1). No federal critical habitat has been designated for the species, which occurs in chenopod scrub, pinyon juniper woodland, and valley and foothill grasslands.

The California Natural Diversity Database search identified one known occurrence of the California jewelflower within the U.S. Geological Survey quadrangle maps that encompass the study area near the city of Fresno. The U.S. Fish and Wildlife Service stated that by 1986 all California jewelflower occurrences in the San Joaquin Valley (Central Valley) had been eliminated; however, the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve have suitable habitat for this species. There may be additional habitat for this species in annual grasslands within the study area.

### *San Joaquin Valley Orcutt Grass (Orcuttia inaequalis)*

San Joaquin Valley Orcutt grass occurs in vernal pools and was federally listed as endangered on March 26, 1997 and state listed as endangered in September 1979. Critical habitat units in Fresno County are outside of the study area.

The California Natural Diversity Database identified no known occurrences of San Joaquin Valley Orcutt grass within the U.S. Geological Survey quadrangle maps that encompass the study area. Whitesbridge Road near the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve have suitable habitat for San Joaquin Valley Orcutt grass. There may be additional habitat for this species in vernal pools within the study area.

### *San Joaquin Woollythreads (Lembertia [Monolopia] congdonii)*

The San Joaquin woollythreads is federally listed as endangered, and the California Native Plant Society considers this species as rare and fairly endangered in California (List 1B.2). It is an annual herb in the Asteraceae family that is endemic to California. It occurs in chenopod scrub, and valley and foothill grassland in sandy soils.

The California Natural Diversity Database and the U.S. Fish and Wildlife Service have identified several known occurrences of the San Joaquin woollythreads within the U.S. Geological Survey quadrangle maps that encompass the study area. All of these populations are south of the study area boundaries; however, the vicinities of Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve have suitable habitat for this species. There may be additional habitat for this species in annual grasslands within the study area.

### *Palmate-bracted Bird's-beak (Cordylanthus palmatus)*

Palmate-bracted bird's-beak is federally and state listed as endangered, and the California Native Plant Society considers this species to be rare and seriously endangered in California (List 1B.1). It is an annual herb in the Scrophulariaceae family that is endemic to California. It occurs in chenopod scrub and valley and foothill grasslands in alkaline soils.

The California Natural Diversity Database identified five known occurrences of the palmate-bracted bird's beak within the U.S. Geological Survey quadrangle maps that encompass the study area. At least four of these populations are outside of the study area. Three of these populations are within the Alkali Sink Ecological Reserve and the Mendota Wildlife Area. The fourth population is south of Kerman along Madera Avenue south of Alternative 1. The final record compiles numerous sources and does not provide location data. The U.S. Fish and Wildlife Service (1998) has also documented a population in the Alkali Sink Ecological Reserve and another just north of Alternative 3 at the confluence of the San Joaquin River and the Fresno Slough. There may be additional habitat for this species in annual grasslands within the study area.

### *Hairy Orcutt Grass (Orcuttia pilosa)*

The hairy Orcutt grass is federally and state listed as endangered, and the California Native Plant Society considers this species as rare and seriously endangered in California (List 1B.1). This grass is an annual herb in the Poaceae family that is endemic to California. It occurs in vernal pools.

The California Natural Diversity Database search identified two known occurrences of hairy Orcutt grass within the U.S. Geological Survey quadrangle maps that encompass the study area. The vicinity of Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve also have suitable habitat for hairy Orcutt grass. There may be additional habitat for this species in vernal pools within the study area. Although federal critical habitat has been designated for hairy Orcutt grass, there are no critical habitat units for the species within Fresno County, or the study area.

### *Vernal Pool Fairy Shrimp (Branchinecta lynchi)*

The vernal pool fairy shrimp is a federally threatened species. Vernal pool fairy shrimp have been observed from December to early May in the Central Valley in California.

There are only two occurrences on private land in eastern Fresno County, well east of the study area. Several locations within the study area support suitable habitat for vernal pool fairy shrimp. One of these locations is near the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve, an area that is known to support vernal pools. There may be additional habitat for this species in vernal pools and other seasonal puddles within the study area. Unidentified branchiopods were observed in road ruts within the study area in February 2009.

#### *Vernal Pool Tadpole Shrimp (Lepidurus packardi)*

The vernal pool tadpole shrimp is a federally endangered species. Several locations within the study area have habitats that may support tadpole fairy shrimp. One of these locations is in the vicinity of Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve, and is known to support vernal pools. There may be additional habitat for this species in vernal pools and other seasonal puddles within the study area. Unidentified branchiopods were observed in road ruts within the study area in February 2009.

#### *Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*

The Valley elderberry longhorn beetle is a federally threatened species. Recent surveys have revealed the beetle to inhabit only in scattered localities along the Sacramento, American, San Joaquin, Kings, Kaweah, and Tule Rivers and their tributaries. Although federal critical habitat has been designated for the Valley elderberry longhorn beetle, no critical habitat units for the species occur in Fresno County or any other nearby areas.

There is a single California Natural Diversity Database record for the species from a location along the San Joaquin River. Two areas within the study area were observed to support blue elderberry (*Sambucus mexicana*) that may be suitable habitat for the Valley elderberry longhorn beetle. One area occurs along a canal east of the Fresno Slough between Alternative 2 and Alternative 3 and eventually establishes connectivity with the slough. Another area south of Whitesbridge Avenue at the culvert outlet end of Mowry Draw also supports a single blue elderberry. There may be additional habitat for this species in riparian areas within the study area.

#### *California Tiger Salamander (Ambystoma californiense)*

The California tiger salamander is a federally threatened species. It was declared a State of California threatened species by the California Fish and Game Commission on March 3, 2010. Although federal critical habitat has been designated for the

California tiger salamander, no critical habitat units for the species occur within the area of Fresno County near the study area.

While no known occurrences of the California tiger salamander have been identified within the study area or its adjoining U.S. Geological Survey quadrangle maps by the California Natural Diversity Database, there has been a recent observation of potential California tiger salamander eggs in a vernal pool on private property north of the Alkali Sink Ecological Reserve. This property is the proposed site for the Alkali Sink Conservation Bank. According to the California Department of Fish and Game, as of March 2011, negotiations are still ongoing to finalize the bank agreement.

Several locations within the study area contain habitats that may support California tiger salamanders. The vicinity of Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve is known to support suitable habitat for tiger salamanders. Additional sites within the study area that may support habitat for California tiger salamanders were found near Mendota Pool. There may be additional habitat for this species in vernal pools or stockponds in pastures or grasslands within the study area.

#### *Giant Garter Snake (Thamnophis gigas)*

The giant garter snake is federally and state listed as threatened. No federal critical habitat has been designated for the species. The California Natural Diversity Database has documented six known occurrences of giant garter snakes within the U.S. Geological Survey quadrangle maps that encompass the study area. One of these occurrences was within Alternative 3 at Mendota Pool. Habitat within the study area is suitable and is part of the historic range for this species. The study area lies in a recovery unit, the Mendota Wildlife Area, according to the U.S. Fish and Wildlife Service Draft Recovery Plan for giant garter snake.

#### *Giant Kangaroo Rat (Dipodomys ingens)*

The giant kangaroo rat is federally and state listed as endangered. The California Natural Diversity Database has documented four occurrences of this species with the U.S. Geological Survey quadrangle maps that encompass the study area. All four occurrences are west of the study area in the Panoche Hills.

### *Fresno Kangaroo Rat (Dipodomys nitratoides exilis)*

The Fresno kangaroo rat is federally and state listed as endangered. The California Natural Diversity Database has documented four occurrences of Fresno kangaroo rats within the U.S. Geological Survey quadrangle maps that encompass the study area. The most recent California Natural Diversity Database occurrence was documented in November 1992, at the Alkali Sink Ecological Reserve. The remaining three occurrences were documented in 1898, 1956, and 1974 in the northwestern Fresno area. Several locations within the study area may support this species. Alternative 1 in the vicinity of the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve supports alkali scrub and annual grassland habitat that may support Fresno kangaroo rats. In 1985, the U.S. Fish and Wildlife Service designated 857 acres of critical habitat for the Fresno kangaroo rat. Critical habitat is within the Alkali Sink Ecological Reserve, Mendota Wildlife Area, and five adjacent privately owned parcels.

### *San Joaquin Kit Fox (Vulpes macrotis mutica)*

The San Joaquin kit fox is federally listed as endangered and state listed as threatened. The California Natural Diversity Database has documented five known occurrences of San Joaquin kit foxes within the U.S. Geological Survey quadrangle maps that encompass the study area. One occurrence record is near the community of Herndon, northwest of Fresno. The other California Natural Diversity Database occurrences are documented near but outside of the study area. In addition, several locations within the study area offer habitats that may support the foxes. The areas near the Mendota Wildlife Area, Alkali Sink Ecological Reserve, and Kerman Ecological Reserve are known to support kit fox habitat.

Additional sites within the study area that may support habitat for the foxes were found in the western portions of all alternatives, and in Alternative 3 between State Route 33 and Yuba Avenue, which supports a large expanse of potential San Joaquin kit fox habitat. Considering the distribution of the known occurrences and suitable habitats that are ubiquitous throughout the study area, the San Joaquin kit fox could den, forage, and disperse throughout the study area.

### *Swainson's Hawk (Buteo swainsoni)*

The Swainson's hawk is state listed as threatened. The California Natural Diversity Database has documented 13 known occurrences of Swainson's hawks within the U.S. Geological Survey quadrangle maps that encompass the study area boundaries. Three occurrences were near Mendota Pool. The remaining 10 occurrences are

scattered throughout the study area, the San Joaquin River, and the California Aqueduct. Considering the distribution of the known occurrences and agricultural lands that are most common in the study area, Swainson's hawks could potentially forage or nest throughout the study area within ornamental vegetation, intensive agricultural fields, windrows, non-native annual grasslands, and riparian areas.

#### *Bank Swallow (Riparia riparia)*

The bank swallow is state listed as threatened. The California Natural Diversity Database has documented one occurrence of bank swallows near Mendota Pool, about 2 miles north of Mendota. Suitable habitat lies between State Route 33 and Yuba Avenue of Alternative 3, in the banks of the Fresno Slough and the San Joaquin River.

#### *San Joaquin Antelope Squirrel (Ammospermophilus nelsoni)*

The San Joaquin antelope squirrel is state listed as threatened. The California Natural Diversity Database has documented six known occurrences of antelope squirrels within the U.S. Geological Survey quadrangle maps that encompass the study area. Most of these occurrences are west of Mendota or near Panoche Creek, close to the western portion of Alternatives 1 and 2. The U.S. Fish and Wildlife Service has mapped numerous occurrences of San Joaquin antelope squirrels to the west of the study area in the Panoche hills and two occurrences just west of Fresno Slough. There may be additional habitat for this species in non-native annual grasslands and chenopod scrub habitats within the study area.

### *Environmental Consequences*

All alignment alternatives would permanently convert agricultural fields, annual grasslands, wetland and riparian habitats along the Fresno Slough, and several other habitats, to a paved highway. Temporary impacts associated with delineating work area boundaries, heavy equipment operation, foot-traffic from construction personnel, etc. are also likely to occur. Potential effects of these impacts could include, but may not be limited to, habitat loss, habitat degradation, habitat fragmentation, noise and other construction-related disturbance, exposure to hazardous materials, migration corridor barriers, loss of seed banks due to topsoil erosion or improper topsoil salvage, and colonization of invasive species.

A direct “take” would include injury or mortality to threatened and endangered plants and animals resulting from heavy equipment operation or earthmoving activities. An indirect “take” includes harassment caused by construction activities that could result

in disrupted sheltering behaviors, disrupted reproduction and loss of reproduction, disrupted foraging behaviors, or loss of access through adjacent habitat/loss of migration or dispersal corridors. Direct and indirect "takes" to threatened and endangered plants and animals would be assessed at the project-level stage when future projects are proposed and project plans are definite.

Habitats were characterized and mapped during reconnaissance surveys. Based on the mapped habitats, the potential for presence of threatened and endangered species was evaluated for each habitat within the study area (e.g., low, moderate, or high), which was based on presence and quality of suitable habitat. Future projects may require surveys (including protocol surveys, if appropriate) to confirm presence/absence of some or all of these species. This section discusses federally and state threatened and endangered species that have moderate potential to occur and be affected by future projects within the alternatives.

### *Alternative 1*

This alternative has a moderate potential to affect five federally endangered species (blunt-nosed leopard lizard, San Joaquin woollythreads, giant kangaroo rat, Fresno kangaroo rat, and San Joaquin kit fox), one federally threatened species (giant garter snake), and two state threatened species (greater sandhill crane and Swainson's hawk). Some species may have overlapping protections; for instance, the San Joaquin kit fox is also a state threatened species, and the blunt-nosed leopard lizard is listed as state endangered and fully protected under California Fish and Game Code Section 5050. All of these species have moderate potential to occur along this alignment generally between State Route 33 and Yuba Avenue, an area next to the Mendota Wildlife Area, Alkali Sink Ecological Reserve and Kerman Ecological Reserve.

Building the expressway along the existing State Route 180 would appear to result in the least amount of impact to natural habitats, assuming the existing route would be incorporated as part of the new expressway. However, this alternative would cross a small amount of annual grassland and chenopod scrub habitat that has a moderate potential to support the fully protected blunt-nosed leopard lizard and would affect a Section 4(f) property at the Kerman Ecological Reserve. Section 4(f) of the federal Department of Transportation Act of 1966 does not allow approval of a transportation project unless there is no prudent and feasible alternative to using a Section 4(f) property. The project must also include all possible planning to minimize harm to a wildlife or waterfowl refuge resulting from the use. The Kerman Ecological Reserve was evaluated as a Section 4(f) property (see Appendix B). Additionally, fully

protected species must be avoided because no incidental take of these species is permitted under this protection.

The Swainson's hawk was determined to have a moderate potential to occur along this alternative including all variations to this alternative because of numerous California Natural Diversity Database records in and near the study area. Agricultural fields dominate the study area and provide foraging habitat for this species, so it is unlikely that impacts to Swainson's hawk could be avoided.

The San Joaquin kit fox would have a moderate potential to occur along this alternative from Interstate 5 to Yuba Avenue. Considering the distribution of the known occurrences and suitable habitats that are ubiquitous in the study area, the San Joaquin kit fox could den, forage, and disperse throughout the area.

The California tiger salamander, determined to have a low potential for occurrence, could be upgraded to have a moderate potential for presence along Alternative 1 generally between State Route 33 and Yuba Avenue, based on recent information (H.T. Harvey and Associates, 2009). Surveys would likely be required to confirm the salamander's actual potential for occurrence along each alternative.

### *Alternative 2*

This alternative has the potential to moderately affect the San Joaquin kit fox and Swainson's hawk. Similar to Alternative 1, suitable habitats are present where these species could occur throughout the study area. This alternative would cross wetland habitat at the Fresno Slough that could support the giant garter snake. There are also areas of annual grassland that could support the blunt-nosed leopard lizard and/or vernal pool species. The potential for impacts to other threatened and endangered species would be anticipated as relatively low, but would remain possible. Compared with Alternatives 1 and 3, this alternative crosses the open waters of the Fresno Slough at the one of the narrowest points possible, but would affect a larger portion of pasture and season wetlands habitats than either Alternative 1 or 3 would.

### *Alternative 3*

This alternative has moderate potential to affect the San Joaquin kit fox approximately between Interstate 5 and Yuba Avenue, and impacts to the Swainson's hawk could occur throughout the study area along this alignment. This alternative would also cross wetlands at the Mendota Pool that could support the giant garter snake. There are also some areas of annual grassland and ruderal areas associated

with irrigation canals that could support the blunt-nosed leopard lizard and/or vernal pool species, though this potential is anticipated to be relatively lower compared to the other two alternatives.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission or future expressway construction projects so no impacts are anticipated for this alternative.

## *Avoidance, Minimization, and/or Mitigation Measures*

### *Alignment Alternatives*

The proposed route adoption consists of the adoption of a preferred alignment for State Route 180, which would ultimately lead to projects that would result in its construction. Actual conditions in the field would likely vary significantly over time. When future individual projects are funded and/or approved, additional route-specific studies and surveys (e.g., Natural Environment Studies and wetland delineations) would be conducted, following established state and federal protocols related to protected habitats and wetlands. The studies would identify and quantify project-specific impacts to habitat and threatened and endangered species, including permanent, temporary, direct, indirect and cumulative impacts; identify regulatory permit requirements; and describe mitigation agreements.

During the project-level phase of future projects, Caltrans would implement a mitigation plan that may include the following:

- Project-specific approaches during project development such as project design that will allow for safe wildlife crossings from one side of the proposed highway to the other.
- Use a revegetation and restoration plan that meets the requirements of the jurisdictional agencies to mitigate adverse effects to natural communities/habitats.
- Exploration of off-site mitigation opportunities if on-site mitigation to permanent and temporary losses of habitat is not feasible.
- Enhancement or restoration of existing habitats; creation of new habitats; contribution of in-lieu fees for restoration/preservation of existing habitats; and purchase of existing habitats through a mitigation bank.

- Compliance with compensation ratios as specified by jurisdictional agencies for adverse effects to listed species appropriate at the time of project approval.

Consultation with regulatory agencies such as the U.S. Fish and Wildlife Service and California Department of Fish and Game would occur well in advance of future project implementation to ensure compliance with the Federal Endangered Species Act and California Endangered Species Act as well as other applicable laws. With the understanding that existing conditions, protocols, and agency-required mitigation measures could change in the future, as well as the potential change of species status, including new federal and state listings of species not discussed in this section, the following general mitigation strategies for future build projects are recommended for these special-status species:

***Blunt-nosed Leopard Lizard***

- If construction activities occur within ruderal areas, non-native annual grasslands, or chenopod scrub habitats, Caltrans would coordinate with the U.S. Fish and Wildlife Service and California Department of Fish and Game regarding the need for protocol surveys.

- If protocol surveys are required, Caltrans would conduct surveys as outlined in the *CDFG Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFG, 2004), or the most recent methodology.

- If surveys confirm presence of the blunt-nosed leopard lizard in habitats that would be affected by the build project, Caltrans would conduct Section 7 consultation with the U.S. Fish and Wildlife Service to determine if a biological opinion will be required and to determine appropriate mitigation strategies for offsetting impacts to the blunt-nosed leopard lizard.

- Since no incidental “take” can be authorized for this fully protected species, Caltrans would coordinate with the California Department of Fish and Game to discuss design options that would avoid direct “take” of the blunt-nosed leopard lizard.

- In the event that blunt-nosed leopard lizards are detected or if protocol-level surveys are not conducted, Caltrans would require qualified biologists be present during all ground-disturbing activities to ensure that lizards above ground are not affected. A minimum buffer and other avoidance measures would be negotiated during subsequent projects.

***California Tiger Salamander***

- If construction activities are proposed to occur within pastures, non-native annual grasslands, chenopod scrub, or other areas that could support vernal pool habitat, Caltrans would coordinate with the U.S Fish and Wildlife Service and California Department of Fish and Game regarding the need for a vernal pool habitat assessment, vernal pool mapping, and protocol California tiger salamander surveys.

- If protocol surveys are required, Caltrans would conduct surveys as outlined in *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (U.S Fish and Wildlife Service and California Department of Fish and Game, 2003) or would follow the most recent protocol.

- If protocol surveys confirm the presence of the California tiger salamander in vernal pool habitat that will be affected by the project, Caltrans would conduct Section 7 consultation with the U.S. Fish and Wildlife Service to obtain a biological opinion and incidental take statement, and to determine appropriate mitigation strategies for offsetting impacts to the California tiger salamander.

- Caltrans would coordinate with the California Department of Fish and Game to determine if a Section 2081 incidental take permit will be necessary. Agency coordination would be used to determine appropriate mitigation strategies for offsetting impacts to these species.

***San Joaquin Antelope Squirrel, Giant Kangaroo Rat, and Fresno Kangaroo Rat***

- Caltrans would consult with the U.S. Fish and Wildlife Service and California Department of Fish and Game to determine if a pre-construction survey for these species will be required.

- If construction activities are proposed to occur in non-native annual grasslands and chenopod scrub habitats, Caltrans would conduct Section 7 consultation with the U.S. Fish and Wildlife Service to determine if a biological opinion and incidental take statement would be necessary for the giant kangaroo rat and Fresno kangaroo rat.

- Caltrans would coordinate with the California Department of Fish and Game to determine if a Section 2081 incidental take permit would be necessary for the San

Joaquin antelope squirrel, giant kangaroo rat, and Fresno kangaroo rat. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to these species.

***San Joaquin Kit Fox***

- Caltrans would consult with the U.S. Fish and Wildlife Service to determine if a biological opinion and incidental take statement will be necessary.

- Caltrans would coordinate with the California Department of Fish and Game to determine if a Section 2081 incidental take permit will be necessary. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to these species.

- If construction activities are proposed to occur within pastures, non-native annual grasslands, or chenopod scrub habitats, Caltrans would conduct surveys as outlined in the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S Fish and Wildlife Service, 1999c), or the most recent published recommendations in effect before project approval.

- Habitat compensation for permanent and temporary habitat loss would follow the ratios recommended in U.S Fish and Wildlife Service (2004c), or the most recent guidelines.

***Swainson's Hawk***

- If construction activities are proposed to occur in intensive agricultural fields or in or near potential nesting sites, Caltrans would coordinate with the California Department of Fish and Game regarding protocol Swainson's hawk surveys.

- If it is determined that protocol surveys are required, Caltrans would follow the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000, or the most recent recommendations, before project approval.

- If active nests are detected within 0.5 mile of the project site, Caltrans would consult with the California Department of Fish and Game before construction to obtain an incidental take permit. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to Swainson's hawk.

- If active nests are detected and an incidental take authorization is required, in addition to avoidance measures required by the California Department of Fish and Game, Caltrans would provide compensation in accordance with *Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (California Department of Fish and Game, 1994), or the most recent recommendations, before project approval.

***Succulent Owl's Clover, California Jewelflower, San Joaquin Valley Orcutt Grass, San Joaquin Woollythreads, and Hairy Orcutt Grass***

- Before ground disturbance, floristic surveys would be done in all previously undisturbed natural habitats (non-native annual grasslands, chenopod scrub, northern claypan vernal pools, coastal and valley freshwater marshes, seasonal wetlands, riparian habitats) and engineered channels to determine presence or absence of special-status plant species within the affected areas. A minimum of three floristic surveys (or as specified by the responsible agency) would be scheduled in the year prior to start of construction to accommodate the range of blooming periods for special-status plant species with potential to occur in these habitats.

- If the succulent owl's clover, California jewelflower, San Joaquin Valley Orcutt grass, or hairy Orcutt grass (or other plant species that are listed before project approval) are identified within the proposed project area during floristic surveys before construction, Caltrans would coordinate with the U.S. Fish and Wildlife Service and California Department of Fish Game regarding these listed species, to determine if a biological opinion, incidental take statement, and Section 2081 permit will be necessary.

At this planning stage, potential impacts can be avoided, minimized, or mitigated with proper design, construction windows, and careful selection of an alternative. Other mitigation measures recommended to avoid, lessen, and mitigate potential impacts to threatened and endangered plant and animal species are identified in Sections 3.3.3 and 3.3.4, respectively.

### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative.

### *Cumulative Impacts*

Eventual construction of the expressway may result in the direct take, indirect take, or both, of threatened and endangered species. Several of these species are fully protected, federally listed as endangered or threatened, state-listed as endangered or threatened, or a combination of any of these designations. Species-specific protocol surveys and mitigation may be required by regulatory agencies. Impacts to critical habitats and special-status species must be mitigated to various degrees to remain in compliance with the Federal Endangered Species Act, California Endangered Species Act, Clean Water Act, the California Environmental Quality Act, California Fish and Game Code, and other environmental regulatory laws.

Cumulative effects on threatened and endangered species from subsequent projects associated with the route adoption in combination with past, present, and reasonably foreseeable future projects may occur. These would include the projects listed in Table 3.1. A general determination can be made at this planning stage that describes the extent of cumulative effects between the alternatives.

With the introduction of new infrastructure and access, cumulative effects such as growth-related impacts must be considered. The conceptual design for Alternative 3 proposes two new intersections just north of the Mendota Pool Park and at San Mateo Avenue. Alternatives 1 and 2 would each have a new intersection at San Mateo Avenue. Indirect impacts related to growth would be negligible here because the area is rural and outside of a city's sphere of influence. Fresno County's land use policies would prevent incompatible development within floodplain areas and land uses for the preservation of wildlife.

Although Alternative 1 is close to the wildlife reserves and would directly affect the most vernal pool habitat and special-status species habitats, the alignment follows an existing corridor. Alternative 2 and 3 would construct a new corridor, creating another barrier to wildlife movement between the reserves and the San Joaquin River riparian corridor. Alternative 2 would bisect the California Department of Fish and Game's proposed Alkali Sink Conservation Bank.

Alternatives 2 and 3 may impede conservation recovery strategies identified in the U.S. Fish and Wildlife Service's Recovery Plan for Upland Species of the San Joaquin Valley, California (1998). One recovery strategy for the Fresno kangaroo rat includes protecting the large block of natural land north of and between the Alkali Sink Ecological Reserve and the San Joaquin River. For this reason, using the

existing alignment through this area of the Fresno Slough would have the fewest indirect impacts to special-status species habitats.

In coordination with the U.S. Environmental Protection Agency, California Department of Fish and Game, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service, Caltrans has proposed the inclusion of a viaduct along the existing State Route 180 alignment as part of the preferred alternative to avoid adverse effects to the Alkali Sink Ecological Reserve, Kerman Ecological Reserve, and the proposed Alkali Sink Conservation Bank. To allow safe migration and promote genetic exchange of species, the viaduct would improve connectivity between both sides of the reserves. Since the viaduct would be built within the existing Caltrans right-of-way, it would avoid direct impacts and minimize indirect impacts to the reserves. Elevating the highway would remove the existing roadway that acts as a water-flow barrier between lands on the south and north. This would allow improved sheet flow between north and south properties and enhance movement of many aquatic species.

Because the timing of the expressway and other development construction activities are unknown, the potential future effects on threatened and endangered species would require additional analysis as individual projects are proposed; however, it is expected that significant cumulative impacts to biological resources could be offset through implementation of mitigation measures listed in Section 3.3.5.

### 3.3.6 Invasive Species

#### *Regulatory Setting*

On February 3, 1999, President Bill Clinton signed Executive Order 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.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act analysis for a proposed project.

#### *Affected Environment*

Although a complete floristic survey has not been conducted in the study area to date, agricultural land, ruderal areas, and other disturbed habitats dominate the landscape and are typically vegetated by weedy, invasive plant species. Several invasive species

appearing on the California Invasive Plant Council Inventory were observed within the study area, including but not limited to: wild oat (*Avena* spp.), eucalyptus (*Eucalyptus* sp.), ripgut brome (*Bromus diandrus*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), red brome (*Bromus rubens*), poison hemlock (*Conium maculatum*), and black mustard (*Brassica nigra*).

### *Environmental Consequences*

Each alternative would cross disturbed habitats that are likely vegetated with invasive species. The disturbance associated with grading and vegetation clearing could result in the spread of existing invasive plant species or colonization of newly disturbed areas by invasive species.

The No-Action/No-Project Alternative would not involve State Route 180 route adoption by the California Transportation Commission or future expressway construction projects, so no impacts are anticipated for this alternative.

### *Avoidance, Minimization, and/or Mitigation Measures*

#### *Alignment Alternatives*

During construction of future projects, the biological monitor(s) would ensure that the spread or introduction of invasive exotic plant species would be avoided to the maximum extent possible through the following measures:

- When practicable, invasive exotic plants in the project site would be removed and properly disposed.
- All vegetation removed from the construction site would be taken to a certified landfill to prevent the spread of invasive species.
- If soil from weedy areas must be removed off-site, the top 6 inches containing the seed layer in areas with weedy species would be disposed of at a certified landfill.

#### *No-Action/No-Project Alternative*

No mitigation would be required for the No-Action/No-Project Alternative.

## 3.4 Relationship Between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

Implementation of future projects would result in attainment of short-term and long-term transportation and economic objectives at the expense of some long-term farmland, social, aesthetic, biological, noise, parkland, and other land use impacts.

Short-term losses would include economic losses experienced by businesses affected by relocation, construction impacts such as noise, motorized and non-motorized traffic delays or detours, and temporarily inconvenient access to the regional parks.

Long-term losses would include permanent loss of plant and wildlife resources, loss of farmland and open space, visual impacts, community impacts, noise increases, homes and businesses displaced from their location, and loss of regional parklands. Long-term gains would include improvement of the transportation network of the region, increased access, and reduction of congestion on local streets and highways. Goods movement, particularly for agricultural crops and related agri-businesses, would be improved.

The No-Action/No-Project Alternative would offer none of the gains and impose none of the losses listed above. It would not resolve the worsening congestion on local streets and highways with the study area.

## 3.5 Irreversible and Irretrievable Commitments of Resources Involved in the Proposed Project

If land is designated for a route adoption, it is committed for future highway construction, but it is not irreversibly committed until construction actually takes place. Resources and human labor used for highway construction and maintenance would not be used by a route adoption.

Implementation of future projects would require a range of natural, physical, human, and fiscal resources. Land used in the construction of a future facility would be considered an irreversible commitment during the time period that the land is used for transportation purposes, but if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. There is no reason to believe such a conversion would ever be necessary or desirable.

The future construction of the route would also require considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material. Non-renewable fossil fuel resources would be necessary to power construction equipment, electrical devices, and vehicles. Considerable amounts to other types of resources would also be expended, including iron, steel, wood, sand, stone, aggregate, and cement construction materials.

Additionally, large amounts of labor and natural resources are used in the making of construction materials. These materials are generally not retrievable. However, their use would not have an adverse effect upon the continued availability of these resources.

Any construction would also require a substantial one-time expenditure of both state and federal funds, which are not retrievable; savings in energy, time, and a reduction in accidents would offset this. In addition to the costs of construction and right-of-way, there are costs for roadway maintenance, including pavement, roadside, litter/sweeping, signs and markers, electrical and storm maintenance.

The commitment of these resources is based on the concept that residents in the immediate area, region, and state would benefit from the improved quality of the transportation system. These benefits would consist of improved accessibility and safety, which are expected to outweigh the commitment of these resources and land.

# Chapter 4 California Environmental Quality Act Evaluation

## 4.1 Determining Significance under the California Environmental Quality Act

The proposed route adoption is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act and the National Environmental Policy Act. The Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with the National Environmental Policy Act and other applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S. Code 327. Caltrans is the lead agency under the California Environmental Quality Act and the National Environmental Policy Act.

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

The California Environmental Quality Act, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared.

Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the California Environmental Quality Act Guidelines list a number of mandatory findings of significance, which also require the preparation of an Environmental Impact Report. There are no types of actions under the National Environmental Policy Act that parallel the findings of mandatory significance of the California Environmental Quality Act.

This chapter discusses the effects of future projects and the California Environmental Quality Act significance.

## 4.2 Discussion of Significance of Impacts

This is a planning-level Environmental Impact Report to adopt a general route alignment for a future State Route 180 four-lane expressway. No environmental impacts would occur until subsequent projects within the adopted route are constructed. The following discussion of significance uses current technical information to make assumptions that reflect likely future consequences of that construction. It is the intent of this document to use such information to determine the appropriate general location for the expressway. Construction may not be completed for another 50 years or more. Given that timeline, some of the descriptions of environmental setting within the study area may not still be accurate when subsequent projects are undertaken, and environmental impacts may be of lesser or greater significance in the future than they appear to be now. Subsequent projects that result from this route adoption would be subject to environmental review processes.

### 4.2.1 Less than Significant Effects of the Proposed Project

See Chapter 3 for a discussion of affected environments, environmental consequences, and avoidance, minimization and/or mitigation measures for the following topics:

- Land Use
- Community Impacts (Community Character and Cohesion, and Environmental Justice)
- Utilities/Emergency Services
- Traffic and Transportation/Pedestrian and Bicycle Facilities
- Hydrology and Floodplain
- Water Quality and Storm Water Runoff

- Geology/Soils/Seismic/Topography
- Paleontology
- Hazardous Waste or Materials
- Air Quality
- Energy

Chapter 4 discusses the impacts addressed in Chapter 3 that fall under the jurisdiction of the California Environmental Quality Act.

### 4.2.2 Significant Environmental Effects of the Proposed Project

In the future, construction within the route adoption alternatives could have significant impacts to the following resources:

- Community impacts (relocations)
- Visual resources/aesthetics
- Cultural resources
- Noise
- Biological resources

See Chapter 3 for a discussion of affected environments, environmental consequences, and avoidance, minimization and/or mitigation measures. Noise impacts under the California Environmental Quality Act are discussed below.

#### *Noise and Vibration*

When determining whether a noise impact is significant under the California Environmental Quality Act, comparison is made between the no-build noise level and the build noise level. The California Environmental Quality Act noise analysis is completely independent of the National Environmental Policy Act 23 Code of Federal Regulations 772 analysis discussed in Chapter 3, which is centered on noise abatement criteria. Under the California Environmental Quality Act, the assessment involves looking at the setting of the noise impact and then at how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

To illustrate the differences between California Environmental Quality Act Environmental and National Environmental Policy Act 23 Code of Federal Regulations 772 analyses, consider the following example:

The existing noise level at residential site 1 is 67 decibels; the predicted noise level under build Alternative 2 is 70 decibels. This 3-decibel increase between existing noise levels and the build alternative would be barely perceptible to the human ear. Therefore, under the California Environmental Quality Act, no significant noise impact would occur as a result of the project and no mitigation is required. However, under National Environmental Policy Act 23 Code of Federal Regulations 772, because the noise level at this receptor already approaches or exceeds the noise abatement criteria of 67 decibels, noise abatement would need to be considered.

### *Environmental Consequences*

Table 4.1 lists noise receptors that represent individual residences or a small number of residences where substantial noise increases would occur. All noise increases at these receptor sites are predicted to exceed 12 decibels.

**Table 4.1 Substantial Noise Impacts by Alternative**

| Receptor Number | Receptor Site Location | Existing/ Noise Level without Project (dBA)[1] | Predicted Noise Level with Project (dBA) | Number Of Affected Residences | Does Noise Level Increase Substantially? |
|---|---|---|---|---|---|
| **Alternative 1** | | | | | |
| R7 | Belmont Avenue east of CA Aqueduct | 38 | 63 | 6 Single-Family Residence | Yes |
| R17 | Whitesbridge Avenue east of Butte Avenue | 58 | 71 | 8 Single-Family Residences | Yes |
| R21 | Whitesbridge Avenue at Shasta Avenue | 58 | 71 | 18 Single-Family Residences/Mobile Home | Yes |
| R22 | Whitesbridge Avenue between Shasta and Lassen Avenues | 58 | 71 | 10 Single-Family Residences | Yes |
| R32 | Whitesbridge Avenue east of Goldenrod Avenue | 56 | 70 | 6 Single-Family Residences | Yes |
| **Alternative 2** | | | | | |
| R7 | Belmont Avenue east of CA Aqueduct | 38 | 63 | 6 Single-Family Residence | Yes |

**Table 4.1 Substantial Noise Impacts by Alternative**

| Receptor Number | Receptor Site Location | Existing/ Noise Level without Project (dBA)[1] | Predicted Noise Level with Project (dBA) | Number Of Affected Residences | Does Noise Level Increase Substantially? |
|---|---|---|---|---|---|
| R36 | Belmont Avenue at Siskiyou Avenue | 50 | 70 | 1 Single-Family Residence | Yes |
| R51A | Belmont Avenue west of Chateau Fresno Avenue | 50 | 70 | 1 Single-Family Residence | Yes |
| **Alternative 3** | | | | | |
| R36 | Belmont Avenue at Siskiyou Avenue | 50 | 70 | 1 Single-Family Residence | Yes |
| R51A | Belmont Avenue west of Chateau Fresno Avenue | 50 | 70 | 1 Single-Family Residence | Yes |

[1]Future noise levels with the No-Action/No-Project Alternative should be similar to existing conditions.

Source: Noise Technical Report (August 2009).

### *Avoidance, Minimization, and/or Abatement Measures*

A preliminary soundwall analysis was conducted to analyze areas where there are a number of homes that may qualify for soundwalls. Results indicated that soundwalls would reduce noise levels by at least 5 decibels at locations where predicted noise increases were substantial. The soundwall heights, end points, and placement at each of the affected locations could not be determined at this level of study. Future conditions are going to change, so with any of the alignment alternatives, additional review would be required during subsequent projects.

## 4.2.3 Unavoidable Significant Environmental Effects

Future projects would result in significant adverse and unavoidable environmental impacts to farmland. Significant environmental effects to farmland are unavoidable because the study area is encompassed by farmland. Although widening on the existing State Route 180 alignment would lessen the farmland conversion slightly, it would result in numerous residential and business relocations, and would affect biological and Section 4(f) resources.

The future construction of an expressway would convert between 1,032 and 1,844 acres of farmland to transportation uses. Of this total, between 875 and 1,610 acres of Williamson Act land could be affected by subsequent projects. A substantial majority of the farmland is classified as either prime or farmland of statewide importance. Actual quantities of these losses would be calculated during subsequent projects.

Future construction of an expressway would result in significant and unmitigable impacts to farmlands even with implementation of mitigation measures.

Please refer to Chapter 3 for a detailed discussion of farmland impacts.

### 4.2.4 Significant Irreversible Environmental Changes

Construction of subsequent projects would involve a commitment of a range of natural and physical resources. Considerable amounts of fossil fuels and highway construction materials such as cement, aggregate, and asphalt would be required. Natural resources would be expended in the manufacturing and transport of these materials. Non-renewable fossil fuel resources would be necessary to power construction equipment, electrical devices, vehicles, and buses. Considerable amounts of other types of resources would also be expended, including iron, steel, wood, sand, stone, aggregate, and cement construction materials. Uses of these materials are generally not reversible environmental changes and future construction of an expressway would not have an adverse effect on the continued availability of these resources.

See Chapter 3 for a discussion on energy consumption.

### 4.2.5 Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases generated by human activity including carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride ($SF_6$), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the

largest source (second to electricity generation) of greenhouse gas emitting sources. The dominant greenhouse gas emitted is $CO_2$, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing greenhouse gas emissions in order to reduce or "mitigate" the impacts of climate change. “Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[1].

There are four primary strategies for reducing greenhouse gas emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing the growth of vehicle miles traveled, 3) transitioning to lower greenhouse gas emitting fuels, and 4) improving vehicle technologies. To be most effective, all four strategies should be pursued cooperatively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

### *Regulatory Setting*

#### *State*

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U. S. Environmental Protection Agency Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own greenhouse gas emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce greenhouse gas emissions for passenger cars model years 2017-2025.

Executive Order S-3-05: (signed on June 1, 2005, by former Governor Arnold Schwarzenegger) the goal of this Executive Order is to reduce California’s

[1] http://climatechange.transportation.org/ghg_mitigation/

greenhouse gas emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32, the Global Warming Solutions Act of 2006, Núñez and Pavley: Assembly Bill 32 sets the same overall greenhouse gas emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan (which includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (signed on October 18, 2006 by former Governor Arnold Schwarzenegger) further directs state agencies to begin implementing Assembly Bill 32, including the recommendations made by California's Climate Action Team.

Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger) set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by the year 2020.

Senate Bill 97 (SB 97), Chapter 185, 2007: required the Governor's Office of Planning and Research to develop recommended amendments to the California Environmental Quality Act Guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. This policy contributes to the Department's stewardship goal to preserve and enhance California's resources and assets.

### *Federal*

Although climate change and greenhouse gas reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing greenhouse gas emissions reductions and climate change at the project level. Neither the U.S. Environmental Protection Agency nor the Federal Highway Administration has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on the Federal Highway Administration's climate change website

(http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by the Federal Highway Administration to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours traveled.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and Executive Order 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. Environmental Protection Agency has the authority to regulate greenhouse gases. The Court held that the U.S. Environmental Protection Agency Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution that threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. Environmental Protection Agency's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009[2]. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced greenhouse gas emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever greenhouse gas regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010[3].

The final combined U.S. Environmental Protection Agency and National Highway Traffic Safety Administration standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements). Together, these standards will cut greenhouse gas emissions by an

[2] http://www.epa.gov/oms/climate/regulations.htm#1-1

[3] http://epa.gov/otaq/climate/regulations.htm

estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

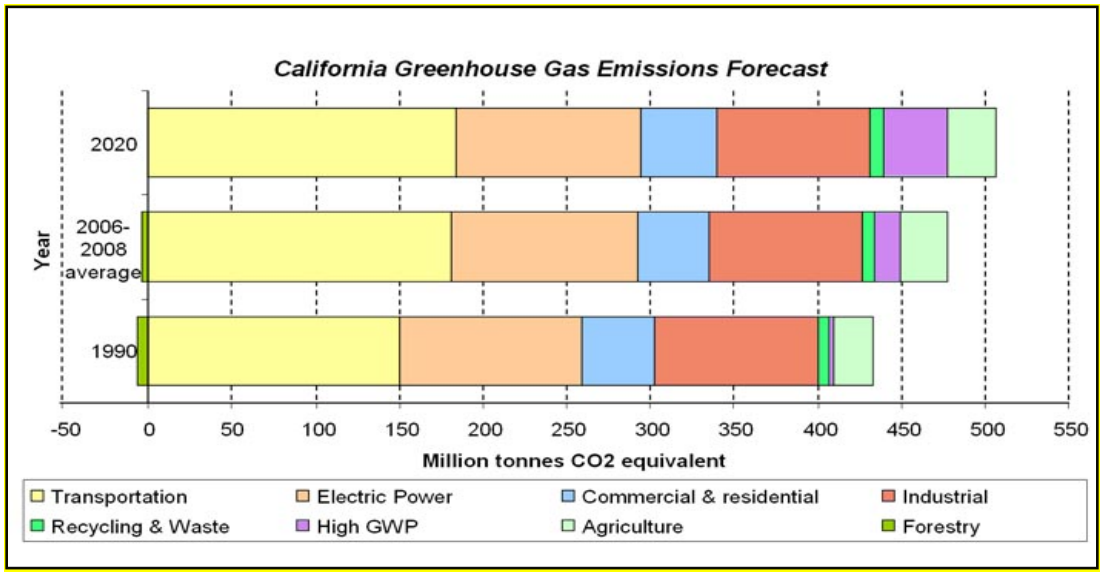
On November 16, 2011, U.S. Environmental Protection Agency and National Highway Traffic Safety Administration issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

### *Project Analysis*

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of greenhouse gases[4]. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (California Environmental Quality Act Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The Assembly Bill 32 Scoping Plan mandated by Assembly Bill 32 contains the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, California Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010). The graph in Figure 4-1 shows an estimate from that update of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.

[4] This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).




Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

**Figure 4-1 California Greenhouse Gas Forecast**

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California's greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the *Climate Action Program at Caltrans* that was published in December 2006.

According to the California Department of Finance, the population for Fresno County in 2009 was 942,298 persons. By 2030, the county population is expected to almost double to 1.3 million persons. Growth within and near the study area is projected to be most concentrated in the cities of Fresno (62 percent growth rate), Mendota (71 percent growth rate), and Kerman (38 percent growth rate). General plan policies of these cities are intended to ensure that growth occurs in an orderly fashion outward from the existing cities and within their spheres of influence. Local governments do recognize the importance of agriculture to the economy and way of life in the study area as well as the need to provide safe and efficient regional transportation. The route adoption study is identified in the County of Fresno Council of Government's 2007 Regional Transportation Plan as a corridor study for a future route alignment that would best serve the mobility needs of western Fresno County, as well as providing a "direct" state highway route for travelers and goods movement from Interstate 5 to the City of Fresno. The cities of Kerman and Mendota have updated

their general plan policies to require coordination with Caltrans on the identification of the route alignment. In fact, if necessary the City of Mendota would amend the circulation and land use elements of its general plan to include the route alignment.

The study area sits within the San Joaquin Valley Air Basin, which is currently classified as "in attainment/unclassified" for carbon dioxide federal air quality standards and state standards. Carbon dioxide is a common indicator of the various greenhouse gases. Carbon dioxide and most of the greenhouse gases are not currently listed in the Clean Air Act as Priority Pollutants; therefore, there is no federal or state ambient air quality limit for these gases.

One of the main strategies in Caltrans's Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. Transportation's contribution to greenhouse gas emissions is dependent on three factors: the types of vehicles on the road, the type of fuel the vehicles use, and the time/distance the vehicles travel. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour. Optimum speeds are between 45 and 50 miles per hour as shown in Figure 4-2. Looking at the state transportation system as a whole, enhancing operations and improving travel times in high congestion travel corridors greenhouse gas emissions, particularly carbon dioxide, may be reduced.

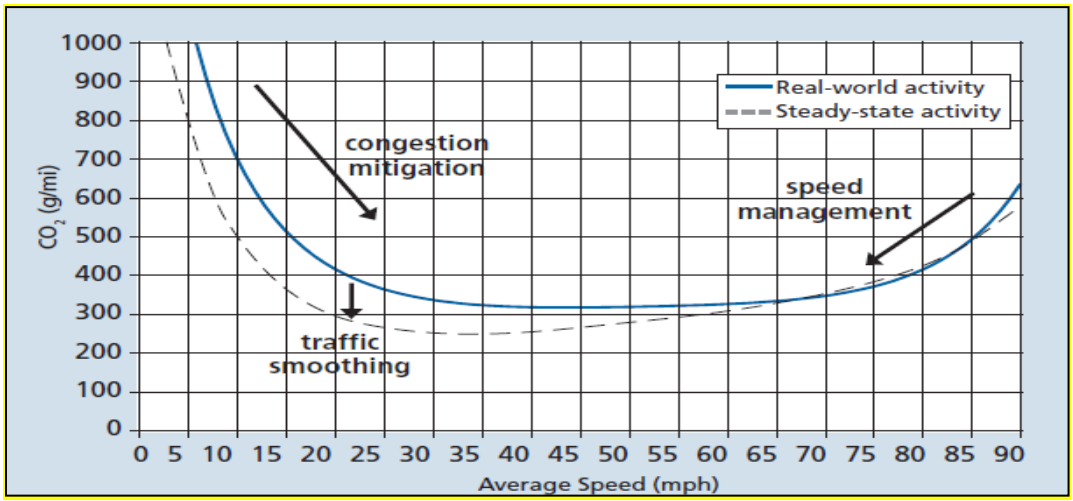



**Figure 4-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road $CO_2$ Emission**[5]

[5] **Traffic Congestion and Greenhouse Gases:** Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

The main purpose of the State Route 180 Westside Expressway Route Adoption Study is to improve mobility east and west through the center of Fresno County and the San Joaquin Valley, connecting the cities of Fresno, Kerman, Mendota, Firebaugh, and the unincorporated community of Rolinda. Section 1.2.2, Need, discusses the traffic operations of the existing roadways.

The study would identify the most appropriate location for an ultimate four-lane expressway for State Route 180 within the study area between Interstate 5 and the city of Fresno. The proposed route adoption would allow for future facility improvements that would provide: adequate capacity, continuity, and improved safety. The new highway would provide travel time savings and it is anticipated that there may be a reduction of greenhouse gas emissions.

Subsequent projects resulting from any of the route adoption alternatives would have the following greenhouse gas emissions-reducing benefits:

- An improved highway would help the cities in western Fresno County achieve their long-range goals to enhance and maintain mobility by reducing congestion. It is anticipated that carbon dioxide emissions would be reduced as a result of the improvement.
- The new highway would help improve levels of service at existing interchanges and intersections, thereby, reducing carbon dioxide emissions.
- The new highway would improve the flow of traffic and access control thus, reducing carbon dioxide emissions.

Subsequent projects would construct a four-lane expressway. This improvement would further enhance safety, reduce congestion, and increase connectivity of the local system. While reducing congestion would likely lead to reductions in carbon dioxide emissions, some of these improvements may be offset by the increase in the number of vehicles that the future expressway would accommodate. Although the future highway would add capacity, the Fresno County Regional Transportation Plan as well general plans of affected the communities recognizes the importance of a direct connection to Interstate 5. The growth inducement analysis conducted for this study concluded that a new expressway would have a relatively minor effect on planned growth within the study area and its surroundings. The proposed route adoption is included in general plans for Fresno County and the incorporated cities

that contain policies to manage growth and provide appropriate facilities and infrastructure.

With the current science, project-level analysis of greenhouse gas emissions is limited. There are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed future expressway and would thus dramatically change the projected carbon dioxide emissions.

Caltrans recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in greenhouse gas emissions levels, including carbon dioxide, are not possible at this planning level and would have to be assessed at the project level during subsequent projects. Additionally, no federal, state or regional regulatory agency has provided methodology or criteria for greenhouse gas emission and climate change impact analysis. Therefore, Caltrans is unable to provide a scientific or regulatory-based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

### *Limitations and Uncertainties with Modeling*

#### ***EMFAC***

Although EMFAC can calculate carbon dioxide emissions from mobile sources, the model does have limitations when it comes to accurately reflecting carbon dioxide emissions. According to the National Cooperative Highway Research Program report, Development of a Comprehensive Modal Emission Model (April 2008), studies have revealed that brief but rapid accelerations can contribute significantly to a vehicle's carbon monoxide and hydrocarbon emissions during a typical urban trip. Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, and idle) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model's results when compared to the estimated emissions of the various alternatives with baseline in an attempt to determine impacts.

Although work by the EPA and California Air Resources Board is underway on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling. In addition, EMFAC does not include speed corrections for most vehicle classes for carbon dioxide—for most vehicle class emission factors are held constant, which means that EMFAC is not sensitive to the decreased emissions associated with improved traffic flows for most

vehicle classes. Therefore, unless a project involves a large number of heavy-duty vehicles, the difference in modeled carbon dioxide emissions due to speed change would be slight.

It is interesting to note that the California Air Resources Board is currently not using EMFAC to create its inventory of greenhouse gas emissions. It is unclear why the California Air Resources Board has made this decision. Its website only states:

> Both the EMFAC and OFFROAD Models develop carbon dioxide and $CH_4$ (methane) emission estimates; however, they are not currently used as the basis for [the California Air Resources Board's] official [greenhouse gas] inventory which is based on fuel usage information…However, the Air Resources Board is working towards reconciling the emission estimates from the fuel usage approach and the models.

***Other Variables***

With the current science, project-level analysis of greenhouse gas emissions is limited. There are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed future expressway and would thus dramatically change the projected carbon dioxide emissions.

First, vehicle fuel economy is increasing. The Environmental Protection Agency's annual report, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008* (http://www.epa.gov/oms/fetrends.htm), which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy has improved each year beginning in 2005, and is now the highest since 1993. Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52 percent in 2004 with projections at 48 percent in 2008. Table 4.2 shows the alternatives for vehicle fuel economy increases studied by the National Highway Traffic Safety Administration in its Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards (October 2008).

## Table 4.2 Required Miles per Gallon by Alternative

| Model Year 2015 Required Miles per Gallon by Alternative | | | | | | | |
|---|---|---|---|---|---|---|---|
| No Action | | 25% Below Optimized | Optimized (Preferred) | 25% Above Optimized | 50% Above Optimized | Total Costs Equal Total Benefits | Technology Exhaustion |
| Cars | 27.5 | 33.9 | 35.7 | 37.5 | 39.5 | 43.3 | 52.6 |
| Trucks | 23.5 | 27.5 | 28.6 | 29.8 | 30.9 | 33.1 | 34.7 |

Second, near-zero carbon vehicles will come into the market during the design life of proposed future expressway. According to a March 2008 report released by University of California at Davis, Institute of Transportation Studies:

> Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California—several in the hands of the general public—with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.
>
> A number of the U.S. Department of Energy 2010 milestones for fuel cell vehicles development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. Department of Energy suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles."[6]

[6] Cunningham, Joshua, Sig Cronich, Michael A. Nicholas. March 2008. *Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy*, UC Davis, Institute of Transportation Studies, pp. 9-10.

Third, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, Effects of Gasoline Prices on Driving Behavior and Vehicle Market, http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf, the Congressional Budget Office found the following results based on data collected from California: 1) freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly; 2) the market share of sports utility vehicles is declining; and 3) the average prices for larger, less-fuel-efficient models have declined over the past five years as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles.

### *Limitations and Uncertainties with Impact Assessment*

Taken from pages 3–48 and 3–49 of the National Highway Traffic Safety Administration Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards (June 2008), Figure 4-3, illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis "Cascade of uncertainties typical in impact assessments showing the 'uncertainty explosion' as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses."

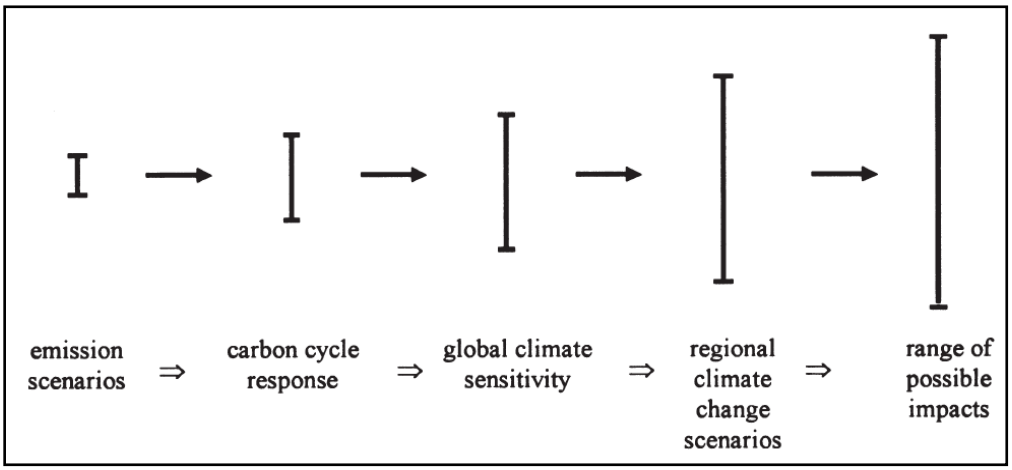



**Figure 4-3 Cascade of Uncertainties**

Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory framework in place that would allow for a ready assessment of what any modeled increase in

carbon dioxide emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of carbon dioxide equivalent. This uncertainty only increases when viewed globally. The Intergovernmental Panel on Climate Change has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation Intergovernmental Panel on Climate Change scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons carbon dioxide from 2000 to 2030, which represents an increase of between 25 and 90 percent.[7]

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the project often causes shifts in the locale for some type of greenhouse gas emissions, rather than causing "new" greenhouse gas emissions. Although some of the emission increases might be new, a net global increase, reduction, or no change is uncertain and there are no models approved by regulatory agencies that operate at the global or even statewide scale.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the recently released Final Environmental Impact Statement completed by the National Highway Traffic Safety Administration Corporate Average Fuel Economy standards, June 2008. Even when dealing with greenhouse gas emission scenarios on a national scale for the entire passenger car and light truck fleet, the numerical differences among alternatives is very small and well within the error sensitivity of the model, as the text quoted below shows:

> In analyzing across the Corporate Average Fuel Economy 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action Alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the Model Year 2011-2015

[7] Intergovernmental Panel on Climate Change (IPCC). February 2007. Climate Change 2007: The Physical Science Basis: Summary for Policy Makers. http://www.ipcc.ch/SPM2feb07.pdf.

Corporate Average Fuel Economy alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the climate problem. Emissions of $CO_2$, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gases in the year 2000 (EPA, 2008; CAIT, 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of $CO_2$ emissions from the United States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies (which are due in part to growth in global transportation sector emissions)." [NHTSA Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards, June 2008, pp. 3–77 to 3–78]

### *Construction Emissions*

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

### *California Environmental Quality Act Conclusion*

Based on the above, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a determination regarding direct impact of subsequent projects and their contribution on the cumulative scale to climate change. Subsequent projects resulting from any of the route adoption alternatives arising from this route adoption would be assessed at the project level. However, Caltrans is firmly committed to implementing measures to

help reduce the potential effects of subsequent projects. These measures are outlined in the following section.

### *Greenhouse Gas Reduction Strategies*

#### *Assembly Bill 32 Compliance*

Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding during the next decade.

The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 4-4: The Mobility Pyramid.

**Figure 4-4 Mobility Pyramid**

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans also assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by the U.S. Environmental Protection Agency and California Air Resources Board.

Table 4.3 summarizes Caltrans and statewide efforts that it is implementing in order to reduce greenhouse gas emissions. More detailed information about each strategy is included in the *Climate Action Program at Caltrans* (December 2006).

## Table 4.3 Climate Change Strategies

| Strategy | Program | Partnership | | Method/Process | Estimated $CO_2$ Savings (MMT) | |
|---|---|---|---|---|---|---|
| | | Lead | Agency | | 2010 | 2020 |
| Smart Land Use | Intergovernmental Review (IGR) | Caltrans | Local governments | Review and seek to mitigate development proposals | Not Estimated | Not Estimated |
| | Planning Grants | Caltrans | Local and regional agencies & other stakeholders | Competitive selection process | Not Estimated | Not Estimated |
| | Regional Plans and Blueprint Planning | Regional Agencies | Caltrans | Regional plans and application process | .975 | 7.8 |
| Operational Improvements & Intelligent Transportation System (ITS) Deployment | Strategic Growth Plan | Caltrans | Regions | State ITS; Congestion Management Plan | .07 | 2.17 |
| Mainstream Energy & GHG into Plans and Projects | Office of Policy Analysis & Research; Division of Environmental Analysis | Interdepartmental effort | | Policy establishment, guidelines, technical assistance | Not Estimated | Not Estimated |
| Educational & Information Program | Office of Policy Analysis & Research | Interdepartmental, CalEPA, California Air Resources Board, CEC | | Analytical report, data collection, publication, workshops, outreach | Not Estimated | Not Estimated |
| Fleet Greening & Fuel Diversification | Division of Equipment | Department of General Services | | Fleet Replacement<br>B20<br>B100 | .0045 | .0065<br>.045<br>.0225 |
| Non-vehicular Conservation Measures | Energy Conservation Program | Green Action Team | | Energy Conservation Opportunities | .117 | .34 |
| Portland Cement | Office of Rigid Pavement | Cement and Construction Industries | | 2.5 % limestone cement mix<br>25% fly ash cement mix<br>> 50% fly ash/slag mix | 1.2<br>.36 | 4.2<br>3.6 |
| Goods Movement | Office of Goods Movement | Cal EPA, California Air Resources Board, BT&H, MPOs | | Goods Movement Action Plan | Not Estimated | Not Estimated |
| Total | | | | | 2.72 | 18.18 |

To the extent that it is applicable or feasible for future projects and through coordination with the project development team, the following measures would also

be included into subsequent projects to reduce the greenhouse gas emissions and potential climate change impacts from those projects:

- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems to help manage the efficiency of the existing highway system. Intelligent Transportation Systems commonly refers to electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- Trees would be planted and native plants and grasses would be planted or seeded. Trees sequester atmospheric carbon to create beneficial greenhouse gas sinks. Tree canopy also creates a drop in paved surface temperature through shade and the cooling effect of water as it evaporates into the air from leaves through transpiration. Vegetation generally increases albedo as compared to bare earth. Albedo is the extent to which an object diffusely reflects light from the sun. Plants also increase the amount of vapor in the air and rainwater retained in a location, thereby adding to the cooling effect as well as increasing groundwater recharge, decreasing the amount of rainwater that is runoff into storm drains, and reducing the transport of pollutants into streams that ultimately flow into the ocean.
- Energy efficient lighting, such as light-emitting diode traffic signals would be used. Light-emitting diode bulbs cost $60 to $70 apiece but last 5 to 6 years, compared to the one-year average lifespan of the incandescent bulbs previously used. The light-emitting diode bulbs consume 10 percent of the electricity of traditional lights, which would also help reduce carbon dioxide emissions.
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with the San Joaquin Valley Air Basin's rules, ordinances, and regulations in regard to air quality restrictions.
- The following "green" practices and materials would be used as part of highway planting and erosion control work:

  —Polyvinyl chloride irrigation pipe with recycled content
  —Non-chlorinated high density polyethylene irrigation crossover conduit
  —Compost and soil amendments derived from sewage sludge and green waste materials
  —Fiber produced from recycled pulp such as newspaper, chipboard, cardboard

—Wood mulch made from green waste and/or clean manufactured wood or natural wood
—Native and drought tolerant seed and plants species
—Irrigation controllers including water conservation features
—Restricted pesticide use and reduction goals
—Landscaping would use reclaimed water where feasible and available

The State of California maintains several websites that provide public information on measures to improve renewable energy use, energy efficiency, water conservation and efficiency, land use and landscape maintenance, solid waste measures, and transportation alternatives.

### *Adaptation Strategies*

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency report on October 14, 2010 outlining recommendations to President Obama for how federal agency policies and programs can better prepare the United States to respond to the effects of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these

efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, former Governor Arnold Schwarzenegger signed Executive Order S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This Executive Order set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009), which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to Executive Order S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010[8] to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, Oregon, and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.

[8] Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise.

All projects that have filed a Notice of Preparation (NOP) as of the date of the Executive Order S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines.

This route adoption study is not mandated to consider sea level rise. A Notice of Preparation was filed with the State Clearinghouse for the Route 180 Westside Expressway Route Adoption Study on January 26, 2006. The study area lies in the San Joaquin Valley between the coastal mountain ranges to the west and the Sierra Nevada Mountain Range to the east. The study area is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected. Elevations in the study area range from 500 feet above sea level near Interstate 5 to 270 feet above sea level near State Route 99. The study area is not subject to inundation by seiche (large lake wake) or tsunami (large ocean wave). The alignment alternatives cross Panoche Creek, Fresno Slough, Five Mile Slough, the lift canals north of the city of Mendota, and minor isolated floodplains toward the eastern portion of the study area. Severe flooding was recorded in January 1952 when the Panoche Creek overflowed, sending sheetflows less than 1 foot deep northeast toward Mendota.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to Executive Order S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

# Chapter 5 Comments and Coordination

## 5.1 Coordination and Consultation History

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this proposed route adoption have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, and public scoping and open houses/public informational meetings. This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

The California Department of Fish and Game became the California Department of Fish and Wildlife on January 1, 2013, as a result of Assembly Bill 2402, which was signed into law in September 2012 by Governor Jerry Brown. For consistency with the circulated draft environmental document, the name prior to January 1, 2013 is used throughout this document.

**January 7, 2005.** Caltrans met with the City of Firebaugh to discuss the status of the route adoption study.

**January 19, 2005.** Caltrans met with the City of Mendota to discuss the status of the route adoption study.

**March 30, 2005.** The State Route 180 Corridor Steering Committee met to discuss the status of the Traffic Congestion Relief Program funding and federal demonstration earmark funds and the possible use of these funds.

**January 31, 2006.** Caltrans sent letters to the Santa Rosa Rancheria Elders Center, the Santa Rosa Rancheria Tachi Tribe, the Chaushilha Tribe, and Table Mountain Rancheria to provide information on the study and to begin consultation on cultural resources and traditional cultural places.

**February 8, 2006.** A public scoping meeting was held at the Kerman Community Center to solicit comments from public agencies as well as the general public on the proposed study area.

**March 22, 2006.** Caltrans and consultant discussed via teleconference with Gabe Gonzales (Assistant City Manager of Mendota) the potential effects of the route alignments on the proposed expansion of the Mendota wastewater facility.

**August 10, 2006.** Caltrans discussed with Russell Freeman (Westlands Water District) about their land retirement boundary. A decision is to be made by the end of 2006 when and where land would be retired.

**August 30, 2006.** Caltrans met with the Mendota City Engineer (Giersh and Associates).

**September 28, 2006.** Caltrans gave a presentation at the County of Fresno Council of Governments Board meeting on the study's status and the outcome of the August 23, 2006 meeting with the external stakeholders.

**October 4-5, 2006.** Public informational meetings/open houses were held at the Kerman Community Center and the Mendota High School library to solicit comments from the public on two proposed route alignments. Results of the Alternatives Screening were presented to the public. Due to input received at this meeting, route variations were developed to address specific impacts on the Russian Molokan community. In addition, the Alternative 3 Alternative was adjusted to avoid the Fresno Irrigation District Waldron Pond, a water banking facility.

**November 16, 2006.** Caltrans met the Mendota City Engineer (Giersh and Associates) to discuss impacts of the State Route 180 Northern Alignment on the Mendota Wastewater Treatment Plant.

**November 17, 2006.** Caltrans met with Fresno Irrigation District staff—Felix Vaquilar, Bill Stretch, and Laurence Kimura—to discuss State Route 180 Northern Alignment on Fresno Irrigation Water Facilities.

**November 28, 2006.** Caltrans met with City of Kerman staff to address concerns outlined in a letter dated October 26, 2006, from Mayor Ken Moore.

**November 14, 2007.** Caltrans held a teleconference with Lynn Gorman, Fresno County Deputy Director of Planning, to discuss implications of the NEPA delegation pilot program on the project. Caltrans proposed that a joint NEPA/CEQA document should be prepared for the route adoption instead of a CEQA-only document in order to take advantage of federal funds if they become available.

**December 11, 2007.** Caltrans met with the County of Fresno Council of Governments Board to discuss the pros and cons of staying on the same course of pursuing a CEQA-only approval versus pursuing a tiered approach with a joint NEPA/CEQA approval.

**April 10, 2008.** Caltrans met with the Fresno Irrigation District to determine the impacts and costs associated with Alternative 3 going through the Waldron banking facility.

**June 5, 2008.** A newsletter was sent to the public to inform everyone of the decision to prepare a Tier I Environmental Impact Statement and announce a public scoping meeting scheduled for June 11, 2008.

**June 11, 2008.** A public scoping meeting was held at the Kerman Community Center after the decision to prepare a Tier I Environmental Impact Statement was made to satisfy the public involvement requirements of National Environmental Policy Act.

**August 20, 2008.** Caltrans met with the California Department of Water Resources staff to begin coordination and discuss where the San Joaquin River Restoration Project's boundaries lie to help Caltrans decide where to logically place the Mendota Waste Water Avoidance variation to Alternative 3.

**December 1, 2008.** Caltrans met with the California Department of Fish and Game staff to discuss applicability of Section 4(f) "de minimis" on the Kerman Ecological Reserve.

**June 24, 2009.** A newsletter was sent to the public to inform everyone of the study's status and the inclusion of a third alternative—Alternative 1.

**March 2, 2011.** Caltrans Project Manager Bob Hull updated the Mendota City Council on the status of the Route 180 Route Adoption Study Project and announced that a public hearing on the project was scheduled for March 30, 2011, at the Kerman Community Center.

**March 6, 2011.** Caltrans Project Manager Bob Hull updated the Kerman City Council on the status of the Route 180 Route Adoption Study Project and announced that a public hearing on the project was scheduled for March 30, 2011, at the Kerman Community Center.

**March 11, 2011.** Caltrans Project Manager Bob Hull updated the Council of Fresno County Governments Transportation Technical Committee and Policy Advisory Committee on the status of the Route 180 Route Adoption Study Project and announced that a public hearing on the project was scheduled for March 30, 2011, at the Kerman Community Center.

**March 21, 2011.** Caltrans Project Manager Bob Hull updated the Firebaugh City Council on the status of the Route 180 Route Adoption Study Project and announced that a public hearing on the project was scheduled for March 30, 2011, at the Kerman Community Center.

**March 30, 2011.** Caltrans held a public hearing at the Kerman Community Center in Kerman, California.

**May 5, 2011.** Caltrans held a teleconference with the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers to discuss coordination with other resource agencies.

**June 28–29, 2011.** Caltrans conducted a field review with the U.S. Environmental Protection Agency, California Department of Fish and Game, and U.S. Fish and Wildlife Service. The field review was followed by a meeting that discussed comments received from the agencies during the circulation of the environmental document. Caltrans proposed an avoidance design alternative that would avoid the ecological reserves if the existing state route alignment was chosen.

**November 17, 2011.** Caltrans held a teleconference as a follow-up to the meeting held on June 28–29, 2011. The following agencies were in attendance: U.S. Environmental Protection Agency, California Department of Fish and Game, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service.

**February 14, 2012.** Caltrans met with the Fresno County Public Works Department to discuss the preferred alignment between Interstate 5 and Mendota. The county agreed with the selection of Variation 1A as the preferred alignment.

**March 8, 2012.** Caltrans held a meeting with the expanded project development team to present the alternative selected as the preferred alternative.

## 5.2 Early Public Outreach

A scoping meeting for the State Route 180 Westside Expressway Adoption Study was held after the Notice of Preparation was filed with the State Clearinghouse on January 26, 2006. The meeting was held at the Kerman Community Center in Kerman, California, from 4:00 p.m. to 8:00 p.m. on February 8, 2006. During the open house session, attendees could view various displays and ask questions of the Caltrans project team. Comments received involved ecological concerns regarding agriculture, water and animal habitat, community history and preservation and infrastructure, funding, eminent domain, and suggestions on alternative alignments. Approximately 65 people attended this meeting.

Public open houses were held at the Kerman Community Center and the Mendota High School on October 5 and 6, 2006, respectively. The open houses gave community members an opportunity to view display boards and ask questions of the Caltrans project team. Approximately 85 people attended the open house on October 4, and approximately 30 people attended the one on October 5. The most frequent comment concerned the need to preserve farms. Other concerns included the proximity to a wastewater treatment plant/sewer line, effects on irrigation facilities, impacts to historic buildings, impinging on Kerman's future growth, cutting off access to schools for school children, cutting off access for farmers, and flooding along Belmont Avenue. Others felt that other routes should be considered.

## 5.3 Public Hearing

During the public circulation period of the draft environmental document between March 16, 2011, and May 9, 2011, Caltrans held a public hearing on March 30, 2011, at the Kerman Community Center in Kerman, California. The meeting was announced in *The Kerman News* and *The National Register*. In addition, letters were mailed to residents and public agencies as well as to federal, state, and local officials and other interested parties.

The hearing gave the community an opportunity to provide comments on the draft environmental document and discuss the project with Caltrans staff. Comment cards were provided so the public could make written comments, and a court reporter was available to take oral comments. About 70 residents and interested individuals attended the meeting.

In addition to the comment cards received and comments made to the court reporter, Caltrans staff received these verbal comments:

- The majority of attendees favored Alternative 1.
- Farmers were concerned about the project affecting their livelihood.
- Members of the Russian Molokan community expressed concern about the priority being put on the ecological reserves.
- Manning Avenue or 7th Avenue should be considered as a corridor.
- Alternatives south of State Route 180 should be considered.
- Attendees were concerned about the economic impact of a bypass around Kerman.
- Alternatives 2 and 3 should go through Waldron Pond instead of around it.

Written comments received during the Environmental Impact Report/ Tier I Environmental Impact Statement public comment period and Caltrans responses to those comments are bound separately in Volume II of this document. Volume II also contains a written record of the oral comments transcribed by the court reporter during the public hearing on March 30, 2011. Caltrans responses to the comments follow the transcribed text.

## 5.4 Section 6002 Coordination

Section 6002 (23 U.S. Code 139) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU 6002) requires the lead agency to establish a plan for coordinating public and agency involvement during the environmental review process. Caltrans has prepared a coordination plan that would:

- Identify the early coordination efforts
- Identify cooperating and participating agencies to be involved in agency coordination
- Establish the timing and form for agency involvement in defining the project's purpose and need, the range of alternatives to be considered, methodologies and level of detail required for the analysis of alternatives, selection of the preferred

alternative, and review of the draft Environmental Impact Report/Environmental Impact Statement

The coordination plan is updated periodically to reflect any changes to the project schedule and other items that typically require updating over the course of the project.

As required by Section 6002 (23 U.S. Code 139), Caltrans sent letters to prospective federal, state, and local agencies as well as tribal representatives to request that they assume the role of participating agency or cooperating agency and to solicit comment on the project's purpose and need and range of alternatives. These letters were sent June 4, 2008, October 13 and 14, 2009, and December 14, 2009.

Table 5.1 lists agencies that have assumed either role or both and their date of acceptance. Any federal agency that was invited and did not respond or decline was automatically assigned the role of participating agency.

**Table 5.1 Participating and Cooperating Agencies**

| Agency Name | Role |
|---|---|
| U.S. Army Corps of Engineers | Participating Agency<br>Accepted: 7/28/08 |
| U.S. Environmental Protection Agency | Participating Agency<br>Accepted: 7/11/08 |
| U.S. Fish and Wildlife Service | Cooperating/Participating Agency<br>Accepted: 12/22/08 |
| U.S. Department of Agriculture, Natural Resources Conservation Service | Participating Agency<br>Non-response: assigned by default |
| U.S. Bureau of Reclamation | Cooperating/Participating Agency<br>Accepted: 1/13/10 |
| San Joaquin Valley Unified Air Pollution Control District | Participating Agency<br>Accepted: 7/28/08 |
| Council of Fresno County Governments | Participating Agency<br>Accepted: 10/20/09 |
| Fresno Irrigation District | Participating Agency<br>Accepted: 11/23/09 |
| Westlands Water District | Participating Agency<br>Accepted: 10/28/09 |
| County of Fresno Planning and Public Works | Participating Agency<br>Accepted: 11/5/09 |

Table 5.2 lists state and local agencies and tribal representatives that did not respond or declined Caltrans' request to assume the role of participating or cooperating agency.

**Table 5.2 Prospective Participating and Cooperating Agencies**

| |
|---|
| California Department of Fish and Game |
| State Historic Preservation Officer |
| California Department of Water Quality, Fresno Branch |
| Fresno Metropolitan Flood Control District |
| California Public Utilities Commission |
| Northern Valley Yokut |
| Amah Mutsun Band of Ohlone |
| Dumna Tribe |
| Picayune Rancheria |
| North Fork Rancheria |
| Santa Rosa Rancheria Tachi Tribe |
| Chaushilha Tribe |
| Table Mountain Rancheria |
| California Department of Water Resources |
| San Luis Delta-Mendota Water Authority |
| Central California Irrigation District (declined by letter) |
| City of Firebaugh Planning Commission |
| Mendota Planning Commission |
| City of Fresno Planning and Development |
| Kerman City Planning Commission |

Caltrans received a letter dated January 7, 2010 from the U.S. Army Corps of Engineers commenting that the study should include alternatives that avoid impacts to wetlands and other waters.

The Notice of Intent to prepare an Environmental Impact Statement, as required by Council on Environmental Quality regulations 40 Code of Federal Regulations 1501.7 was published in the Federal Register on May 19, 2008. All agencies and the public were invited to a public scoping meeting held on June 11, 2008, from 5:00 p.m. to 7:00 p.m. at the Kerman Community Center in Kerman, California. The meeting included project maps, graphics and information boards, along with an open house session. During the open house session, attendees could view various displays and ask questions of the Caltrans project team.

Comments submitted included concerns about the proposed alignments, community impacts, Section 4(f) concerns, access to or across the expressway, and utilities. Approximately 64 people attended the meeting.

As a result of the input received at the meeting, the Extend and Improve Existing State Route 180 Alternative was reinstated as a viable alternative. Also, a representative from the California Department of Water Resources informed Caltrans about the San Joaquin River Restoration Program and the proximity of proposed levee relocation work to Alternative 3. Consequently, the alignment of Alternative 3 was adjusted.

During the public comment period between March 16, 2011, and May 9, 2011, the draft environmental impact report/draft tier I environmental impact statement document was sent to participating and cooperating agencies as well as to parties that may have an interest in the project. For a list of agencies, individuals, and organizations that received a copy of the draft environment document. Please see the distribution list in Chapter 7. Caltrans received comment letters from all participating agencies and cooperating agencies except for the U.S. Bureau of Reclamation and Council of Fresno County Governments.

Comments were received from the U.S. Environmental Protection Agency and California Department of Fish and Game. The U.S. Environmental Protection Agency commented that the environmental document contained insufficient analysis on indirect impacts to farmland, aquatic resources, and natural lands. The agency also recommended that Caltrans reconsider its decision to not initiate the National Environmental Policy Act/404 integration process as modified for a tier I project. The California Department of Fish and Game recommended that Alternative 1 and all its variations be removed from consideration because it would have the greatest number of potential impacts to sensitive and listed wildlife and plant species when compared to Alternatives 2 and 3.

Due to the concerns from these agencies, Caltrans held a teleconference with the U.S. Environmental Protection Agency and Army Corps of Engineers on May 5, 2011. Additional resource agency coordination was determined necessary to resolve issues raised during the comment period.

Caltrans held a field review on June 28, 2011, and meeting on June 29, 2011, with the U.S. Environmental Protection Agency, California Department of Fish and Game, and U.S. Fish and Wildlife Service. Caltrans informed the agencies that most of the

general public comments were in favor of staying on the existing corridor to the greatest extent feasible.

Caltrans proposed the construction of a viaduct along the existing State Route 180 alignment to avoid adverse effects to the Alkali Sink Ecological Reserve, Kerman Ecological Reserve, and the proposed Alkali Sink Conservation Bank. The viaduct would improve connectivity between both sides of the reserves by allowing safe migration for species and promoting genetic exchange of species.

Caltrans also explained that the formal National Environmental Policy Act 404 integration process was not being pursued at this time because Caltrans was not seeking permits for the route adoption. Additionally, the checkpoints under Section 6002 (23 U.S. Code 139) of the Safe, Accountable, Flexible, Efficient, Transportation Equality Act: A Legacy for Users mirrors the memorandum of understanding agreement points of the National Environmental Policy Act/404 as modified for a tier I project. Caltrans has solicited comment on the project's purpose and need, the range of alternatives to be considered, methodologies, and level of detail required for the analysis of alternatives in the draft tier I environmental impact statement pursuant to Section 6002. At the conclusion of the field review and meeting, all agencies agreed to an alignment that follows the existing State Route 180 in Segment B (approximately between State Route 33 and Yuba Avenue) as preferable because it would cause the fewest indirect impacts to natural resources.

On November 17, 2011, Caltrans held a teleconference as a follow-up to the field review and meeting in June 2011 with the U.S. Environmental Protection Agency, California Department of Fish and Game, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service. The Department of Fish and Game raised concerns about the indirect effects of the viaduct such as the shadow cast on vegetation at the Alkali Sink Ecologic Reserve and the Kerman Ecologic Reserve. The U.S. Environmental Protection Agency stated that the viaduct would have beneficial effects like improved connectivity between both sides of the reserves, promoting the genetic exchange of species. The U.S. Environmental Protection Agency believes the benefits outweigh the indirect effects. Caltrans informed the agencies of the decision to select a preferred alternative that included the viaduct design option. Caltrans has provided the Department of Fish and Game information regarding the shadow effects of the viaduct on the wildlife reserves (see the coordination section of Appendix B Section 4(f) Evaluation for details).

❖

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This document was prepared by the following Caltrans staff and consultant staff:

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# Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by future projects associated with the proposed route adoption. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 3 of this Final Environmental Impact Report/ Tier I Environmental Impact Statement. Documentation of “No Impact” determinations is provided at the beginning of Chapter 3. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 3. Noise impacts under the California Environmental Quality Act are also discussed in Chapter 4.

This is a planning-level Environmental Impact Report to adopt a general route alignment for a future State Route 180 four-lane expressway. No environmental impacts would occur until subsequent projects within the adopted route are constructed. The following determinations are based on current technical information to make assumptions that reflect likely future consequences of that construction. It is the intent of this document to use such information to determine the appropriate general location for the expressway. Subsequent projects that result from this route adoption would be subject to environmental review processes.

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| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **I. AESTHETICS**: Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista | ☐ | ☐ | ☐ | ☒ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway | ☐ | ☐ | ☐ | ☒ |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☒ | ☐ | ☐ |
| d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☒ | ☐ |
| **II. AGRICULTURE AND FOREST RESOURCES**: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project: | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☒ | ☐ | ☐ | ☐ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☒ | ☐ | ☐ | ☐ |
| c) Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Result in the loss of forestland or conversion of forestland to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use? | ☐ | ☒ | ☐ | ☐ |
| **III. AIR QUALITY**: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☒ | ☐ |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)? | ☐ | ☐ | ☒ | ☐ |
| d) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| e) Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |
| **IV. BIOLOGICAL RESOURCES**: Would the project: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☒ | ☐ | ☐ | ☐ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☒ | ☐ | ☐ |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☒ | ☐ | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☒ | ☐ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☒ | ☐ |
| **V. CULTURAL RESOURCES**: Would the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | ☐ | ☒ | ☐ | ☐ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | ☐ | ☒ | ☐ | ☐ |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☒ | ☐ | ☐ |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☒ | ☐ | ☐ |
| **VI. GEOLOGY AND SOILS**: Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | ☐ | ☐ | ☐ | ☒ |

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

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **VII. GREENHOUSE GAS EMISSIONS**: Would the project: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document. | | | |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☐ | ☒ |
| **VIII. HAZARDS AND HAZARDOUS MATERIALS**: Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☐ | ☒ | ☐ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☒ | ☐ |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☒ | ☐ | ☐ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☒ | ☐ |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☒ | ☐ |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☐ | ☐ | ☒ |

**IX. HYDROLOGY AND WATER QUALITY**:
Would the project:

| | | | | |
|---|---|---|---|---|
| a) Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | ☒ | ☐ |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☒ | ☐ |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site? | ☐ | ☐ | ☒ | ☐ |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site? | ☐ | ☐ | ☒ | ☐ |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☒ | ☐ |
| f) Otherwise substantially degrade water quality? | ☐ | ☐ | ☒ | ☐ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☒ |
| h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows? | ☐ | ☐ | ☒ | ☐ |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☒ | ☐ |
| j) Inundation by seiche, tsunami, or mudflow | ☐ | ☐ | ☐ | ☒ |
| **X. LAND USE AND PLANNING**: Would the project: | | | | |
| a) Physically divide an established community? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☒ | ☐ |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☒ | ☐ | ☐ |
| **XI. MINERAL RESOURCES**: Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☒ |
| b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | ☐ | ☐ | ☐ | ☒ |
| **XII. NOISE**: Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☒ | ☐ | ☐ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☒ | ☐ |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☒ | ☐ | ☐ |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☒ | ☐ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |
| **XIII. POPULATION AND HOUSING**: Would the project: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☒ | ☐ |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☒ | ☐ | ☐ |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☒ | ☐ | ☐ |
| **XIV. PUBLIC SERVICES**: | | | | |
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Fire protection? | ☐ | ☐ | ☒ | ☐ |
| Police protection? | ☐ | ☐ | ☒ | ☐ |
| Schools? | ☐ | ☒ | ☐ | ☐ |
| Parks? | ☐ | ☒ | ☐ | ☐ |
| Other public facilities? | ☐ | ☐ | ☒ | ☐ |

**XV. RECREATION**:

| | | | | |
|---|---|---|---|---|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☒ | ☐ |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☒ |

**XVI. TRANSPORTATION/TRAFFIC**: Would the project:

| | | | | |
|---|---|---|---|---|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☐ | ☒ |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☐ | ☒ |
| e) Result in inadequate emergency access? | ☐ | ☐ | ☐ | ☒ |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | ☐ | ☐ | ☐ | ☒ |
| **XVII. UTILITIES AND SERVICE SYSTEMS**: Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | ☒ |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☐ | ☐ | ☐ | ☒ |
| e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☒ |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☐ | ☒ |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **XVIII. MANDATORY FINDINGS OF SIGNIFICANCE** | | | | |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☒ | ☐ | ☐ | ☐ |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☒ | ☐ | ☐ | ☐ |
| c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☒ | ☐ | ☐ |

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# Appendix B Section 4(f) Evaluation

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 U.S. Code 327.

The California Department of Fish and Game became the California Department of Fish and Wildlife as of January 1, 2013, as a result of Assembly Bill 2402, which was signed into law in September 2012 by Governor Jerry Brown. For consistency with the circulated draft environmental document, the name prior to January 1, 2013 is used throughout this document.

## Introduction

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

Section 4(f) 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.

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

This evaluation identifies the Section 4(f) resources in the State Route 180 Westside Expressway Route Adoption study area, describes the nature and extent of the potential use of these properties, evaluates alternatives that would avoid the use of Section 4(f) resources, and describes measures to minimize harm to the affected resources. A discussion of other parks, recreational facilities, wildlife refuges, or historic properties that were evaluated relative to the requirements of Section 4(f) is also provided. Coordination with involved government agencies and a final determination are also included.

## Proposed Project

Three route adoption alternatives and one no-project alternative were developed by a multidisciplinary team to achieve the project purpose and need. The three proposed alternatives are—Alternative 1 (Extend and Improve Existing State Route 180), Alternative 2 (Southern Route), and Alternative 3 (Northern Route).

The study area, shown in Figure B-1, is in Fresno County. The study area extends from Interstate 5 (post mile R9.0) to just east of Valentine Avenue (post mile R54.2), a distance of about 45 miles. State Route 180 is primarily a two-lane highway. The adopted route for State Route 180 will be wide enough to accommodate a future four-lane expressway. For purposes of the *State Route 180 Westside Expressway Route Adoption Project*, a route alignment width of 1,000 feet is being considered, within which a 250- to 350-foot-wide future expressway would be located.

Caltrans is undertaking the route adoption study for the purpose of eventually developing a transportation corridor that would serve the communities along State Route 180 between Interstate 5 and State Route 99. State Route 180 is an east-west highway that begins in the City of Mendota at State Route 33 and connects communities on the west side of Fresno County, including Kerman, Mendota, and Firebaugh, with the City of Fresno and Kings Canyon and Sequoia National parks in the Sierra Nevada. State Route 180 does not exist between Interstate 5 and State Route 33. A connection to Interstate 5 remains a high priority of both regional agencies and local municipalities, including Fresno County.

The route adoption is needed because State Route 180 between Fresno and Interstate 5 does not provide an adequate east-west transportation facility for safe and reliable regional travel, both under current conditions and in the planning year 2030. The proposed route adoption alternatives are discussed in greater detail in Chapter 2 *Project Alternatives* of the Final Environmental Impact Report/Tier I Environmental Impact Statement.

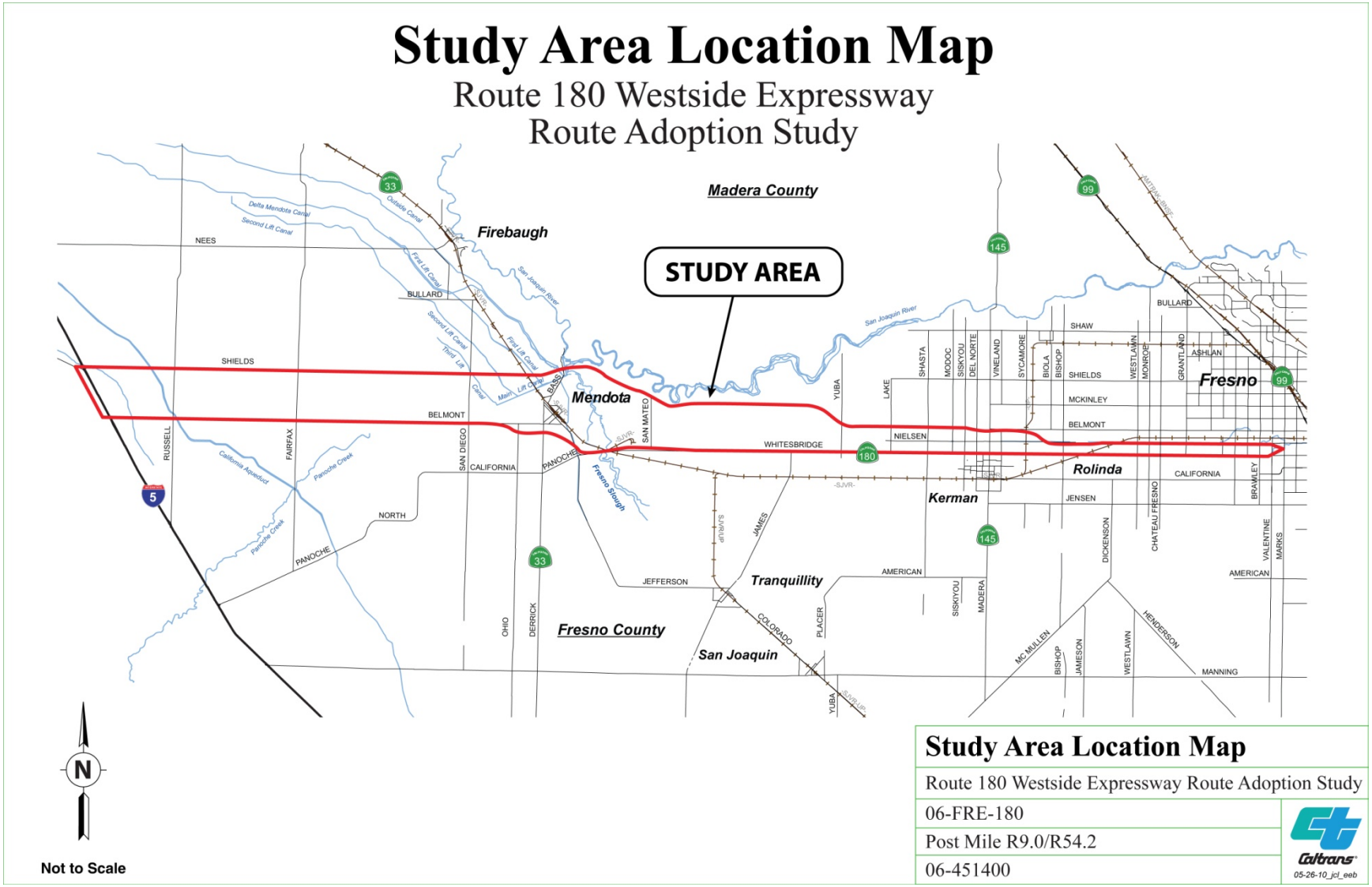


**Figure B-1 Route Adoption Study Area**

Three proposed route adoption alternatives and the No-Action/No-Project Alternative are described in this section (see Figure B-2). For purposes of identifying potential environmental impacts of the route adoption alternatives, future interchanges, intersections, cul-de-sacs, and bridges are conceptualized. The exact number, location, size, and configuration of these improvements will be determined as subsequent projects are proposed and their impacts evaluated. A complete set of conceptual alignment drawings can be found in Appendix G of this environmental document.

### *Alternative 1 (Extend and Improve Existing Route)*

This alternative extends approximately 48 miles across the valley. On the west, this alternative begins at a point where Belmont Avenue would intersect Interstate 5 if Belmont extended that far west. The alignment proceeds east crossing the California Aqueduct and across farmland to Fairfax Avenue, then on an alignment centered on Belmont Avenue for a total of 16.5 miles. It turns southeast between San Diego Avenue and Ohio Avenue, proceeding for about a mile, where it turns east, passing south of Mendota High School to intersect State Route 33.

Alternative 1 then follows a diagonal southeasterly across State Route 33 and returns to Whitesbridge Avenue at the northwest corner of the Mendota Wildlife Area. The alternative then continues easterly parallel with and north of the existing State Route 180 to avoid the Mendota Wildlife Area and the Alkali Sink Ecological Reserve. Once east of the Alkali Sink Ecological Reserve, the route alignment dips slightly south to become centered on State Route 180/Whitesbridge Avenue. It continues due east along Whitesbridge Avenue, passing next to Javier's Fresno West Golf Course and through the middle of the Kerman Ecological Reserve, until it reaches a connection with the existing State Route 180 freeway end at Brawley Avenue.

### *Variation 1A (Shields Avenue)*

A variation to Alternative 1 was developed to provide easier access to and from Firebaugh. This variation begins on the west end at an existing interchange on Interstate 5 at Shields Avenue and runs eastward 18 miles to a point just west of State Route 33 (Dos Palos Road) between the First and Second Lift Canals north of Mendota. It then runs southeasterly, crossing the Main Lift Canal on a new bridge, and then joining with Alternative 1 at State Route 33 (Derrick Avenue), to the southwest of Mendota High School.

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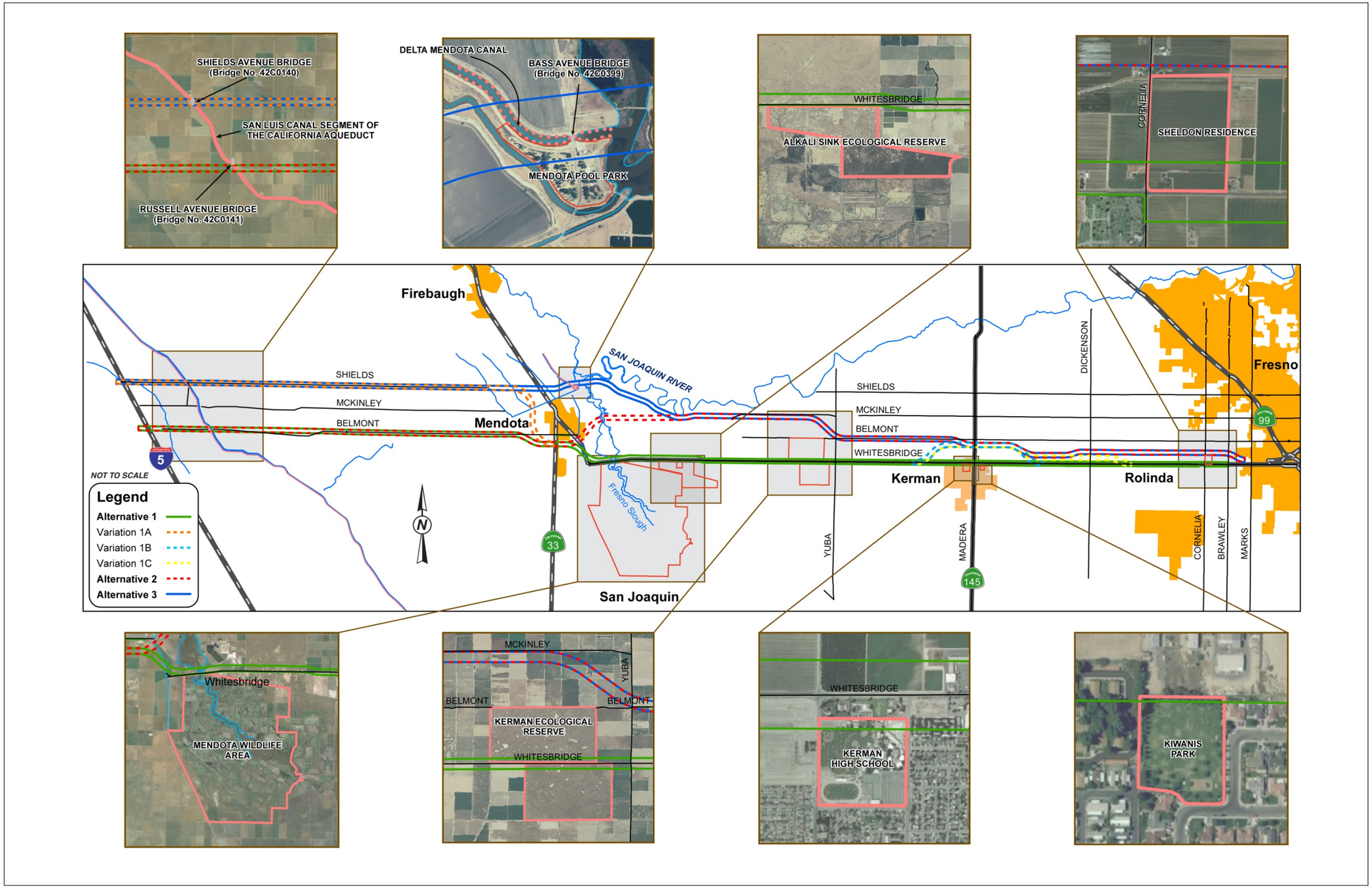


**Figure B-2 Route Adoption Alternatives**

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### *Variation 1B (Kerman Bypass)*

This variation to Alternative 1 was developed to bypass Kerman and avoid impacts to existing and proposed development within Kerman's sphere of influence. This variation deviates from the existing Route 180 alignment at its west end at Whitesbridge Avenue and Shasta Avenue. It extends northeast diagonally to Modoc Avenue midway between Nielsen Avenue and Belmont Avenue. It turns easterly to Sycamore Avenue, where it turns southeast diagonally to rejoin the existing State Route 180 alignment at Whitesbridge Avenue and Bishop Avenue.

### *Variation 1C (Rolinda and Kerman Bypass)*

A variation to Alternative 1 was developed to bypass both Kerman and the community of Rolinda and avoid impacts to existing and proposed development within Kerman's sphere of influence and existing development at the community of Rolinda. This variation follows the same alignment as Variation 1B Kerman Bypass on the west end. It differs as it turns southeast diagonally at Sycamore Avenue to Biola Avenue, midway between Nielsen Avenue and Whitesbridge Avenue. It turns easterly to Westlawn Avenue, then goes southeast diagonally to rejoin the existing State Route 180 alignment at Whitesbridge Avenue and Monroe Avenue.

### *Alternative 2 (Southern Route)*

Alternative 2 extends approximately 49 miles across the valley. The alignment follows the same line as the Alternative 1 alignment at the west end of the study area. This route begins on the west at a point where Belmont Avenue would intersect Interstate 5, if it extended that far. The route proceeds east crossing the California Aqueduct and across farmland to Fairfax Avenue, then on an alignment centered on Belmont Avenue for a total of 16.5 miles. It turns southeast between San Diego Avenue and Ohio Avenue, proceeding for about a mile, where it turns east, passing south of Mendota High School to intersect State Route 33.

The route travels roughly a half-mile east before it turns northeast just east of Mendota, where it joins Alternative 3 west of the Fresno Slough. Continuing east, the alignment coincides with Alternative 3 for the remainder of the alignment to the eastern end where it joins with existing State Route 180.

At a point about a mile west of Yuba Avenue, the alignment dips southeasterly to Yuba Avenue at Belmont Avenue. It then turns east and is centered on Belmont Avenue to Siskiyou Avenue. The route dips in a southeasterly direction to the west of Madera Avenue. It then follows an alignment east midway between Belmont and Nielsen

avenues. It turns again to the southeast to avoid the Fresno Irrigation District's Waldron Pond, a water banking facility, and then makes a southeasterly transition just east of Sycamore Avenue to Bishop Avenue. The alternative continues east to approximately Jameson Avenue where it travels northeast to rejoin and center on Nielsen Avenue and the Houghton Canal (the actual expressway facility would be either to the north or south of the canal). There the route continues due east to Brawley Avenue. At this point, the alignment heads southeast to a connection with a tangent segment with the existing State Route 180 freeway at Valentine Avenue between Nielsen and Whitesbridge avenues.

#### *Alternative 3 (Northern Route)*

This alignment extends approximately 50 miles across the valley. The west end of the alternative begins at an existing interchange on Interstate 5 at Shields Avenue and runs eastward 18 miles to State Route 33 (Dos Palos Road), north of Mendota.

From State Route 33, the route continues eastward across an area of large agricultural parcels of land. After crossing Bass Avenue, as well as over and near the Mendota Pool Park, the Outside and the Delta Mendota Canals, and the Fresno Slough, the alignment generally parallels to the south of the San Joaquin River/Madera County line. About a mile east of the Fresno Slough, it veers southeasterly until turning east just south of an oxbow (a U-shaped body of water) of the San Joaquin River. Continuing east, the alignment coincides with Alternative 2 for the rest of the corridor to the eastern end where it joins with the existing State Route 180 freeway.

### *Preferred Alternative*

The preferred alternative combines the alignments of a modified Alternative 1 (between Mendota and the western city limits of Fresno, except in Kerman), Variation 1A (between Interstate 5 and Mendota), and Variation 1B that bypasses Kerman to the north (see Figure 2-5).

To avoid adverse effects to Section 4(f)-protected resources, two design changes to Alternative 1 were incorporated into the preferred alternative. Both of the following changes add a level of risk due to the required approval of a design exception during the design phase of a future project. The first change includes a viaduct that would span and avoid the Alkali Sink Ecological Reserve, proposed Alkali Sink conservation bank, and Kerman Ecological Reserve. This viaduct would be built within the Caltrans right-of-way and will require a mandatory design exception at the Project Approval and Environmental Document phase of a future project when the funds are appropriated. The other change includes an advisory design exception during the Project Approval and Environmental

Document phase of a future project near Cornelia Avenue on the existing state route alignment that would avoid the Sheldon Residence, an historic property protected under Section 4(f).

### *No-Action/No-Project Alternative*

This alternative assumes that no new route for State Route 180 would be adopted by the California Transportation Commission or implemented by Caltrans. Improvements to State Route 180 may still be proposed and implemented along the existing route between State Route 99 and State Route 33 on an ad-hoc basis, although no currently programmed projects are proposed within the Westside valley area. This alternative assumes no future state highway funds would be available to provide the connection to Interstate 5.

## Description of Section 4(f) Properties

As recommended in the Federal Highway Administration Section 4(f) checklist, all National Register-eligible historic and archaeological sites within the area of potential effects and all public parks, recreational facilities, and wildlife refuges within approximately a half-mile of any of the route adoption alternatives were included in the evaluation.

Three public parks, three wildlife refuges, and six National Register-eligible historic sites were identified as potentially affected Section 4(f) properties within the study area. They are described in this section and summarized in Table B.1. Figure B-2 shows the Section 4(f) property locations relative to the study area.

**Table B.1 Summary of Potentially Affected Section 4(f) Resources**

| Section 4(f) Property | Location | Current Ownership | National Register Status | Current Land Use |
|---|---|---|---|---|
| **Public Parks and Recreation Facilities** | | | | |
| Mendota Pool Park | Bass Avenue, north of City of Mendota | City of Mendota and Central California Irrigation District | N/A | Public park |
| Kerman High School | 205 S. 1st Street, City of Kerman | Kerman Unified School District | N/A | Public park |
| Kiwanis Park | W. San Joaquin and Merlot Avenues, City of Kerman | City of Kerman | N/A | Public park |
| **Wildlife and Waterfowl Refuges** | | | | |
| Kerman Ecological Reserve | Whitesbridge Avenue, west of City of Kerman | State of California | N/A | Open space |

**Table B.1 Summary of Potentially Affected Section 4(f) Resources**

| Section 4(f) Property | Location | Current Ownership | National Register Status | Current Land Use |
|---|---|---|---|---|
| Alkali Sink Ecological Reserve | Whitesbridge Avenue, between cities of Kerman and Mendota | State of California | N/A | Open space |
| Mendota Wildlife Area | Whitesbridge Avenue, southeast of City of Mendota | State of California | N/A | Open space |
| **Historic Properties** | | | | |
| San Luis Canal Segment of the California Aqueduct | California Aqueduct from the San Luis Joint-Use Complex in Merced County to Kettleman City in Kings County | California Department of Water Resources | Eligible: Criteria A, C and G | Public utility |
| Delta-Mendota Canal | Lies west of the San Joaquin River and parallels it | San Luis Delta-Mendota Water Authority | Eligible: Criteria A and C | Public utility |
| Shields Avenue Bridge (Bridge No. 42C0140) | Shields Avenue over CA Aqueduct | Fresno County | Eligible: Criteria A and C | Public utility |
| Russell Avenue Bridge (Bridge No. 42C0141) | Russell Avenue over CA Aqueduct | Fresno County | Eligible: Criteria A and C | Public utility |
| Bass Avenue Bridge (Bridge No. 42C0399) | Mendota Pool Park, Bass Avenue over Delta- Mendota Canal | Fresno County | Eligible: Criteria A and C | Public utility |
| Sheldon Residence | 4770 W. Whitesbridge Avenue | Private | Eligible: Criterion A | Residence |

## Public Parks and Recreation Facilities

### *Mendota Pool Park*

Mendota Pool Park is an active-use public park on Bass Avenue, north of the City of Mendota. The City of Mendota owns the portion of the park west of Bass Avenue; the Central California Irrigation District owns the portion of the park east of Bass Avenue. The City of Mendota, however, maintains the entire park. Bass Avenue is owned and maintained by the County of Fresno.

The Mendota Pool Park is surrounded by water, with the Delta-Mendota Canal as the northern boundary, the Fresno Slough as the eastern boundary, and the Outside Canal as the western and southern boundary. A lock on the Delta-Mendota Canal is located to the north of the park. The park is about 85 acres in size. Park facilities include playgrounds,

picnic areas, a performance dome, and a launch ramp for fishing and recreation boats. A sign posted at the entrance indicates that the park is closed between the hours of 10:00 p.m. and 5:00 a.m. See Figure B-3 for an aerial map of park facilities.

**Figure B-3 Mendota Pool Park Vicinity Map and Facilities**

### *Kerman High School*

Kerman High School, at 205 South 1st Street in the city of Kerman, includes playing fields and recreational facilities. The City of Kerman and Kerman Unified School District maintain a "Facilities Use Agreement" that guides the use of the facilities and allows public use of them outside of school hours. The agreement and public access therefore make this property subject to Section 4(f) provisions. Kerman High School's 20 acres include baseball diamonds, softball diamonds, eight tennis courts, basketball courts, a track, football stadium, gym, swimming pool and volleyball courts.

### *Kiwanis Park*

Kiwanis Park is a pocket park at the intersection of San Joaquin and Merlot avenues in Kerman. The 2.12-acre park, owned by the City of Kerman, includes a ball field back-

stop, playground equipment, benches and a basketball court. The main users of the park are residents of the surrounding neighborhood.

## Wildlife and Waterfowl Refuges

### *Kerman Ecological Reserve*

Kerman Ecological Reserve is a publicly owned wildlife and waterfowl refuge managed by the California Department of Fish and Game. The reserve is 7 miles west of Kerman on the north and south side of Whitesbridge Avenue as shown on Figure B-4. The reserve is about 1,700 acres and consists mostly of chenopod scrub (valley saltbush scrub and valley sink scrub) habitat. It qualifies as a refuge under Section 4(f) statute because the reserve's main purpose is the preservation of native habitat. The Kerman Ecological Reserve is considered significant for its preservation of habitat that was widespread within the valley prior to conversion to agriculture. Although human use is generally not encouraged, use of the resource for recreational purposes is permitted, and hunting is allowed on the reserve between July 1 and January 31.

### *Alkali Sink Ecological Reserve*

The Alkali Sink Ecological Reserve is a wildlife and waterfowl refuge owned and managed by the California Department of Fish and Game. The reserve is adjacent to and south of Whitesbridge Avenue just east of the Mendota Wildlife Area as shown in Figure B-4. The reserve is about 945 acres and supports chenopod scrub (valley saltbush scrub and valley sink scrub) habitat. The reserve's main purpose is to preserve native habitat. The reserve provides habitat for several special-status species, including the only known habitat for the federally endangered Fresno kangaroo rat. The Alkali Sink Ecological Reserve is considered significant for its preservation of habitat that was widespread within the valley prior to conversion to agriculture. Again, although human use is generally not encouraged, recreational use is allowed and bird watching is permitted.

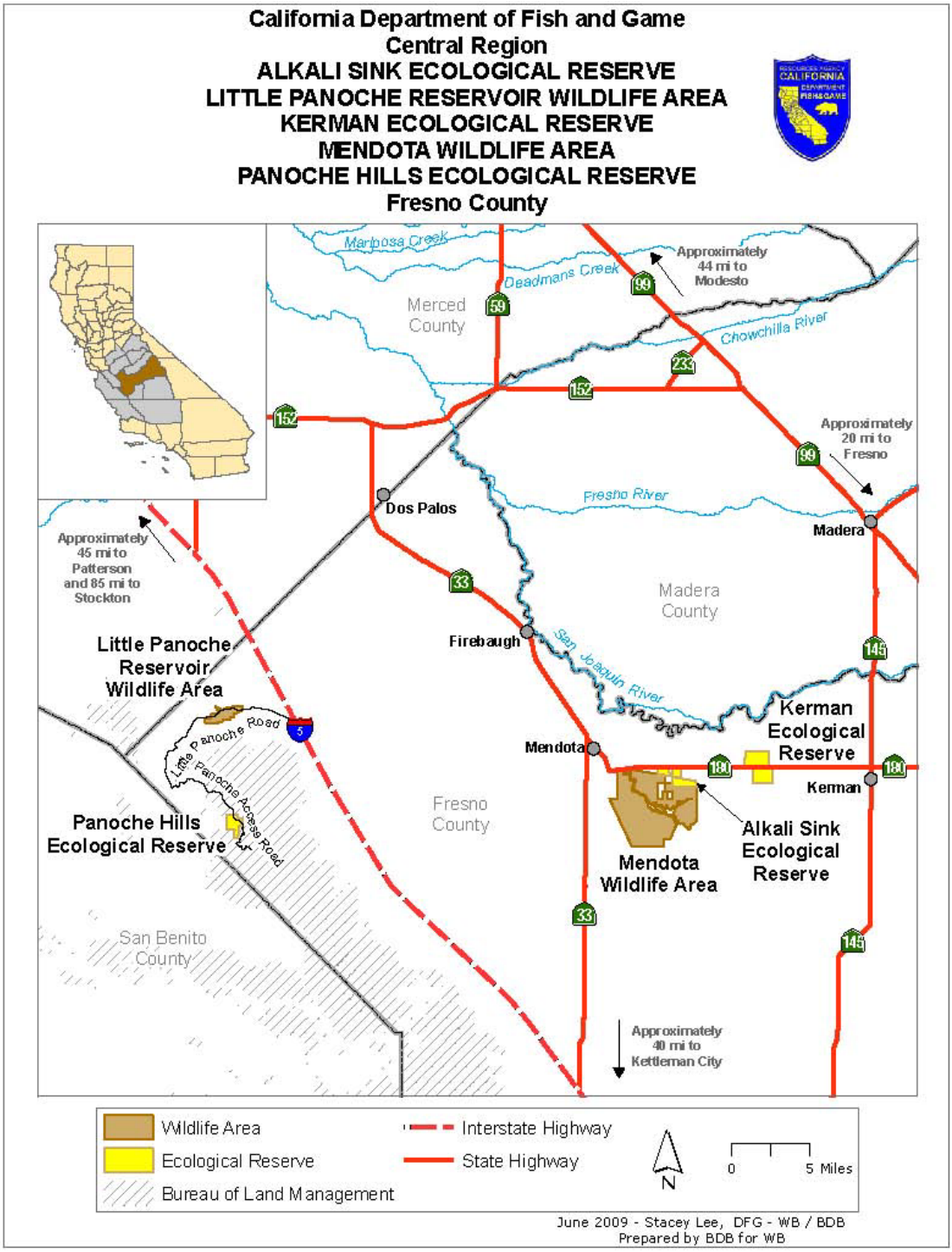



**Figure B-4 Wildlife and Waterfowl Reserves Near the Study Area**

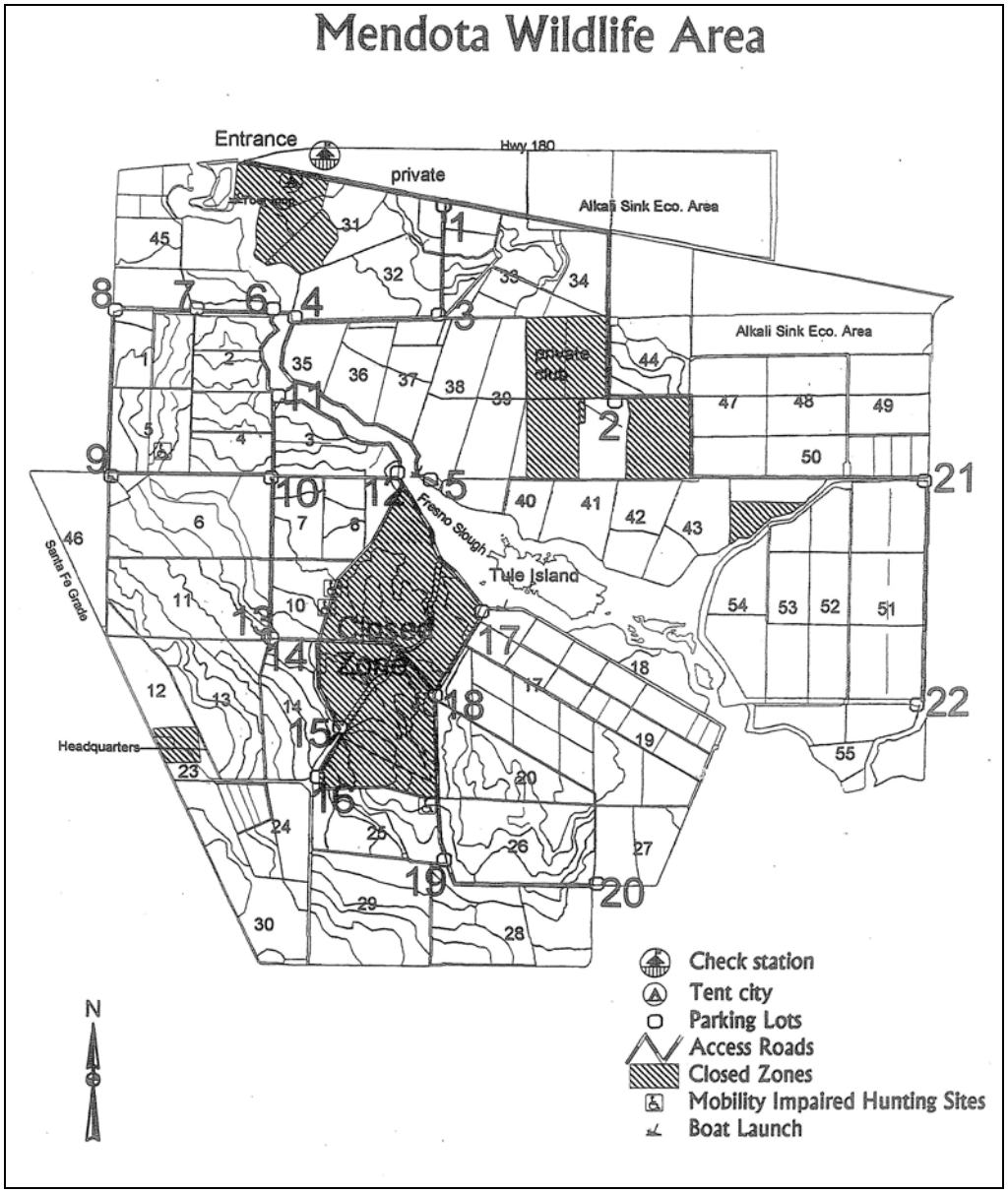
### *Mendota Wildlife Area*

The Mendota Wildlife Area is a publicly owned multi-purpose state wildlife area owned and managed by the California Department of Fish and Game. The area's main purpose is to provide suitable habitat and living space for the preservation of native species, including nongame and endangered animals and plants. The Mendota Wildlife Area is 18 miles west of Kerman and a little more than 2 miles southeast of Mendota. The Fresno Slough goes through this area south of Whitesbridge Avenue (State Route 180), as shown in Figure B-4. The reserve is about 11,802 acres of flatlands and floodplain. It has approximately 40,000 visitors a year. The reserve was first established in 1954 as a habitat area for wildlife, primarily migrating waterfowl. The Mendota Wildlife Area is the only significant managed wetland habitat of substantial size in an area with extensive farmland in the south-central San Joaquin Valley. The area supports the survival of migratory waterfowl and associated species from Alaska to Mexico since it is a major and significant component of the Pacific Flyway. The wildlife area provides chenopod scrub, riparian, wetland, and open water habitats for numerous special-status wildlife species.

The Mendota Wildlife Area is mostly natural habitat; however, there are various recreational facilities throughout the property, including gravel access roads that are vehicle-accessible and parking lots. Its entrance, on Whitesbridge Avenue east of the Fresno Slough, includes a check station and large parking lot called "tent city" where visitors can park their campers. The headquarters is at the southwestern edge of the wildlife area on Santa Fe Grade and includes an office, back house, shop and five residences.

Hunting, fishing, boating and birdwatching are allowed; camping is allowed at the hunter check station during waterfowl season only. The reserve also includes mobility-impaired hunting sites with handicap access to permanent waterfowl blinds. Boat launches are located along the Fresno Slough, including the main boat launch (with brick outhouse) to the south of Whitesbridge Avenue in the vicinity of the study area.

Hunting at the Mendota Wildlife Area is allowed between September and January; the wildlife area is open only Saturdays, Sundays and Wednesdays during hunting season. During the hunting season, several zones are closed to the public as no-shoot zones; one such zone is near the entrance south of Whitesbridge Avenue. Outside of hunting season, it is open 24 hours a day. Figure B-5 shows a map of the Mendota Wildlife Area and its facilities.




Source: California Department of Fish and Game, 2009

**Figure B-5 Mendota Wildlife Area Vicinity Map and Facilities**

## Historic Properties

### *San Luis Canal Segment of the California Aqueduct*

The San Luis Canal segment of the California Aqueduct is 106 miles long. The canal, owned by the California Department of Water Resources, begins at the San Luis Joint-Use Complex in Merced County and ends in Kettleman City in Kings County. This segment of the California Aqueduct was built by the U.S. Bureau of Reclamation between 1962 and 1968. The canal is trapezoidal in cross section, with a 2:1 side slope.

Its bottom width varies from 50 feet to 110 feet. It is lined with unreinforced concrete. The canal depth varies from 25 feet to just under 39 feet. This section of the California Aqueduct was built with 49 vehicular bridge crossings, two railroad crossings, and one pedestrian crossing. Other canal features include four check gate structures, 56 cross-drainage structures, one siphon at Little Panoche Creek, and one canal drain at Los Baños Creek.

The San Luis Canal segment of the California Aqueduct is eligible for listing on the National Register under Criterion A for its contribution to broad patterns of our history within the context of water resource development in California (State Water Plan and Project), and under Criterion C for its importance within the field of engineering and design. The State Water Project and the California Aqueduct represent a project of almost unprecedented scale for the State of California, incorporating innovative technologies, including the pumping systems that drive water over the Tehachapi Mountains. The canal also meets Criterion G (which outlines additional National Register requirements for properties less than 50 years old) for its contribution to the welfare of the state's people. The State Water Project is the largest state-built, multi-purpose water project in the nation, and has been a major factor in profoundly altering the distribution of scarce water resources across California. Further, the San Luis Canal segment of the California Aqueduct represents an innovative arrangement between the U.S. Bureau of Reclamation and the State of California to serve both federal and state objectives of providing water to the west side of the San Joaquin Valley and to transport stored water to southern California.

### *Delta-Mendota Canal*

The Delta-Mendota Canal is about 116.5 miles long. Nearly 84 percent of it is concrete lined. Water is delivered to the canal from the Sacramento River through both human-made channels and natural bodies of water. The canal's bottom width is 48 feet in concrete sections; earthen sections are wider, running 60, 62, and 80 feet. The concrete sections have steeper sides (1.5:1) and deeper water (15 feet) than the earthen sections (2.5:1 and 13.9 feet).

The portion of the Delta-Mendota Canal that lies within the study area is lined with compacted earth and passes diagonally through agricultural lands that are currently partially cleared and planted in rotation crops. The canal has a trapezoidal profile and bottom width of approximately 62 feet. The Delta-Mendota Canal was built from 1946 to 1952 as part of the Central Valley Project. The Central Valley Project was designed as a system of water storage and conveyance units that delivered Sacramento River water for

irrigation as far south as Fresno County. The system transported San Joaquin River water both southward and northward on the east side of the San Joaquin Valley. The San Luis Delta-Mendota Water Authority owns and manages the canal.

The canal is eligible for listing on the National Register under Criterion A as a component of the Central Valley Project and for its role as a part of a larger comprehensive state water system built under the supervision of the U.S. Bureau of Reclamation. It is also eligible for listing under Criterion C as an example of a type and method of construction. Other than minor changes, the Delta-Mendota Canal is virtually unchanged from its period of construction, and the integrity of design, materials, workmanship and association to its setting remains high.

### *Shields Avenue Bridge*

The Shields Avenue Bridge (Bridge No. 42C0140) over the California Aqueduct was built in 1966 as part of the original construction of the San Luis Canal segment of the California Aqueduct. The bridge is a four-span precast/pre-stressed concrete I-girder bridge. It has a composite cast-in-place reinforced concrete deck resting on reinforced concrete pier walls and reinforced concrete seat abutments founded on spread footings. The bridge is 255.91 feet long and 27.89 feet wide. Each span is 60.04 feet long. It is owned by Fresno County. The bridge carries two lanes of traffic on Shields Avenue.

The Shields Avenue Bridge is eligible for listing in the National Register under Criteria A and C as a contributing element to the San Luis Canal Segment of the California Aqueduct. The bridge is historically associated with the California Aqueduct, which represents one of the most bold and successful public works projects undertaken by a state government within the context of water resource development in California.

### *Russell Avenue Bridge*

The Russell Avenue Bridge (Bridge No. 42C0141) over the California Aqueduct is a four-span precast/pre-stressed concrete I-girder bridge. It has a cast-in-place reinforced concrete deck resting on reinforced concrete pier walls and reinforced concrete seat abutments founded on spread footings. The bridge is 262.14 feet long and 32.16 feet wide. Each span is 64.96 feet long. It is owned by Fresno County. The bridge carries two lanes of traffic on Russell Avenue.

The Russell Avenue Bridge is eligible for listing in the National Register under Criteria A and C as a contributing element of the San Luis Canal segment of the California Aqueduct. The bridge is historically associated with the California Aqueduct, which represents one of the most bold and successful public works projects undertaken by a

state government within the context of water resource development in California. The bridge has undergone various alterations associated with leveling the deck due to local subsidence and to correct minor structural defects. Alterations occurred between 1983 and 1990.

### *Bass Avenue Bridge*

The Bass Avenue Bridge (Bridge No. 42C0399) over the Delta Mendota Canal was built in 1950 as part of the original construction of the Delta-Mendota Canal. The structure is a three-span cast-in-place reinforced concrete slab bridge. It rests on reinforced concrete pier walls and reinforced concrete end diaphragm abutments with warped wingwalls. The bridge is 60.04 feet long and 34.78 feet wide. Each span is 19.36 feet long. It is owned by Fresno County. The bridge carries two lanes of traffic on Bass Avenue.

The bridge has undergone minimal routine cleaning and repairs since its original construction and retains a high degree of historic integrity. The Bass Avenue Bridge is eligible for listing in the National Register under Criteria A and C as a contributing element of the Delta-Mendota Canal. The bridge is historically associated with the California Aqueduct, which represents one of the most bold and successful public works projects undertaken by a state government within the context of water resource development in California.

### *Sheldon Residence*

The Sheldon residence, also known as the Ben Gefvert Ranch Historic District, is at 4770 West Whitesbridge Avenue at the northeast corner of the intersection of Whitesbridge Avenue and Cornelia Avenue in Fresno County. The Sheldon residence sits on the 57.2-acre Ben Gefvert Ranch, which is designated as a Fresno County Centennial Farm. The residence consists of 55 acres of Thompson seedless grapes (used for raisins), 1 acre of naval orange trees, a farmhouse, a detached garage, and a barn. The Folk Victorian-style farmhouse was built in 1895. The farmhouse is distinguished by its full width front porch, with chamfered railing balustrade and posts supporting its roof. A second floor addition was built between 1908 and 1916. The residence is owned and managed by Madeline Tyler Sheldon, the granddaughter of Ben Gefvert. Ben Gefvert was the owner and manager of the farm from 1900 to 1917. Primary contributing resources are the historic grape vines and the orange trees west of the farmhouse.

The Sheldon residence is listed in the National Register of Historic Places under Criterion A in the area of agriculture for its association with the practice of viticulture and the beginnings of the raisin industry. The property, a relatively small-in-acreage farmstead

planted primarily in grapes for raisin production, represents in type and function an intact remnant of late 19th to early 20th century farming practices in Fresno County. It is listed in the California Register of Historical Resources and the Fresno City Historical Society List of Historic Places. It is also designated a Centennial Farm by Fresno County. The Sheldon residence is considered a protected Section 4(f) historic property potentially affected by future projects.

### *Archaeological Sites*

Section 4(f) applies to all archeological sites on or eligible for inclusion on the National Register, including those discovered during construction as set forth in 23 Code of Federal Regulations 774.11(f), except as set forth in Section 774.13(b).

The *Preliminary Assessment of Archaeological Sensitivity* included the preliminary analysis of archaeological potential for surface and buried prehistoric and historic-era archaeological resources within the study area. The results of the preliminary assessment found that there were no National Register-listed or eligible-for-listing archaeological sites within the study area, and therefore, no archaeological Section 4(f) properties are located within the study area. However, the records search results revealed that only eight percent of the study area has been systematically inventoried for cultural resources; therefore, there is a high probability that project-level construction would result in unplanned discoveries.

If a Section 4(f) archeological site is discovered during construction, the Section 4(f) process will be expedited and any required evaluation of feasible and prudent avoidance alternatives will take account of the level of investment already made. An exception may be made on an archeological site that is on or eligible for the National Register if Caltrans concludes that the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place. Caltrans may decide, with agreement of the official(s) with jurisdiction, not to recover the resource (23 Code of Federal Regulations 774.13(b).

For purposes of this Section 4(f) evaluation, it is assumed no archaeological sites would be affected as none have been identified.

## Impacts on Section 4(f) Properties

The use of a Section 4(f) property occurs: (1) when land from a 4(f) site is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of land that is adverse in terms of the Section 4(f) statute's preservationist purposes; or (3)

when there is a constructive use of a Section 4(f) property. A constructive use of a Section 4(f) property occurs if the transportation project does not incorporate land from a Section 4(f) property, but the project's indirect impacts to access, visual resources, air quality, water quality, vegetation and wildlife and/or noise, including mitigation, are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired.

Except at the Kerman Ecological Reserve, the 1,000-foot-wide defined corridor established for all alternatives was used to determine potential impacts (permanent and temporary impacts), and a worst-case scenario for all resource areas has been analyzed. Unless indirect impacts can be determined at this time, assessment of indirect impacts and constructive use of Section 4(f) resources will be deferred to subsequent Tier II project analyses. It would be too speculative to discuss these impacts at this planning level study because the exact location of the future expressway and detailed engineering design of the 250-foot-wide to 350-foot-wide expressway will not be available until future projects are proposed. The following discussion describes the proposed route adoption alternatives' potential impacts on each Section 4(f) property. The discussion of impacts by alternative is summarized in Table B.2.

### Table B.2 Section 4(f) Resources and Potential Impacts by Alternative

| Resource | Preferred Alt. | Alt. 1 | Var. 1A | Var. 1B | Var. 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| **Parks and Recreation Facilities** | | | | | | | |
| **Mendota Pool Park** | No impact | No impact | No impact | No impact | No impact | No impact | Permanent use: up to 8 acres |
| **Kerman High School** | No impact | Permanent use: up to 5.9 acres | No impact | No impact | No impact | No impact | No impact |
| **Kiwanis Park** | No impact | Permanent use: up to 0.34 acres | No impact | No impact | No impact | No impact | No impact |
| **Wildlife and Waterfowl Refuges** | | | | | | | |
| **Kerman Ecological Reserve** | No impact | Permanent use: up to 26.8 acres Temporary impacts | No impact | No impact | No impact | No impact | No impact |
| **Alkali Sink Ecological Reserve** | No impact | No impact | No impact | No impact | No impact | No impact | No impact |
| **Mendota Wildlife Area** | No impact | No impact | No impact | No impact | No impact | No impact | No impact |

**Table B.2 Section 4(f) Resources and Potential Impacts by Alternative**

| Resource | Preferred Alt. | Alt. 1 | Var. 1A | Var. 1B | Var. 1C | Alt. 2 | Alt. 3 |
|---|---|---|---|---|---|---|---|
| **Historic Properties** | | | | | | | |
| **San Luis Canal Segment of the California Aqueduct** | Permanent use: up to 2.5 acres | Permanent use: up to 2.5 acres | Permanent use: up to 2.5 acres | No impact | No impact | Permanent use: up to 2.5 acres | Permanent use: up to 2.5 acres |
| **Delta-Mendota Canal** | No impact | No impact | No impact | No impact | No impact | No impact | Permanent use: up to 7 acre |
| **Shields Avenue Bridge (Bridge No. 42C0140)** | No impact | No impact | Permanent use | No impact | No impact | No impact | Permanent use |
| **Russell Avenue Bridge (Bridge No. 42C0141)** | No impact | No impact | No impact | No impact | No impact | No impact | No impact |
| **Bass Avenue Bridge (Bridge No. 42C0399)** | No impact | No impact | No impact | No impact | No impact | No impact | No impact |
| **Sheldon Residence** | No impact | Permanent Use: up to 12 acres | No impact | No impact | No impact | No impact | No impact |
| Alt.: Alternative<br>Var.: Variation | | | | | | | |

## Parks and Recreation Facilities

### *Mendota Pool Park*

Mendota Pool Park is northeast of Mendota and within the 1,000-foot-wide footprint of Alternative 3. As shown in Figure B-6, about 8 acres of the northern portion of the park are included within Alternative 3, which constitutes approximately 10 percent of the park's total land area. Park facilities potentially affected by Alternative 3 include access at Bass Avenue, public parking, picnic areas, the boat launch, and the performance dome. The following discussion assumes that Alternative 3 is chosen for the project.

**Figure B-6 Alternative 3 Near Mendota Pool Park, Delta-Mendota Canal and Bass Avenue Bridge (Bridge No. 42C0399)**

If the 250-foot-wide to 350-foot-wide highway alignment is placed within the southern portion of Alternative 3, the portion of the Mendota Pool Park described previously would be acquired for project right-of-way and converted to transportation uses. This would be considered a permanent use of a protected Section 4(f) property.

If the highway alignment is placed outside the boundaries of the Mendota Pool Park, temporary uses of the Mendota Pool Park may occur within the northern portion of the park that is within the 1,000-foot-wide footprint of Alternative 3. These temporary uses, including construction easements and construction equipment staging areas, would occur only during the construction process. Any land disturbed by construction would be returned to pre-existing conditions.

### *Kerman High School*

Kerman High School's recreational facilities sit within the 1,000-foot-wide footprint of Alternative 1, as shown in Figure B-7. About 5.9 acres, or approximately 21 percent, of Kerman High School's total land area is within the 1,000-foot alignment width. Facilities within the proposed corridor width include school buildings, a portion of a baseball diamond and recreational courts.

If the 250-foot-wide to 350-foot wide highway alignment is placed within the southern portion of Alternative 1, approximately 5.9 acres of Kerman High School and its associated facilities would be acquired for project right-of-way and converted to transportation uses, which would be considered a permanent use of a Section 4(f) property.

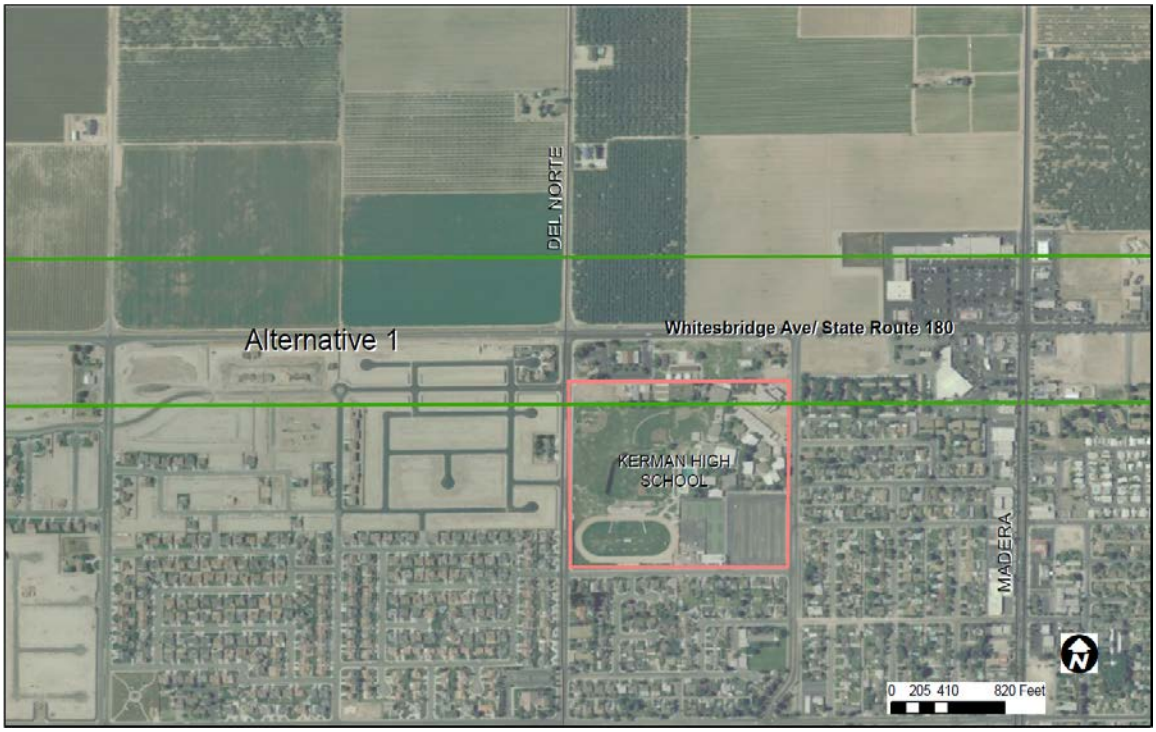



**Figure B-7 Alternative 1 Near Kerman High School**

If the 250-foot-wide to 350-foot wide highway alignment is placed outside the boundaries of Kerman High School, temporary uses may occur within the same portion of the recreational facility as described previously. These temporary uses, including construction easements and construction equipment staging areas, would occur only during the construction process, and the land would be returned to pre-existing conditions.

### *Kiwanis Park*

Kiwanis Park sits within the 1,000-foot-wide corridor defined for Alternative 1, as shown in Figure B-8. About 0.34 acre or approximately 16 percent of Kiwanis Park's total land area is included in Alternative 1. Park active-use open space could be affected by this alternative.

If the 250-foot-wide to 350-foot-wide highway alignment is placed within the boundaries of Kiwanis Park, approximately 0.34 acre of the park would be acquired for project right-of-way and converted to transportation uses, which would be considered a permanent use of a Section 4(f) property.

**Figure B-8 Alternative 1 Near Kiwanis Park**

If the 250-foot-wide to 350-foot-wide highway alignment is placed outside the boundaries of Kiwanis Park, temporary impacts may occur within the same portion of the park as described previously. These temporary uses, including construction easements and construction equipment staging areas, would occur only during the construction process, and the land would be returned to pre-existing conditions.

## Wildlife and Waterfowl Refuge Areas

### *Kerman Ecological Reserve*

The Kerman Ecological Reserve sits within the 1,000-foot-wide defined corridor of Alternative 1 as shown in Figure B-9. About 150 acres of the Kerman Ecological Reserve are within Alternative 1, which constitutes approximately 8.5 percent of the reserve's

total land area. No human-made facilities are expected to be within the affected area because the Kerman Ecological Reserve consists of preserved natural habitat.

**Figure B-9 Alternative 1 Near Kerman Ecological Reserve**

Any placement of the 250-foot-wide to 350-foot-wide highway alignment within Alternative 1 would require acquisition of reserve land for future project right-of-way, which would be considered a permanent use of a protected Section 4(f) property. The amount of land required would vary depending on placement of the roadway; up to 26.8 acres of reserve land, which constitutes approximately 1.5 percent of the refuge's total land area, may be required. The Kerman Ecological Reserve is within the 1,000-foot-wide corridor defined for Alternative 1. Acquisition of land within the Kerman Ecological Reserve is unavoidable with Alternative 1. The amount of land required for highway right-of-way, however, would be minimized with careful placement of the highway. If a 250-foot highway alignment is centered on the existing State Route 180, around 24 acres would be acquired. If the highway is aligned to the north of the existing State Route 180, roughly 26.8 acres would be acquired. If the highway is aligned to the south of the existing State Route 180, about 23.2 acres, or approximately 1.4 percent of the reserve's total acreage, would be acquired. Aligning the highway to the south of the

existing Route 180 yields the least acreage of the reserve required for the future expressway.

Temporary uses of the Kerman Ecological Reserve may occur in the same portion of the reserve within Alternative 1. Every effort would be made to locate these temporary uses, including construction easements and construction equipment staging areas, either in the construction zone or areas of the refuge that have been previously disturbed, including areas of existing access roads. Any land temporarily used and disturbed would be subject to revegetation with native plants, monitoring and maintenance after construction. These efforts would restore the land used temporarily to pre-existing conditions.

Proximity impacts such as the effects of the preferred alternative's viaduct shadow on vegetation at the Kerman Ecological Reserve may occur. Shade occurs only on the north side of the reserve and the amount of shade coverage varies throughout the year, with maximum shade coverage occurring in winter. For details of the shade analysis and coordination efforts with regard to proximity concerns, see the Coordination section of this evaluation.

### *Alkali Sink Ecological Reserve*

The Alkali Sink Ecological Reserve is next to and south of the 1,000-foot-wide defined corridor of Alternative 1, as shown in Figure B-10.

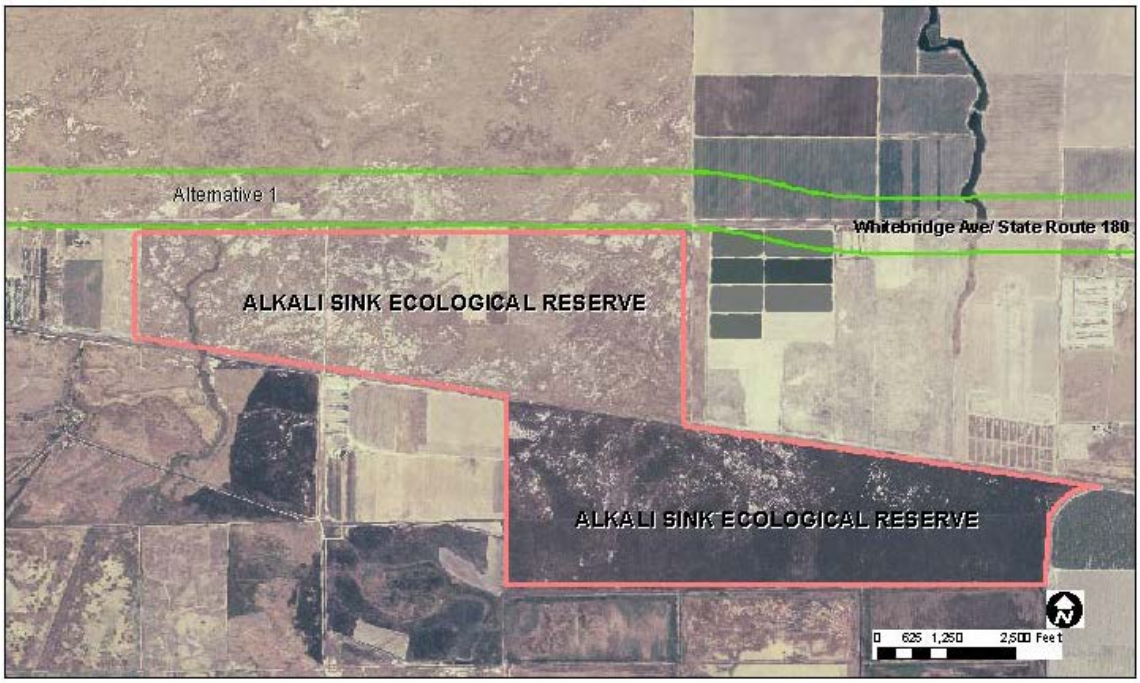



**Figure B-10 Alternative 1 Near Alkali Sink Ecological Reserve**

The future expressway associated with Alternative 1 would not require acquisition of any land within the Alkali Sink Ecological Reserve; therefore, no permanent use of this Section 4(f) property is anticipated.

Temporary uses of the Alkali Sink Ecological Reserve are not anticipated, as all construction activities are expected to be performed within the 1,000-foot-wide corridor of Alternative 1. No portion of the reserve is within Alternative 1.

### *Mendota Wildlife Area*

The Mendota Wildlife Area is next to and south of the 1,000-foot-wide Alternative 1 corridor, as shown in Figure B-11.

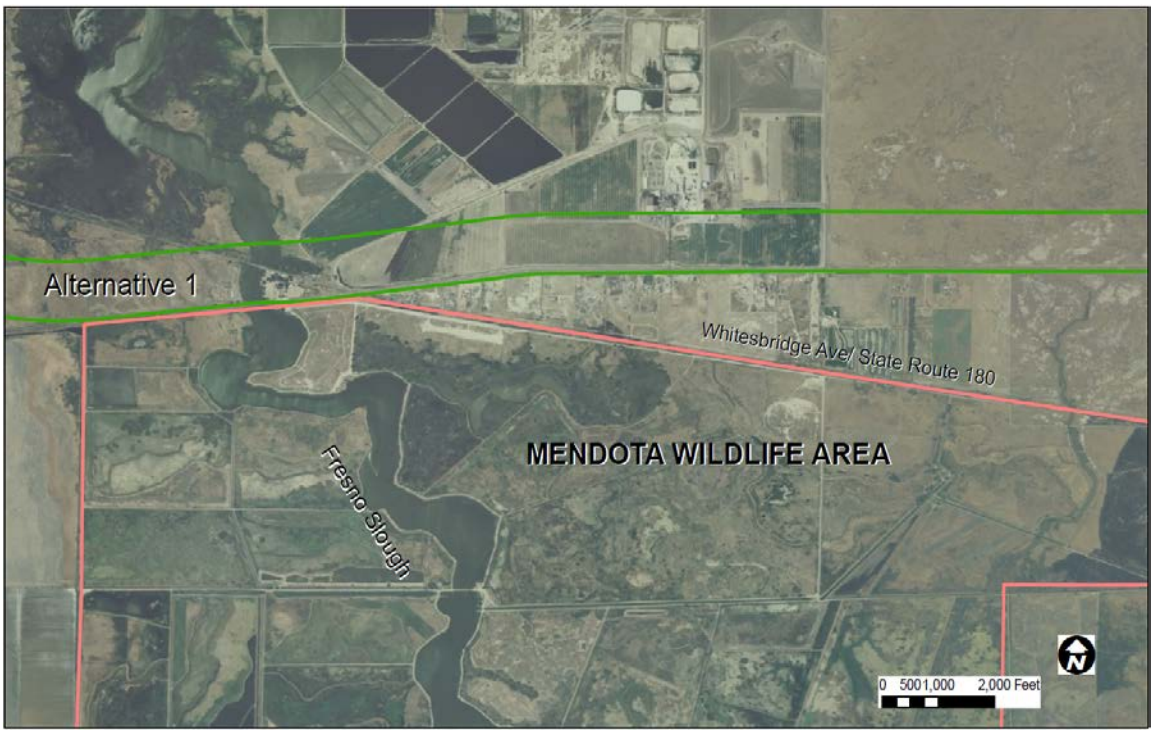



**Figure B-11 Alternative 1 Near Mendota Wildlife Area**

The future expressway associated with Alternative 1 would not require acquisition of any land within the Mendota Wildlife Area; therefore, no permanent use of this Section 4(f) property is anticipated.

Temporary uses of the Mendota Wildlife Area are not anticipated because all construction activities are expected to occur within the 1,000-foot-wide corridor of Alternative 1. No portion of the reserve is within Alternative 1.

## Historic Properties

### *San Luis Canal Segment of the California Aqueduct*

Alternative 1, Variation 1A, Alternative 2, Alternative 3, and the preferred alternative cross the San Luis Canal segment of the California Aqueduct. The historic canal is shown in Figure B-12 where it is crossed by Alternative 1 and Alternative 2 near Belmont Avenue. Variation 1A and Alternative 3 cross it near Shields Avenue.

All alternatives and one variation that cross the San Luis Canal segment of the California Aqueduct would require bridge supports in and around the canal, which would constitute a permanent use of the Section 4(f) property.

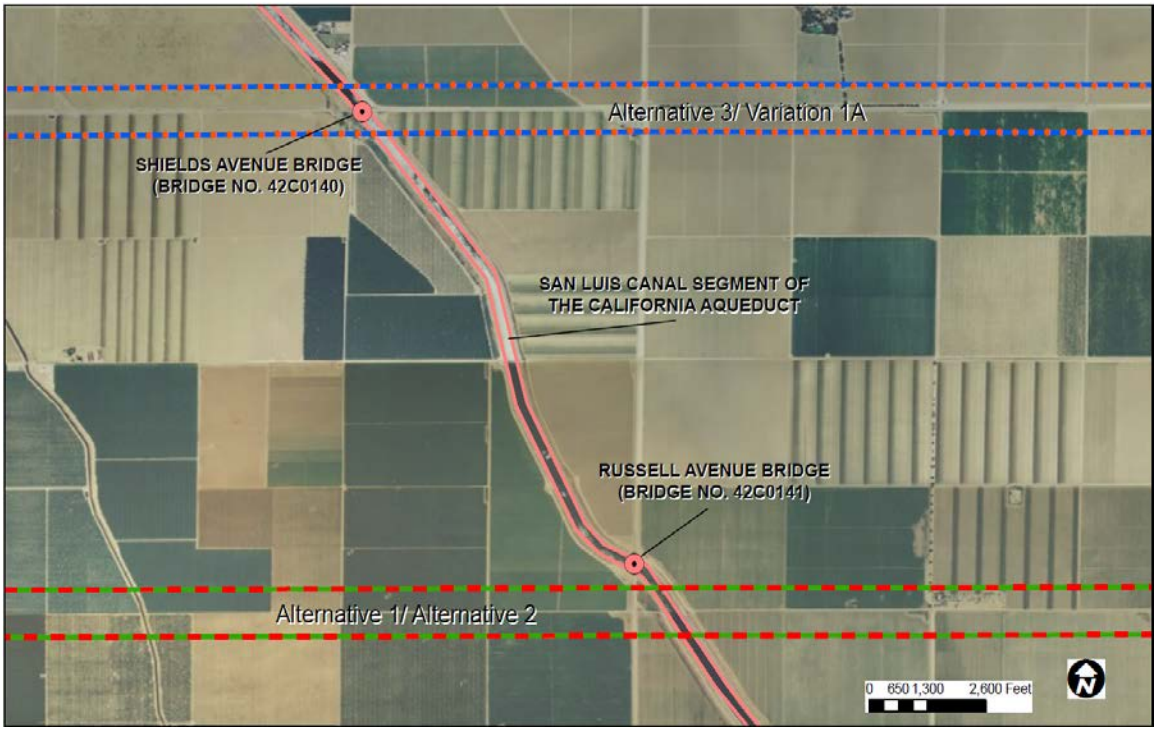



**Figure B-12 Alternative 1, Variation 1A, Alternative 2, and Alternative 3 Near the San Luis Canal Segment of the California Aqueduct, Shields Avenue Bridge (Bridge No. 42C0140), and Russell Avenue Bridge (Bridge No. 42C0141)**

For Variation 1A, Alternative 3, and the preferred alternative, approximately 2.5 acres of the canal are included in the 1,000-foot-wide alignments. Variation 1A and Alternative 3 may require the widening of the Shields Avenue Bridge (Bridge No. 42C0140) over this historic segment of the aqueduct.

Alternative 1 and Alternative 2 cross the San Luis Canal segment of the California Aqueduct. Approximately 2.5 acres of the canal are included in the 1,000-foot-wide footprint of both alternatives. Alternative 1 and Alternative 2 would require construction of a new bridge over the San Luis Canal segment of the aqueduct near Belmont Avenue. Construction of a new bridge may require placement of bridge supports within and around the canal, which would constitute permanent use of a Section 4(f) property. Bridge design in this location would be designed to maintain the proper hydraulic functions of the canal.

With Variation 1A and Alternative 3, temporary uses of the San Luis Canal segment of the California Aqueduct would be isolated to Shields Avenue Bridge and its immediate area. With Alternative 1 and Alternative 2, temporary uses of the San Luis Canal segment

of the California Aqueduct would be isolated to the new bridge and its immediate area. The areas where temporary uses would occur, including construction staging, would be restored to their pre-existing condition.

### *Delta-Mendota Canal*

The Delta-Mendota Canal lies within the 1,000-foot-wide footprint of Alternative 3, as shown in Figure B-6. Approximately 7 acres of the Delta-Mendota Canal are within Alternative 3. Canal facilities within this alternative include the Bass Avenue Bridge (Bridge No. 42C0399) over the Delta-Mendota Canal and the Delta-Mendota Lock.

Alternative 3 would require a new bridge to be built over the Delta-Mendota Canal. Construction of the new bridge may require placement of bridge supports in and around the canal, which would be considered a permanent use of the protected Section 4(f) property.

With Alternative 3, temporary uses of the Delta-Mendota Canal would be isolated to the new bridge and its immediate area. The areas where temporary uses would occur, including construction staging, would be restored to pre-existing conditions.

### *Shields Avenue Bridge*

Shields Avenue Bridge over the California Aqueduct (Bridge No. 42C0140) is within the 1,000-foot-wide corridor defined for both Variation 1A and Alternative 3 as shown in Figure B-12.

Variation 1A and Alternative 3 may require widening of the existing Shields Avenue Bridge to accommodate the new highway. The bridge may be widened from two lanes to four lanes. The Federal Highway Administration Section 4(f) Policy Paper states that Section 4(f) would apply “only when an historic bridge or highway is demolished, or if the historic quality for which the facility was determined to be eligible for the National Register is adversely affected by the proposed improvement.” The bridge was found eligible for listing in the National Register as a contributing element to the historic San Luis Canal segment of the California Aqueduct, for its contribution to broad patterns of our history within the context of water resource development in California (State Water Plan and Project), and for its importance within the field of engineering and design. Widening the bridge would not alter its contribution to the history of the development of the San Luis Canal segment of the California Aqueduct. During subsequent projects, the bridge would be designed to maintain the historic integrity of the existing bridge. Widening the bridge would not adversely affect the characteristics that make it eligible for listing, therefore, no Section 4(f) permanent use is expected.

Temporary use of Shields Avenue Bridge may occur during construction. If construction is done on the bridge, the bridge would be restored to its pre-existing condition upon completion of construction.

Shields Avenue Bridge crosses the San Luis Canal segment of the California Aqueduct, which is a concrete engineered channel. Although the canal is considered a wildlife corridor and contains vegetation, construction of a new bridge near the existing Shields Avenue Bridge would not cause adverse biological impacts that would affect the characteristics of the protected Section 4(f) property.

### *Russell Avenue Bridge*

Russell Avenue Bridge (Bridge No. 42C0141) over the California Aqueduct is just north of the 1,000-foot-wide Alternative 1 and Alternative 2 corridor, near the Russell Avenue and Belmont Avenue intersection as shown in Figure B-12. No permanent use of the bridge would occur because it is outside the defined corridor.

No temporary use of Russell Avenue Bridge would occur because the bridge is outside the 1,000-foot-wide footprint of Alternatives 1 and 2.

### *Bass Avenue Bridge*

Bass Avenue Bridge (Bridge No. 42C0399) over the Delta-Mendota Canal is within the 1,000-foot-wide corridor defined for Alternative 3, as shown in Figure B-6.

Although the bridge is within the Alternative 3 corridor, the highway alignment would be placed north of Bass Avenue Bridge and outside of Alternative 3 to avoid impacts to the bridge. No permanent uses of Bass Avenue Bridge would occur.

Although the bridge is within the footprint of Alternative 3, the project will avoid Bass Avenue Bridge and would not require acquisition or alteration of the existing bridge; therefore, no temporary use of Bass Avenue Bridge is expected.

### *Sheldon Residence*

The Sheldon residence sits within the 1,000-foot-wide corridor of Alternative 1, near Cornelia Avenue as shown in Figure B-13. Approximately 12 acres (22 percent) of the property, including a farmhouse, historic grape vines and orange trees, are within Alternative 1.

**Figure B-13 Alternative 1 Near the Sheldon Residence**

Some or all of the facilities within the 12 acres, including the farmhouse, have the potential to be acquired for future project right-of-way. This would constitute a permanent use of a protected Section 4(f) property.

If the highway alignment for Alternative 1 is placed outside of the Sheldon residence property, temporary uses of the Sheldon residence would be avoided; therefore, temporary uses of this protected Section 4(f) property are not expected.

## Avoidance Alternatives

### *Alternative 1*

As shown on Table B.2, Alternative 1 has the potential to require actual use of five Section 4(f) properties—Kerman High School, Kiwanis Park, Kerman Ecological Reserve, the San Luis Canal segment of the California Aqueduct, and the Sheldon Residence. Although Variations 1B and 1C of this alternative would avoid Kerman High School and Kiwanis Park, there would still be actual use to the remaining Section 4(f) properties along the alignment. Variation 1A would require use of Shields Avenue Bridge (Bridge No. 42C0140) and the San Luis Canal segment of the California Aqueduct. This

alternative by itself or in combination with the variations is not a prudent and feasible avoidance alternative.

### *Alternative 2*

This alternative would require use of only one Section 4(f) resource—the San Luis Canal segment of the California Aqueduct. Up to 2.5 acres of the canal may be affected by the future expressway. Including the preferred alternative, it is the alternative with the least number of affected Section 4(f) properties. This alternative is a prudent and feasible avoidance alternative.

### *Alternative 3*

As shown on Table B.2, Alternative 3 has the potential to require actual use of five Section 4(f) properties—Mendota Pool Park, the San Luis Canal segment of the California Aqueduct, Delta-Mendota Canal, Shields Avenue Bridge (Bridge No. 42C0140), and Bass Avenue Bridge (Bridge No. 42C0399). This alternative is not a prudent and feasible avoidance alternative.

### *Preferred Alternative*

The preferred alternative combines the alignments of a modified Alternative 1 (between Mendota and the western city limits of Fresno, except in Kerman), Variation 1A (between Interstate 5 and Mendota), and Variation 1B that bypasses Kerman to the north (see Figure 2-5). Like Alternative 2, it would require use of one Section 4(f) resource—the San Luis Canal segment of the California Aqueduct. Up to 2.5 acres of the canal may be affected by the future expressway.

The preferred alternative has been developed to a higher degree of detail than the other alternatives to facilitate the development of avoidance measures. The measures include two design changes to Alternative 1 that would avoid use of Section 4(f)-protected resources. The first change includes a viaduct that would span and avoid the Alkali Sink Ecological Reserve and Kerman Ecological Reserve. This viaduct would be built within the Caltrans right-of-way and will require a mandatory design exception during approval of a future project. The other change includes an advisory design exception during approval of a future project near Cornelia Avenue on the existing state route alignment that would avoid the Sheldon Residence.

This alternative is a prudent and feasible avoidance alternative.

### *No-Action/No-Project Alternative*

The No-Action/No-Project Alternative would avoid use of all Section 4(f) properties, but, would not serve the purpose and need of the project. Therefore, this alternative is not a prudent and feasible avoidance alternative.

## Measures to Minimize Harm

Several common measures have been identified to minimize potential impacts of future projects to the San Luis segment of the California Aqueduct since there are no prudent and feasible avoidance alternatives that would avoid its use. All of these measures are proposed at the program/policy level; final and exact details for mitigation measures would be decided during subsequent projects. These common measures include the following:

- Effectively stabilize dust emissions using water, chemical stabilizer/suppressant, tarp or other suitable cover or vegetative cover in disturbed areas, including storage piles that are not actively used for construction.
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Suspend excavation and grading when winds exceed 20 miles per hour.
- Limit idling time for heavy-duty construction equipment and haul trucks to a maximum of 10 minutes.
- Develop and implement a Stormwater Pollution Prevention Plan as required by the State Water Regional Control Board to reduce polluted runoff.
- Include permanent best management practices, such as stormwater conveyance and retention facilities, to control contaminated surface runoff from the facility.
- Use alternative low-noise pile installation methods to provide the lowest level of noise and ground vibration.
- Implement a construction noise and/or vibration monitoring program to limit impacts.

Subsequent projects would incorporate bridge design measures to maintain the hydraulic functions and wildlife movements in the canal. Together with the common measures to minimize harm, impacts to the canal would be reduced and would not adversely affect the historic characteristics of the canal that make it eligible for Section 4(f) protection.

## Other Park, Recreational Facilities, Wildlife Refuges and Historic Properties Evaluated Relative to the Requirements of Section 4(f)

The purpose of this discussion is to address Section 4(f) requirements relative to other park, recreational facilities, wildlife refuges, and historical properties in the study area vicinity (within about a half-mile of route adoption alternatives). As indicated below, none of the alternatives under consideration would result in a Section 4(f) use of these other park, recreational, wildlife refuges or historical resources. The discussion of each resource either documents (1) why the resource is not protected by the provisions of Section 4(f) or (2) if it is protected by Section 4(f), why none of the alternatives under consideration cause a Section 4(f) use by (a) permanently incorporating land into the project, (b) by temporarily occupying land that is adverse to the preservationist purposes of Section 4(f), or (c) by constructively using land from the resource.

No park or recreational facilities within a half-mile of route alternatives have been developed under Section 6(f) of the Land and Water Conservation Fund Act (National Park Service, 2008).

Future projects associated with the proposed route adoption alternatives would not result in any permanent, temporary or indirect impacts to any of the properties discussed in this section. These include nine parks and/or recreational facilities and one historic property. Of the properties discussed in this section, Section 4(f) does not protect one property—the Fresno West Golf Course.

### Parks and Recreation Facilities

#### *Rojas Pierce Park*

Rojas Pierce Park, at 200 South Sorenson Avenue in Mendota, is owned by the City of Mendota and is therefore considered a Section 4(f) resource. The park, which is about 10 acres, was refurbished in 2008 and includes children’s play equipment, facilities, a splash park, and a baseball diamond. Variation 1A is about a half-mile west of Rojas Pierce Park. There would be no permanent or temporary uses of land at Rojas Pierce Park by the project. Therefore, the provisions of Section 4(f) are not triggered.

#### *Fresno West Golf Course*

Fresno West Golf Course, 10 miles west of Kerman, is a privately owned 18-hole golf course open to the public. Although the golf course is within a half-mile of the study area,

the provisions of Section 4(f) are not triggered because the property is privately owned. Therefore, no further evaluation is required.

### *Kerckhoff Park*

Kerckhoff Park sits at the intersection of G Street and Third Street in Kerman. The City of Kerman owns the 5.75-acre neighborhood park. Facilities at Kerckhoff Park include a baseball field with bleachers, a skate park, several picnic shelters, a stage, barbecue pits, picnic tables, booths used for events such as the Harvest Festival, playground equipment, a restroom, and a meeting/recreational facility known as the Scout Hut.

Alternative 1 runs about a half-mile north of Kerckhoff Park along Whitesbridge Avenue. Alternative 1 would not involve any permanent or temporary uses of land at Kerckhoff Park. Therefore, the provisions of Section 4(f) are not triggered.

### *Rotary Park*

Rotary Park is on the campus of Kerman-Floyd Elementary School in Kerman. The City of Kerman and Kerman Unified School District maintain a “Facilities Use Agreement” that guides the use of the park and allows public use of the park outside of school hours. The City of Kerman manages the facilities at Rotary Park. The agreement and public access make this park subject to Section 4(f) provisions. Rotary Park’s 4.5 acres include two lighted baseball fields, bleachers, a restroom/concession building, and a playground. Rotary Park is within a half-mile of Alternative 1. Alternative 1 does not propose any permanent or temporary uses of land at Rotary Park.

### *Soroptomist Park*

Soroptomist Park sits at the northeast corner of Siskiyou and Kearney Boulevard in Kerman. The park, owned by the City of Kerman, includes walking paths, a covered picnic area, and universally accessible playground equipment. The 2.95-acre park is open to the public; therefore, it is subject to Section 4(f) provisions. Soroptomist Park is within a half-mile of Alternative 1. Alternative 1 does not propose any permanent or temporary uses of land at Soroptomist Park. Therefore, the provisions of Section 4(f) are not triggered.

### *Sunset Playground*

Sunset Playground is a combination park and ponding basin. It sits at the southeast corner of Sixth Street and Sunset Avenue. The 0.35-acre park is owned by the City of Kerman and has playground equipment. The park is open to the public; therefore, it is subject to Section 4(f) provisions. Sunset Playground is within a half-mile of Alternative 1.

Alternative 1 does not propose any permanent or temporary uses of land at Sunset Playground. Therefore, the provisions of Section 4(f) are not triggered.

### *Kerman Middle School*

Kerman Middle School includes park and recreational facilities at 601 South 1st Street in Kerman. The City of Kerman and Kerman Unified School District maintain a "Facilities Use Agreement" that guides the use of the park and allows public use of the park outside of school hours. The agreement and public access therefore make this park subject to Section 4(f) provisions. Kerman Middle School's 10 acres include a baseball diamond, basketball courts, gym, and outdoor play areas. Kerman Middle School is within a half-mile of Alternative 1. Alternative 1 does not propose any permanent or temporary uses of land at Kerman Middle School. Therefore, the provisions of Section 4(f) are not triggered.

### *Liberty Intermediate School*

Liberty Intermediate School includes park and recreational facilities at 16001 West E Street in Kerman. The City of Kerman and Kerman Unified School District maintain a "Facilities Use Agreement" that guides the use of the park and allows public use of the park outside of school hours. The agreement and public access therefore make this park subject to Section 4(f) provisions. Liberty Intermediate School's 10 acres include a softball field, soccer field, and playground. Liberty Intermediate School is within a half-mile of Alternative 1. Alternative 1 does not propose any permanent or temporary uses of land at Liberty Intermediate School. Therefore, the provisions of Section 4(f) are not triggered.

### *Kearney Park*

Kearney Park is a regional park at 6725 Kearney Boulevard about 3 miles west of Fresno. Kearney Park is owned by the Regents of the University of California and is leased and operated by Fresno County. Kearney Park is an historic 225-acre park originally developed as the estate of Fresno County pioneer Martin Theodore Kearney. The park contains the former home of Kearney, which is now operated as a museum. The park has picnic facilities, tennis courts, soccer fields, horseshoe pits, two softball fields and four playground areas. Kearney Park is about a half-mile south of Alternative 1. Alternative 1 does not propose any permanent or temporary uses of land at Kearney Park. Therefore, the provisions of Section 4(f) are not triggered.

### Wildlife and Waterfowl Refuge Areas

There are no wildlife and waterfowl refuge areas within a half-mile of the study area, other than those described previously. Therefore, no further evaluation is required.

### Historic Properties

#### *Kearney Mansion*

Kearney Mansion is at 7160 West Kearney Boulevard in Fresno County. It is in Kearney Park. The Regents of the University of California, operated under lease agreement by the Fresno City and Fresno County Historical Society, own Kearney Mansion. The mansion consists of two buildings: a main residence and an adjoining servant quarters. Built in 1903, the mansion was designed in the French Renaissance style. Today, the mansion is operated as a museum and exhibits 50 percent of the original furnishings.

Kearney Mansion was determined eligible for listing in the National Register under Criterion B for its association with Martin Theodore Kearney, who was a substantial contributor to the agricultural development of both Fresno County and the state of California.

Kearney Mansion is about a half-mile south of Alternative 1. Alternative 1 does not propose any permanent or temporary use of Kearney Mansion. Therefore, the provisions of Section 4(f) are not triggered.

## Coordination

Coordination has been ongoing among all affected local jurisdictions, resource agencies and Caltrans.

Early coordination with the public and resource agencies included open houses and scoping meetings. Open houses were conducted on October 4, 2006 in the city of Kerman and October 5, 2006 in the city of Mendota. The purpose of these open houses was to do the following: provide information to agency representatives and the community about the proposed route adoption and its potential issues; respond to community members' questions; and solicit public comments about the corridor alternatives. Scoping meetings were held on February 8, 2006 and June 11, 2008 to provide members of the public an opportunity to voice their concerns and provide input on the route adoption study.

A public hearing was held on March 30, 2011 during the circulation and comment period of the draft environmental document (March 16, 2011 to May 9, 2011) to further involve the public and provide opportunities for comment on the study.

The Native American Heritage Commission was contacted on October 31, 2005 to advise the commission of the route adoption study. The commission responded on November 10, 2005, stating that its search of sacred land files revealed no indication of the presence of Native American sacred lands in the immediate study area; however, the commission also recommended that other Native American individuals/organizations be contacted to verify the findings of the commission. Notification letters were sent to these Native American tribes on January 31, 2006. No responses were received.

No historical society/interested party consultation letters were sent out during the preparation of the Historic Resources Sensitivity Study (August 2006).

The Historic Property Survey Report prepared for this study was submitted to the State Historic Preservation Officer in 2008, which found the following resources eligible for listing in the National Register: California Aqueduct, Delta-Mendota Canal, Bridge No. 42C0140, Bridge No. 42C0141, Bridge No. 42C0143, Bridge No. 42C0399. Bridge No. 42C0074 was determined eligible for listing in the California Register of Historical Resources (California Register). No other resources in the study area were determined to appear eligible for listing in the National Register. In a letter dated December 12, 2008, Caltrans requested that the State Historic Preservation Officer review the determination of eligibility (see Appendix F for this letter). Pursuant to the Section 106 Programmatic Agreement, Caltrans assumed concurrence once the State Historic Preservation Officer had not responded within the 30-day review period.

The Sheldon residence, also known as the Ben Gefvert Ranch Historic District, is listed in the National Register of Historic Places under Criterion A in the area of agriculture for its association with the practice of viticulture and the beginnings of the raisin industry in Fresno County. It is listed in the California Register of Historical Resources and the Fresno City Historical Society List of Historic Places; it is also designated a Centennial Farm by Fresno County.

Coordination with all officials with jurisdiction over the Section 4(f) resources was conducted via letters sent on August 11, 2009. Letters were mailed to the cities of Kerman and Mendota, Fresno County, California Department of Fish and Game, California Department of Water Resources, Kerman Unified School District, San Luis Delta-Mendota Water Authority, and Central California Irrigation District. Letters to each

agency described the proposed route adoption, avoidance alternatives, potential impacts to the property, and measures to minimize harm. Agencies were also requested to identify the major purpose and significance of the property and respond in writing stating whether the property meets the criteria for a park, recreation area, historic resource, or wildlife refuge protected by Section 4(f).

Caltrans received a letter of response from the Central California Irrigation District regarding the Mendota Pool Park and a letter from Fresno County regarding the National Register-eligible bridges. The Central California Irrigation District letter, dated September 21, 2009, stated that the affected property is leased and operated as a park by the City of Mendota and therefore qualifies as a Section 4(f) property. Fresno County's letter, dated September 2, 2009, stated that the county had no comments at this time regarding whether the affected bridges met Section 4(f) criteria.

Caltrans met with the California Department of Fish and Game on December 1, 2008 to discuss the possibility of a *de minimis* finding for impacts to the Kerman Ecological Reserve. Additionally, a letter dated November 23, 2009 was sent to the California Department of Fish and Game seeking concurrence for a *de minimis* impact finding for impacts of Alternative 1 on the Kerman Ecological Reserve. Caltrans proposed that with avoidance, minimization, and mitigation or enhancement measures, improving the existing roadway by widening to a 250-foot roadway would not adversely affect the activities, features and attributes that make the Kerman Ecological Reserve a 4(f) resource. All mitigation and enhancement measures would be negotiated and agreed upon in writing at the time a project becomes funded. Caltrans did not receive written concurrence from the department regarding the de minimis impact finding proposed.

In spring 2011, during circulation of the draft environmental document, Caltrans was informed of the Department of Fish and Game proposal to acquire land for a conservation bank just north of the Alkali Sink Ecological Reserve. The land would become part of the Alkali Sink Ecological Reserve once the bank was in operation and would, therefore, become a Section 4(f) resource. Caltrans met with the California Department of Fish and Game, U.S. Environmental Protection Agency and U.S. Fish and Wildlife Service in July 2011 to discuss methods that would avoid impacts to this new expansion of the Alkali Sink Ecological Reserve. Caltrans continued discussions with the agencies by teleconference on November 17, 2011. Caltrans would develop a design, such as a viaduct structure, that would allow State Route 180 to be built within existing state-owned right-of-way and would require a mandatory design exception at the Project Approval and Environmental Document phase of a future project when funds are

appropriated. This would avoid the Alkali Sink Ecological Reserve and its proposed expansion and the Kerman Ecological Reserve.

The California Department of Fish and Game raised concerns about proximity impacts such as the effects of the viaduct's shadow on vegetation at the reserves. The lack of sunlight may disrupt or inhibit the growth of plants that provide foraging habitat to sensitive species. Of the proposed design scenarios, a 10-foot-high viaduct with a mandatory design exception would have the least shadow effect to the reserves. The amount of shade coverage varies throughout the year, with maximum shade coverage occurring in winter. Shade occurs only on the north side of the reserves. Table B.3 shows the amount of shade coverage for each reserve by season month.

### Table B.3 Proposed Viaduct Shade Coverage

| Month | Amount of Shade Coverage in Acres | | |
|---|---|---|---|
| | Kerman Ecological Reserve (total reserve area: 1,700 acres) | Alkali Sink Ecological Reserve (total reserve area: 1,906 acres) | Proposed Alkali Sink Conservation Bank (total reserve area: 961acres) |
| December | 0.9 | - | 0.6 |
| March/September | 2.4 | - | 1.5 |
| June | 5.9 | - | 3.8 |

For this assessment, the affected length of each reserve is the length of the entire reserve next to existing State Route 180. Although the length of each viaduct is unknown, the viaduct structure would most likely be placed in the area where both sides of each reserve are next to the road. Therefore, the actual affected length of the reserve would be shorter.

The maximum area of shade would be about 3.8 acres for the affected length (5,174 feet) of the proposed Alkali Sink conservation bank. The maximum area of shade would be about 5.9 acres for the affected length (8,032 feet) of the Kerman Ecological Reserve. Because the Alkali Sink Ecological Reserve is on the south side of the viaduct, the reserve would not receive shade from the structure. However, on the south side of the reserves is an area underneath the viaduct that could receive up to 3.7 acres of sunlight next to the Kerman Ecological Reserve and up to 2.4 acres of sunlight next to the Alkali Sink Ecological Reserve. The maximum shaded area affecting the Kerman Ecological Reserve accounts for about 0.3 percent of its total acreage. The maximum shaded area affecting the proposed Alkali Sink conservation bank accounts for approximately 0.4 percent of its total acreage. Also, the availability of sunlight in the winter may not be as critical as it is during the spring and fall.

The benefits of the viaduct outweigh the effects of the shadow. The value of the 4(f) properties would be improved by elevating the roadway. The improved connectivity between both sides of the reserves would allow safe migration of species and promote genetic exchange of species. Elevating the highway would remove the existing roadway that acts as a water-flow impediment between lands on the south and north. The elevated highway would also allow improved sheet flow between north and south properties and enhance movement of many aquatic species. Wildlife could move without restriction and would no longer be struck by moving vehicles.

Another proximity impact is storm water runoff. Pollutants would be carried in surface runoff from roadways and landscaped areas and discharged to surface water bodies. When an impervious surface such as a roadway is widened, more water accumulates and is conveyed rapidly into storm drains. This large volume of water may convey pollutants into adjacent water bodies and may adversely affect aquatic and terrestrial habitats. These effects include degradation, loss, and fragmentation of habitat. The design of the viaduct would include conveyance features to drain water from the bridge away from the reserves to a storage facility.

Selecting Alternatives 2 and 3 would lead to implementation of a new corridor on natural land north of existing State Route 180. This would create another barrier to the movement of wildlife between the reserves and the San Joaquin River riparian corridor. It may also impede one of the conservation recovery strategies identified in U.S. Fish and Wildlife Service's Recovery Plan for Upland Species of the San Joaquin Valley, California (1998). Alternatives 2 and 3 would impede efforts to acquire and preserve the large block of natural land north of and between the Alkali Sink Ecological Reserve and the San Joaquin River as a strategy for recovery of the Fresno kangaroo rat.

Caltrans has determined that the combined proximity impacts from storm water runoff and the viaduct's shadow would not substantially impair the qualities of the Kerman Ecological Reserve, Alkali Sink Ecological Reserve, and proposed Alkali Sink conservation bank that make them 4(f) resources. Therefore, constructive use would not occur from the proposed viaduct.

## Least Harm Analysis

The intent of the Section 4(f) requirements is to avoid impacts to public parks, recreation areas, wildlife refuges, and historic properties unless there is no “feasible and prudent” alternative. Although the No-Action/No-Project Alternative avoids all Section 4(f) resource impacts, that alternative does not meet the purpose and need of the project and is not considered feasible or prudent.

Where no feasible and prudent alternatives are identified that completely avoid use of Section 4(f) resources, a least-harm analysis must be performed to determine how to minimize overall harm to the resources. In performing this analysis, the net harm to the resources (after mitigation) is the governing factor. The feasible and prudent alternative which does the least harm to Section 4(f) resources must be selected for construction. Where there is little or no difference between alternatives in the overall harm to resources, any of the alternatives may be selected.

As shown in Table 2.4 Comparison of Alternatives, Alternative 1 and Alternative 3 would affect five Section 4(f) resources, Alternative 1 with Variation 1A would potentially affect the highest number of Section 4(f) resources, and Alternative 2 would affect only one: the San Luis Segment of the California Aqueduct. Alternative 1 with either Variation 1B or 1C would affect three Section 4(f) resources. The preferred alternative would affect two Section 4(f) resources: the San Luis Segment of the California Aqueduct and the Shields Avenue Bridge. According to this Section 4(f) evaluation, however, widening the Shields Avenue Bridge within the alignment of the preferred alternative would not alter its historic integrity as a contributing element to the development of the historic Calfornia Aqueduct. Mitigation measures would be used in the design of later projects to minimize harm to historic integrity of the bridge. For this reason, Caltrans determined there was little difference between either the preferred alternative or Alternative 2 in overall harm to Section 4(f) resources.

Although the preferred alternative does not have the fewest number of impacts of all alternatives that were considered, it is the alternative that would impose the least harm while meeting the purpose and need and objectives for providing a corridor for future transportation projects that will improve mobility across Fresno County.

The reasons for selecting the preferred alternative are summarized below:

- The County of Fresno, City of Kerman, City of Mendota, and City of Firebaugh support the alternative because it minimizes disruption to existing and planned land uses and would improve access.
- Using the existing State Route 180 and Shields Avenue corridors to the greatest extent feasible has less fragmentation impacts to farmland, natural habitats, and special-status species compared to Alternatives 2 and 3.
- The alternative minimizes impacts—cumulative and growth inducing—to sensitive species habitats and Section 4(f) resources by including measures that would avoid and/or minimize adverse impacts to these resources.

## Conclusion

Except for the California Aqueduct, all Section 4(f) properties discussed in this assessment could be avoided through alignment selection and placement. It is anticipated that all alternatives would have similar unavoidable impacts to the California Aqueduct. Based on the above considerations, there is no feasible and prudent alternative to the use of Section 4(f) land from the San Luis segment of the California Aqueduct. In light of Section 4(f)'s preservation purpose, any future proposed action would include all possible planning to minimize harm to this resource.

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# Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

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March 16, 2012

**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 Mario Solis, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353, TTY 711, fax (916) 324-1869, or via email: *mario_solis@dot.ca.gov*.

MALCOLM DOUGHERTY
Acting Director

*"Caltrans improves mobility across California"*

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# Appendix D 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, 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.

In order 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 which 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 or 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 pubic 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.

**RESIDENTIAL RELOCATION PAYMENTS PROGRAM**
The links below are to the Relocation Assistance for Residential Relocation Brochure.

- http://www.dot.ca.gov/hq/row/pubs/residential_english.pdf
- http://www.dot.ca.gov/hq/row/pubs/residential_spanish.pdf
- http://www.dot.ca.gov/hq/row/pubs/mobile_eng.pdf
- http://www.dot.ca.gov/hq/row/pubs/mobile_sp.pdf

**THE BUSINESS AND FARM RELOCATION ASSISTANCE PROGRAM**
The links below are to the Relocation Assistance for Residential Relocation Brochure.

- http://www.dot.ca.gov/hq/row/pubs/business_farm.pdf
- http://www.dot.ca.gov/hq/row/pubs/business_sp.pdf

# Appendix E Minimization and/or Mitigation Summary

Minimization and mitigation measures listed for the route adoption alternatives are proposed recommendations only. They are general in nature and are commensurate with the planning level analysis presented in this document. In the future, as portions of the selected alignment are funded and proposed for construction, Tier II environmental documents would be prepared for each project. The Tier II document would provide an analysis of the environmental impacts at that time, and specific minimization and/or mitigation measures would be presented. Unless specified, all measures apply to all corridor alternatives.

The California Department of Fish and Game became the California Department of Fish and Wildlife on January 1, 2013, as a result of Assembly Bill 2402, which was signed into law in September 2012 by Governor Jerry Brown. For consistency with the circulated draft environmental document, the name prior to January 1, 2013 is used throughout this document.

| **Existing and Future Land Use** |
|---|
| The construction of a future project should:<br>▪ Provide appropriate access to adjacent properties during the planning and design phases of subsequent projects.<br>▪ Coordinate with the cities and appropriate local agencies to determine placement of the State Route 180 expressway alignment to either avoid or be consistent with proposed developments.<br>▪ Use appropriate landscape elements in the project design that would be compatible with city and county land use and open space policies related to preservation of vegetation and visual resources.<br>▪ Provide compensation in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act (see Section 3.1.4.2) if future acquisition of the planned development occurs during subsequent projects. |
| **Parks and Recreation** |
| Minimization measures from indirect impacts to these facilities are described under these resources—Visual Resources, Water Quality, Air Quality, and Noise and Vibration. |

| **Farmland** |
|---|
| In accordance with State law, Caltrans would comply with notification and findings requirements for any proposed future acquisition of Williamson Act contracts. Property acquisition and compensation would be based upon a demonstrated loss of value to the property owner.<br>Access issues would be addressed during the planning and design stages of subsequent projects. Appropriate placement and spacing of bridge crossings and the use of frontage roads to maintain parallel local access in certain areas would minimize potential adverse effects on access. |
| **Community Character and Cohesion** |
| Access issues would be addressed during the planning and design stages of subsequent projects. Proper placement of bridge crossings and use of frontage roads to maintain access in certain areas should minimize potential adverse economic and community effects. |
| **Relocations** |
| At the project level, Caltrans would provide relocation assistance payments and counseling to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All benefits and services would be provided equitably to all relocated residential and business properties without regard to race, color, religion, age, national origins, and disability as specified under Title VI of the Civil Rights Act of 1964.<br>When avoidance of utilities, including irrigation canals, pipelines and power lines is not feasible, designing overcrossing or undercrossing structures could minimize impacts. Close coordination with utility providers would be conducted to identify possible relocations or interruptions in service. |
| **Utilities/Emergency Services** |
| **Natural Gas, Electricity, Telephone, Water, Irrigation, and Sewer**<br>Caltrans procedures are directed to minimize right-of-way impacts and associated easement acquisition costs by carefully selecting the alignment, designing perpendicular crossings where feasible, and acquiring only the area necessary for the intended use. For impacts that are unavoidable, coordination should occur well in advance of proposed future projects (i.e., during the project design phase) to develop a crossing or relocation plan for the affected facilities to minimize the potential disruption of services.<br>**Fire and Police Services**<br>Police and fire departments with jurisdiction over the study area would be informed of future project construction schedules well in advance of any detour plans to ensure that the emergency response time is not disrupted. Traffic Management Plans would be prepared in accordance with Caltrans' requirements including measures to minimize emergency service disruptions within the highway right-of-way. |
| **Traffic and Transportation/Pedestrian and Bicycle Facilities** |
| Traffic Management Plans would be prepared for subsequent projects to reduce traffic delays, congestion, and the likelihood of accidents during construction. Standard Caltrans construction practices include information on highway conditions, portable changeable message signs, lane and road closures, alternate routes, reverse and alternate traffic control, and a traffic contingency plan for unforeseen circumstances and emergencies. |

**Visual/Aesthetics**

General mitigation strategies applicable to future projects to offset visual and aesthetic impacts are listed as follows.

- Design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and developments. Locate or design projects to minimize their intrusion into important viewsheds.
- Develop interchanges, to the extent feasible, at the grade of the surrounding land to limit view blockage. Contour the edges of major fill slopes to provide a more natural-looking finish profile.
- Use natural landscaping to minimize the contrast between the project and surrounding areas. Plan landscaping to complement existing natural and man-made features, including the dominant landscaping of surrounding areas. Design landscaping to add significant natural elements and visual interest to soften the hard-edged, linear travel experience that would otherwise occur.
- Maintain the agricultural character of the study area where possible, including limiting the impact to orchards, vineyards, and grazing land that create the rural atmosphere.
- Preserve naturally occurring features of the study area where possible, including the wetland and recreational areas.
- Construct soundwalls of materials where the color and texture of the construction material complements the surrounding landscape and development. Use color, texture, and alternating façades to “break up” large walls and provide visual interest.
- Incorporate design measures to reduce potential glare and night-lighting impacts. Where appropriate, this should include provisions for shielding lights to prevent light spilling throughout the area and specifying light intensity (specifically the number of lights, lumens, and wavelengths).
- Design a bridge with the shortest span necessary to cross the Fresno Slough and adjacent wetland areas.
- Plan the project along a route that is as far as possible from the San Joaquin River, giving due consideration to potentially conflicting issues associated with sensitive habitat avoidance and other resource conservation.

**Cultural Resources**

At a minimum, the following cultural resource measures would be implemented with future projects:

- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate area would be stopped until a qualified archaeologist can assess the nature and significance of the find.
- If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission who would then notify the Most Likely Descendent. At this time, the person who discovered the remains would contact the Caltrans District 6 Native American Coordinator, so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

| **Hydrology and Floodplain** |
| --- |
| While floodplain impacts cannot be fully assessed until individual projects are proposed, the following measures may be used in the future:<br>▪ Caltrans design features such as bridges or viaducts and equalization and stream crossing culverts or underpasses would be incorporated into those future projects to minimize impacts associated with floodplain crossings.<br>▪ Placement of bridge piers in the same alignment as the existing bridge piers would minimize hydraulic impacts to the Fresno Slough.<br>▪ The future highway would be placed within the Panoche Creek floodplain on fill elevated above the floodplain elevation to minimize the longitudinal encroachment.<br>▪ Permanent best management practices would also be designed for erosion and associated sedimentation control. These features would be incorporated to avoid or minimize floodplain impacts at transverse crossings and to minimize the longitudinal encroachment impacts of Alternative 1 and 2 along Belmont Avenue west of Mendota.<br>▪ Best management practices for erosion and other pollution control practices would be followed.<br>▪ Access to the highway would be controlled (i.e., limited to authorized proposed interchanges and intersections that connect to existing public streets), and, where needed, it would be constructed on fill to meet the Federal Emergency Management Agency standard of two-foot clearance above the 1-percent-annual-chance flood level.<br>▪ The future expressway would be designed to include additional storm water conveyance facilities to control increased surface runoff. The proposed drainage systems would be designed so that the hydraulic grade line would be no higher than existing conditions during all flood events up to a return period of 100 years.<br>▪ During construction, all earthmoving activities involving heavy construction equipment should be limited to the dry season, to the extent that this does not interfere with the breeding season of any protected species. |

| **Water Quality and Storm Water Runoff** |
|---|
| A Storm Water Pollution Prevention Plan would be prepared and implemented during construction in accordance with Caltrans' National Pollutant Discharge Elimination System permit. The Storm Water Pollution Prevention Plan would include best management practices to control erosion and associated sedimentation during construction. There would be restrictions regarding construction in and along federal waterways including special best management practices such as flow diversion (if construction is within the waterway while flows are occurring), appropriate sediment and erosion control along the waterways, containment for non-storm water pollution, and placement of hazardous material storage facilities away from the waterways.<br><br>Caltrans would require the contractors to follow all Regional Water Quality Control Board regulations and procedures for discharging wastewater, including dewatering discharge. Additional information about appropriate control practices would be developed at the project design stage, at which time an increased level of detail for best management practices would be provided.<br><br>As required by the Regional Water Quality Control Board, Caltrans would develop and implement a Water Quality Technical Report for project operation that would contain measures to reduce polluted runoff. The Water Quality Technical Report would include measures for the control of potential pollutant sources, control and treatment of runoff, and to protect water quality resources. Specific best management practices included in the Water Quality Technical Report for project operation would include some or all of the following: permanent storm water pollutant treatment controls such as biofiltration devices and/or infiltration devices; litter controls; cleaning/maintenance measures; outdoor storage controls; landscaping controls; and erosion controls.<br><br>Future projects would be designed to include permanent best management practices, such as storm water conveyance and retention facilities to control contaminated surface runoff from the facility. |
| **Geology/Soils/Seismic/Topography** |
| The following specific measures are proposed for future projects:<br>▪ Conduct a site-specific geotechnical investigation to identify the potential hazards resulting from settlement or construction on expansive soils and necessary project planning, design, and construction features to avoid, minimize, or prevent such hazards.<br>▪ Structures associated with future projects would be designed to meet maximum credible earthquake standards, as established by the Caltrans Office of Earthquake Engineering to minimize potential damage from ground shaking.<br>▪ Groundwater-level data would be obtained during site-specific design investigations of the liquefaction potential of roadway, bridge or embankment foundations. Liquefaction potential would also be determined through these design investigations and design measures would be incorporated into the project, if appropriate.<br>▪ Site-specific engineering recommendations to minimize landslide impacts would be defined by field testing, incorporated into the final design, and implemented during construction of the individual projects. |

| **Paleontology** |
|---|
| Paleontological monitoring is recommended for all alignment alternatives due to the possibility that fossils may be encountered during construction of future projects. Before construction, a qualified paleontologist would be retained to implement the mitigation program during earth-moving activities in the study area. Elements of the program would include: preconstruction field survey, monitoring plan preparation, construction monitoring, fossil recovery, museum curation and final reporting. |
| **Hazardous Waste or Materials** |
| The following measures would apply to all alternatives and would be implemented for future projects:<br>▪ Remediate any identified environmental site conditions that could represent a risk to the health and safety of workers and the public, as determined by regulatory agencies, to protect the environment.<br>▪ Conduct further investigations if contamination is found.<br>▪ Remove underground storage tanks and aboveground storage tanks and any associated piping within the right-of-way.<br>▪ Conduct asbestos-containing materials and lead-based paint surveys before any demolition of buildings or structures and/or the replacement of existing bridges constructed before 1979 to determine the level of risk posed to construction workers and the public and to identify appropriate protection measures.<br>▪ Require the construction contractor(s) to prepare and implement the appropriate health and safety plan to be approved by Caltrans and, if necessary, the appropriate regulatory agency before the onset of construction activities. |

| **Air Quality** |
|---|
| Implementation of the following measures would reduce any air quality impacts resulting from construction activities:<br>▪ The construction contractor shall comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999).<br>▪ Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibility on many items of concern, such as: air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; and convenience of the public; and damage or injury to any person or property as a result of any construction operation. Section 7-1.01F 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.<br>▪ Section 10 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.<br>▪ Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.<br>▪ Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.<br>▪ Wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.<br>▪ Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.<br>▪ Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.<br>▪ Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.<br>▪ Establish environmentally sensitive areas for sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited, to the extent that is feasible.<br>▪ Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.<br>▪ Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM10 and deposit of particulate matter during transport.<br>▪ Remove dust and mud that are deposited on paved roads due to construction activity and traffic to decrease particulate matter.<br>▪ Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.<br>▪ Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. |

| **Noise and Vibration** |
|---|
| Although a preliminary soundwall analysis indicated the need for soundwalls, the soundwall heights, end points, and placement at the affected locations could not be determined at this level of document. The feasibility and reasonability of soundwalls would be determined as design plans become available in the future.<br>During construction of subsequent projects, the following measures would be implemented to reduce noise and vibration disturbances at sensitive receptors:<br>▪ Using newer equipment with improved noise muffling<br>▪ Using construction methods or equipment that would provide the lowest level of noise and ground vibration impact, such as alternative low-noise pile installation methods<br>▪ Turning off idling equipment<br>▪ Using temporary noise barriers, as needed, and protecting sensitive receptors against excessive noise from construction activities |
| **Energy** |
| During project design and construction, there are several measures that may assist in reducing energy demand for future projects. These include, but are not limited to: selecting energy efficient project features such as lighting and pavement surface; selecting energy efficient design by reducing grades and decreasing out-of-direction travel; and inclusion of bicycle and pedestrian facilities. |
| **Natural Communities** |
| During subsequent projects:<br>▪ Caltrans would obtain all necessary permits, approvals, and authorizations from jurisdictional agencies. Future projects would require coordination with U.S. Fish and Wildlife Service and California Department of Fish and Game regarding design that to enable wildlife to safely cross the proposed highway.<br>▪ Natural communities/habitats would be disturbed as little as possible during the project design. An environmental commitments record would be prepared outlining monitoring and compliance with federal and state permits, agreements, or other authorizations.<br>▪ Caltrans would prepare and implement a revegetation and restoration plan that meets the requirements of jurisdictional agencies to mitigate adverse effects to natural communities/habitats. |

| **Wetlands and Other Waters** |
|---|
| It is likely that some impacts to jurisdictional waters of the U.S. can be avoided or minimized with the following measures:<br>▪ Route selection.<br>▪ Bridge and roadway design features.<br>▪ Consideration of project specific approaches during project development such as: avoidance of wetland areas; enhancement or restoration of existing wetlands; creation of new wetlands; contribution of in-lieu fees for restoration/preservation of existing wetlands; and purchase of existing wetlands through a wetland mitigation bank.<br>▪ Compliance with local, state, and federal permit and mitigation requirements.<br>▪ Inclusion of all practicable measures to minimize harm to wetlands in the project.<br>Significant impacts to wetland and other waters areas can be mitigated by use of the following general measures individually or in combination, on or off the project site:<br>▪ Avoidance of wetland areas<br>▪ Enhancement or restoration of existing wetlands<br>▪ Creation of new wetlands<br>▪ Contribution of in-lieu fees for restoration/preservation of existing wetlands<br>▪ Purchase of existing wetlands through a wetland mitigation bank |
| **Plant Species** |
| The approach described below includes general measures to reduce impacts in advance of and during future construction for all alignment alternatives. Additional measures to offset impacts would be determined during subsequent environmental analyses.<br>Potential impacts to special-status plant species can be mitigated with proper design, by using construction windows, through selection of an alternative that minimizes impacts, and by obtaining required regulatory permits. However, at this project planning stage, the mitigation measures recommended to avoid, lessen, and mitigate potential impacts to special-status species are as follows:<br>▪ Prior to ground disturbance, floristic surveys would be conducted in previously undisturbed natural habitats and engineered channels to determine presence or absence of special-status plant species. Caltrans would coordinate with the U.S. Fish and Wildlife Service and California Department of Fish and Game regarding specific listed species of concern, and the need for a Biological Opinion, Incidental Take Statement, and/or Section 2081 permit.<br>▪ If avoidance of sensitive plant species is not feasible, Caltrans would work with the agency having jurisdiction to develop a mitigation plan at the project level. Mitigation may be performed on-site or off-site and may include long-term monitoring. |

| **Animal Species** |
|---|
| Caltrans would consult with California Department of Fish and Game to determine if mitigation for impacts to California special concern species and California Natural Diversity Database Special Animals would be necessary and discuss project design options that would avoid direct "take" of fully protected species.<br>The following measures apply to other fully protected bird species, California special concern birds (other than burrowing owl), and all birds protected by the Migratory Bird Treaty Act.<br>▪ If construction activities are proposed to occur during the typical bird-nesting season (February 15 to September 1), Caltrans would conduct nesting bird surveys and work activities would be avoided within 100 feet of active nests until the young birds have fledged and left the nest.<br>▪ If fully protected birds are found nesting within the project site, all work would be postponed until after consultation with California Department of Fish and Game and U.S. Fish and Wildlife Service for additional guidance.<br>The following measures apply to other fully protected bird species, California special concern birds (other than burrowing owl), and all birds protected by the Migratory Bird Treaty Act.<br>▪ If construction activities are proposed to occur during the typical bird-nesting season (February 15 to September 1), Caltrans would conduct nesting bird surveys and work activities would be avoided within 100 feet of active nests until the young birds have fledged and left the nest or schedule work during non-nesting periods.<br>▪ If fully protected birds are found nesting within the project site, all work would be postponed until after consultation with California Department of Fish and Game and U.S. Fish and Wildlife Service for additional guidance.<br>▪ Caltrans would coordinate with California Department of Fish and Game regarding project design options that would address bat roosting habitat along the new expressway.<br>The following are general mitigation strategies that would offset impacts to burrowing owl.<br>▪ Impacts to ruderal areas, agricultural infrastructure, pastures, non-native annual grasslands, and chenopod scrub would be minimized to the extent feasible during project design.<br>▪ If construction activities would occur within any of the above habitats, Caltrans would coordinate with California Department of Fish and Game regarding protocol surveys, mitigation guidance, and authorization to passively relocate burrowing owls, if necessary.<br>▪ If protocol surveys are required, Caltrans would conduct surveys as outlined in *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium, 1993) and *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995), or the most recent guidelines, prior to project approval.<br>▪ If surveys confirm occupation of burrowing owl, mitigation would be carried out prior to the burrowing owl breeding season, as outlined in the guideline publications above. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to burrowing owl.<br>▪ A burrowing owl monitoring plan would be prepared by Caltrans, including mitigation success criteria and an annual report, which would be submitted to California Department of Fish and Game. |

| **Threatened and Endangered Species** |
|---|
| At this planning stage, recommended mitigation for potential impacts includes proper design, construction windows, and selection of an alternative that minimizes impacts.<br>During the project-level phase of future projects, Caltrans would implement a mitigation plan that may include:<br>▪ Project-specific approaches during project development such as project design that will allow for safe wildlife crossings from one side of the proposed highway to the other.<br>▪ Implementation of a revegetation and restoration plan that meets the requirements of the jurisdictional agencies to mitigate adverse effects to natural communities/habitats.<br>▪ Off-site mitigation opportunities would be explored if on-site mitigation to permanent and temporary losses of habitat is not feasible.<br>▪ Enhancement or restoration of existing habitats; creation of new habitats; contribution of in-lieu fees for restoration/preservation of existing habitats; and purchase of existing habitats through a mitigation bank<br>▪ Compliance with compensation ratios as specified by jurisdictional agencies for adverse effects to listed species appropriate at the time of project approval.<br>The following general mitigation strategies for future build projects are recommended for these specials-status species.<br><u>Blunt-nosed Leopard Lizard</u><br>▪ If construction activities occur within ruderal areas, non-native annual grasslands, or chenopod scrub habitats, Caltrans would coordinate with U.S. Fish and Wildlife Service and California Department of Fish and Game regarding the need for protocol surveys.<br>▪ If protocol surveys are required, Caltrans would conduct surveys as outline in the *CDFG Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFG, 2004), or the most recent methodology.<br>▪ If surveys confirm presence of blunt-nosed leopard lizard in habitats that would be affect by the build project, Caltrans will conduct Section 7 consultation with the U.S. Fish and Wildlife Service to determine if a biological opinion will be required, and to determine appropriate mitigation strategies for offsetting impacts to blunt-nosed leopard lizard.<br>▪ Since no incidental “take” can be authorized for this fully protected species, Caltrans would coordinate with California Department of Fish and Game to discuss design options that will avoid direct “take” of blunt-nosed leopard lizard.<br><u>California Tiger Salamander</u><br>▪ If construction activities are proposed to occur within pastures, non-native annual grasslands, chenopod scrub, or other areas that could support vernal pool habitat, Caltrans would coordinate with U.S Fish and Wildlife Service and California Department of Fish and Game regarding the need for a vernal pool habitat assessment, vernal pool mapping, and protocol California tiger salamander surveys.<br>▪ If protocol surveys are required, Caltrans would conduct surveys as outlined in *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS and CDFG, 2003) or would follow the most recent protocol.<br>▪ If protocol surveys confirm the presence of California tiger salamander in vernal pool habitat that will be affected by the project, Caltrans would conduct Section 7 consultation with U.S. Fish and Wildlife Service to obtain a biological opinion and incidental take statement, and to determine appropriate mitigation strategies for offsetting impacts to California tiger salamander.<br>▪ Caltrans would coordinate with California Department of Fish and Game to determine if a Section 2081 incidental take permit will be necessary. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to these species. |

**Threatened and Endangered Species (continued)**

San Joaquin Antelope Squirrel, Giant Kangaroo Rat, and Fresno Kangaroo Rat

- Caltrans would consult with U.S. Fish and Wildlife Service and California Department of Fish and Game to determine if a pre-construction survey for these species will be required.
- If construction activities are proposed to occur in non-native annual grasslands and chenopod scrub habitats, Caltrans would conduct Section 7 consultation with the U.S. Fish and Wildlife Service to determine if a biological opinion and incidental take statement would be necessary for giant kangaroo rat and Fresno kangaroo rat.
- Caltrans would coordinate with California Department of Fish and Game to determine if a Section 2081 incidental take permit would be necessary for San Joaquin Antelope squirrel, giant kangaroo rat, and Fresno kangaroo rat. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to these species.

San Joaquin Kit Fox

- Caltrans would consult with U.S. Fish and Wildlife Service to determine if a biological opinion and incidental take statement will be necessary.
- Caltrans would coordinate with California Department of Fish and Game to determine if a Section 2081 incidental take permit will be necessary. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to these species.
- If construction activities are proposed to occur within pastures, non-native annual grasslands, or chenopod scrub habitats, Caltrans would conduct surveys as outlined in the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS, 1999c), or the most recent published recommendations in effect prior to project approval.
- Habitat compensation for permanent and temporary habitat loss would follow the ratios recommended in USFWS (2004c), or the most recent guidelines.

Swainson's Hawk

- If proposed construction activities occur in intensive agricultural fields or within or near potential nesting sites, Caltrans would coordinate with the California Department of Fish and Game regarding the need for protocol Swainson's hawk surveys.
- If it is determined that protocol surveys are required, Caltrans would follow the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee, 2000, or the most recent recommendations, prior to project approval.
- If active nests are detected within 0.5 mile of the project site, Caltrans would consult with California Department of Fish and Game prior to construction to obtain an incidental take permit. Agency coordination will be used to determine appropriate mitigation strategies for offsetting impacts to Swainson's hawk.
- If active nests are detected and an incidental take authorization is required, in addition to avoidance measures required by California Department of Fish and Game, Caltrans would provide compensation in accordance with *Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFG, 1994), or the most recent recommendations, prior to project approval.

| **Threatened and Endangered Species (continued)** |
|---|
| Succulent Owl's Clover, California Jewelflower, San Joaquin Valley Orcutt Grass, San Joaquin Woollythreads, and Hairy Orcutt Grass<br>▪ Prior to ground disturbance, floristic surveys would be conducted in all previously undisturbed natural habitats (non-native annual grasslands, chenopod scrub, northern claypan vernal pools, coastal and valley freshwater marshes, seasonal wetlands, riparian habitats) and engineered channels to determine presence or absence of special-status plant species within the affected areas. A minimum of three floristic surveys (or as specified by the responsible agency) would be scheduled in the year prior to start of construction to accommodate the range of blooming periods for special-status plant species with potential to occur in these habitats.<br>▪ If succulent owl's clover, California jewelflower, San Joaquin Valley Orcutt grass, or hairy Orcutt grass (or other plant species that are listed prior to project approval) are identified within the proposed project area during floristic surveys prior to construction, Caltrans would coordinate with U.S. Fish and Wildlife Service and California Department of Fish Game regarding these listed species, to determine if a biological opinion, incidental take statement, and Section 2081 permit will be necessary. |
| **Invasive Species** |
| During construction of future projects, the biological monitor(s) would ensure that the spread or introduction of invasive exotic plant species would be avoided to the maximum extent possible through the following measures:<br>▪ When practicable, invasive exotic plants in the project site would be removed and properly disposed.<br>▪ All vegetation removed from the construction site shall be taken to a certified landfill to prevent the spread of invasive species.<br>▪ If soil from weedy areas must be removed off-site, the top six inches containing the seed layer in areas with weedy species shall be disposed of at a certified landfill. |

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# Appendix F Caltrans Letter to the State Historic Preservation Officer

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**
2015 EAST SHIELDS AVENUE, SUITE A-100
FRESNO, CA 93726-5428
PHONE (559) 243-8219
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*Flex your power!*
*Be energy efficient!*

December 12, 2008

M. Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 94296-0001

06-FRE180
P.M. 9.0/54.2
EA 06-451400

Route 180 Westside
Expressway Route
Adoption

Re: Concurrence of Tier 1 Sensitivity Studies and Area of Potential Effects for the Route 180 Westside Expressway Route Adoption in Fresno County

Dear Mr. Donaldson:

The California Department of Transportation (Caltrans), on behalf of the Federal Highway Administration (FHWA), is initiating consultation with the State Historic Preservation Officer (SHPO) for the undertaking titled Route 180 Westside Expressway Route Adoption in Fresno County, California. This consultation is undertaken in accordance with the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance With Section 106 of the National Historic Preservation Act As It Pertains to the Administration of the Federal-Aid Highway Program in California* (*PA*).

Please find enclosed the Historic Property Survey Report (HPSR) for the proposed undertaking. The HPSR fulfills two responsibilities under Section 106 of the National Historic Preservation Act: (1) determination of the Area of Potential Effects (APE) and (2) identification of historic properties within the APE. Under the PA, Caltrans is responsible for ensuring the appropriateness of the APE (Section 106 PA Stipulation VIII.A), and the adequacy of historic property identification efforts (Section 106 PA Stipulation VIII.B). At this time, under Section 106 PA Stipulation XII, we seek your concurrence on Caltrans' phased approach to identification and findings of effect.

The California Department of Transportation (Caltrans) proposes to identify and acquire right-of-way for the purpose of preserving a corridor for the future Westside Expressway. The expressway will be a west-to-east connection between Interstate 5 and Valentine Avenue, the latter being approximately 1.5 miles west of State Route 99 within the city of Fresno in central Fresno County. Within the corridor, numerous alternatives, present and future, are and will be under consideration. APE maps and boundaries are found within the HPSR.

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Mr. M. Wayne Donaldson
December 12, 2008
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A project Programmatic Agreement (PA) for the State Historic Preservation Officer's review is being developed and will be provided for review at a later date. The PA outlines a tiered approach to cultural studies of the significant alternatives as funds become available. Tier 1 resulted in completed cultural resources sensitivity studies (attached). (Note: The sensitivity studies were completed using state-only financing.)

At this time, Caltrans requests your concurrence that the following resources are eligible for the National Register of Historic Places for the purposes of this undertaking (Section 106 PA Stipulation VIII.C.2). The identification effort was commensurate with the magnitude and nature of the undertaking. No historic properties were affected.

- California Aqueduct is assumed to be eligible for the purposes of this undertaking. By the time the first portions of Westside Expressway are constructed, the California Aqueduct will be fifty years old; we are assuming that it will be eligible to the National Register of Historic Places. It is also assumed that all the Aqueduct bridges of the period of significance will be considered eligible as contributors.
- Delta-Mendota Canal is assumed to be eligible for the purposes of this undertaking. This resource is linear and has been assumed to be eligible for several undertakings in the past. For the purposes of this project, the Delta-Mendota Canal is assumed to be eligible to the National Register of Historic Places, along with its contributing bridges of the period of significance.

| Bridge Number | Bridge Name | Location | Hist. Significance | Year Built |
|---|---|---|---|---|
| 42C0140 | CA Aqueduct (San Luis Canal) | 1 mi. west of Russell Ave. | Eligible as contributor | 1966 |
| 42C0141 | CA Aqueduct (San Luis Canal) | 1.8 mi. south of Shields Ave. | Eligible as contributor | 1966 |
| 42C0143 | CA Aqueduct (San Luis Canal) | 1 mi. east of I-5 | Eligible as contributor | 1966 |
| 42C0399 | Delta-Mendota Canal | 1.3 mi. northeast of SR 33 | Eligible as contributor | 1950 |
| 42C0074 | Delta-Mendota Canal | West Nees Ave. | Eligible as contributor | 1950 |

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This letter is being mailed to FHWA (Section 106 PA Stipulation VIII.C.5). Also, this letter and accompanying documents are being distributed to all consulting parties (36 CFR Part 800.11).

For additional information, please contact me at 559/243-8219 (jeanne_binning@dot.ca.gov) or Bill Ray at 559/243-8187 (bill_ray@dot.ca.gov).

Sincerely,

Wendy M. Ritter
for

Jeanne Day Binning, Ph.D.
Branch Chief
Central California Cultural Resources Branch
Caltrans District 06, HRC

Attachment: Historic Property Survey Report—Route 180 Westside Expressway Route Adoption

cc: Greg King, Caltrans, CCSO
Jill Hupp, Caltrans, CCSO
Som Phongsavanh, Caltrans, District 06
Jeanne Binning, HRC, District 06
FHWA
Fresno County Council of Governments
City of Fresno
City of Kerman
City of Mendota
City of Firebaugh
U.S. Army Corps of Engineers
Bureau of Reclamation
U.S. Fish and Wildlife Service
LeAnn Walker-Grant, Chair, Table Mountain Racheria
Jerry Brown, Chaushilha Tribe
Clarence Atwell, Chair, Santa Rosa Rancheria Tachi Tribe
Debbie Jaeger, Program Director, Santa Rosa Rancheria Elders Center

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# Appendix G U.S. Fish and Wildlife Service Species List



**U.S. Fish & Wildlife Service**

**Sacramento Fish & Wildlife Office**

**Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 121022112220

Database Last Updated: September 18, 2011

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Quad Lists

Listed Species

Invertebrates

*Branchinecta lynchi*
vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*
valley elderberry longhorn beetle (T)

Fish

*Hypomesus transpacificus*
delta smelt (T)

*Oncorhynchus mykiss*
Central Valley steelhead (T) (NMFS)

Amphibians

*Ambystoma californiense*
California tiger salamander, central population (T)

*Rana draytonii*
California red-legged frog (T)

Reptiles

*Gambelia (=Crotaphytus) sila*
blunt-nosed leopard lizard (E)

*Thamnophis gigas*
giant garter snake (T)

Mammals

*Dipodomys ingens*
giant kangaroo rat (E)

*Dipodomys nitratoides exilis*
Critical habitat, Fresno kangaroo rat (X)
Fresno kangaroo rat (E)

*Vulpes macrotis mutica*
San Joaquin kit fox (E)

Plants

*Castilleja campestris ssp. succulenta*
succulent (=fleshy) owl's-clover (T)

*Caulanthus californicus*
California jewelflower (E)

*Cordylanthus palmatus*
palmate-bracted bird's-beak (E)

*Monolopia congdonii (=Lembertia congdonii)*

San Joaquin woolly-threads (E)

*Orcuttia inaequalis*
San Joaquin Valley Orcutt grass (T)

*Orcuttia pilosa*
hairy Orcutt grass (E)

Candidate Species

Birds

*Coccyzus americanus occidentalis*
Western yellow-billed cuckoo (C)

Quads Containing Listed, Proposed or Candidate Species:

FRESNO SOUTH (358A)
KEARNEY PARK (358B)
KERMAN (359A)
JAMESAN (359B)
TRANQUILLITY (360A)
COIT RANCH (360B)
CHANEY RANCH (361A)
CHOUNET RANCH (361B)
HERNDON (379C)
FRESNO NORTH (379D)
GRAVELLY FORD (380C)
BIOLA (380D)
FIREBAUGH (381C)
MENDOTA DAM (381D)
HAMMONDS RANCH (382C)
BROADVIEW FARMS (382D)

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## County Lists

No county species lists requested.

## Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
*Critical Habitat* - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

## Important Information About Your Species List

### How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

### Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

### Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

### Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

### Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and

indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

### Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

### Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

### Species of Concern

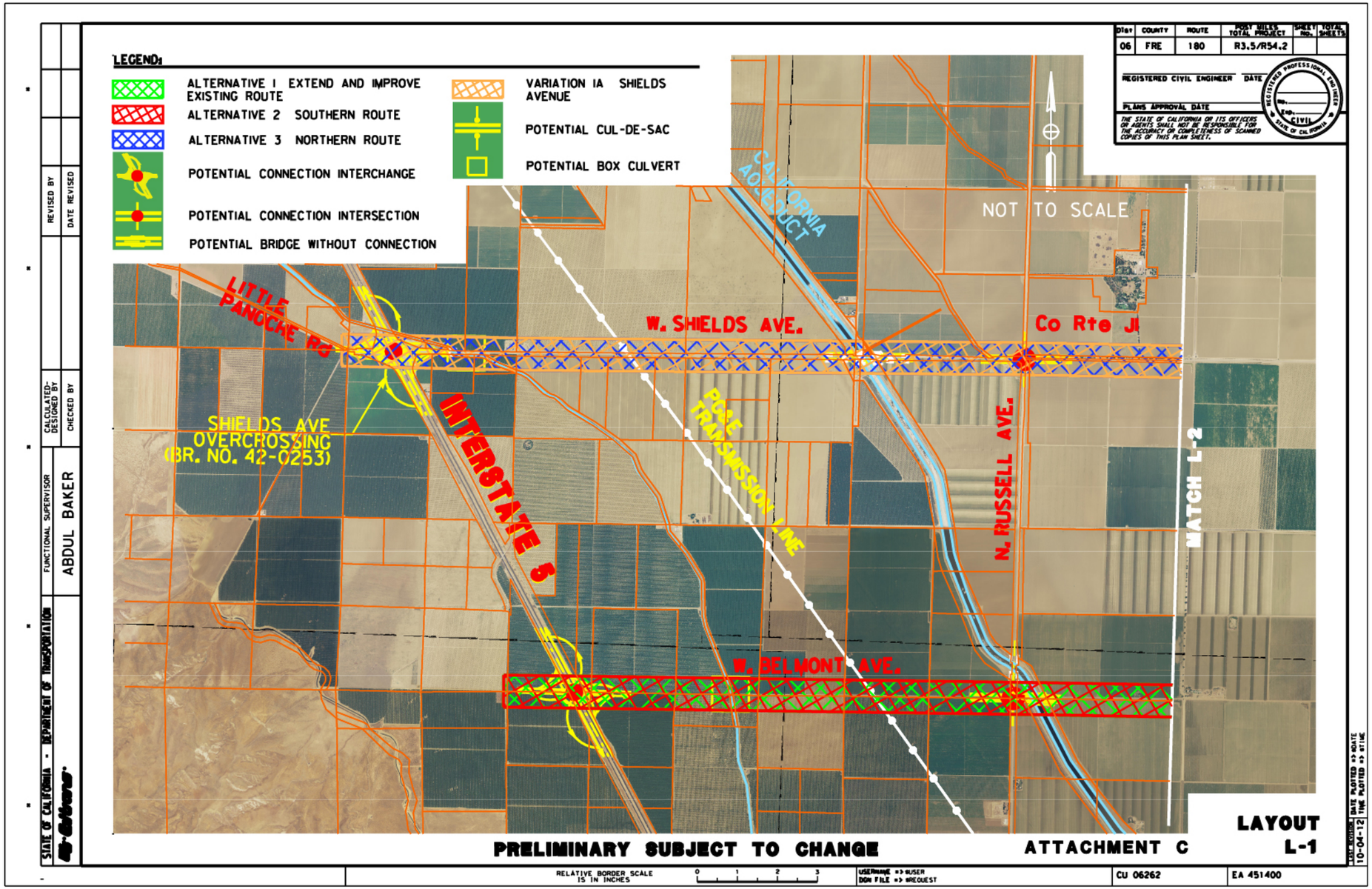
The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

### Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

### Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January 20, 2013.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ALTERNATIVE 2 SOUTHERN ROUTE
ALTERNATIVE 3 NORTHERN ROUTE
POTENTIAL CONNECTION INTERCHANGE
POTENTIAL CONNECTION INTERSECTION
POTENTIAL BRIDGE WITHOUT CONNECTION
VARIATION 1A SHIELDS AVENUE
POTENTIAL CUL-DE-SAC
POTENTIAL BOX CULVERT
NOT TO SCALE
LITTLE PANOCHE RD
W. SHIELDS AVE.
Co Rte J
SHIELDS AVE OVERCROSSING (BR. NO. 42-0253)
INTERSTATE 5
PG&E TRANSMISSION LINE
CALIFORNIA AQUEDUCT
N. RUSSELL AVE.
MATCH L-2
W. BELMONT AVE.
PRELIMINARY SUBJECT TO CHANGE
ATTACHMENT C
LAYOUT L-1
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
FUNCTIONAL SUPERVISOR
ABDUL BAKER
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED
DIST 06
COUNTY FRE
ROUTE 180
POST MILES TOTAL PROJECT R3.5/R54.2
REGISTERED CIVIL ENGINEER DATE
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.
REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA
RELATIVE BORDER SCALE IS IN INCHES
CU 06262
EA 451400

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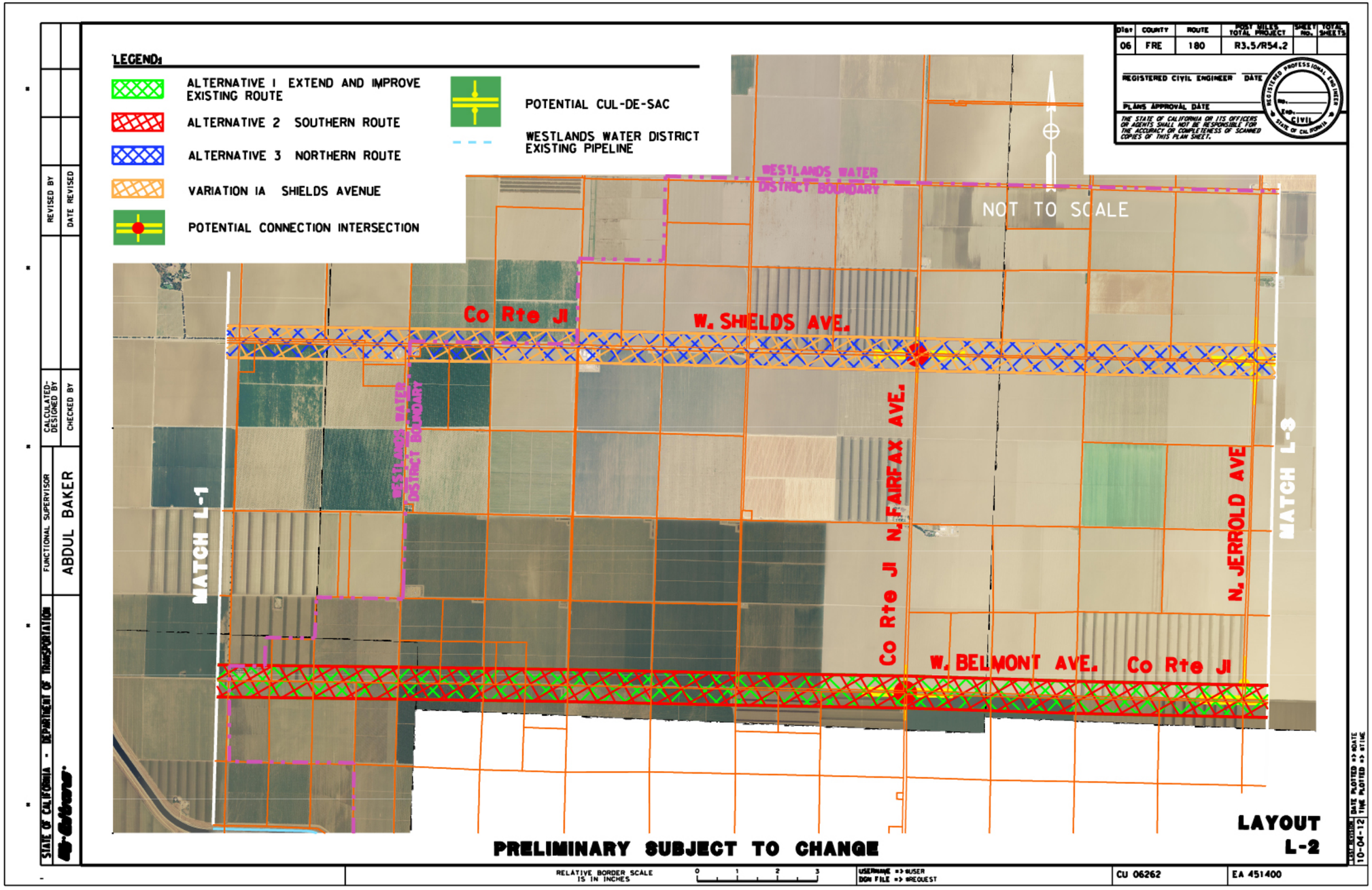
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POTENTIAL CONNECTION INTERSECTION
POTENTIAL CUL-DE-SAC
WESTLANDS WATER DISTRICT EXISTING PIPELINE
Dist COUNTY ROUTE POST MILES TOTAL PROJECT SHEET NO. TOTAL SHEETS
06 FRE 180 R3.5/R54.2
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CIVIL
STATE OF CALIFORNIA
WESTLANDS WATER DISTRICT BOUNDARY
NOT TO SCALE
Co Rte J
W. SHIELDS AVE.
WESTLANDS WATER DISTRICT BOUNDARY
MATCH L-1
Co Rte J N. FAIRFAX AVE.
N. JERROLD AVE
MATCH L-3
W. BELMONT AVE. Co Rte J
PRELIMINARY SUBJECT TO CHANGE
LAYOUT
L-2
REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
CHECKED BY
FUNCTIONAL SUPERVISOR
ABDUL BAKER
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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TIME PLOTTED => MTIME
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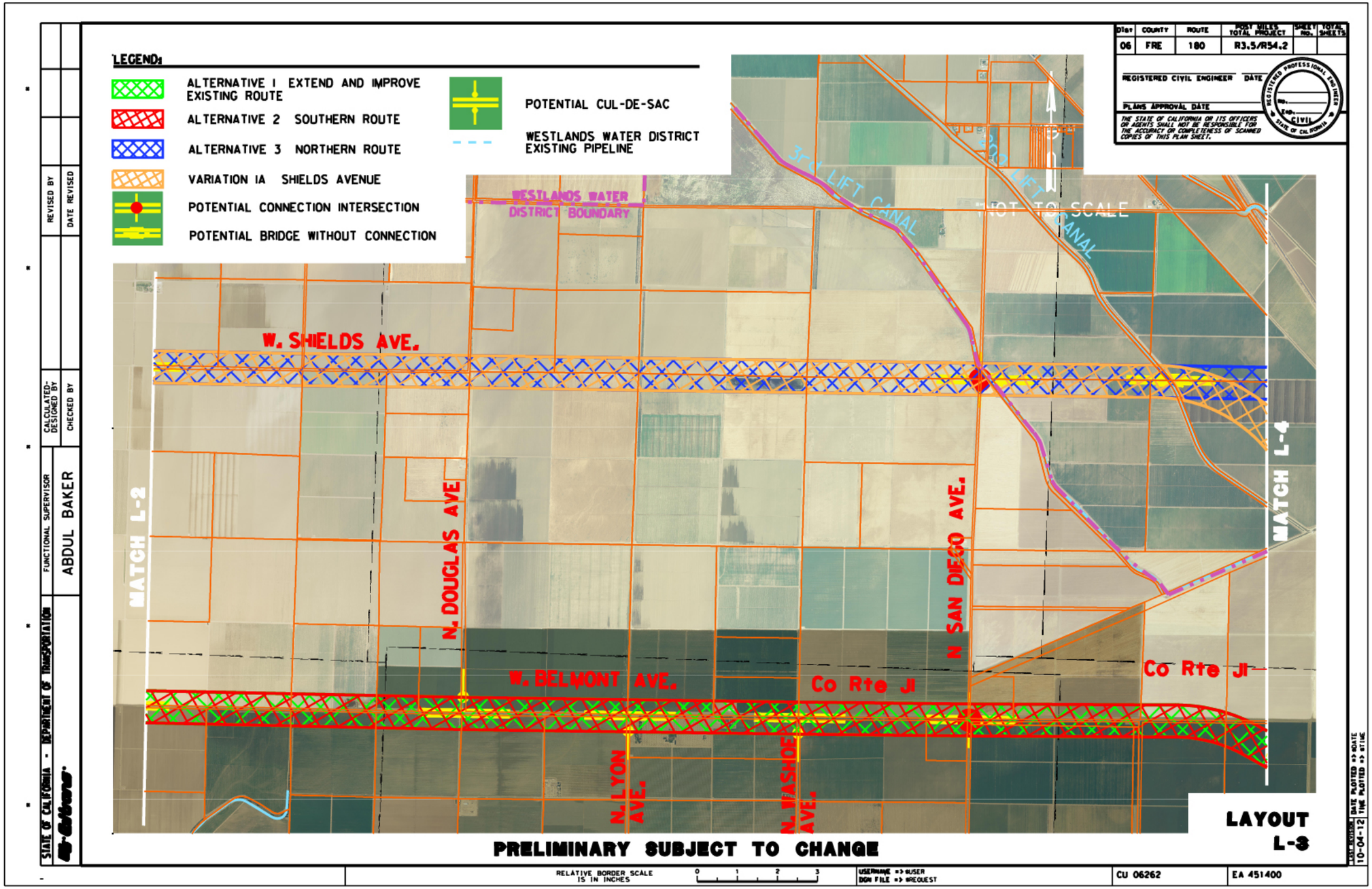
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POTENTIAL CONNECTION INTERSECTION
POTENTIAL BRIDGE WITHOUT CONNECTION
POTENTIAL CUL-DE-SAC
WESTLANDS WATER DISTRICT EXISTING PIPELINE
WESTLANDS WATER DISTRICT BOUNDARY
3rd LIFT CANAL
2nd LIFT CANAL
NOT TO SCALE
W. SHIELDS AVE.
MATCH L-2
N. DOUGLAS AVE
W. BELMONT AVE.
Co Rte J1
N. LYON AVE.
N. WASHOE AVE.
N SAN DIEGO AVE.
Co Rte J1
MATCH L-4
LAYOUT L-3
PRELIMINARY SUBJECT TO CHANGE
Dist 06
COUNTY FRE
ROUTE 180
POST MILES TOTAL PROJECT R3.5/R54.2
REGISTERED CIVIL ENGINEER
DATE
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ABDUL BAKER
STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
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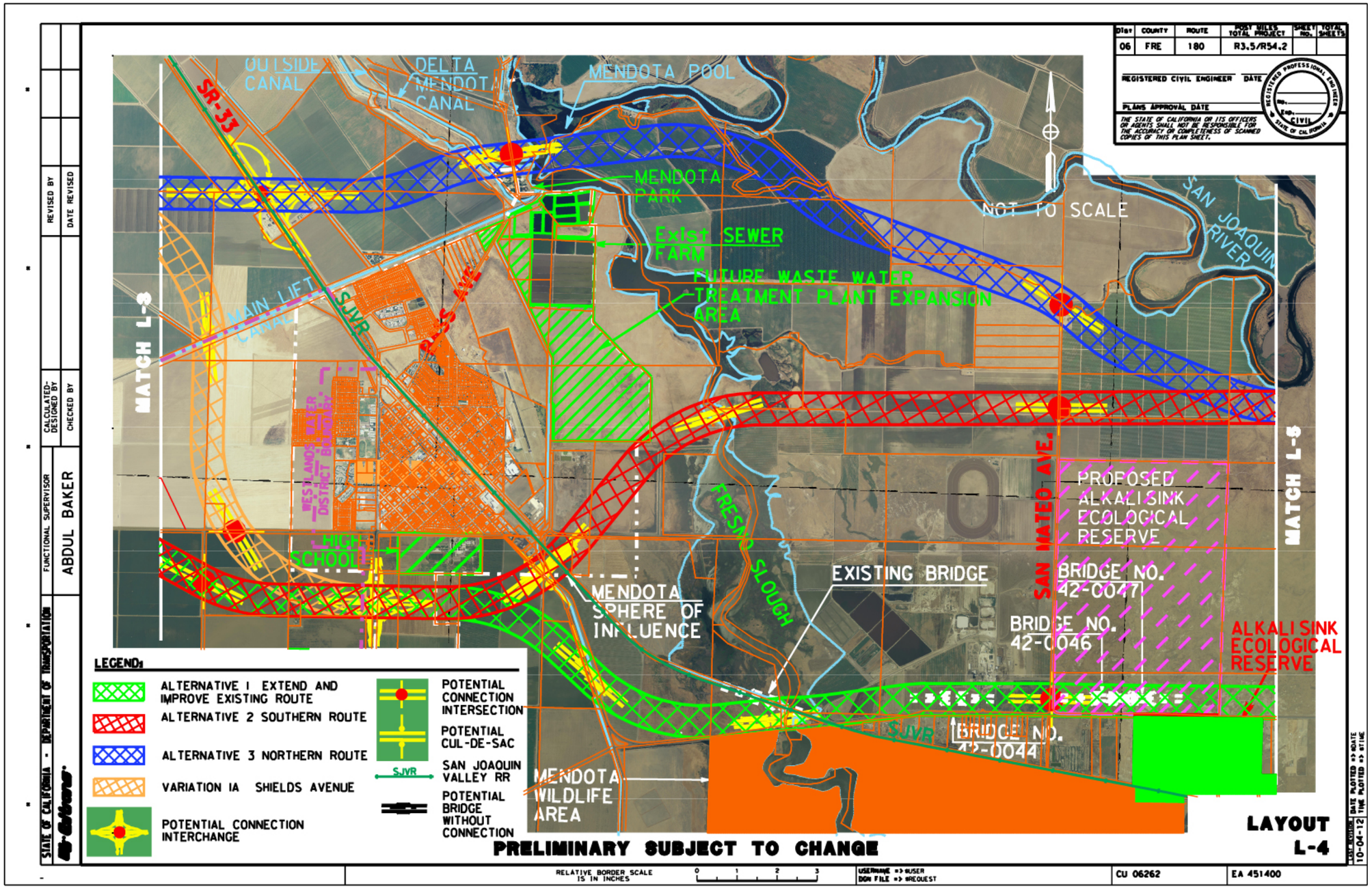
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REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA
OUTSIDE CANAL
DELTA MENDOTA CANAL
MENDOTA POOL
SR-33
MENDOTA PARK
NOT TO SCALE
SAN JOAQUIN RIVER
Exist SEWER FARM
FUTURE WASTE WATER TREATMENT PLANT EXPANSION AREA
MAIN LIFT CANAL
SJVR
MATCH L-3
MATCH L-5
WESTLAND WATER DISTRICT
HIGH SCHOOL
FRESNO SLOUGH
SAN MATEO AVE.
PROPOSED ALKALI SINK ECOLOGICAL RESERVE
EXISTING BRIDGE
BRIDGE NO. 42-0047
BRIDGE NO. 42-0046
BRIDGE NO. 42-0044
MENDOTA SPHERE OF INFLUENCE
ALKALI SINK ECOLOGICAL RESERVE
MENDOTA WILDLIFE AREA
LEGEND:
ALTERNATIVE 1 EXTEND AND IMPROVE EXISTING ROUTE
ALTERNATIVE 2 SOUTHERN ROUTE
ALTERNATIVE 3 NORTHERN ROUTE
VARIATION 1A SHIELDS AVENUE
POTENTIAL CONNECTION INTERCHANGE
POTENTIAL CONNECTION INTERSECTION
POTENTIAL CUL-DE-SAC
SJVR
SAN JOAQUIN VALLEY RR
POTENTIAL BRIDGE WITHOUT CONNECTION
PRELIMINARY SUBJECT TO CHANGE
LAYOUT L-4
REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
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FUNCTIONAL SUPERVISOR
ABDUL BAKER
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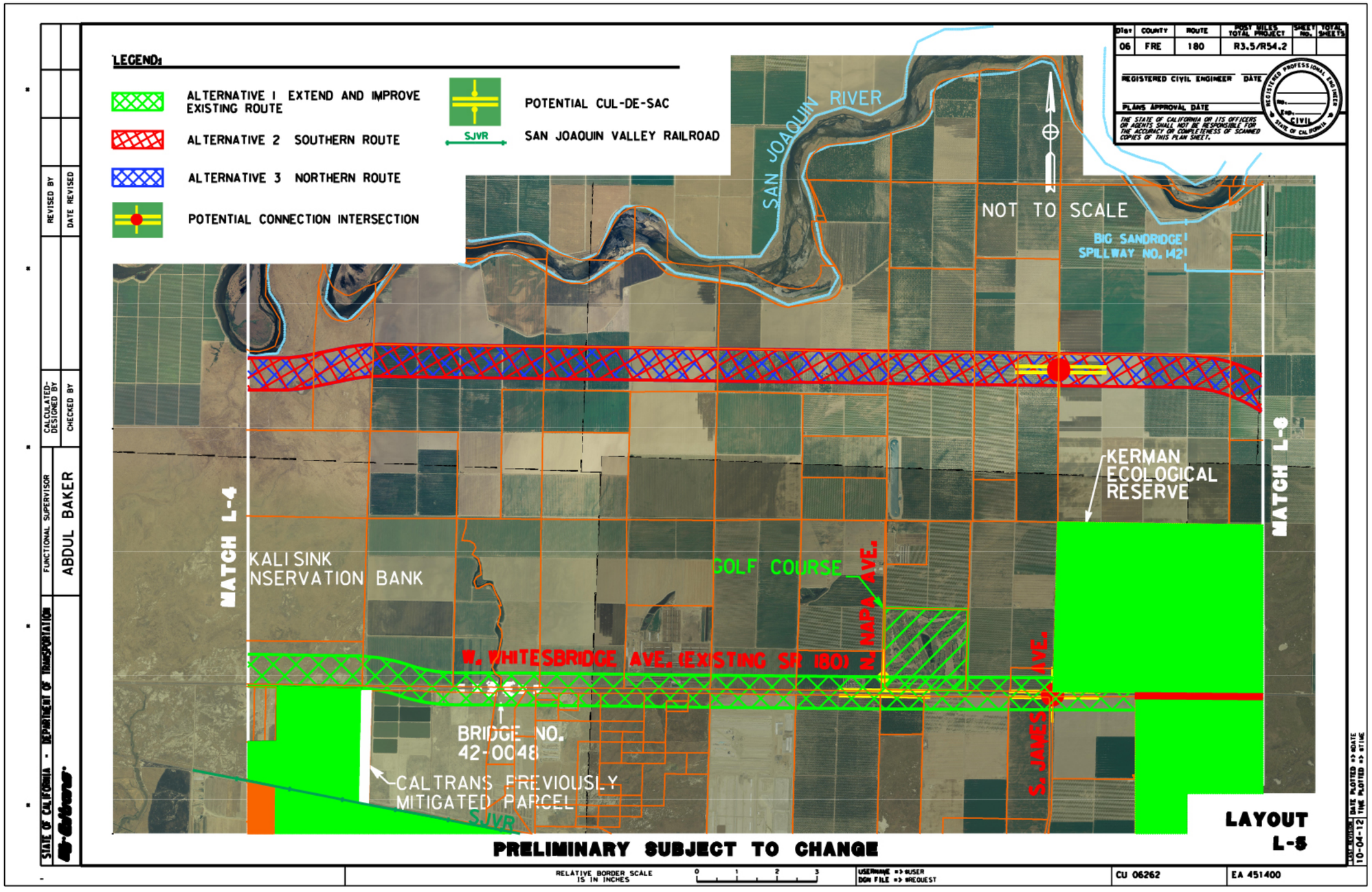
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POTENTIAL CONNECTION INTERSECTION
POTENTIAL CUL-DE-SAC
SJVR
SAN JOAQUIN VALLEY RAILROAD
Dist 06
COUNTY FRE
ROUTE 180
POST MILES TOTAL PROJECT R3.5/R54.2
SHEET NO.
TOTAL SHEETS
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CIVIL
STATE OF CALIFORNIA
SAN JOAQUIN RIVER
NOT TO SCALE
BIG SANDRIDGE SPILLWAY NO. 142
KERMAN ECOLOGICAL RESERVE
MATCH L-8
MATCH L-4
KALI SINK NSERVATION BANK
GOLF COURSE
N. NAPA AVE.
W. WHITESBRIDGE AVE. (EXISTING SR 180)
S. JAMES AVE.
BRIDGE NO. 42-0048
CALTRANS PREVIOUSLY MITIGATED PARCEL
SJVR
LAYOUT L-5
PRELIMINARY SUBJECT TO CHANGE
REVISED BY
DATE REVISED
CALCULATED-DESIGNED BY
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FUNCTIONAL SUPERVISOR
ABDUL BAKER
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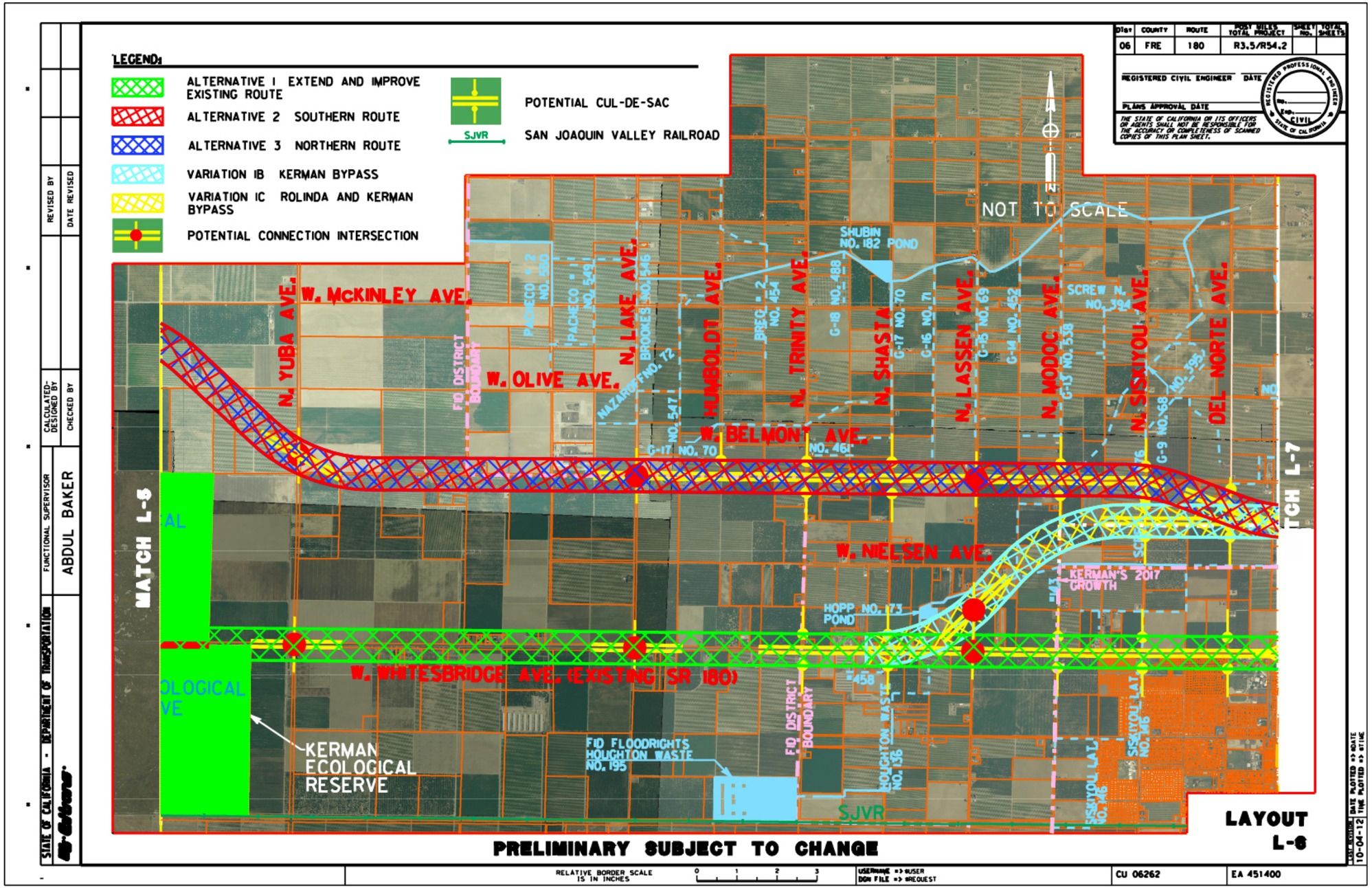
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ALTERNATIVE 2 SOUTHERN ROUTE
ALTERNATIVE 3 NORTHERN ROUTE
VARIATION 1B KERMAN BYPASS
VARIATION 1C ROLINDA AND KERMAN BYPASS
POTENTIAL CONNECTION INTERSECTION
POTENTIAL CUL-DE-SAC
SJVR
SAN JOAQUIN VALLEY RAILROAD
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NOT TO SCALE
N. YUBA AVE.
W. McKINLEY AVE.
W. OLIVE AVE.
N. LAKE AVE.
N. HUMBOLDT AVE.
N. TRINITY AVE.
N. SHASTA
N. LASSEN AVE.
N. MODOC AVE.
N. SISKIYOU AVE.
DEL NORTE AVE.
W. BELMONT AVE.
W. NIELSEN AVE.
W. WHITESBRIDGE AVE. (EXISTING SR 180)
SHUBIN NO. 182 POND
HOPP NO. 173 POND
KERMAN'S 2017 GROWTH
FID DISTRICT BOUNDARY
FID FLOODRIGHTS HOUGHTON WASTE NO. 195
KERMAN ECOLOGICAL RESERVE
MATCH L-5
TCH L-7
SJVR
LAYOUT L-6
PRELIMINARY SUBJECT TO CHANGE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
FUNCTIONAL SUPERVISOR ABDUL BAKER
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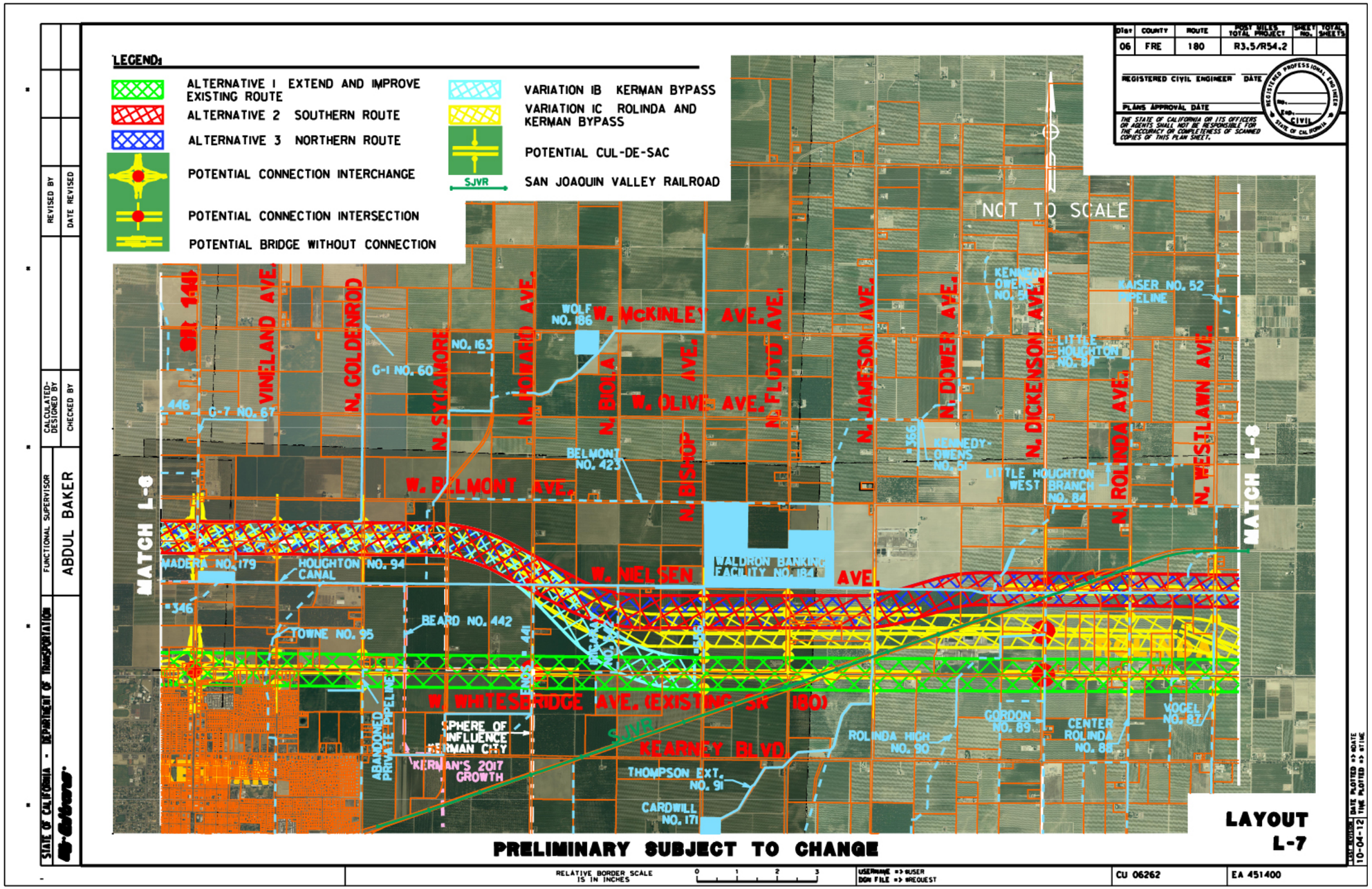
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POTENTIAL CONNECTION INTERSECTION
POTENTIAL BRIDGE WITHOUT CONNECTION
VARIATION 1B KERMAN BYPASS
VARIATION 1C ROLINDA AND KERMAN BYPASS
POTENTIAL CUL-DE-SAC
SJVR
SAN JOAQUIN VALLEY RAILROAD
NOT TO SCALE
Dist 06 COUNTY FRE ROUTE 180 POST MILES TOTAL PROJECT R3.5/R54.2
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
MATCH L-6
MATCH L-8
N. GOLDENROD
N. VINELAND AVE.
N. SYCAMORE
N. HOWARD AVE.
N. BOLA
N. FLOYD AVE.
N. JAMESON AVE.
N. DOWER AVE.
N. DICKENSON AVE.
N. ROLINDA AVE.
N. WESTLAWN AVE.
W. McKINLEY AVE.
W. OLIVE AVE.
W. BELMONT AVE.
W. NIELSEN AVE.
W. WHITESBRIDGE AVE. (EXISTING SR 180)
KEARNEY BLVD.
N. BISHOP
WOLF NO. 186
NO. 163
G-1 NO. 60
G-7 NO. 67
BELMONT NO. 423
KENNEDY-OWENS NO. 31
KAISER NO. 52 PIPELINE
LITTLE HOUGHTON NO. 34
KENNEDY-OWENS NO. 51
LITTLE HOUGHTON WEST BRANCH NO. 84
MADERA NO. 179
HOUGHTON NO. 94 CANAL
WALDRON BANKING FACILITY NO. 187
TOWNE NO. 95
BEARD NO. 442
ABANDONED PRIVATE PIPELINE
SPHERE OF INFLUENCE KERMAN CITY
KERMAN'S 2017 GROWTH
THOMPSON EXT. NO. 91
CARDWILL NO. 171
ROLINDA HIGH NO. 90
GORDON NO. 89
CENTER ROLINDA NO. 88
VOGEL NO. 87
SJVR
LAYOUT L-7
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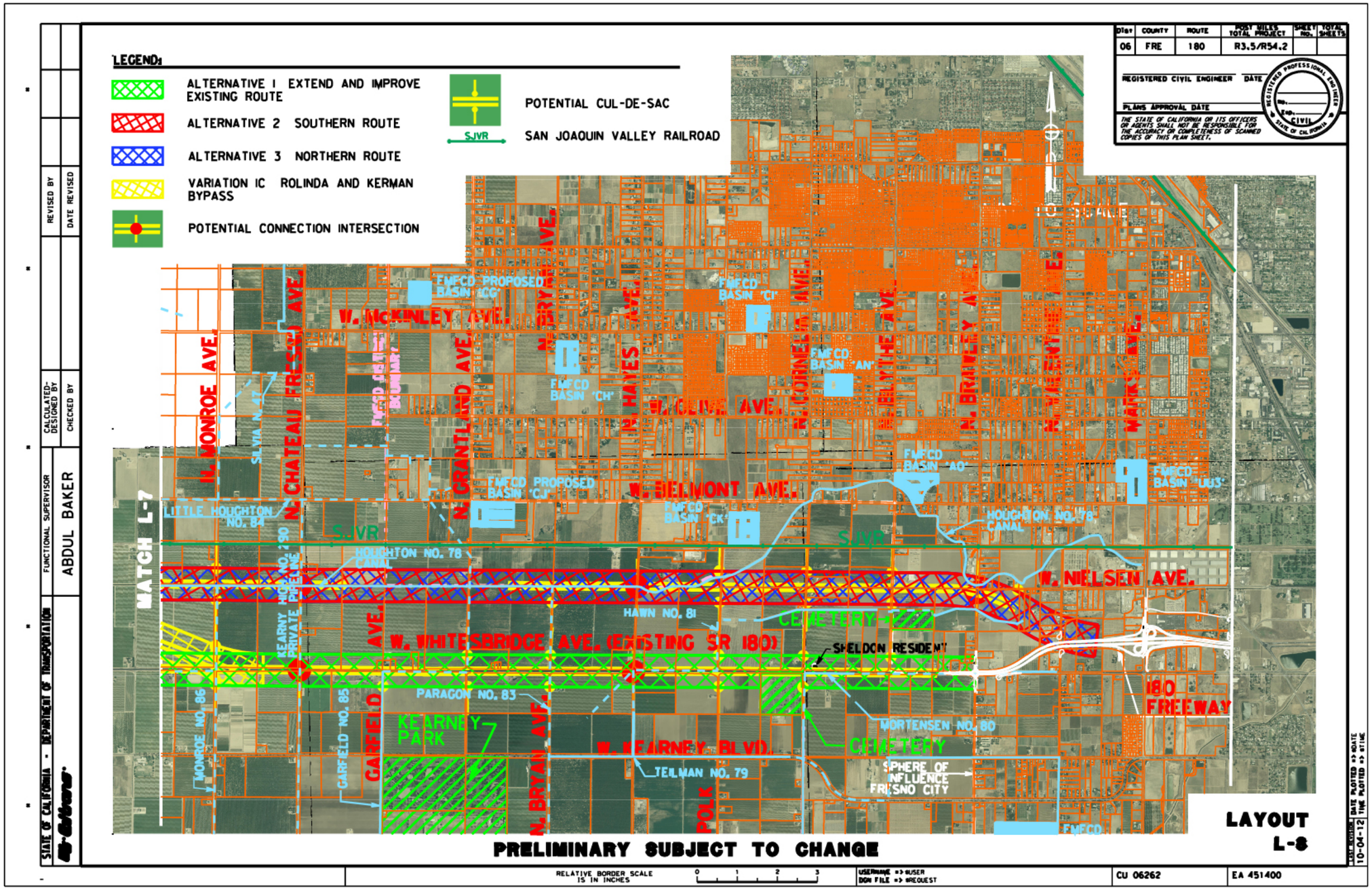
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POTENTIAL CONNECTION INTERSECTION
POTENTIAL CUL-DE-SAC
SJVR
SAN JOAQUIN VALLEY RAILROAD
Dist COUNTY ROUTE POST MILES TOTAL PROJECT SHEET NO. TOTAL SHEETS
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ABDUL BAKER
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
W. MCKINLEY AVE.
W. CLINTON AVE.
W. BELMONT AVE.
W. NIELSEN AVE.
W. WHITESBRIDGE AVE. (EXISTING SR 180)
W. KEARNEY BLVD.
N. MONROE AVE.
N. CHATEAU FRESNO AVE.
N. GRANTLAND AVE.
N. HAYES AVE.
N. CORNELIA AVE.
N. BRAWLEY AVE.
N. MARKS AVE.
N. BRYAN AVE.
GARFIELD AVE.
POLK
MATCH L-7
SJVR
LITTLE HOUGHTON NO. 84
HOUGHTON NO. 78
HOUGHTON NO. 78 CANAL
HAWN NO. 81
PARAGON NO. 83
TEILMAN NO. 79
MORTENSEN NO. 80
MONROE NO. 86
GARFIELD NO. 85
KEARNEY PRIVATE FREELINE
KEARNEY PARK
CEMETERY
SHELDON RESIDENT
SPHERE OF INFLUENCE FRESNO CITY
180 FREEWAY
FMFCD PROPOSED BASIN 'CG'
FMFCD BASIN 'CH'
FMFCD BASIN 'CI'
FMFCD BASIN 'AN'
FMFCD BASIN 'AO'
FMFCD BASIN 'UUS'
FMFCD PROPOSED BASIN 'CJ'
FMFCD BASIN 'CK'
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## List of Technical Studies that are Bound Separately

- Air Quality Impact Technical Report, February 2009
- Biological Resources Study Report, May 2009
- Community Impact Assessment, August 2006; updated July 2009
- Draft Relocations and Acquisitions Summary Report, December 2006; updated June 2009
- Geotechnical Assessment Report, June 2006
- Growth Inducement Analysis Report, December 2006
- Hazardous Waste Initial Site Assessment, May 2006; 2007 Hazardous Waste Recommendation and Estimate memo, updated March 2009; and Environmental FirstSearch™ Reports (May 2009)
- Historic Property Survey Report, December 2008
- Historic Resources Sensitivity Study, August 2006
- Location Hydraulic Study Report, May 2006
- Noise Study Report, August 2009
- Paleontological Resources Technical Report, April 2006
- Preliminary Assessment of Archaeological Sensitivity, August 2006
- Visual Impact Assessment, July 2006; updated May 2009
- Final Water Quality Study Report, May 2006
- Wetland Evaluation Study, July 2009