Veterans Boulevard/State Route 99 Interchange Project/Veterans Boulevard Grade Separation Project Fresno County, California

06-FRE-99-PM 28.8/30.11
Project ID# 0600000935
SCH No. 2010021054

Draft Environmental Impact Report/ Environmental Assessment

Prepared by the
State of California Department of Transportation
and City of Fresno

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 Department under its assumption of responsibility pursuant to 23 United States Code 327.

July 2012

General Information about This Document

What's in this document?

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, has prepared this draft environmental impact report/environmental assessment that examines the potential environmental impacts of alternatives being considered for the proposed project in the city of Fresno in Fresno County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, potential impacts from each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures.

What should you do?

- Please read this document. Additional copies of this document as well as the technical studies are available for review at the following locations: Caltrans District Office, 1352 West Olive Avenue, Fresno, CA 93778; Fresno County Public Library (Central Library), 2420 Mariposa Street, Fresno, CA 93721, and Fresno County Public Library (Fig Garden Regional Library), 3071 West Bullard Avenue, Fresno, CA 93711 or online at http://www.dot.ca.gov/dist6/environmental/envdocs/d6/.
- Attend the public hearing.
- We welcome your comments. If you have any concerns about the proposed project, please attend the public hearing, or send your written comments to Caltrans by the deadline. Submit comments via U.S. mail to Caltrans at the following address:

  Kelly Hobbs, Branch Chief
  Southern San Joaquin Valley Management Branch
  California Department of Transportation, District 6
  855 M Street, Suite 200
  Fresno, CA 93721

- Submit comments via email to: kelly_hobbs@dot.ca.gov
- Be sure to submit comments by the deadline: September 21, 2012.

What happens next?

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

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 contact the Caltrans, Attn: Kelly Hobbs, Southern San Joaquin Valley Management 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, (800) 735-2929 or 711.

SCH# 2010021054
06-FRE-99- PM 28.8/30.11
Project ID# 06-0000-0935

Construct a new interchange at Veterans Boulevard/State Route 99 and a grade separation at Veterans Boulevard and Golden State Boulevard on State Route 99 between West Shaw Avenue and Herndon Avenue in north Fresno from post mile 28.8 to post mile 30.11

DRAFT ENVIRONMENTAL IMPACT REPORT /ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 United States Code 4332(2)(C) and 23 United States Code 327

THE STATE OF CALIFORNIA
Department of Transportation

7/23/12
Date of Approval

Jennifer H. Taylor
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NEPA Lead Agency

7/23/12
Date of Approval

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Chief, Central Region Environmental
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CEQA Lead Agency

Summary

Overview of Project Area

The California Department of Transportation (Caltrans), in cooperation with the City of Fresno, proposes to build a new interchange on State Route 99 plus supporting roadway improvements in north Fresno. Caltrans would act as the lead agency for the California Environmental Quality Act and National Environmental Policy Act as assigned by Federal Highway Administration pursuant to 23 United States Code 327. The improvements would add a new interchange (new connection) to State Route 99 as well as a new city arterial roadway that provides additional access to the mainline State Route 99 and enhances the local circulation network.

Purpose and Need

The following is the purpose of the project:

- Improve accessibility to State Route 99 and circulation to roads adjacent to the proposed interchange in northwest Fresno
- Provide congestion relief and improved traffic flow in northwest Fresno along State Route 99 and local roads
- Enhance the local circulation network that would accommodate local development and provide consistency with existing and planned local and regional development.

The following is the need for the project:

- Inadequate accessibility to State Route 99 and circulation to roads adjacent to the proposed interchange in northwestern Fresno
- Lack of traffic capacity in northwest Fresno
- Deficient local circulation network that does not adequately accommodate local development and provide consistency with existing and planned local and regional development.

Proposed Action

Caltrans, in cooperation with the City of Fresno, proposes to construct a new interchange and railroad grade separation at the proposed Veterans Boulevard alignment on State Route 99 between Herndon and Shaw Avenues with the following features:

- The new interchange would be a Type L-9 partial cloverleaf with six on- and off-ramps connecting State Route 99 and Veterans Boulevard.
- Veterans Boulevard would be built as a six-lane super arterial from West Shaw Avenue in the south to Herndon Avenue to the north.
- A new Veterans Boulevard overcrossing would span State Route 99 with three northbound and three southbound lanes, a Class I bicycle lane/pedestrian trail on the west side of the structure and Class II bicycle lanes on both sides of the structure and bicycle lanes.
- Veterans Boulevard would connect to Golden State Boulevard via a grade-separated crossing and would cross over the Union Pacific Railroad.
- Landscaping similar to adjacent interchanges would be provided.
- Drainage basins would be built to retain water runoff from the project.

Three alternatives are being considered for the project: two build alternatives and a No-Build Alternative.

Common Features of Build Alternatives

Both build alternatives include a Type L-9 partial cloverleaf interchange connection onto State Route 99 at the same location. The primary difference between the two build alternatives involves the Veterans Boulevard layout and how it crosses Golden State Boulevard. In addition to the new interchange and local roadway improvements, a new grade separation is proposed for Veterans Boulevard crossing over the Union Pacific Railroad tracks. The build alternatives propose various designs for the Veterans Boulevard to Golden State Boulevard connection, including the railroad grade separation. Both build alternatives would include building Veterans Boulevard from Shaw Avenue to Herndon Avenue as a six-lane arterial roadway.

Alternative 1—Base

Golden State Boulevard would include ramps to the inside of the roadway to connect with Veterans Boulevard at an elevated intersection along the current Golden State Boulevard alignment. Traffic continuing on both northbound and southbound Golden

State Boulevard not bound for Veterans Boulevard would be diverted around the inside ramps on a grade-separated undercrossing by routing this traffic below grade or under Veterans Boulevard.

Alternative 4—Jug-Handle

This alternative would require realignment of Golden State Boulevard curving to the west, away from the Union Pacific Railroad tracks. Veterans Boulevard would be elevated to cross over both Golden State Boulevard and the railroad tracks in a grade separated structure. From the undercrossing, the Golden State Boulevard realignment is proposed to transition back to its existing alignment. Two connector roads north and south of Veterans Boulevard are proposed that would provide at-grade connections from realigned Golden State Boulevard as it rises to join the elevated Veterans Boulevard. The connections at Golden State Boulevard would be fully accessible while the connections to Veterans Boulevard would only provide right-in/right-out movements (left turns would be prohibited onto Veterans Boulevard). See Chapter 1 for a detailed description and mapping of the proposed alignment alternatives and variations.

Joint California Environmental Quality Act/National Environmental Policy Act Document

The proposed project is a joint project by the California Department of Transportation (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. Caltrans is the lead agency under National Environmental Policy Act. Caltrans is the lead agency under California Environmental Quality Act. In addition, Federal Highway Administration's responsibility for 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 United States Code 327.

Some impacts determined to be significant under California Environmental Quality Act may not lead to a determination of significance under National Environmental Policy Act. Because 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 National Environmental Policy Act. One of the most

commonly seen joint document types is an Environmental Impact Report/Environmental Assessment.

Following receipt of comments from the public and reviewing agencies, a final environmental document will be prepared. Caltrans may undertake additional environmental and/or engineering studies to address comments. The final environmental document will include responses to comments received on the Draft Environmental Impact Report/Environmental Assessment and will identify the preferred alternative. If the decision is made to approve the project, a Notice of Determination will be published for compliance with the California Environmental Quality Act, and Caltrans will decide whether to issue a Finding of No Significant Impact or require an Environmental Impact Statement for compliance with the National Environmental Policy Act. A Notice of Availability of the Finding of No Significant Impact will be sent to the affected units of Federal, State, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

Coordination with Other Agencies

The following permits, reviews, and approvals would be required for project construction:

Federal Agency	Permit/Approval	Status
U.S. Fish and Wildlife Services	Section 7 consultation for threatened and endangered species.	Formal Section 7 Consultation for potential impacts to vernal pool fairy shrimp with mitigation on inferred presence, and potential impacts to the Valley elderberry longhorn beetle with avoidance measures would need to be initiated and completed prior to the final environmental impact report/environmental assessment.
U.S. Army Corps of Engineers	Section 404 Individual Permit for filling or dredging waters of the United States.	Pending completion of the Project Specifications and estimates phase of the process.
Regional and Local Agency		
Central Valley Regional Water Quality Control Board	Section 401 Water Quality Certification. Waste Discharge Permit Review and approval of stormwater discharge treatments.	Pending completion of the Project Specifications and Estimates phase of the process.
City of Fresno Encroachment Permit	An encroachment permit is required for construction of improvements on local roadways within the city of Fresno.	Pending completion of the Project Specifications and Estimates phase of the process.
Fresno County Flood Control Agency	Confirmation that the project meets 200-year flood control as required by the Federal Emergency Management Agency.	Pending completion of the Project Specifications and Estimates phase of the process.

Project Impacts

The following table summarizes the results of the environmental studies and displays the potential impacts for each alternative.

Summary of Major Potential Impacts from Alternatives

Potential Impact		Alternative 1—Base	Alternative 4—Jug Handle	No-Build Alternative
Land Use	**Consistency with the City of Fresno General Plan**	Yes	Yes	No
Farmlands/Timberlands		31 acres	36 acres	No impact
Relocation	**Business displacements**	2 commercial businesses	2 commercial businesses	No impact
	Utility service relocation	Temporary interruption of services to utility customers during relocation of power lines for construction may occur	Temporary interruption of services to utility customers during relocation of power lines for construction may occur	No impact
Utilities/Emergency Services		Temporary interruption of services to utility customers during relocation of the power lines for construction. No interruption of emergency services anticipated.	Temporary interruption of services to utility customers during relocation of the power lines for construction. No interruption of emergency services anticipated.	No impact
Traffic and Transportation/ Pedestrian and Bicycle Facilities		The project would improve conditions for vehicles, pedestrians, and bicycles	The project would improve conditions for vehicles, pedestrians, and bicycles	Without the proposed project, the levels of service for the project area would decline to unacceptable levels due to planned future growth.
Noise and Vibration		Increased noise levels require consideration of noise abatement	Increased noise levels require consideration of noise abatement	No impact

Potential Impact	Alternative 1—Base	Alternative 4—Jug Handle	No-Build Alternative
Wetlands and other Waters	0.22 acres of wetlands	0.22 acres of wetlands	No impact
Animal Species	Various bat species, San Joaquin kit fox, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, California horned lark, loggerhead shrike, Valley elderberry longhorn beetle, vernal pool fairy shrimp, California linderiella fairy shrimp	Various bat species, San Joaquin kit fox, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, California horned lark, loggerhead shrike, Valley elderberry longhorn beetle, vernal pool fairy shrimp, California linderiella fairy shrimp	No impact
Threatened and Endangered Species	Swainson's hawk, San Joaquin kit fox, Valley elderberry longhorn beetle, vernal pool fairy shrimp	Swainson's hawk, San Joaquin kit fox, Valley elderberry longhorn beetle, vernal pool fairy shrimp	No impact
Construction	Temporary impacts	Temporary impacts	No impact

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) is the lead agency under the National Environmental Policy Act and the California Environmental Quality Act. Federal Highway Administration responsibility for 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 United States Code 327. Caltrans, in cooperation with the City of Fresno, proposes to build a new interchange on State Route 99 and as well as a new city arterial roadway that provides a connection to State Route 99 and enhances the local circulation network.

The proposed interchange is planned on State Route 99 about 1 mile south of the existing Herndon Avenue interchange at post mile 29.5 (see Figure 1.1 and 1.2). The current limits for the project on State Route 99 extend 0.62 mile south of the proposed Veterans Boulevard interchange connection (post mile 28.88) to 0.61 mile north of the connection (post mile 30.11) for a total distance along the State Route 99 mainline of about 1 mile. The proposed Veterans Boulevard roadway would generally extend from West Shaw Avenue in the south to Herndon Avenue to the north.

This project is included in the 2011 Federal Statewide Transportation Improvement Program and the Council of Fresno County of Governments 2011 Regional Transportation Plan. Funding is proposed from a variety of sources including the Fresno County Measure C Renewal sales tax program, development impact fees, and Federal Demonstration Funds.

Background

In 1984, the Fresno General Plan first introduced the potential need for Veterans Boulevard to serve the local community along State Route 99. State Route 99 is a four-lane freeway (two mixed flow lanes in each direction) throughout the project limits. State Route 99 is part of the California Freeway and Expressway System stretching almost the entire length of the Central Valley. Veterans Boulevard was to serve as a north-south “super” arterial to serve planned land uses in north Fresno.

Figure 1.1
Project Vicinity Map

0 25 50
MILES

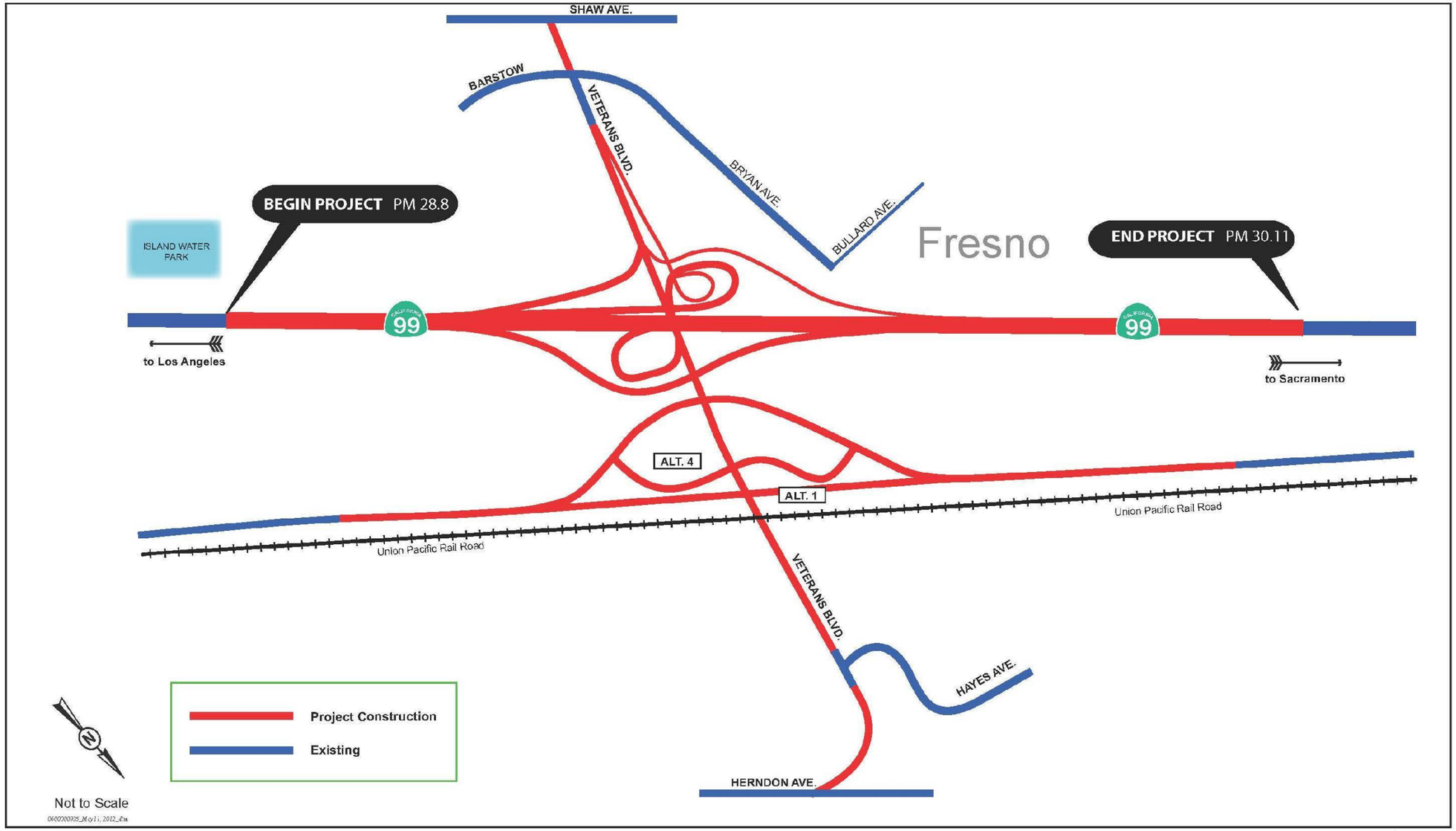


Figure 1.2
Project Location

The interchange would provide additional north-south access from State Route 99 between the Shaw Avenue and Herndon Avenue interchanges.

This idea was refined in 1986 with a feasibility study conducted to analyze potential interchange/grade separation configurations, with the intention of determining the alternative best suited to the site and the proposed Veterans Boulevard. In 1991 a Project Initiation Document was completed, and in 1996 the official plan line for Veterans Boulevard was adopted. Most recently, a project study report was completed to design the preliminary engineering as well as to determine how various alternatives might best serve the community.

Veterans Boulevard and the proposed interchange with State Route 99 are identified as part of the circulation system in both the City of Fresno and Fresno County general plans.

1.2 Purpose and Need

1.2.1 Purpose

The following is the purpose of the project:

- Improve accessibility to State Route 99 and circulation to roads adjacent to th proposed interchange in northwestern Fresno
- Provide congestion relief and improved traffic flow in northwest Fresno
- Enhance the local circulation network that would accommodate local development and provide consistency with existing and planned local and regional development

1.2.2 Need

Improve Accessibility to State Route 99 and Circulation to Adjacent Roads

The proposed interchange is between two nearby freeway interchanges: Herndon Avenue to the north and Shaw Avenue to the south. These existing grade-separated interchanges are about 2.5 mile apart. Currently, many of the connections to State Route 99 offer only partial access and are limited to accommodate future demand. Crossing State Route 99 is problematic since many of the crossing locations are currently more than 1 mile apart and the capacity of these crossings is limited. Connections are also limited by the Union Pacific Railroad tracks that run parallel to State Route 99. These additional movements on local roads and highways contribute to overall congestion in the area and an increase in the number of miles vehicles

travel. Level of service is a description of roadway effectiveness in transporting vehicles through a corridor. Six levels are defined, based in part on the number of seconds each vehicle is delayed.

Provide Congestion Relief

According to the 2025 Fresno General Plan, and Caltrans and Federal Highway Administration standards, an acceptable level of service rating for this type of roadway (highway/local roadway) is D. However, traffic analysis for the project identified five intersections and one roadway segment that currently operate at level of service E or F (see Figure 1.3 for Levels of Service Rating System).

Under the No-Build alternative, levels of service would be deficient (E or below) by 2015 at four intersections and ramps along Shaw Avenue during one or both of the peak hours, and at one roadway segment along Ashlan Avenue (See Table 1.1).

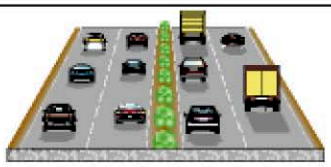
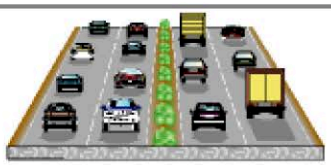
Under the No-Build Alternative, anticipated levels of service could worsen by 2035, with deficient levels of service during one or both of the peak hours at three intersections and ramps along Herndon Avenue, one along Parkway Drive, and one along Veterans Boulevard. Roadway segments along Grantland Avenue, Shaw Avenue, and Herndon Avenue are also expected to be at deficient levels of service.

The anticipated delays in travel time under the No-Build Alternative that occur at adjacent roads are due to projected future development along the State Route 99 corridor even though State Route 99 itself is expected to continue operating at acceptable level of service A to D.

Table 1.1: Peak Hour Intersection Operations

Intersections	Traffic Control	Peak Hours	Existing Conditions LOS[1]	2015 No Project LOS[1]	2035 No Project LOS[1]
Shaw Avenue/Polk Avenue	Signal	Morning Evening	**E** **F**	**F** **F**	**F** **F**
Shaw Avenue/SR 99 southbound ramps	Signal	Morning Evening	C C	**F** **F**	**F** **F**
Shaw Avenue/SR 99 northbound ramps	Signal	Morning Evening	B **E**	D **F**	**F** **F**
Shaw Avenue/Golden State Boulevard	Signal	Morning Evening	C **F**	D **F**	**F** **F**
Herndon Avenue/ Parkway Drive	Signal (Existing Condition - All-Way Stop)	Morning Evening	**F** D	B A	**F** D
Herndon Avenue/SR 99 southbound off-ramp	Signal (Existing Condition – Side-Street Stop)	Morning Evening	C (A) C (A)	N/A	N/A
Herndon Avenue/SR 99 northbound off-ramp	Signal (Existing Condition – Side-Street Stop)	Morning Evening	D (A) **E (**C)	B B	**F** **F**
Herndon Avenue/ Golden State Boulevard	Signal	Morning Evening	**E** **E**	C C	**F** **F**
Parkway Drive/SR 99 southbound on-ramp/ Grantland Avenue	Signal	Morning Evening	N/A	N/A	**F** **F**
Herndon Avenue/ Polk Avenue	Signal	Morning Evening	N/A	C D	D **F**
Barstow Avenue/ Veterans Boulevard	All-Way Stop	Morning Evening	A A	C C	N/A
Veterans Boulevard/ Grantland Avenue	Signal	Morning Evening	N/A	C C	D **E**
Veterans Boulevard/ Shaw Avenue	Signal	Morning Evening	N/A	C C	C C
Veterans Boulevard/ Bryan Avenue/Barstow Avenue	Signal	Morning Evening	N/A	A A	C D
Veterans Boulevard/ Golden State Boulevard Connector	Signal	Morning Evening	N/A	B B	C D
Veterans Boulevard/ Bullard Avenue	Signal	Morning Evening	N/A	C C	C C
Veterans Boulevard/Wathen Avenue	Side Street Stop	Morning Evening	N/A	A A	B B
Veterans Boulevard/ Hayes Avenue	Signal	Morning Evening	N/A	C C	C C
Veterans Boulevard/ Herndon Avenue	Signal	Morning Evening	N/A	A A	B B

Notes:
[1] Level of Service based on Highway Capacity Manual (Transportation Research Board 2000).
Bold font indicates unacceptable intersection operations based on the LOS D standard.
(LOS = Level of Service)

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

SOURCE: California Department of Transportation

Figure 1.3
Levels of Service Freeways

Enhance Local Circulation

The City of Fresno adopted an updated General Plan in February 2002 creating a land use blueprint for long-term growth to at least 2025. Regional transportation needs were assessed in the Council of Fresno County Governments 2011 Regional Transportation Plan. Land use forecasting indicates that population growth in the city of Fresno would continue to increase at a rate of 1.8 percent per year, increasing the city population by 56 percent by 2040 (California Department of Finance 2009).

As the city grows from development projects consistent with the 2025 Fresno General Plan, the demand for transportation improvements would increase. Traffic generated by future projects would use State Route 99 to access travel destinations in the region. Increased traffic would also occur at the Herndon Avenue and Shaw Avenue interchanges. Without the proposed Veterans Boulevard interchange project (i.e., No-Build Alternative), level of service for these two interchanges would decline to unacceptable levels. To accommodate this regional growth, local and area-wide roadway infrastructure must be able to support increased traffic demand.

1.3 Project Description

This section describes the proposed action and the design alternatives developed to meet the identified need, accomplish the defined purpose(s), and avoid or minimize environmental impacts. The alternative labels are the following: Alternative 1—Base; Alternative 4—Jug Handle; and the No-Build Alternative.

Caltrans, in cooperation with the City of Fresno, proposes to construct a new interchange and railroad grade separation at the proposed Veterans Boulevard alignment on State Route 99 between Herndon and Shaw Avenues with the following features:

- Veterans Boulevard would be built as a six-lane super arterial from West Shaw Avenue in the south to Herndon Avenue to the north.
- Veterans Boulevard, on a new elevated structure, would cross over State Route 99 with three northbound and three southbound lanes, a Class I bicycle lane/pedestrian trail on the west side of the structure, and Class II bicycles lanes on both sides of the structure.
- Veterans Boulevard would cross over the Union Pacific Railroad and connect to Golden State Boulevard via a grade-separated crossing.
- Landscaping similar to adjacent interchanges would be provided.

- Drainage basins would be built to retain water runoff from the project.

1.4 Alternatives

Two build alternatives and a No-Build Alternative have moved forward for evaluation in this document. This section describes the alternatives under consideration, compares similarities and differences between the alternatives, explains why other alternatives were dropped from further consideration, and provides a comparison of how the alternatives meet the purpose and need

1.4.1 Build Alternatives

Common Design Features of the Build Alternatives

All build alternatives (Alternative 1 and Alternative 4) include a Type L-9 partial cloverleaf interchange connection onto State Route 99 at the same location. In addition to the new interchange and local roadway, a new grade separation crossing over the Union Pacific Railroad tracks and Golden State Boulevard would be built. The alternatives propose various designs for the connection of Veterans Boulevard to Golden State Boulevard and the railroad grade separation as discussed in Section 1.3.

Veterans Boulevard Interchange

The proposed Veterans Boulevard interchange is a partial cloverleaf interchange with six ramps connecting State Route 99 to Veterans Boulevard. The L-9 interchange configuration allows for continuous right-turn vehicular movements onto State Route 99, minimizing congestion for high traffic-volume interchanges. Because left-turn movements from Veterans Boulevard to State Route 99 are eliminated, the signalized intersections function efficiently with a two-phase operation.

The freeway ramps are designed using Highway Design Manual standards, including auxiliary lanes where applicable. Typical lane widths are 12 feet with 8-foot-wide outside and 4-foot-wide inside shoulders.

The overcrossing would be a two-span structure with columns in the State Route 99 median. The two spans allow for State Route 99 expansion to the ultimate eight-lane facility and the loop on-ramps. The structure has a total span length of 284 feet with one span at 144 feet and the other at 140 feet. It would be a cast-in-place post-tensioned box girder structure and would provide the required minimum vertical clearance of 16 feet 6 inches.

Arterial Roadways

The proposed interchange would construct a new north-south six-lane divided arterial version of Veterans Boulevard that would extend north to Herndon Avenue and south to West Shaw Avenue.

Local Streets and Intersections

To accommodate the new Veterans Boulevard arterial, changes would be made to Herndon Avenue and Shaw Avenue to accommodate new intersections with Veterans Boulevard. Contractor access and construction tasks would temporarily affect other local streets during construction.

Pedestrian and Bicycle Facilities

The corridor along Veterans Boulevard also contains a 12-foot-wide Class 1 trail. This trail was designed to increase pedestrian and bicycle safety throughout the corridor. The 12-foot-wide trail runs from Herndon Avenue to Shaw Avenue on the north side of Veterans Boulevard. In order to increase pedestrian and bike safety at the southbound loop on-ramp, which has the heaviest ramp traffic volume, the trail mirrors the alignment with the southbound loop on-ramp. It proceeds to the southbound loop on-ramp and diagonal off-ramp and connects to an existing section of the Class 1 trail about 550 feet west of the proposed undercrossing. The minimum vertical clearance for this trail under the southbound diagonal off-ramp is 8 feet.

Structures

The proposed interchange is a Type L-9 partial-cloverleaf interchange. Veterans Boulevard is a six-lane super arterial and would include a grade separation over the Union Pacific Railroad tracks. The structure would include a new two-span, cast-in-place, post-tensioned concrete box girder structure on Veterans Boulevard over State Route 99. The new structure would provide the required vertical clearances with State Route 99. The project also includes a single-span cast-in-place post-tensioned concrete box girder structure on Veterans Boulevard over both Golden State Boulevard and Union Pacific Railroad tracks.

Drainage

Additional drainage improvements are required along State Route 99 because of the increase in paved surfaces and subsequent water runoff. Drainage improvements would include surface and subsurface drains, retention/detention basins, and pump facilities. Each terminal drainage location would include improvements to remove roadway contaminants from the runoff before discharging into the watershed.

Unique Features of the Build Alternatives

Fundamental to the two Veterans Boulevard alternatives is adding a new Type L-9 partial cloverleaf interchange and construction of a new Veterans Boulevard as a six-lane arterial between Shaw Road and Herndon Avenue. However, the differences between alternatives focus on the grade-separated crossing over Golden State Boulevard, the Union Pacific Railroad, and the connectivity to Golden State Boulevard. These differences are described below.

Alternative 1—Base

The base alternative (see Figure 1.4a Project Plans; Figure 1.4b 3D Overview) includes construction of a Type L-9 interchange connecting Veterans Boulevard to State Route 99; a Veterans Boulevard overcrossing that spans Golden State Boulevard (the span has left-turn connections to and from Golden State Boulevard); and a Veterans Boulevard overcrossing that spans the Union Pacific Railroad tracks before extending from Shaw Avenue to Herndon Avenue. Veterans Boulevard would accommodate future planned roadway connections. The realignment of a portion of Herndon Avenue would connect with Veterans Boulevard.

Golden State Boulevard's northbound and southbound lanes connect to Veterans Boulevard via single-lane ramps that diverge from the median of Golden State Boulevard to an at-grade intersection with Veterans Boulevard. Likewise, the connections from Veterans Boulevard to Golden State Boulevard contain single-lane ramps that converge to the median of Golden State Boulevard.

The structure over State Route 99 would be a two-span structure with columns in the State Route 99 median. The two spans allow for the expansion of State Route 99 to the ultimate eight-lane facility and the loop on-ramps. The structure length has a total span of 284 feet with one span at 144 feet and the other at 140 feet.

With construction of the northbound and southbound ramps from Golden State Boulevard to Veterans Boulevard, the base alternative requires two structures. Both structures have a cross-sectional width of 142 feet 10 inches and are cast-in-place post-tensioned concrete box girders. The first is a 245-foot single-span structure that travels along Veterans Boulevard over the Union Pacific Railroad right of way and the proposed northbound Golden State Boulevard lanes. This structure has a vertical clearance of 23 feet 4 inches over the existing railroad tracks. The second structure spans a total of 105 feet and travels along Veterans Boulevard over the southbound Golden State Boulevard lanes. This structure has a vertical clearance of 15 feet.

Alternative 1- Base estimated Cost: $111,041,000 (includes the cost of extending Veterans Boulevard).

Alternative 4—Jug-Handle

The jug-handle alternative (see Figure 1.5a Project Plans; Figure 1.5b 3D Overview) constructs a Type L-9 interchange connecting Veterans Boulevard to State Route 99; a Veterans Boulevard overcrossing that spans Golden State Boulevard (with connecting hook ramps); and a Veterans Boulevard overcrossing that spans the Union Pacific Railroad tracks before extending from Shaw Avenue to Herndon Avenue. Veterans Boulevard would accommodate future planned roadway connections and the realignment of a portion of Herndon Avenue to connect with Veterans Boulevard.

The jug-handle alternative connects to Veterans Boulevard via jug-handle shaped ramps to Golden State Boulevard. This alternative realigns Golden State Boulevard to the west and provides a Golden State Boulevard overcrossing for the Veterans Boulevard traffic. This proposed overcrossing would be a two-span structure with widths of 75 feet 9 inches and 77 feet 9 inches along the Veterans Boulevard alignment. The 153-foot 6-inch span length provides a minimum vertical clearance of 15 feet over the roadway section. It is a cast-in-place, post-tensioned concrete box girder with an overall section width of 136 feet 10 inches.

Two at-grade intersections were added at the locations where the jug-handle ramps connect with Golden State Boulevard. From there, the 925-foot-long ramp to the south of Veterans Boulevard, and the 1,115-foot-long ramp to the north of Veterans Boulevard connect to the proposed Veterans Boulevard. Both the south and north ramps are two-way, two-lane ramps that provide right-in and right-out turn movements to and from Veterans Boulevard. The ramps also provide fully signalized intersections at the connections to Golden State Boulevard.

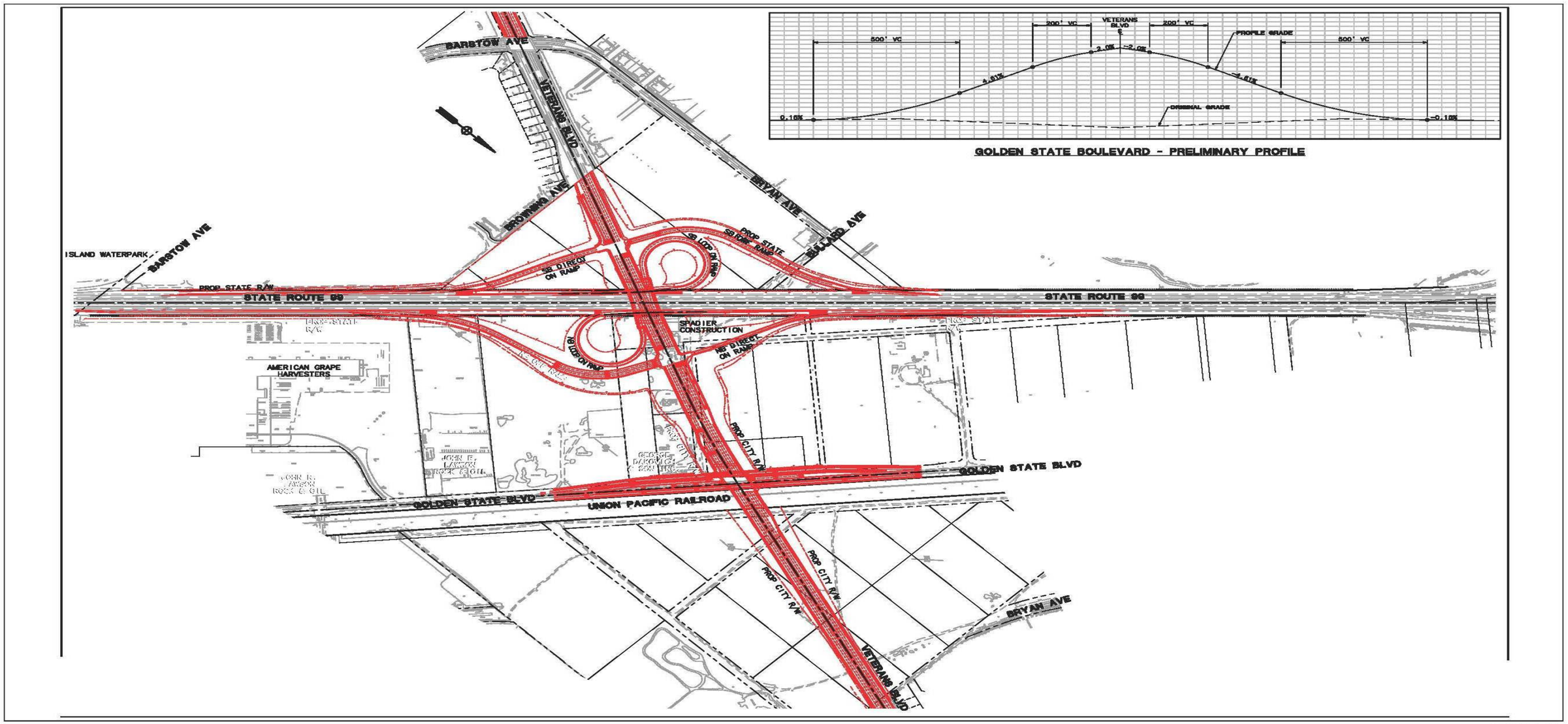


Figure 1.4a
Base Alternative (Alternative 1) Project Plans

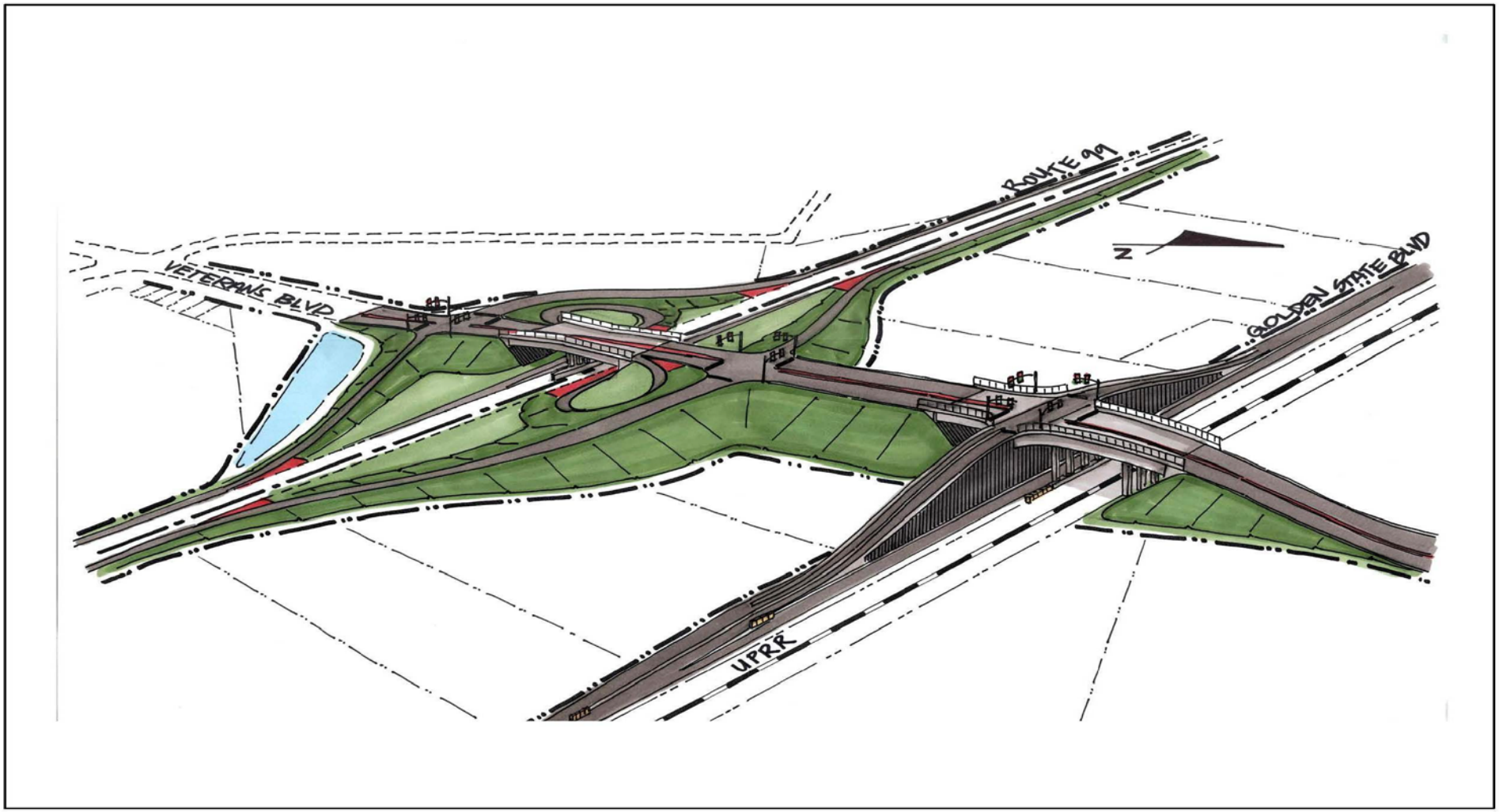


Figure 1.4b
Base Alternative (Alternative 1) - 3D Overview

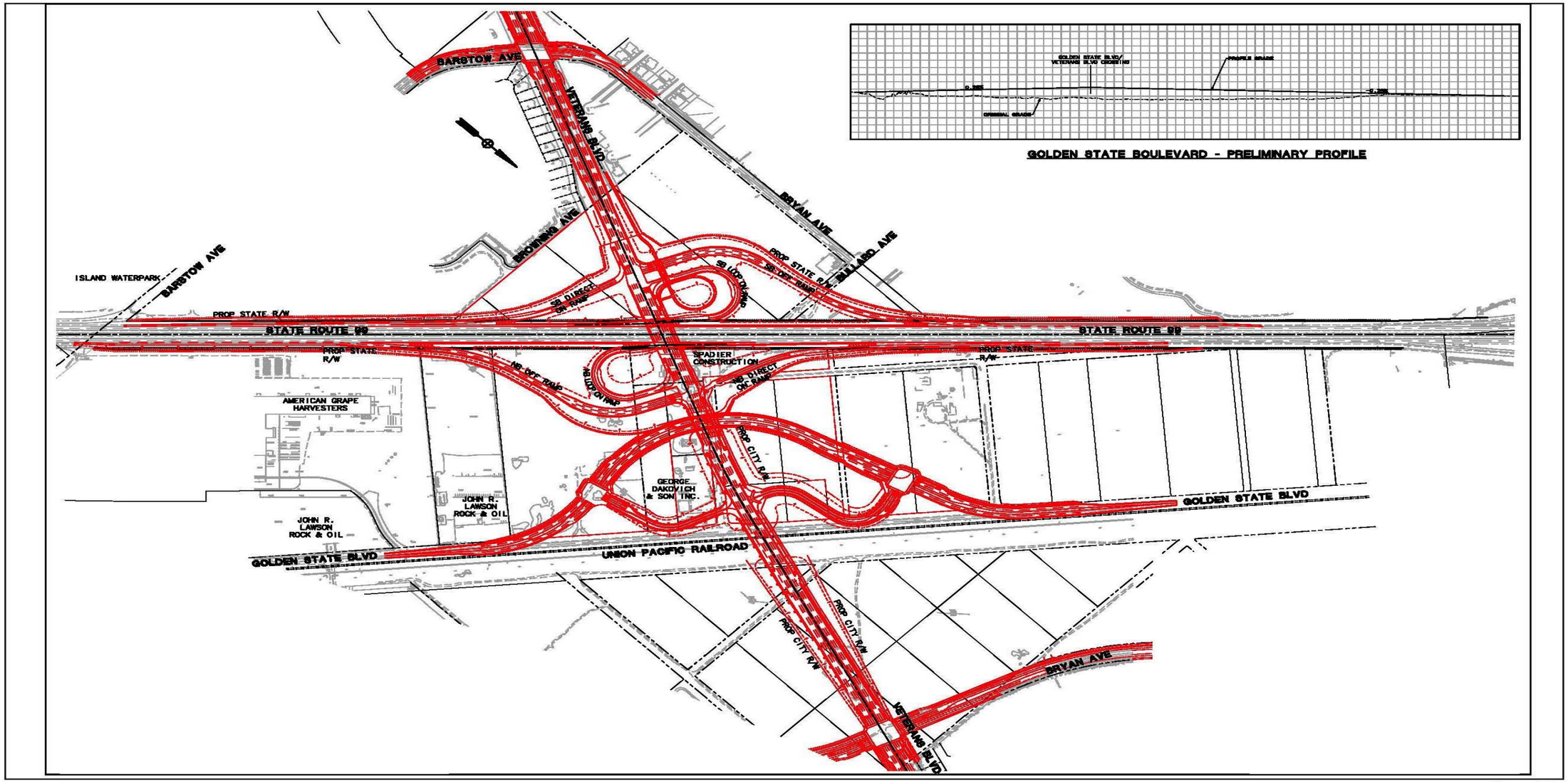


Figure 1.5a
Jug-Handle Alternative (Alternative 4) Project Plans

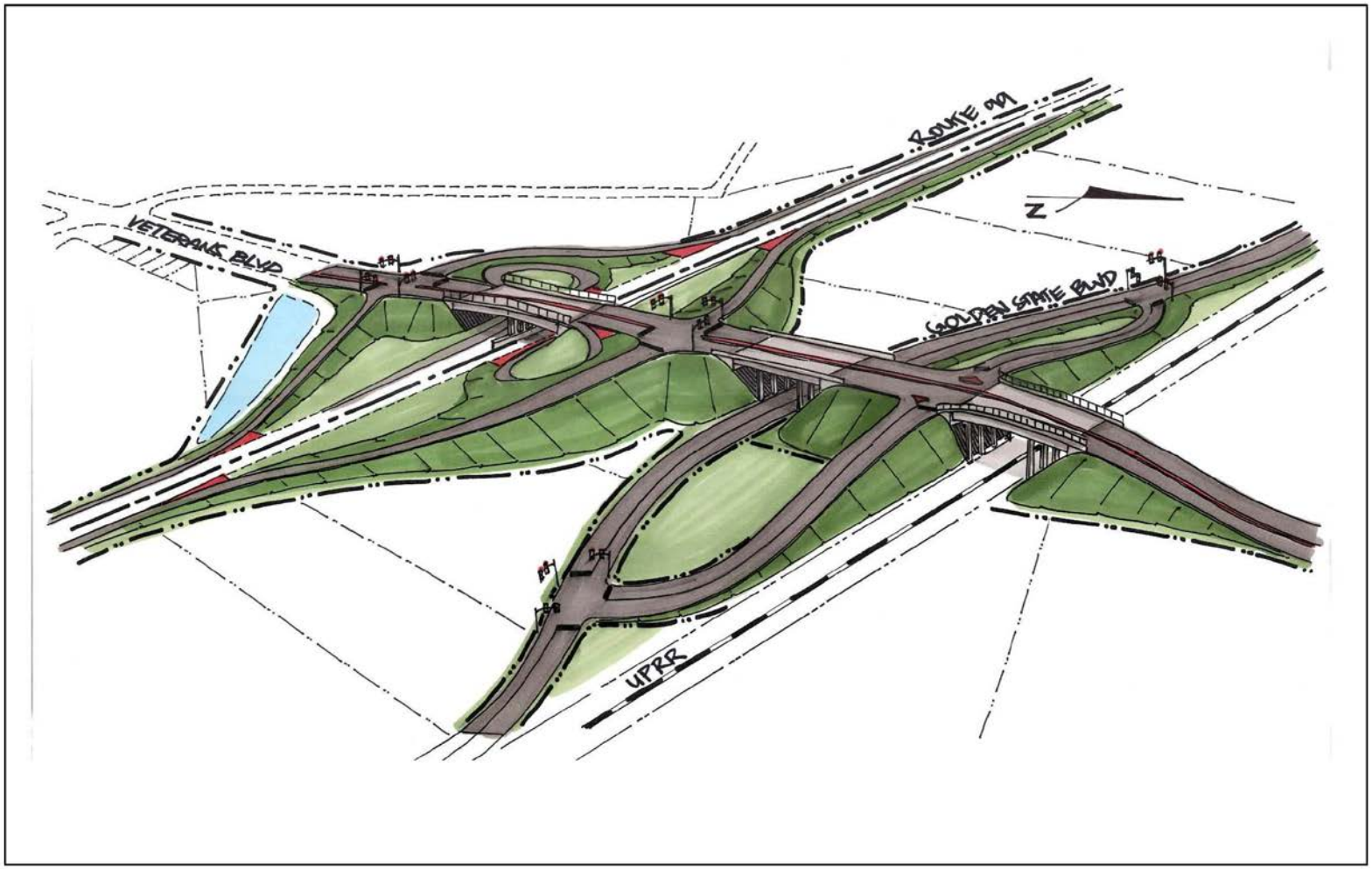


Figure 1.5b
Jug-Handle Alternative (Alternative 4) - 3D Overview

The notable difference between the south and north ramps is the north ramp has a standard 10-foot-wide sidewalk section whereas the south ramp does not provide pedestrian access.

The structure over the Union Pacific Railroad would be a three-span structure with a total length of 305 feet. From east to west, the span lengths are 95 feet, 150 feet, and 105 feet, respectively. The columns are just outside the Union Pacific Railroad operational right-of-way. This structure also has a vertical clearance of 23 feet 4 inches over the existing railroad tracks.

The estimated cost for Alternative 4—Jug-Handle is $107,775,000. This includes the cost of extending Veterans Boulevard.

Transportation System Management and Mass Transit Alternatives, Transportation Demand Management Alternative

Transportation System Management measures alone would not satisfy the purpose and need of the project. The Transportation System Management and Mass Transit Alternatives, Transportation Demand Management Alternative would provide commuters with an alternative to driving and some congestion relief. It would not, however, provide congestion relief to the extent of the proposed project. The management alternative would not provide consistency with existing and planned local and regional development, nor could it accommodate local development. The following Transportation System Management measures would be incorporated into the build alternatives for this project:

- The project improvements on Veterans Boulevard and State Route 99 interchange would include changeable message signs and video cameras for congestion monitoring as well as integration of the ramp metering equipment included with the four interchange projects.
- Planned pedestrian facilities include a 12-foot-wide Class I bikeway/bike and pedestrian path on the north side, and a Class II bikeway/bike lanes on both sides of Veterans Boulevard (see Figures 1.3 and 1.4).

1.4.2 No Build Alternative

The No-Build Alternative would not construct a new interchange on State Route 99. Vehicles would continue using the existing interchanges at Herndon Avenue and Shaw Avenue.

It is anticipated the existing Shaw Avenue interchange would operate at unacceptable levels of service by 2015, according to City of Fresno and Caltrans level of service standards, during the peak hours under No-Build Alternative conditions. Although construction of the Veterans Boulevard/State Route 99 Interchange Project does not increase the level of service at the existing Shaw Avenue intersections with the State Route 99 ramps, there would be a decrease in the delay times by 15 to 92 percent.

The Herndon Avenue intersections with the State Route 99 ramps would operate at level of service F by 2035 under the No-Build condition. With the Veterans Boulevard Project, the ramp intersections would operate at level of service B to E in the morning and operate at level of service F in the evening.

The No-Build Alternative would result in excessive delays and poor traffic operations for State Route 99. The No-Build Alternative would not accommodate the anticipated circulation needs of planned developments in the project area. Additionally, the No-Build Alternative is not consistent with local and regional system planning and does not meet the project purpose and need identified earlier in this document.

If the No-Build Alternative is selected, levels of service would degrade to unacceptable levels, resulting in severe congestion and gridlock. Along with the congested conditions, air quality would also degrade, potentially exceeding federal and state standards for various emissions.

1.4.3 Comparison of Alternatives

The two build alternatives are similar in their impacts to the project area, with the exception of acres of affected farmland (see Table 1.2). The No-Build Alternative would have no additional impacts to the project area. For the full discussion and comparison of project alternatives please see Section 1.4 – Alternatives. For the full discussion of potential impacts please see Chapter 2.

Table 1.2: Summary of Comparison Alternatives

Potential Impact		Alternative 1— Base	Alternative 4—Jug Handle	No-Build Alternative
Land Use	**Consistency with the City of Fresno General Plan**	**Yes**	**Yes**	**No**
Farmlands/Timberlands		31 acres	36 acres	No impact
Relocation	Business displacements	2 commercial businesses	2 commercial businesses	No impact
	Utility service relocation	Temporary interruption of services to utility customers during relocation of power lines for construction may occur.	Temporary interruption of services to utility customers during relocation of power lines for construction may occur.	No impact
Utilities/Emergency Services		Temporary interruption of services to utility customers during relocation of the power lines for construction. No interruption of emergency services anticipated.	Temporary interruption of services to utility customers during relocation of the power lines for construction. No interruption of emergency services anticipated.	No impact
Traffic and Transportation/ Pedestrian and Bicycle Facilities		The project would improve conditions for vehicles, pedestrians, and bicycles.	The project would improve conditions for vehicles, pedestrians, and bicycles.	Without the proposed project, the levels of service for the project area would decline to unacceptable levels due to planned future growth.
Noise and Vibration		Increased noise levels require consideration of noise abatement	Increased noise levels require consideration of noise abatement	No impact
Wetlands and other Waters		0.22 acres of wetlands	0.22 acres of wetlands	No impact
Animal Species		Various bat species, San Joaquin kit fox, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, California horned lark, loggerhead shrike, Valley elderberry longhorn beetle, vernal pool fairy shrimp, California linderiella fairy shrimp	Various bat species, San Joaquin kit fox, western burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, California horned lark, loggerhead shrike, Valley elderberry longhorn beetle, vernal pool fairy shrimp, California linderiella fairy shrimp	No impact
Threatened and Endangered Species		Swainson's hawk San Joaquin kit fox, Valley elderberry longhorn	Swainson's hawk San Joaquin kit fox, Valley elderberry longhorn	No impact

Potential Impact	Alternative 1— Base	Alternative 4—Jug Handle	No-Build Alternative
	beetle, vernal pool fairy shrimp	beetle, vernal pool fairy shrimp	
Construction	Temporary impacts	Temporary impacts	No impact

After the public circulation period, all comments would be considered, and Caltrans would select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with California Environmental Quality Act, Caltrans would certify that the project complies with California Environmental Quality Act, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that would not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. Caltrans would then file a Notice of Determination with the State Clearinghouse that would identify whether the project would have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that a Statement of Overriding Considerations was adopted. Similarly, if Caltrans, as assigned by Federal Highway Administration, determines the National Environmental Policy Act action does not significantly impact the environment, Caltrans would issue a Finding of No Significant Impact in accordance with National Environmental Policy Act.

1.4.4 Alternatives Considered But Eliminated From Further Discussion

The Project Development Team explored a number of alternatives at the Veterans Boulevard interchange during the Project Study Report phase.

Alternative 2

Alternative 2 was included in the Project Study Report and maintains the same interchange configuration as the base alternative but would provide a new connector road from Golden State Boulevard north of Veterans Boulevard to Veterans Boulevard east on Golden State Boulevard and the Union Pacific Railroad tracks. This alternative would require bringing the connector road under the railroad, lowering Golden State Boulevard to match grade with the connector road, constructing of a new structure to bring the railroad over the connector road (underpass), building a temporary mainline railroad track for use during construction

of the new railroad underpass structure, erecting retaining walls in various locations, and requiring a permanent storm-water pumping station for Golden State Boulevard and the connector road.

Alternative 2 is no longer being considered because of the close spacing between the Veterans Boulevard/Bullard Avenue and Veterans Boulevard/Golden State Boulevard Connector intersections. Although operations analysis indicates that these intersections would operate at level of service E, the close spacing of these intersections would cause a reduced quality of operations on Veterans Boulevard, there is a concern with the on-going maintenance cost of the railroad structure and the pump station and reduced access for future business along the depressed portion of Golden State Boulevard.

Alternative 3

Alternative 3 was included in the Project Study Report and maintains the same interchange configuration as the Alternative 1 but would provide a new connector road from Golden State Boulevard north of Veterans Boulevard to Bullard Avenue north of Veterans Boulevard east of Golden State Boulevard and the Union Pacific Railroad tracks. This alternative would require bringing the connector road under the railroad, lowering Golden State Boulevard to match grade with the connector road, building a new structure to bring the railroad over the connector road (underpass), building a temporary mainline railroad track for use during construction of the new railroad underpass structure, erecting retaining walls in various locations, and placing a permanent storm water-pumping station for Golden State Boulevard and the connector road.

Alternative 3 is no longer being considered because of the closely spaced intersections with Veterans Boulevard/Bullard Avenue and the connection road. The queuing for the intersections would spill-back into the adjacent intersections creating an unacceptable level of service F in 2035. In addition to poor traffic operations, Alternative 3 has similar issues as Alternative 2: on-going maintenance cost of the railroad structure and the pump station and reduced access for future business along the depressed portion of Golden State Boulevard.

During the Project Development Team meetings with Caltrans and the stakeholders, it was decided to drop these alternatives from further analysis due to an inability to achieve operational performance, plus justify right-of-way impacts and cost.

1.4 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction.

Federal Agency	Permit/Approval	Status
U.S. Fish and Wildlife Services	Section 7 consultation for threatened and endangered species.	Formal Section 7 Consultation for potential impacts to vernal pool fairy shrimp with mitigation on inferred presence, and potential impacts to the Valley elderberry longhorn Beetle with avoidance measures would need to be initiated and completed prior to the final environmental impact report/environmental assessment.
U.S. Army Corps of Engineers	Section 404 Individual Permit for filling or dredging waters of the United States.	Pending completion of the Project Specifications and Estimates phase of the process.
Regional and Local Agency		
Central Valley Regional Water Quality Control Board	Section 401 Water Quality Certification. Waste Discharge Permit Review and approval of stormwater discharge treatments.	Pending completion of the Project Specifications and Estimates phase of the process.
City of Fresno Encroachment Permit	An encroachment permit is required for construction of improvements on local roadways within the city of Fresno.	Pending completion of the Project Specifications and Estimates phase of the process.
Fresno County Flood Control Agency	Confirmation that the project meets 200-year flood control as required by Federal Emergency Management Agency.	Pending completion of the Project Specifications and Estimates phase of the process.

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

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

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

- Coastal Zone—The project area is not in a coastal zone (Field visit, November 18, 2008).
- Energy—Implementation of the "Energy Decision Tree" (Caltrans Environmental Handbook Volume 1, Chapter 13) determined that this project is not a "major project" requiring further energy analysis. When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.
- Geology/Soils/Seismic/Topography—The project is not located in a seismic hazard zone, and liquefaction potential is considered low (Records search, Alquist-Priolo Earthquake Faults maps, and information obtained from other projects in the area.).
- Hydrology and Floodplain—The project is not in a floodplain and is not anticipated to have any impacts to hydrologic resources (Floodplain and Water Quality Evaluation Report, December 2010).
- Natural Communities—The area's former natural habitat is disturbed by the longstanding agricultural development and the more recent surrounding

residential development associated with the city and existing transportation system. Virtually all of the biological study area has been disturbed by some sort of human activity such as managed agricultural use, residential construction, off-road vehicle use, vehicle parking, infrastructure and garbage dumping. No natural communities exist within the project area (Biological Assessment, July 2011).

- Plant Species—No special status plant species occur in the biological study area (Natural Environment Study, April 2011).
- Invasive Species—The project does not contain concentrations of invasive species. However, Executive Order 13112 would be followed to ensure that there are no impacts to the project area from invasive species (Natural Environment Study, April 2011).
- Parks and Recreational Services—No parks or recreational services are present within the project area (Field visit, November 18, 2008).
- Wild and Scenic Rivers—The project is not near any wild or scenic rivers (Field visit, November 18, 2008).

2.1 Human Environment

This section explains the impacts that the project would have on the human environment in the project area. It describes the existing environment that could be affected by the project and the potential impacts from each alternative.

2.1.1 Land Use

This section describes existing and proposed land uses in the project area. Relocation impacts are addressed in Section 2.1.3 Community Impacts.

Existing and Future Land Use

Affected Environment

The project area setting is predominately agricultural consisting of fig orchards with small industrial areas and residential development.

General plan land use designations within a 0.5-mile-radius study area is a mix of residential, commercial, industrial, and parkland uses (see Figure 2.1). The study area was determined by using Census Tract Block data and existing community boundaries.

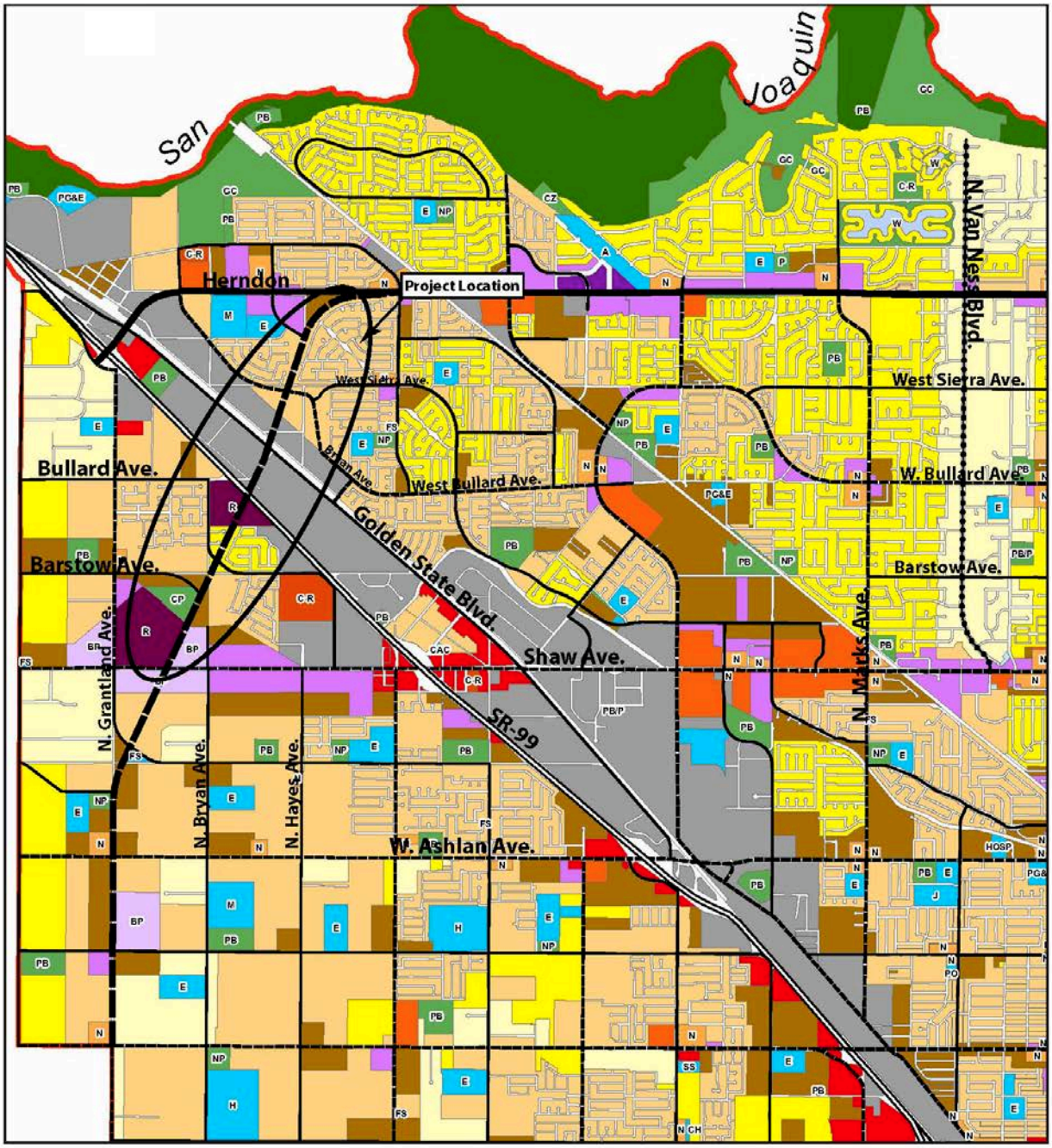


Figure 2.1
Fresno General Plan Land Use and Circulation Map

The City of Fresno 2025 General Plan Update governs land use planning in the study area. The Council of Fresno County of Governments is the regional transportation planning agency for the county and conducts regional transportation planning for the area. The City of Fresno, Council of Fresno County Governments, and Caltrans developed long range programs to address the transportation needs of the community and region.

A Community Impact Assessment, which included an assessment of the current and future land uses in the project area, was completed in March 2010. In the assessment, land use planning was evaluated from the 2025 City of Fresno General Plan and the 2011 Fresno Regional Transportation Plan.

Planned land use in the study area is developing toward new residential and commercial development that would include the following planned land uses per the General Plan Update: marketplace, office/industrial, retail/entertainment, business park, neighborhood/commercial, and professional offices. Similar to the state's economic/development trends, residential development in the Fresno area closely follows the economic/employment trends of the county.

To respond to this demand it is anticipated that the city of Fresno would continue to grow—particularly at its northern, southern, and western boundaries. Table 2.1 shows major projects in the Fresno General Plan planning area.

Table 2.1: Proposed Major Projects

Name	Jurisdiction	Location/Proposed Uses	Status
California high-speed train	California High-Speed Rail Authority, Federal Railroad Administration	The California high-speed train system is a proposed 800-mile-long system to serve Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. By 2030, high-speed trains would potentially be carrying 93 million passengers annually at operating speeds up to 220 miles per hour. At such high speeds, the expected trip time from San Francisco to Los Angeles would be just over 2.5 hours.	In 2005 a completed final program level Environmental Impact Report/Environmental Impact Statement examined the entire proposed statewide system. In 2007 the California High-Speed Rail Authority adopted a Phasing Plan and laid out the Preliminary Financial Plan.
Fresno Marketplace El Paseo (northwest Fresno)	City of Fresno	The proposed project is in northwest Fresno and is generally bound by W. Herndon Ave. on the north, N. Bryan and W. Bullard Avenues on the east, Carnegie Avenue to the south, and State Route 99 to the west. The applicant proposes to develop a 238-acre project at the northwest gateway of the city. The final development would include retail, office, hospitality, and entertainment uses.	Approved December 2010. Entitlements for this project would include a General Plan Amendment, Rezone, and Master Conditional Use Permit Applications, a Development Agreement, and tentative tract map. The project is currently undergoing legal challenge and settlement activities are being discussed.
Westlake (northwest Fresno)	City of Fresno	Granville at Westlake, Inc. is proposing to develop a 460-acre project with residential and commercial uses within an area west of State Route 99 bounded by W. Gettysburg Avenue, W. Shields Avenue, N. Garfield Avenue, and N. Grantland Avenue.	The property is currently fallow farmland, with periodic agricultural production, is within the adopted Sphere of Influence of the City of Fresno and is planned and partially pre-zoned for several urban uses.

Source: City of Fresno.

Environmental Consequences

Land would be acquired for each build alternative to allow interchange improvements. Land use impacts would be the same for both build alternatives since the project would equally impact the site's zoning and development potential. No substantial impacts to land use planning would result from construction of the

proposed project because the project is consistent with local planning for the area. However, the proposed project would displace two light industrial businesses, resulting in a land use conflict. Consequently, the land use productivity for those parcels would be eliminated in favor of improving local/regional circulation and allowing for transportation demand from future development. Right-of-way easements were set aside for Veterans Boulevard, and land use planning for at least the past 20 years has been conducted with the proposed project included in that process.

Avoidance, Minimization, and/or Mitigation Measures

No additional mitigation is required.

Consistency with State, Regional and Local Plans

Affected Environment

Fresno Regional Transportation Plan

The 2011 Fresno County Regional Transportation Plan charts a 25-year course for transforming the Fresno County Region Transportation system through the year 2035. The plan identifies projects and needs for streets and highway systems, as well as urban and rural public transportation, rail, aviation, pedestrian, and bicycle facilities. The Regional Transportation Plan addresses greenhouse gas and other air emissions. The plan also addresses issues for planning sustainably, with purpose and direction.

The project is listed as a Regionally Significant Project in the Council of Fresno County Governments 2007 and 2011 Regional Transportation Plans and was approved by the council in July 2010.

Federal Transportation Improvement Program

The program includes a listing of all transportation-related projects requiring federal funding or other approval by the federal transportation agencies. The Federal Transportation Improvement Program also lists non-federal, regionally significant projects for information and air quality modeling purposes. Projects included in the program are consistent with Fresno Council of Governments Regional Transportation Plan and are part of the area's overall strategy for providing mobility, congestion relief, and reduction of transportation-related air pollution in support of efforts to attain federal air quality standards for the region. The project is listed in the 2011 Federal Transportation Improvement Program adopted on July 29, 2010.

State Route 99 Corridor Enhancement Master Plan

The State Route 99 Corridor Enhancement Master Plan developed in 2005 is a formal effort to promote unity on State Route 99 and determine current and future transportation-related needs up and down the corridor. The corridor as defined for the State Route 99 Corridor Enhancement Master Plan consists of two elements. The first element is the area under the direct control of Caltrans, including the ultimate right-of-way for State Route 99. The second element encompasses the immediate view shed for the right-of-way and involves a collaborative planning effort between Caltrans and the local planning agencies. The Master Plan is intended to cover the seven counties (Kern, Tulare, Fresno, Madera, Merced, Stanislaus, and San Joaquin), but would also be coordinated with other planning efforts to improve State Route 99 from Bakersfield to Sacramento.

The State Route 99 Corridor Enhancement Master Plan guides public and private sector decisions; provides a corridor identity; lays out specific improvement approaches and themes; and is collaborative with other State Route 99 plans and programs. The document deals with aesthetic concerns, as well as addresses capacity need as increased regional and interregional traffic puts more stress on the corridor.

City of Fresno General Plan 2025

The City of Fresno General Plan is intended to serve as a guide to enable government at all levels, private enterprise, community groups, and individual citizens to make decisions and use community resources in a manner that would realize progress toward a common vision of a measurably enhanced physical, economic, and social environment. The General Plan's objective for transportation/streets and highways is to provide a complete and continuous streets and highways system throughout the Fresno metropolitan area that is safe for vehicle users, bicyclist, and pedestrians and that provides efficient movement of people and goods consistent with the goals and objectives of this plan.

Environmental Consequences

The proposed project addresses the objectives of the local land use planning programs. The proposed project is consistent with goals outlined in the California Transportation Plan 2025 that includes improvement of mobility and accessibility, enhanced goods movement mobility, reliability, system efficiency, and growth management. The project is listed as a Regionally Significant Project in the Council of Fresno County Governments 2011 Regional Transportation Plan, and in the State Route 99 Corridor Enhancement Master Plan as a Regional Transportation Plan

Project Candidate. The proposed project is listed as a Priority Category 2: Capacity-Increasing Project in the State Route 99 Corridor Business Plan. Likewise, the project is consistent with the City of Fresno General Plan (see Figure 2.1 Land Use). The proposed project is consistent with the objectives, goals, and or policies of state, regional and/or local plans.

Avoidance, Minimization, and/or Mitigation Measures

No additional mitigation is required.

2.1.2 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 CFR 1508.8, refers 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

A Community Impact Assessment dated March 2010 was prepared for the project. The proposed project would be built to meet existing demand and projected future growth based on the City of Fresno General Plan Update for 2025, the Master Environmental Impact Report for the 2025 General Plan, and the Council of Fresno County Governments 2011 Regional Transportation Plan. These planning documents have analyzed the growth inducing impacts for the city and designated land uses based on the assumption that the proposed project is included in their future build-out.

A generally accepted 25-year population and employment growth forecast for the Fresno County region has been prepared by the Central California Futures Institute

affiliated with California State University, Fresno. The revised Central California Futures Institute report titled "Population Forecast for Fresno County to 2025" (dated April 2000) provides a prudent forecast for a modest average annual population growth rate of 1.9 percent between 2000 and 2025. This growth forecast, prepared for and accepted by the Council of Fresno County Governments, indicates that the county population would increase by 479,407 people (58 percent) from a population of 821,797 to a population of 1,301,204 by December 31, 2025. This is consistent with the actual average annual population growth rate of 1.8 percent between 2000 and 2009 estimated by the State of California Department of Finance (Department of Finance 2009).

Consistent with the historical development and growth trends that have occurred during the past several decades, it is forecasted that population growth in the City of Fresno will increase by 479,407 (58 percent) by the year 2025 (City of Fresno General Plan 2025).

Environmental Consequences

Table 2.2 lists the screening factors developed to help determine the likely growth inducing potential of the project, and whether further analysis was necessary.

Table 2.2 Screening Factors

Screening Factor	Discussion
Accessibility	The proposed project will provide a new interchange, a new arterial roadway (Veterans Boulevard) and would connect with Golden State Boulevard. This would increase and/or provide new vehicular access to the surrounding project area.
Project type, location, and growth pressure	The project area consists primarily of residential development surrounded by rural land uses on the outer edges (particularly south of Shaw Avenue) and some agriculture (orchards). Transportation projects in suburban areas surrounded by rural land uses have a higher potential to cause growth-related impacts as population density and economic activity generate higher demands for conversion of rural lands to developed uses. However, the proposed project has been planned by the City of Fresno since the 1980s and is being built to meet existing demand and projected future growth based on the City of Fresno General Plan Update for 2025 and the Council of Fresno County Governments 2007 Regional Transportation Plan. Both planning documents have designated land uses based on the assumption that the proposed project is included in their future build-out. The proposed project is responding to growth forecasts developed for these plans to ensure that circulation along State Route 99 and the roadways and segments adjacent to the proposed project would keep pace with population increases.
Foreseeable growth	It is foreseeable that the proposed project could induce growth along both the Veterans Boulevard alignment and the surrounding area. The proposed project would generally improve regional transportation and accessibility along this portion of the State Route 99 corridor and the surrounding region. However, constraints such as the City's growth boundary at the county line and the San Joaquin River to the north restrict growth areas beyond the city limits. Additionally, growth within the city limits would facilitate the implementation of the General Plan Update for 2025 and the 2007 Regional Transportation Plan. Therefore, these plans have accounted for all foreseeable growth. No Project: Growth would not occur to the same extent due to access restrictions, constraints on mobility and congestion.
Growth and its impact on resources	Impacts to surrounding resources are anticipated to include impacts to biological resources, cultural resources, farmland, and paleontological resources.

Based on the results of the screening factors above, the project would help direct growth to areas that the city has designated for planned development. Without the project, growth could take place in other areas that are unplanned for by the city and could have impacts to sensitive resources. Growth related effects are further analyzed in the following discussion.

Step 1 – Review previous project information and "right-size" the analysis

Based on a review of the project, methods were selected to analyze growth, including traffic and land use modeling from the County of Fresno County Governments 2007

Regional Transportation Plan and land use planning from the City of Fresno 2025 General Plan Update, and discussions with city planning staff.

Step 2 – Identify the potential for growth for each alternative

Using the data sources and tools identified in Step 1, a future development scenario for the existing and reasonably foreseeable future land uses and development patterns is described below:

Future Development Scenario, No-Build Alternative

Prior to 1980, the majority of the land in northwest Fresno was used for agricultural purposes with some low-density residential, commercial, and industrial land uses scattered throughout the area. In 1984, the Fresno General Plan first introduced the potential need for Veterans Boulevard to serve the local community. This idea was refined in 1986 with a Feasibility Study that was conducted to determine how to place this roadway corridor within the existing network. Later studies such as the Project Initiation Document and Project Study Report refined these concepts. Right-of-way easements were set aside for Veterans Boulevard, and land use planning for at least the past 20 years was done with the proposed project included in that process.

Growth within the city limits would facilitate the implementation of the 2025 Fresno General Plan and the 2011 Regional Transportation Plan. However, constraints such as the city's growth boundary at the county line and the San Joaquin River to the north restrict growth areas beyond the city limits.

In the 2025 Fresno General Plan, the most intense land uses designated for the project area are along State Route 99 and along Herndon and Shaw avenues. The corridor along State Route 99 is designated commercial, a foreseeable high-growth area. Land uses along Shaw Avenue are designated to include office space and regional commercial land uses. Portions of Shaw Avenue are built-out where Shaw Avenue intersects State Route 99; however, much of the areas to the west where Shaw Avenue intersects Grantland Avenue are either undeveloped or only partially built-out. Similarly developed land use patterns can be observed along Herndon Avenue, built-out to the east where Herndon Avenue intersects Polk Avenue, but largely undeveloped around Bryan Avenue.

Less intense land uses development occurs primarily south of Shaw Avenue, particularly to the west along the county border. Although areas south of Shaw Avenue are designated in the General Plan as being developed, the current infrastructure for this area is not well developed. Based on current housing vacancy

trends and development patterns it is reasonable to infer there would be low-growth in this area for the foreseeable future.

Future Development Scenario, Build Alternatives 1 and 4

Because the proposed project has been included in city and regional planning processes for the last 20 years and because the proposed project is consistent with the City of Fresno 2025 General Plan and Council of Fresno County Governments 2007 Regional Transportation Plan, it is anticipated that the project alternatives would not change the location, rate, type, or amount of growth. Although elements of the proposed project are in response to growth within the region, the proposed project is not considered growth-inducing.

As noted in the General Plan, the city of Fresno is projected to have a population of 790,000 residents by 2025. This projection is more than twice the current population. Much of this growth would be accommodated through infill and revitalization of older neighborhoods. To accommodate this growth, local and area-wide roadway infrastructure must be able to support increased traffic demand. Accordingly, the proposed project would improve transportation circulation along the State Route 99 corridor in the northern portion of the city of Fresno.

The proposed project and the relevant cumulative projects would not stimulate unplanned residential or related commercial growth. Area growth, created in response to planned land use and forecasted traffic demand, is included in the 2025 Fresno General Plan and Master Environmental Impact Report for the General Plan.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed.

2.1.3 Farmlands/Timberlands

Regulatory Setting

The National Environmental Policy Act and the Farmland Protection Policy Act (FPPA, 7 USC 4201-4209; and its regulations, 7 CFR Part 658) require federal agencies, such as the Federal Highway Administration, to coordinate with the Natural Resources Conservation Service if their activities have potential to 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 nonagricultural 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, to deter the early conversion of agricultural and open space lands to other uses, provides incentives to landowners through reduced property taxes.

Affected Environment

A Farmland Impact Assessment (September 2010) was prepared for the project and a Farmland Conversion Impact Rating for was submitted to the National Resources Conservation Service (see Appendix F). The proposed project site is on State Route 99 and surrounding roadways. The area immediately surrounding the project site consists primarily of residential, commercial, and industrial uses. Outside the immediate project area, land use is dominated by agricultural lands.

A Community Impact Assessment (February 2011) prepared for this project identified agriculture as the backbone of Fresno County economy, employing nearly 20 percent of the workforce either directly or indirectly and providing more than $3.5 billion for the local economy. More jobs are tied into the agricultural industry than any other industry in the Fresno area; estimates are that one in three jobs in Fresno is related to agriculture. The majority of America's produce is grown in California's Central Valley, and Fresno County is the number one agricultural county in the United States. Major agricultural commodities include grapes, cotton, tomatoes, plums, oranges, peaches, nectarines, almonds, cattle, dairy, and poultry. A large food processing industry has developed around the agricultural activity; a number of canning, curing, drying, and freezing plants are in the area. Fresno County is also the main grower/producer of over 90 percent of the raisins sold in the United States.

Fresno, like many cities and communities in the Central Valley, is experiencing tremendous population growth. The trend has led to the conversion and development of agricultural lands. In Fresno County between 2004 and 2006, over 6,000 acres of Prime, Unique, and other important farmland was converted to nonagricultural uses, and 7,000 acres of non-designated agricultural land was also converted.

The California Department of Conservation designates and maps "important farmlands" in California. Categories used for "important farmlands" are described below:

- Prime farmland—Land with the best combination of physical and chemical features for production of agricultural crops.
- Farmland of statewide importance—Land with a good combination of physical and chemical features for production of agricultural crops.
- Unique farmland—Land of lesser quality soils used for the production of the state's leading agricultural crops.

The Williamson Act of California (officially, the California Land Conservation Act of 1965) is a California law that provides property-tax relief to owners of farmland and open space land in exchange for a ten-year agreement the land would not be developed or otherwise converted to another use. There are no lands under Williamson Act contract in the project area.

The existing land uses in the vicinity of the proposed project reflect both urban development and rural agriculture. According to the 2005 Fresno County Soil Survey, the underlying soils for the project area include Exeter sandy loam, Exeter loam, San Joaquin sandy loam, and San Joaquin loam. The majority of this land has already been developed to urban uses.

Environmental Consequences

Table 2.3 shows Alternative 1 affecting 31 acres and Alternative 4 affecting 36 acres of Farmland of Statewide and Local Importance (see Figure 2.2a and Figure 2.2b for impacts to farmlands by alternative).

Table 2.3: Farmland Conversion by Alternative

Alternatives	Total Land Converted (acres)	Prime and Unique Farmland (acres)	Statewide and Local Important Farmland (acres)	Percentage of Farmland in County	Percentage of Farmland in State	Farmland Conversion Impact Rating
Alternative 1 - Base	58	0	31	0.00*	0.00*	51.3
Alternative 4 - Jug Handle	62	0	36	0.00*	0.00*	51.3

* Less than 0.001 %

Source: Form NRCS-CPA-106 (Farmland Conversion Impact Rating for Corridor Type Projects)

A Farmland Conversion Impact Rating for Corridor Type Projects (Form NRCS-CPA-106) (see Appendix F) was used to identify potential impacts to farmland for this project. The form requires an evaluation of issues such as the feasibility of

farming the land, the relationship of the land to urban development, and the current and future use of farmland in the project area. The total corridor assessment of 51.3 points was calculated for each alternative. A project scoring 160 points or more out of a possible 260 must consider alternatives that avoid or minimize farmland impacts. Scores less than 160 should "be given a minimal level of consideration for protection and no additional sites be evaluated," per the Farmland Protection Policy Act of 1981, and is not considered to have an impact on farmland.

Construction of the proposed interchange would result in a minor loss of agricultural lands (approximately 0.00002 percent of farmland in the county) through conversion of lands to urban uses. With a rating below 160 points from the Justification for Site Assessment, it is concluded the interchange construction would not significantly impact agricultural soils or productivity. There are no lands under Williamson Act contract in the project area.

Avoidance, Minimization, and/or Mitigation Measures

No additional mitigation is required.

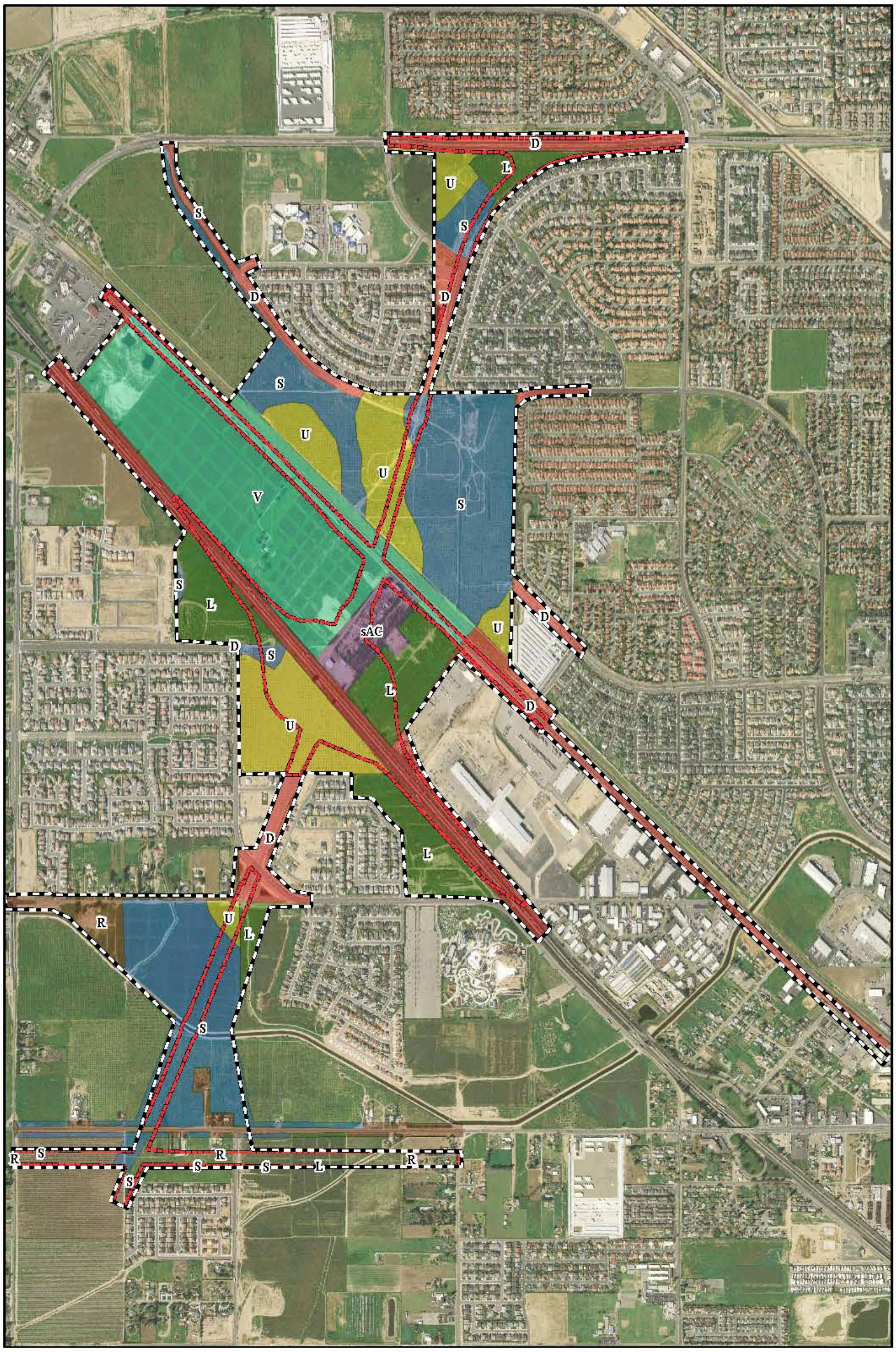


Figure 2.2a
Farmland Impacts Map Alternative 1 - Base

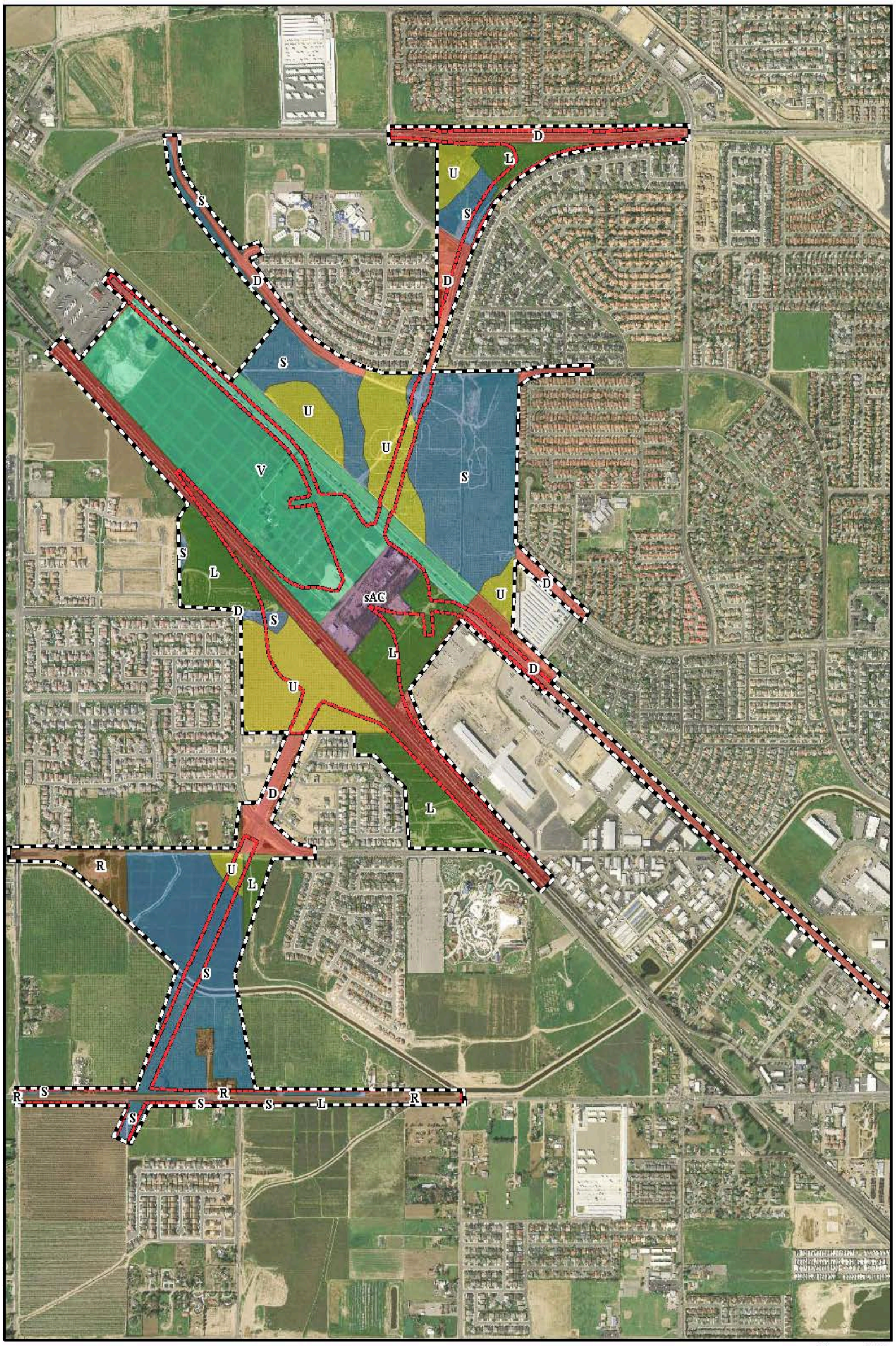
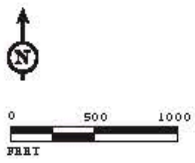


Figure 2.2b
Farmland Impacts Map Alternative 4 - Jug Handle



LEGEND

- Study Area
- Impact Area

Farmland / Land Uses - Impacts

- D - Urban and Built-up Land
- L - Farmland of Local Importance
- R - Rural Residental Land
- S - Farmland of Statewide Importance
- U - Unique Farmland
- V - Vacant or Disturbed Land
- sAC - Semi-Agricultural and Rural Commercial Land

2.1.4 Community Impacts

Community Character and Cohesion

Regulatory Setting

The National Environmental Policy Act of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 United States Code 4331(b)(2)]. The Federal Highway Administration in its implementation of the National Environmental Policy Act [23 United States Code 109(h)] directs that final decisions regarding 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 this project 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

Regional Population Characteristics

For purposes of analyzing community impact, a study area must be defined that includes an area of adequate size to address neighborhood conditions. The study area for this section encompasses an approximately one-mile radius around the proposed project. Please see the Community Impact Report September 2010 for further information.

Ethnicity

The racial makeup of the study area, City of Fresno and Fresno County, is presented below from data collected in the 2010 Census by block level data. Census estimate updates in Table 2.4 show the ethnicity breakdown for the study area, City, and County. Census block data was collected for all areas within a mile radius of the proposed project.

Table 2.4: Ethnicity Breakdown (Year 2010)

	White		Black or African Amer.		Amer. Ind./ AK Native		Asian		Native HI/ Other Pac. Isl.		Hispanic		Other	
	Person	%	Person	%	Person	%	Person	%	Person	%	Person	%	Person	%
Study Area	22,957	58.7	2,972	7.6	351	0.9	5,631	14.4	6	0.1	13,805	35.3	156	0.4
City of Fresno	245,353	49.6	41,057	8.3	8,409	1.7	62,327	12.6	989	0.2	231,997	46.9	1,483	0.3
Fresno County	515,469	55.4	49,313	5.3	15,817	1.7	89,323	9.6	1,860	0.2	468,016	50.3	2,791	0.3

Source: U.S. Census Bureau, 2010.
[1] = Includes person reporting only one race.
[2] = Hispanics may be of any race, so also are included in applicable race categories.

According to Table 2.4, the study area has a white population of 58.7 percent compared to 49.6 percent for the City and 55.4 percent for the County. The Black or African American population for the study area is 7.6 percent and 8.3 percent for the City and 5.3 percent for the County. There is a 14.4 percent Asian population residing in the study area compared to 12.6 percent for the City and 9.6 percent in the County. The Hispanic population is lower in the study area at 35.3 percent compared to 46.9 percent for the City and 50.3 percent for the County.

The study area consists of a predominately non-minority population; as such any impacts to the study area would not have a disproportionate adverse effect on minorities.

Education

The percentage of residents living in the City of Fresno 25 years and older with a high school diploma (includes equivalency) is 74.4 percent. Approximately 20.5 percent have a bachelor's degree or higher. Based on U.S. Census Bureau data for the County residents living in the County of Fresno 25 years and older with a high school diploma (includes equivalency) is 73.1 percent. Approximately 19.7 percent of the County have a bachelor's degree or higher.

Local Population and Housing

The City of Fresno has a high population density due to its urban character and high percentage of developed land. The 2010 City of Fresno population density was 4,418.3 persons per square mile. The 2010 Fresno County population density was 156.2 persons per square mile. Comparatively, the state population density was 239.1 persons per square mile.

The population of the City of Fresno comprises approximately 53.1 percent of Fresno County's population (U.S. Census Bureau). The study area has a population of 39,110, which is 7.9 percent of Fresno's residents and 4.2 percent of the County (U.S. Census, 2010). Table 2.5 shows population for the study area, City of Fresno and Fresno County. Table 2.6 shows the average household size and total number of households.

Table 2.5: Population by Area

Area	Number of Residents in 2010	Number of Residents in 2000
Study Area	39,110	5,489
Fresno	494,665	427,652
Fresno County	930,450	799,407

Source: U.S. Census Bureau, 2010.

Table 2.6: Number of Households

Area	Average Household Size	Total Number of Households*
Study Area	2.96	13,213
City of Fresno	3.04	156,226
Fresno County	3.14	283,836

Source: U.S. Census Bureau, 2010.
* The U.S. Census Bureau defines a household as a group of people, related or otherwise, living together in a dwelling unit.

The study area for the proposed project is dominated by a high concentration of residential units in the City of Fresno, but very few of the households would be affected by the project. Within the potential project footprint, the land area is largely undeveloped. Residential developments are present adjacent to the project footprint.

Neighborhoods/Communities

The proposed project is located within Council District 2 (northwest) of the City. The proposed project is within Bullard Community Plan Area and the Highway City Community.

The Bullard Community Plan area encompasses about 24 square miles and is located in the northwest portion of the Fresno Metropolitan Area. The Community is bounded by Blackstone Avenue, the San Joaquin River, the Southern Pacific Railroad and Ashlan Avenue. The predominant land use within the Bullard Plan Area is single family residential.

Highway City is a small community located near the junction of State Route 99 and Shaw Avenue. The community was once known as Biola Junction and was bisected by the realignment of State Route 99. The alignments of these transportation routes and the development of commercial activities created remnant parcels that were not suitable for farming but lacked the urban services necessary to attract large scale residential developments. Consequently, this area can now be characterized as an older neighborhood composed of a mixture of residential, commercial, industrial and rural uses. The nature of the neighborhood's intermittent and conflicting development pattern has inhibited the neighborhood's growth and vitality. The Highway City Community Center is located in a small public park just north of Shaw Avenue.

Housing

In 2010 the City of Fresno had a total of 171,288 housing units, with 158,349 housing units occupied. The tenure of the occupied housing units is 77,757 owner-occupied housing and 80,592 renter-occupied housing units (U.S. Census, 2010). In 2010, the U.S. Census Bureau reported that 38.7 percent of owner occupied homes had a mortgage and/or loan and 10.4 percent owner occupied homes were without a mortgage in the City. The median value of owner-occupied homes in Fresno was $244,200 in 2010. In 2011 the median price of homes sold in the Fresno area was $135,000 (California Association of Realtors).

Community

Community facilities and services include schools, fire stations, police stations, medical institutions, parks, and recreational facilities. Table 2.7 lists the community facilities and services located within the study area.

Table 2.7: Community Facilities and Services in the Project Area

Facility	Location
Community Facility	
Highway City Community Center	5140 N. State Street
Fig Garden Regional Library	3071 W. Bullard Avenue
U.S. Post Office	4666 N. Blythe Avenue
Houses of Worship	
Grantland South Baptist	6438 N. Grantland Avenue
Lifebridge Community Church	4733 W. Spruce Road #115
North Pointe Community Church	4625 W. Palo Alto Avenue
God's Family Church	7272 W. Shaw Avenue
World Harvest Pentecostal Church	5242 N. Garfield Avenue
Fresno Church of Christ	4563 E. Gettysburg Avenue
Celebration Church	4838 W. Jacquelyn Avenue
Victory Life Center	5303 N. Market Avenue
Highway City United Pentecostal Church	5230 N. Market Avenue
First Spanish Baptist Church	5365 W. Mission Avenue
Central Community Church	4710 N. Polk Avenue

Schools

Four public school districts serve the City of Fresno: Fresno Unified School District, Clovis Unified School District, West Fresno Elementary School District, and Central Unified School District. Additionally over 30 private schools are in the Fresno area. Several institutions of higher education are also located in the Fresno area. These include Alliant University, California Christian College, California State University, Fresno, Fresno Pacific University, Maric College, National University of California, San Joaquin College of Law, University of Phoenix, DeVry University, University of California San Francisco (Fresno Medical Education Program), Heald College, Institute of Technology, Fresno City College, Willow International Center, and the San Joaquin Valley College.

One K-8 school is currently located directly adjacent to study boundary (Rio Vista Middle School). This school is operated by the Central Unified School District.

Libraries

There are no libraries within a one-mile radius from the proposed project. All the Fresno County Public Libraries are outside the study area.

Environmental Consequences

Regional Population Characteristics

The proposed project will accommodate the long-range regional population characteristics. The 2025 Fresno General Plan and 2011 Regional Transportation Plan

include the proposed project as an element needed to accommodate regional population forecasts.

Neighborhoods/Communities

The proposed project would extend Veterans Boulevard through Highway City. However, due to the currently non-cohesive nature of Highway City, and the existing right-of-way for the proposed roadway alignment, the proposed project would not further divide this community. The proposed project should not affect any other local neighborhoods or communities since the land needed to be acquired for the new interchange and associated roadway network does not include any residential units. This project would not affect regional population characteristics, nor would it divide an existing neighborhood. Connectivity between surrounding neighborhoods and nearby schools either would be facilitated with an underground or above ground grade separated crossing as part of a separate project.

Housing

The proposed project would result in approximately twenty two (22) parcels being acquired, two of which contain non-residential businesses that would require relocation assistance. No residential displacements would occur. Housing units adjacent to the proposed project would not be affected since the roadway improvements were previously defined by the subdivision. Additional urbanization is not expected to occur due to the proposed project as land use intensities identified in the 2025 Fresno General Plan propose complete urbanization of the project area. Urbanization outside of the City is not anticipated due to the proposed project because of the City growth limits and geographical constraints.

The proposed project would not significantly impact neighborhoods/communities, businesses or cause residential relocations. Nor would it stimulate unplanned residential or related commercial growth.

The Marketplace at El Paseo would be constructed in the immediate area of the proposed project and would utilize this project to access State Route 99. With the construction of the Marketplace, it is expected that adjacent uses may increase in property value as a result of a general improvement in the area's economic condition. As the Marketplace would require the project to service the transportation demand at buildout, the project may have an indirect benefit to the surrounding land uses.

Avoidance, Minimization, and/or Mitigation Measures

Impacts to community character and cohesion are not expected; therefore, mitigation is not required.

Relocations and Real Property Acquisitions

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 (CFR) Part 24. The purpose of Caltrans 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 would not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the Caltrans 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.C. 2000d, et seq.). Please see Appendix C for a copy of the Caltrans Title VI Policy Statement.

Affected Environment

A field survey and review of the County Assessor Parcel Number maps of the proposed project area was conducted to determine the occurrences of residential and nonresidential properties. Based on preliminary engineering, it was found that there would be right-of-way acquisitions of 45 parcels being acquired, two of which contain businesses that would require relocation assistance and the others are vacant land (see Table 2.8).

Table 2.8: Right-of-Way Acquisitions

Type of Land Use	Complete Acquisition	Partial Acquisition
Residential	0	0
Light Industrial	2	0
Vacant Land	2	41

Source: Draft Project Report, January 2012.

Of these 45 parcels, 4 would require complete acquisitions and the remaining 41 would require partial acquisitions. No residential displacements would be required. These parcels contain nonresidential light industrial operations: a machinery service and repair facility and a construction management, storage and maintenance facility. It is believed that one parcel is owner occupied and the other tenant occupied.

Environmental Consequences

The research conducted to identify functionally similar properties indicates there is available replacement property to buy and/or lease for the two displaced businesses. The categories reviewed are representative of the subject properties in a similar service area of northern Fresno, California. The area researched includes the City of Fresno and its surrounding areas. Rental rates and property values are typical for this area of San Joaquin Valley.

The displacement requirements for this project are relatively minor and none of the relocations are observed to be overly complicated or extensive. Research of commercial real estate listings for similar properties and business opportunities indicate that currently, properties are available for both displacees. The current economic climate has resulted in an increasing inventory of improved and vacant commercial and industrial properties. According to Loopnet Inc., 81 improved industrial parcels, 63 improved commercial parcels, and 33 vacant industrial and commercial parcels are currently available for purchase in the project area. Additionally, 178 improved industrial parcels and 137 improved commercial parcels are currently available for lease.

Avoidance, Minimization, and/or Mitigation Measures

The following measures would be required to address property displacements and relocations associated with the proposed project:

- All displacees would be contacted by a Relocation Agent who would ensure that eligible displaced residents receive their full relocation benefits including advisory assistance, and that all activities be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources shall be available to all displaced residents free of discrimination. At the time of the first written offer to purchase, owner occupants are given a detailed explanation of Caltrans' "Relocation Program and Services." Tenant occupants of properties to be acquired are contacted soon after the first written offer to purchase and also are given a detailed explanation of Caltrans' "Relocation Program and Services." In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, Caltrans would provide relocation advisory assistance to any person, business, farm, or non-profit organization displaced as a result of acquisition of real property for public use.

- The Uniform Relocation Assistance and Real Property Acquisitions Policies Act (Uniform Act) of 1970 (Public Law 91-646, 84 Stat. 1894) mandates that payments be made available to eligible residents, businesses, and nonprofit organizations displaced or affected by projects. The Uniform Act provides for equitable land acquisition policies.
- Where acquisition is unavoidable, the provisions of the Uniform Act and the 1987 Amendments as implemented by the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the Department of Transportation dated March 2, 1989 would be followed. An independent appraisal of the affected property would be obtained, and an offer for the full appraisal would be made.

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 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 2011, this was $22,350 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 B of this document.

Affected Environment

A Community Impact Assessment dated September 2010 was prepared for the project. The environmental justice analysis was conducted using demographic data from the 2010 census as well as general qualitative observations of community conditions. The following analysis provides a comparison of measures that evaluate environmental justice:

- Ethnicity
- Percentage of population below poverty level

- Median household income

Besides temporary traffic congestion as a result of the proposed project's construction, the proposed project will have an effect on properties located near the proposed interchange. The remainder of the proposed project will have little to no effect on people, poverty levels, or income.

Construction of the Veterans Boulevard Interchange project improvements would result in displacement of two light industrial businesses; therefore, property relocations are required. Race/ethnicity and poverty levels characteristics of the homeowners/renters of affected area around the project site are presented in Table 2.9.

Table 2.9: Minority and Poverty Status of the Project Area, City and County

Area	Minority Population Percentage	Poverty Percentage
Study Area	41.3%	3.2%
City of Fresno	50.4%	24.9%
Fresno County	44.6%	22.5%

Source: U.S. Census Bureau, 2010.

Ethnic composition for the area affected by the construction of the interchange at Veterans Boulevard is 58.7 percent white, while the remaining 41.3 percent consists of minority populations. In comparison the City's minority, population is 49.6 percent white and 50.4 percent minority, while the County's population is 55.4 percent white and 44.6 percent minority.

The percentage of people living below the federal poverty line in the study area is 3.2 percent, while the City of Fresno is 24.9 percent and the County is 22.5 percent.

Environmental Consequences

Table 2.9 shows the percent of minority populations and minority poverty status in the study area for the Veterans Boulevard interchange where improvements are proposed. The percentage of minorities in the affected study area is 20 percent below the City of Fresno and 16 percent below the County. According to U.S. Census Bureau's block data, the percentage of those below the poverty line for the affected study area is 201.7 percent below the City and 19.3 percent below the County.

Impacts from this interchange and roadway improvements will not adversely affect minority populations or people living below the federal poverty line.

The racial and economic make-up around the study area is dominated predominantly by nonminority populations living above the federal poverty level. Compared to the City and County, the study area has fewer minorities and fewer residents below the federal poverty level. Notwithstanding the socio-economic setting of the project area, the project would not impact any population segment, as there are no residential displacements or community impacts due to the project. For these reasons, the proposed project does not cause a disproportionate adverse effect any minority or low-income population, as outlined in Executive Order 12898 regarding environmental justice. Therefore, this project is not subject to the provisions of Executive Order 12898.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the project alternative(s) would not cause disproportionately high and adverse effects on any minority or low-income populations based on Executive Order 12898 regarding environmental justice.

2.1.5 Utilities/Emergency Services

Affected Environment

Fire Protection Services

The Fresno Fire Department has 24 fire stations and an Airport Rescue Fire Fighting Station housing 24 companies. The companies are divided into three battalions (two for the city of Fresno and one for the North Central Fire Protection District), each supervised by a battalion chief. Daily staffing consists of 66 firefighters and one 24-hour arson investigator. The fire department responded to a total of 33,200 emergency calls in 2010. Every firehouse is a safe station and a safe surrender site. Two fire stations are in proximity to the project area: Station 14 at 6239 N. Polk Avenue, Fresno, CA 93722 and Station 18 at 5938 N. La Ventana Avenue, Fresno, CA 93723.

Fire Protection Services

Police protection services in the project area are provided by the Fresno Police Department, Fresno County Sheriff's Department, and California Highway Patrol.

Utilities

A number of above- and below-ground utilities extend through the project area that currently serve the natural gas, electrical, telephone, cable television, water, and

sewer needs of the community. The following utilities attended a preliminary meeting to identify potential utility involvements:

- Fresno Irrigation District
- Pacific Gas and Electric
- Qwest Communications
- Sprint
- Word Communications
- American Telephone and Telegraph
- Comcast
- Kinder Morgan
- Fresno DPU-water and sewer
- Fresno Metropolitan Flood Control District

To date the utility companies have not verified locations or conflicts. Exact involvements cannot yet be identified. From field observations, Pacific Gas and Electric-owned utilities—underground water, gas and communications and above-ground electric—extend along Golden State Boulevard.

Environmental Consequences

Emergency Services

The proposed project is not expected to have temporary or permanent adverse affects on emergency services in or adjacent to the project area. The Traffic Management Plan would provide provisions to ensure that emergency services are informed of possible road closures, detours, or traffic congestion due to construction activities. The proposed project, once complete, would improve traffic congestion along State Route 99 and Veterans Boulevard. This would improve emergency response times. It is anticipated that congestion at both the Herndon Avenue and Shaw Avenue interchanges would lessen. As a result, the new interchange and roadway system would also provide improved access for emergency vehicles in the immediate vicinity and overall study area.

Utilities

An existing 230 kilovolt transmission line runs north-south about 1,300 feet south of

the proposed interchange. This transmission line is within a 150-foot-wide easement owned by Pacific Gas and Electric.

Coordination with Pacific Gas and Electric determined that Veterans Boulevard east of the Union Pacific Railroad tracks would be in violation of vertical clearance requirements. To meet clearance requirements, The 230 kilovolt transmission line would raise about 15 to 20 feet as it crosses Veterans Boulevard. It is anticipated the transmission line would not be moved more than 25 feet from the current alignment.

Kinder Morgan owns and operates a 12-inch-diameter high-pressure refined petroleum products pipeline within the Union Pacific Railroad tracks right-of-way. The 5-foot-deep gas line is near the west side of the Union Pacific Railroad tracks.

The Fresno Metropolitan Flood Control District Storm Drain Master Plan proposes to build a 42-inch-diameter pipe across the Union Pacific Railroad right-of-way to send water from the east side of the tracks to the west side. If the 42-inch master plan pipe is built with this project, it is anticipated that a portion of the Kinder Morgan petroleum pipeline would be lowered to provide room for the gravity-feed waterline.

It is expected some other utilities would be temporarily affected by the proposed project, but any utility affected would be rerouted or moved to avoid disruption of service for utility customers.

Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures would reduce impacts to utilities and emergency services:

- The project would be designed to minimize conflicts with utilities in the project area. The project would include relocation of those utilities that would be inaccessible for maintenance or access purposes as a result of the project.
- The contractor would be required to notify utility users of any short-term, limited interruptions of service.
- If unexpected underground utilities are encountered, the contractor would coordinate with the utility provider to develop plans that address the utility conflict, protect the utility if needed, and limit service interruptions.
- The contractor would be required to prepare and use a traffic management plan that identifies the locations of temporary lane closures and signage to facilitate local traffic and through-traffic requirements.

- The project special provisions of the highway contract would require that emergency service providers— law enforcement, fire protection, and ambulance services—be given adequate advance notice of any road closures during the construction phases of the proposed project.

2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

A Traffic Operations Report was prepared for this project in December 2010. This section is based on the findings of that report.

Regulatory Setting

Caltrans, as assigned by Federal Highway Administration, directs that full consideration should be given to the safety of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). The Federal Highway Administration further directs that 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.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

Affected Environment

Study Area

The influence area of the Veterans Boulevard interchange is bounded by Grantland Avenue to the west, Herndon Avenue to the north, Ashlan Avenue to the south, and Brawley Avenue to the east. The following section describes some of the key roadways in the vicinity of the Veterans Boulevard interchange (see Figure 2.3).

State Route 99 is a high-capacity four-lane freeway within the project vicinity. The proposed interchange has two freeway interchanges nearby: Herndon Avenue to the north and Shaw Avenue to the south. These grade-separated interchanges are located approximately 2.5 miles apart. Currently, many of the connections to State Route 99 offer only partial access and are limited in their ability to accommodate future demand. Crossing State Route 99 is a problem since many of the crossing locations are currently more than one mile apart and the capacity of these crossings is limited. Connections are also limited by the Union Pacific Railroad tracks that run parallel to

State Route 99. State Route 99 has an average daily traffic volume of about 65,000 vehicles in the study area. Just north of the Shaw Avenue interchange, the posted speed limit is 70 miles per hour; to the south, the speed limit is 65 miles per hour.

Herndon Avenue, within the study area of this project, varies between a two-lane undivided and four-lane divided roadway that currently extends easterly from State Route 99 through the city of Fresno. Herndon Avenue is classified as an expressway in the 2025 Fresno General Plan. At State Route 99, Herndon Avenue offers a partial access interchange with northbound and southbound off-ramps. Traffic on Herndon Avenue must use Golden State Boulevard to access northbound State Route 99 or use Parkway Drive to access southbound State Route 99. East of State Route 99, Herndon Avenue has average daily traffic volume of about 21,500 vehicles.

Shaw Avenue is a four-lane roadway east of State Route 99 and a two-lane roadway west of State Route 99. The 2025 Fresno General Plan classifies Shaw Avenue as an arterial. Access from Shaw Avenue to State Route 99 is currently provided via a type L-8 interchange with loop off-ramps and slip on-ramps. West of State Route 99, Shaw Avenue has average daily traffic volume of about 8,000 vehicles.

Golden State Boulevard begins just north of Herndon Avenue. Here it transitions from the northbound State Route 99 on-ramp and the southbound State Route 99 off-ramp to a two-lane arterial. Within the study area, Golden State Boulevard is east of State Route 99 and west of the Union Pacific Railroad tracks. Golden State Boulevard has an average daily traffic volume of about 4,000 vehicles.

Bullard Avenue is a four-lane divided east-west arterial that provides access to residential areas east of State Route 99 between Shaw Avenue and Herndon Avenue. Although Bullard Avenue exists both to the west and to the east of State Route 99, it does not cross the freeway. Currently, Bullard Avenue west of Polk Avenue has an average daily traffic volume of about 7,000 vehicles.

Current Conditions

Currently several intersections (studied in 2008-2009) in the study area operate unsatisfactorily (level of service E or worse) during morning and evening peak hours:

- Shaw Avenue/Polk Avenue—Level of service E during the morning peak hour and level of service F during the evening peak hour
- Shaw Avenue/State Route 99 northbound ramps—Level of service E during the evening peak hour

- Shaw Avenue/Golden State Boulevard—Level of service F during the evening peak hour
- Herndon Avenue/Parkway Drive—Level of service F during the morning peak hour
- Herndon Avenue/State Route 99 northbound off-ramp—Northbound left-turn is at level of service E during the evening peak hour
- Herndon Avenue/Golden State Boulevard—Level of service E during both the morning and evening peak hours

The Shaw Avenue/State Route 99 southbound ramps, Herndon Avenue/State Route 99 southbound off-ramp, and Barstow Avenue/Veterans Boulevard intersections all operate satisfactorily during both morning and evening peak hours.

All roadway segments operate satisfactorily except for the segment of Ashlan Avenue between Grantland Avenue and State Route 99 that operates at level of service F during both peak hours. Within the study area, this segment of Ashlan Avenue transitions several times from a two-lane undivided to a four-lane divided roadway. The lower capacity facility (two-lane undivided roadway) was assumed for this analysis.

All freeway mainline segments and freeway ramps in the study operate at level of service C during the morning and evening peak hours except for the State Route 99 southbound Golden State Boulevard off-ramp, which operates at level of service D during the evening peak hour.

Figure 2.3
Study Intersections and Roadway Segments

Public Transportation

The primary transit providers serving the city of Fresno are Fresno Area Express, Amtrak, and Greyhound. Fresno Area Express operates 16 fixed-route bus lines to provide a comprehensive transportation system. Bus routes along Herndon Avenue (Fresno Area Express route 45) and Bullard Ave (Fresno Area Express route 22) are the only routes near the project area.

Pedestrian and Bicycle Facilities

The city of Fresno has 134 miles of existing bikeways. Fourteen miles of Class I bicycle paths, 113 miles of Class II bicycle lanes, and 7 miles of Class III bicycle routes. Currently several Class II bicycle lanes exist within the project area along Bullard Avenue and Bryan Avenue.

Accident History

Table 2.10 shows Caltrans accident-history data for the study segments and interchange ramps between January 2006 and December 2008. With the exception of the State Route 99/Shaw Avenue northbound on-ramp, the actual accident rate is below the average accident rate for similar facilities.

Table 2.10: State Route 99 Accident History

Location	Accidents				Accident Rate	
	Total	With Fatalities	With Injuries	Involving Multiple Vehicles	Actual Accident Rate[1]	Average Accident Rate[2]
SR 99 northbound/ Shaw Ave. to Herndon Ave. (2.89 miles)	60	0	20	39	0.61	0.72
SR 99 southbound/ Shaw Ave. to Herndon Ave. (2.89 miles)	69	1	23	33	0.70	0.72
SR 99/Herndon Ave. northbound off-ramp	6	0	3	4	0.94	1.20
SR 99/Herndon Ave. southbound on-ramp	1	0	1	0	0.16	0.45
SR 99/Shaw Ave. northbound on-ramp	6	0	3	5	1.22	0.75
SR 99/Shaw Ave. southbound off-ramp	4	0	1	4	0.91	1.10

Source: Traffic Operations Report, December 2010.
Notes: [1] Per million vehicle miles
[2] Average accident rate based on similar facilities per million vehicle miles
SR=State Route Ave.=Avenue

Environmental Consequences

As a component of the Traffic Analysis, traffic forecasts were determined for use in the construction year (2015) and the design year (2035). Accordingly, travel demand forecasts were developed for the following scenarios:

- 2015 (Construction Year) No-Build Alternative
- 2015 (Construction Year) Plus Project
    - Alternative 1—Base
    - Alternative 4—Jug Handle
- 2035 (Design Year) No-Build Alternative
- 2035 (Design Year) Plus Project
    - Alternative 1—Base
    - Alternative 4—Jug Handle

Construction Year 2015 Intersections Analysis

The construction year 2015 analysis presents traffic operations for the proposed project to determine if implementation of the proposed project, in addition to the background traffic growth expected by 2015, would affect the transportation system (see Table 2.11).

No-Build Alternative Intersections

The analysis shows that several study intersections would operate unsatisfactorily (level of service E or worse) during one of the peak hours for the 2015 No-Build Alternative conditions:

- Shaw Avenue/Polk Avenue—Level of service F during both peak hours
- Shaw Avenue/State Route 99 southbound ramps—Level of service F during both peak hours
- Shaw Avenue/State Route 99 northbound ramps—Level of service F during the evening peak hour
- Shaw Avenue/Golden State Boulevard—Level of service F during the evening peak hour

Build Alternative Intersections

An analysis was prepared for 2015 conditions of the intersections that would be affected by full construction of the project.

The analysis shows that several study intersections operate unsatisfactorily (level of service E or worse) during one of the peak hours for 2015 Plus Project conditions:

- Shaw Avenue/Polk Avenue—Level of service F during both peak hours
- Shaw Avenue/State Route 99 southbound ramps—Level of service F during both peak hours (reduced delay compared to the No-Build Alternative in the evening peak hour)
- Shaw Avenue/State Route 99 northbound ramps—Level of service F during the evening peak hour (reduced delay compared to the No-Build Alternative in the evening peak hour)
- Shaw Avenue/State Route 99 Golden State Boulevard—Level of service F during the evening PM peak hour (reduced delay compared to the No-Build Alternative in the evening peak hour

Alternative 1 (Base) and Alternative 4 (Jug Handle) Comparison

An analysis was conducted for the 2015 Alternative 1 (Base) for intersections influenced by the build alternatives. The analysis shows that all of the intersections would operate at level of service D or better in 2015 with both the Base and Jug Handle alternatives.

Although many intersections continue to operate unsatisfactorily (level of service E or worse), construction of the proposed State Route 99/Veterans Boulevard interchange improves operations at several intersections. The State Route 99 ramp terminal intersections at Veterans Boulevard would both operate at level of service A.

Table 2.11: Peak Hour Intersection Operations

Intersections	Traffic Control	Peak Hour	Existing Conditions Intersection		2015 No Project Intersection Operations		2015 Plus Project Intersection Operations				2035 No Project Intersection Operations		2035 Plus Project Intersection Operations			
							Base Alternative		Jug Handle Alternative				Base Alternative		Jug Handle Alternative	
			LOS	Control Delay[1]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]
1. Shaw Avenue / Polk Avenue	Signal	Morning Evening	**E** **F**	**79** **137**	**F** **F**	**>150[4]** **>150[4]**	**F** **F**	**>150[4]** **>150[4]**	**F** **F**	**>150[4]** **>150[4]**	**F** **F**	**>150[4]** **>150[4]**	**F** **F**	**>150[4]** **>150[4]**	**F** **F**	**>150[4]** **>150[4]**
2. Shaw Avenue / SR-99 SB Ramps	Signal	Morning Evening	C C	21 26	**F** **F**	**>150[4]** **>150[4]**	**F** **F**	**>150** **111**	**F** **F**	**>150** **111**	**F** **F**	**>150** **>150**	**F** **F**	**>150** **>150**	**F** **F**	**>150** **>150**
3. Shaw Avenue / SR-99 NB Ramps	Signal	Morning Evening	B **E**	16 **64**	D **F**	47 **>150**	D **F**	39 **122**	D **F**	39 **122**	**F** **F**	**>150** **>150**	**F** **F**	**>150** **>150**	**F** **F**	**>150** **>150**
4. Shaw Avenue / Golden State Boulevard	Signal	Morning Evening	C **F**	34 **93**	D **F**	51 **>150**	D **F**	53 **141**	D **F**	53 **141**	**F** **F**	**>150** **>150**	**F** **F**	**>150** **>150**	**F** **F**	**>150** **>150**
5. Herndon Avenue / Parkway Drive	Signal (Existing Condition - All-Way Stop)	Morning Evening	**F** D	**50** 31	B A	13 9	B B	12 13	B B	12 13	**F** D	**>150** 47	C A	21 9	C A	21 9
6. Herndon Avenue / SR-99 SB Off-Ramp	Signal (Existing Condition – Side-Street Stop)	Morning Evening	C (A) C (A)	21 SBL (1) 20 SBL (2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7. Herndon Avenue / SR-99 NB Off-Ramp	Signal (Existing Condition – Side-Street Stop)	Morning Evening	D (A) **E (**C)	31 NBL (8) **48 NBL** (19)	B B	15 13	A B	8 11	A B	8 11	**F** **F**	**>150** **>150**	D B	54 19	D B	54 19
8. Herndon Avenue / Golden State Boulevard	Signal	Morning Evening	**E** **E**	**62** **41**	C C	28 35	C C	23 29	C C	23 29	**F** **F**	**106** **>150**	**E** **F**	**63** **90**	**E** **F**	**63** **90**
9. Parkway Drive /SR-99 SB On-Ramp / Grantland Avenue	Signal	Morning Evening	N/A	N/A	N/A	N/A	A A	8 5	A A	8 5	**F** **F**	**>150** **136**	**E** B	**65** 11	**E** B	**65** 11
10. Herndon Avenue / Polk Avenue	Signal	Morning Evening	N/A	N/A	C D	32 37	C D	33 37	C D	33 37	D **F**	47 **86**	**F** **F**	**96** **142**	**F** **F**	**96** **142**
11. Barstow Avenue / Veterans Boulevard	All-Way Stop	Morning Evening	A A	7 8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11. Veterans Boulevard / Grantland Avenue	Signal	Morning Evening	N/A	N/A	C C	26 25	B B	20 19	B B	20 19	D **E**	38 **63**	C D	29 50	C D	29 50

Intersections	Traffic Control	Peak Hour	Existing Conditions Intersection		2015 No Project Intersection Operations		2015 Plus Project Intersection Operations				2035 No Project Intersection Operations		2035 Plus Project Intersection Operations			
							Base Alternative		Jug Handle Alternative				Base Alternative		Jug Handle Alternative	
			LOS	Control Delay[1]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]	LOS[2]	Delay[3]
12. Veterans Boulevard / Shaw Avenue	Signal	Morning Evening	N/A	N/A	C C	27 28	C C	29 32	C C	29 32	C D	34 51	D **E**	48 **78**	D **E**	48 **76**
13. Veterans Boulevard / Bryan Avenue / Barstow Avenue	Signal	Morning Evening	N/A	N/A	A A	8 8	C C	22 23	C C	22 23	C C	27 31	**F** **E**	**90** **73**	**F** **E**	**90** **73**
14. Veterans Boulevard / SR 99 SB Ramps	Signal	Morning Evening	N/A	N/A	N/A	N/A	A A	5 6	A A	5 6	N/A	N/A	C D	22 41	C D	22 41
15. Veterans Boulevard / SR 99 NB Ramps	Signal	Morning Evening	N/A	N/A	N/A	N/A	A A	6 6	A A	6 6	N/A	N/A	C C	29 26	C C	29 26
16. Veterans Boulevard / Golden State Boulevard Connector	Signal	Morning Evening	N/A	N/A	B B	19 19	A A	8 10	N/A	N/A	C C	29 40	C **E**	27 **56**	N/A	N/A
16. Veterans Boulevard / Golden State Boulevard Jug Handle	Side Street Stop	Morning Evening	N/A	N/A	N/A	N/A	N/A	N/A	A A	2 2	N/A	N/A	N/A	N/A	A A	5 10
17. Veterans Boulevard / Bullard Avenue	Signal	Morning Evening	N/A	N/A	C C	22 22	B B	19 20	B B	19 20	C C	24 24	**E** **E**	**74** **66**	**E** **E**	**74** **66**
18. Veterans Boulevard / Wathen Avenue	Side Street Stop	Morning Evening	N/A	N/A	A A	9 NBR (1) 9 NBR (1)	A A	10 NBR (1) 10 NBR (1)	A A	10 NBR (1) 10 NBR (1)	B B	10 NBR (1) 10 NBR (1)	C C	19 NBR (1) 17 NBR (1)	C C	19 NBR (1) 17 NBR (1)
19. Veterans Boulevard / Hayes Avenue	Signal	Morning Evening	N/A	N/A	C C	24 21	C C	23 23	C C	23 23	C C	25 23	D D	42 46	D D	42 46
20. Veterans Boulevard / Herndon Avenue	Signal	Morning Evening	N/A	N/A	A A	8 8	A A	10 10	A A	10 10	B B	14 16	B B	19 18	B B	19 18
21. Veterans Boulevard Connector / Golden State Boulevard	Signal	Morning Evening	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21. Veterans Boulevard Jug Handle / Golden State Boulevard	Signal	Morning Evening	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22. Jug Handle North / Golden State Boulevard	Signal	Morning Evening	N/A	N/A	N/A	N/A	N/A	N/A	C C	24 23	N/A	N/A	N/A	N/A	C D	26 39
23. Jug Handle South / Golden State Boulevard	Signal	Morning Evening	N/A	N/A	N/A	N/A	N/A	N/A	C C	23 21	N/A	N/A	N/A	N/A	C C	21 29

Source: Traffic Operations Report, Dec 2010

Notes:

[1] Average control delay is calculated using the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2000) methodology and Synchro 6.0 analysis software. For signalized and all-way stop-controlled intersections, average control delay is for the intersection, as a whole. For side-street stop-controlled intersections, average control delay for the worst-case movement on the side-street approach is presented and the average control delay for the whole intersection is presented in parenthesis.

[2] Level of Service based on Highway Capacity Manual (Transportation Research Board, 2000).

[3] For signalized intersections, the overall average intersection control delay is reported in seconds per vehicle. For side-street stop control, the average control delay for the worst movement is reported in seconds per vehicle.

[4] Delays greater than 2.5 minutes are not reported due to model insensitivity under extreme congestion.

Intersections 21 and 22

Bold font indicates unacceptable intersection operations based on the LOS D standard.

(NBR = Northbound right- turn, SBL = Southbound left-turn, LOS = Level of Service)

Design Year 2035 Intersections Analysis

No-Build Alternative Intersections

Under the No-Build Alternative in 2035, several intersections are anticipated to operate at unsatisfactorily levels of services (level of service E or worse) during morning and evening peak hours.

Table 2.11 displays the intersection, control devices, and peak hour operations used to analyze intersection operations for the 2035 No-Build Alternative conditions.

Several intersections operate unsatisfactorily (level of service E or worse) during one of the peak hours:

- Shaw Avenue/Polk Avenue—Level of service F during both peak hours
- Shaw Avenue/State Route 99 southbound ramps—Level of service F during both peak hours
- Shaw Avenue/State Route 99 northbound ramps—Level of service F during both peak hours
- Shaw Avenue/Golden State Boulevard—Level of service F during both peak hours
- Herndon Avenue/Parkway Drive—Level of service F during the morning peak hour
- Herndon Avenue/State Route 99 Northbound Off-Ramp—Level of service F during both peak hours
- Herndon Avenue/Golden State Boulevard—Level of service F during both peak hours
- Parkway Drive/State Route 99 southbound on-ramp/Grantland Avenue—Level of service F during both peak hours
- Herndon Avenue/Polk Avenue—Level of service F during the evening peak hour
- Veterans Boulevard/Grantland Avenue—Level of service E during the evening peak hour

Build Alternative Intersections

Table 2.10 displays the peak hour intersection operations for 2035 build alternative conditions.

The results of the traffic analysis for the 2035 for intersections not influenced by plus project conditions indicate that several study intersections would operate unsatisfactorily (level of service E or worse) during one of the peak hours:

- Shaw Avenue/Polk Avenue—Level of service F during both peak hours
- Shaw Avenue/State Route 99 southbound ramps—Level of service F during both peak hours
- Shaw Avenue/State Route 99 northbound ramps—Level of service F during both peak hours
- Shaw Avenue/Golden State Boulevard—Level of service F during both peak hours
- Herndon Avenue/Golden State Boulevard—Level of service E during the morning peak hour and level of service F during the evening peak hour (reduced delays in both peak hours compared to the No-Build Alternative)
- Parkway Drive/State Route 99 southbound on-ramp/Grantland Avenue—Level of service E during the morning peak hour
- Herndon Avenue/Polk Avenue—Level of service F during both peak hours (increased delays in both peak hours compared to the No-Build Alternative)
- Veterans Boulevard/Shaw Avenue—Level of service E during the evening peak hour
- Veterans Boulevard/Bryan Avenue/Barstow Avenue—Level of service F during the morning peak hour and level of service E during the evening peak hour

As shown in Table 2.11, building the Veterans Boulevard interchange causes operations to improve at several intersections while level of service at other intersections becomes worse as a result of the interchange.

Alternative 1 (Base) and Alternative 4 (Jug Handle) Comparison

An analysis was done for the 2035 Alternative 1 (Base) intersection volumes, control devices, and lane geometries.

The results of the traffic analysis indicate that with Alternative 1 (Base) the Veterans Boulevard/Golden State Boulevard connector intersection would operate at level of service E during the evening peak hour in 2035. Alternative 4 (Jug Handle), however, would not. Otherwise, levels of service and delay are comparable.

Construction Year 2015 Roadway Segment Operations

An analysis was done for the 2015 peak hour and daily volumes for roadway segments in the study area (see Table 2.12).

No-Build Alternative Roadway Segments

Under the No-Build Alternative conditions, one roadway segment (Ashlan Avenue/Grantland Avenue to State Route 99) would operate at an unsatisfactory level of service F.

Build Alternatives Roadway Segments

Within the study area, this segment of Ashlan Avenue transitions several times from a two-lane undivided to a four-lane divided roadway. Construction of the Veterans Boulevard interchange does not change the level of service on any of the study roadway segments in 2015.

Design Year 2035 Roadway Segment Operations

An analysis was done for the 2035 peak hour and daily volumes for roadway segments in the study area (see Table 2.12).

No-Build Alternative Roadway Segments

Under the No-Build Alternative conditions, four roadway segments would operate at an unsatisfactorily level of service D-F: Grantland Avenue/Ashlan Avenue to Herndon Avenue (both peak hours); Ashlan Avenue/Grantland Avenue to State Route 99 (both peak hours); Shaw Avenue/Grantland Avenue to State Route 99 (evening peak hour); and Herndon Avenue/Grantland Avenue to Veterans Boulevard (evening peak hour).

Build Alternatives Roadway Segments

The proposed project would cause four roadway segments to operate at unsatisfactorily levels of service D-F): Ashlan Avenue/Grantland Avenue to State Route 99 (both peak hours); Shaw Avenue/Grantland Avenue to State Route 99 (both peak hours); Herndon Avenue/Grantland Avenue to Veterans Boulevard (evening peak hour); and Veterans Boulevard/ Bullard Avenue to Golden State Boulevard (both peak hours).

The proposed build alternatives improve the following roadway segments:

- Grantland Avenue/Ashlan Avenue to Herndon Avenue from level of service F to level of service D over the No-Build Alternative

- Herndon Avenue/Grantland Avenue to Veterans Boulevard from level of service F to level of service D over the No-Build Alternative in the morning peak hour

The proposed build alternatives worsen the following roadway segments:

- Shaw Avenue/Grantland Avenue to State Route 99 from level of service D to level of service F in the morning peak hour
- Veterans Boulevard/Bullard Avenue to Golden State Boulevard from level of service C to level of service F in both peak hours

Both build alternatives have comparable impacts on roadway segments in the project area.

Construction Year 2015 Freeway Facilities Operations

Caltrans requires that all State facilities operate at level of service C/D threshold or better. An analysis was conducted for the State Route 99 freeway mainline and ramp junction for 2015 no build and 2015 plus project conditions.

All of the study freeway mainline segments operate at level of service D or better during the morning and evening peak hours under 2015 no build and 2015 plus project conditions. The construction of the Veterans Boulevard interchange does not change the level of service on any of the study freeway mainline segments in 2015. The analysis also shows that all freeway ramp junctions in the study operate satisfactorily except for the State Route 99 southbound off-ramp at Golden State Boulevard, which operates at level of service F during the evening peak hour for both the No-Build Alternative and plus project conditions.

All of the ramps at the Veterans Boulevard interchange operate at level of service D or better in both peak hours. The construction of the Veterans Boulevard interchange does not change the level of service on any of the study freeway ramps in 2015.

Table 2.12: Roadway Levels of Service

Roadway Segments	Peak Hours	Existing Conditions				2015 Roadway Conditions							2035 Roadway Conditions						
		Number of Lanes[1]	Area Type	Volumes	LOS	Number of Lanes[1]		Area Type	Volumes		LOS		Number of Lanes[1]		Area Type	Volumes		LOS	
						No Project	Plus Project		No Project	Plus Project	No Project	Plus Project	No Project	Plus Project		No Project	Plus Project	No Project	Plus Project
Grantland Ave./Ashlan Ave. to Herndon Ave.	Morning Evening	2-U	Transitioning	568 493	C C	2-U	2-U	Urban	810 810	670 610	C C	C C	2-U	2-U	Urban	**1,810** **1,980**	1,100 990	**F** **F**	D D
Ashlan Ave./ Grantland Ave. to SR 99	Morning Evening	2-U	Transitioning	**1,415** **1,515**	**F** **F**	2-U	2-U	Urban	**2,050** **2,210**	**2,070** **2,220**	**F** **F**	**F** **F**	2-U	2-U	Urban	**2,070** **2,040**	**2,160** **2,100**	**F** **F**	**F** **F**
Shaw Ave./ Grantland Ave. to SR 99	Morning Evening	2-U	Transitioning	600 713	C D	4-D	4-D	Urban	1,680 2,260	1,840 2,340	C C	C C	4-D	4-D	Urban	2,820 **3,250**	**3,630** **3,650**	D **F**	**F** **F**
Barstow Ave./ Grantland Ave. to N. Parkway Drive	Morning Evening	2-U	Transitioning	39 50	C C	2-U	2-U	Urban	260 340	250 310	C C	C C	2-U	2-U	Urban	330 460	260 310	C C	C C
Herndon Ave./Grantland Ave. to Veterans Blvd.	Morning Evening	4-D	Transitioning	1,794 1,800	D D	6-D	6-D	Urban	2,810 2,930	2,610 2,750	C C	C C	6-D	6-D	Urban	**5,380** **5,690**	4,340 **4,800**	**F** **F**	D **F**
Bullard Ave./Herndon Ave. to Shaw Ave.	Morning Evening	4-D	Transitioning	521 674	C C	4-D	4-D	Urban	460 600	650 810	C C	C C	4-D	4-D	Urban	1,260 1,550	2,230 2,600	C C	D D
Golden State Blvd/Herndon Ave. to Shaw Ave.	Morning Evening	2-U	Transitioning	298 297	C C	4-D	4-D	Urban	680 760	520 650	C C	C C	4-D	4-D	Urban	1,640 2,030	840 1,470	C C	C C
Veterans Blvd./Bullard Ave. to Golden State Blvd.	Morning Evening	N/A	N/A	N/A	N/A	6-D	6-D	Urban	340 420	1,020 1,000	C C	C C	6-D	6-D	Urban	1,690 2,090	**5,090** **4,970**	C C	**F** **F**

Source: Traffic Operations Report, Dec 2010

Notes:

[1] 2-U = 2-lane undivided roadway, 4-D = 4-lane divided roadway, 6-D = 6-lane divided roadway.

Bold font indicates unacceptable intersection operations based on the LOS D standard.

(LOS = Level of Service)

Design Year 2035 Freeway Facilities Operations

Each mainline segment, ramp junction, and weaving section on State Route 99 was analyzed based on the design year (2035) volumes and lane configurations shown in the Traffic Operations Analysis Report.

Caltrans requires that all State facilities operate at level of service C/D threshold or better. An analysis was conducted for the mainline and ramp junctions for 2035 no build conditions. The findings are presented below.

No-Build Alternative Freeway Facilities

The traffic analysis shows that all of the study freeway mainline segments (State Route 99 northbound between Shaw Avenue and Veterans Boulevard), State Route 99 northbound between Veterans Boulevard and Herndon Avenue), State Route 99 southbound between Herndon Avenue and Veterans Boulevard), and State Route 99 southbound between Veterans Boulevard and Shaw Avenue would operate at level of service E under 2035 No Build conditions. For the freeway ramp junctions, all six ramp locations would operate at level of service E or F, except for the State Route 99 northbound Shaw Avenue on-ramp that is level of service D.

Build Alternatives Freeway Facilities

The construction of the Veterans Boulevard interchange improves the level of service on three of the four freeway mainline segments when compared with the No-Build Alternative condition (all segments forecast at level of service E):

- State Route 99 northbound between Shaw Avenue and Veterans Boulevard (morning peak hour)
- State Route 99 northbound between Veterans Boulevard and Herndon Avenue (evening peak hour)
- State Route 99 southbound between Herndon Avenue and Veterans Boulevard (morning peak hour)

With the construction, most of the Veterans Boulevard ramp junctions would continue to operate at level of service E with the exception of State Route 99 northbound Shaw Avenue on-ramp (improves to level of service D in the morning peak hours), and State Route 99 southbound Herndon Avenue on-ramp (improves to level of service D in the morning peak hours). All of the new Veterans Boulevard ramps would operate at level of service D or better during the evening peak hours.

Impacts to Public Transportation

Public transportation within the city of Fresno area is not expected to be affected by the project. Bus routes along Herndon Avenue and Bullard Avenue would not have any delays since the routes do not travel in the proposed project's affected area. Veterans Boulevard will be constructed to accommodate bus service along the corridor, including standard bus bays and sidewalks to bring transit users to the stops and adequate right-of-way to handle Fresno Area Express bus shelters. The actual schedule for introduction of bus service along the corridor will be dependent upon demand for transit service and budgetary/economic conditions.

Impacts to Pedestrian and Bikeway Facilities

Both build alternatives would provide pedestrian/bikeway facilities that are consistent with the City of Fresno Bicycle, Pedestrian, and Trail Master Plan for future pedestrian/bikeway networks. Based on the City of Fresno Veterans Boulevard Class 1 Trail Concept, the trail would be integrated into the Veterans Boulevard design. The trail would conform to the city's trail guidelines in its design.

Avoidance, Minimization, and/or Mitigation Measures

Construction-related Traffic Impacts

The project would implement the following measures to reduce construction-related traffic impacts:

- The contractor would be required to prepare and implement a traffic management plan that would identify the locations of temporary detours and signage to facilitate local traffic patterns and through-traffic requirements.
- The project special provisions of the highway contract would require that emergency service providers (i.e., law enforcement, fire protection, and ambulance services) be given adequate advance notice of any street closures during the construction phases of the proposed project.
- Construction activities would be coordinated to avoid blocking or limiting access to homes and businesses to the extent possible. Residents would be notified in advance about potential access or parking effects before construction activities begin.
- Any interchange, ramp, or road closures required during construction would, to the extent possible, be limited to nighttime hours to reduce effects on businesses in the study area.

2.1.7 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 United States Code 4331(b)(2)]. To further emphasize this point, the Federal Highway Administration (or Caltrans as delegated) in its implementation of the National Environmental Policy Act [23 United States Code 109(h)] directs that final project decisions consider the best overall public interest in respect to 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

A Visual Impact Assessment dated November 2010 was prepared for the project. The assessment included a field review of distinct landscapes surrounding each element of the proposed project within the project area. Fresno County has a diverse visual landscape that gradually changes from east to west. Starting from the east are the Sierra Mountains that are rich in coniferous forests and provide scenic views of the varied topography. There are several large reservoirs such as Millerton Lake, Huntington Lake, and Shaver Lake scattered throughout the Sierra that provide recreational as well as scenic opportunities. The San Joaquin and Kings Rivers, which originate high in the Sierra Mountains, are the county's two major rivers. Two scenic highways, Highway 168 and Highway 180 extend down from the Sierras and terminate in the Eastside Valley area. In addition, there are several scenic drives that wind their way through the Sierra Mountains and Sierra Foothill areas. The county's built environment is located throughout the valley and much of it is located along the State Highway 99 corridor. Agricultural lands consisting of orchards, vineyards, ranches, and various row crops start on the fringe of these communities and extend to cover much of the valley floor. These large farms provide a sense of open space, emphasize the county's rural and farming heritage, and allow motorists opportunities for unrestricted panoramic views. The Coastal Foothills, containing gentle rolling hills with scattered oak trees, extend westward past State Route 99.

The City of Fresno lies in the middle of Fresno County and is part of the Fresno-Clovis metropolitan area. The proposed Veterans Boulevard interchange is between Shaw Avenue on the south and Herndon Avenue to the north on State Route 99. Veterans Boulevard would be aligned southeast/northwest and perpendicular to State Route 99. The project area is in an industrial and residential area within the City of Fresno. Most land around the north end of Fresno is agricultural; however, the land adjacent to and surrounding the project area is predominantly developed. Conversely, a large portion of the land within the project study area is undeveloped, except for some industrial/commercial development in the central study area, and residential lands to the north and south. Developed areas adjacent to the study area include roadways, as well as light industrial and residential areas.

It is important to note that visual character terms are descriptive and non-evaluative, meaning that they are based on defined attributes that are neither good nor bad by themselves. Changes in visual character cannot be described as having good or bad attributes until compared with viewer responses to the change.

The Visual Impact Assessment evaluates the value of visual quality within the right-of-way and outside of the right-of-way (referred to as inside the landscape unit and outside the landscape unit, respectively). Three key criteria were evaluated to determine the overall visual quality: vividness, intactness, and unity.

- Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns.
- Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual manmade components in the landscape.

These elements were evaluated on a scale from 1 to 7 (very low to very high). None of these qualities individually equate to visual quality; all three components must be high to indicate high quality. The results of the assessment indicate that the current visual quality in the project study area is fairly low (*view of the road* has an average visual quality of 2.1 and *views from the road* has an average visual quality of 2.14).

Environmental Consequences

The construction of the Veterans Boulevard Interchange, grade separation over Golden State Boulevard, and roadway improvements would change the visual environment in the project area. In some locations, the changes would be major, particularly where the new interchange would be built. The new interchange would be a noticeable visual change along the corridor.

Views of the Road

Table 2.13 evaluates the view of the road from adjacent vantages (see Figure 2.4 for observer locations). Visual Quality was evaluated on a scale from one to seven (very low to very high). The evaluation assesses the differences between the existing conditions (e.g., pre-project condition) and those changes due to proposed roadway improvements.

Table 2.13: Evaluation for Proposed Project - View of the Road

Observer Point	Alternative 1 - Base	Alternative 4 – Jug Handle	Existing
1	2.6	2.6	2*
2	1.9	1.9	1.8
3	2.3	2.3	2
4	2.6	2.6	2*
5	2.6	2.6	2*
6	2.5	2.5	2.6
7	2.3	2.3	2.3
Total:	16.8	16.8	14.7
Average:	2.4	2.4	2.1

Source: Visual Impact Assessment, November 2010.
*N/A – these sections of the road do not currently exist.

As noted in Table 2.13, both build alternatives have an average Visual Quality rating that is slightly higher than the Existing Condition.

In general, local residents would not experience a substantial decline in the surrounding visual environment as a result of the proposed project. Changes to the viewshed as a result of constructing the project would marginally improve the views from most all locations analyzed. Although a change in the existing visual environment is inevitable with a project of this magnitude, the improvement in visual quality of the project area would be minor and is primarily attributed to introducing a new interchange and Union Pacific Railroad grade separation where none previously existed. Portions of Veterans Boulevard had already been constructed to the north and

south of the proposed State Route 99 and Union Pacific Railroad overcrossings in anticipation of the proposed project.

View from the Road

Table 2.14 evaluates the views from the road (see Figure 2.4 for observer locations) by assessing the visual quality of the adjacent setting with the proposed roadway improvements in place. Visual Quality was evaluated on a scale from one to seven (very low to very high).

Table 2.14: Evaluation for Proposed Project - View from the Road

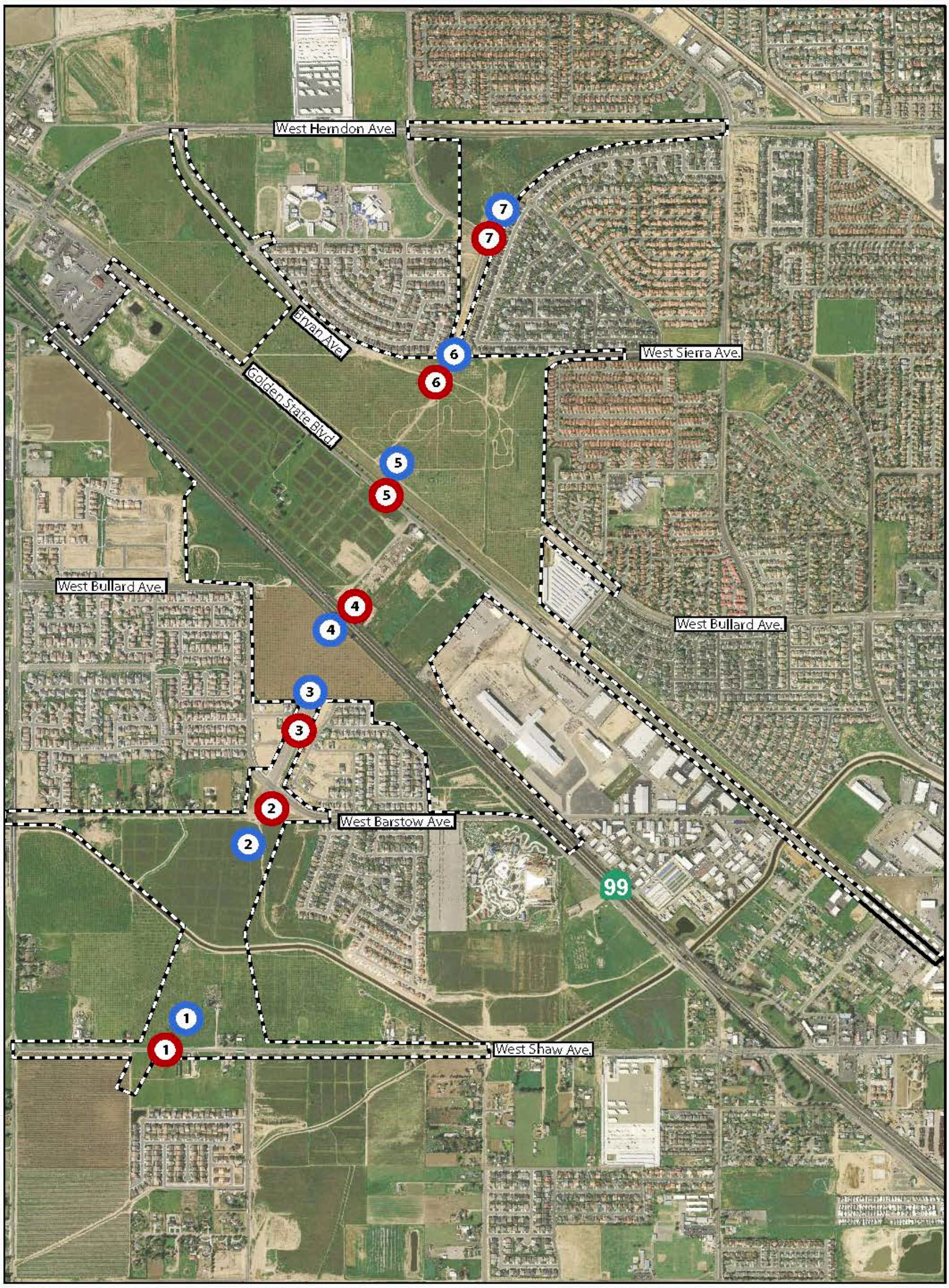
Observer Point	Alternative 1 - Base	Alternative 4 – Jug Handle	Existing
1	1.9	1.9	2*
2	1.8	1.8	2.1
3	2.2	2.2	2.5
4	2.5	2.5	2*
5	2.4	2.6	2*
6	2.4	2.4	2.6
7	2.4	2.4	2.6
Total:	15.6	15.8	15.8
Average:	2.22	2.25	2.26

Source: Visual Impact Assessment, November 2010.
*N/A – these sections of the road do not currently exist.

The local residents would not experience a substantial decline in visual environment of the project area as a result of the proposed project. Currently two small sections of Veterans Boulevard have been built. Since these existing roadway segments are short in length and are dead ended, changes for travelers of Veterans Boulevard would be limited to proposed conditions. Construction of the proposed project would marginally degrade the “views of the road” from the majority of “existing” locations analyzed.

Conclusion

Impacts to “views of the road” and “from the road” would result in some change to the surrounding visual environment as a result of the proposed project. Changes to the view shed, as a result of the project alternatives, would marginally degrade (a visual quality decrease of less than 1.00 at all observation points). This loss in visual quality



LEGEND

Study Area (598.34 ac)

Observer Locations (views of the road)

Observer Locations (views from the road)

0 500 1000 FEET

Figure 2.4
Observer Locations

is minor and is primarily attributed to the new roadway alignment and infrastructure (in a setting already designated and planned for future development). Observation points 1, 4, and 5 would be most affected by the proposed project due to the addition of the new alignment at observer point 1 and new infrastructure at observer point 4 and 5.

The proposed project is not near any scenic byways, scenic river resource, or natural landmarks. Consequently, proposed improvements would have no effect on scenic byways, scenic rivers, or natural landmarks.

Street lights would be proposed in specific locations along the new roadway alignment and overcrossings. With an existing presence of light in the currently developed sections of the project area, and the lack of sensitive receptors in the open areas, new street lighting would not create a nuisance new light source or glare. New street lighting would not be added in areas that would affect existing sensitive receptors. Most new street lighting would be added in areas surrounded by open lands or agricultural fields.

Visual impacts, due to the project, would be minor when compared to existing conditions. Visual simulations (see Figures 2.5a, 2.5b, 2.5c) show before and after views of project construction areas. This conclusion is based on 1) planned future development in the area is driving the need for the project, 2) no designated visual or scenic resources in the area, 3) sections of the roadway have already been built in anticipation of the project and 4) the combined view of the road quantitative rating indicates the project would not substantially affect the visual quality of the area when compared with the No Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented:

- Architectural elements of existing structures along State Route 99 will be incorporated into the new overcrossing and undercrossing structures.
- Overcrossing and undercrossing structures would include architectural bridge fence, architectural concrete under bridge abutments, and painted bridge façade stripe with Fresno County – Federal #20109 Brick Red striping paint.
- Highway art may also be incorporated to break up the built environment and enhance the quality of the driving experience. Artistic design elements must be consistent with community goals.

Looking south along State Route 99 at the location for the proposed Veterans Boulevard Interchange

Looking south along State Route 99 at Veterans Boulevard Interchange

Figure 2.5a
Visual Simulation

Looking north along Golden State Avenue at the location for the proposed Veterans Boulevard Interchange

Looking north along Golden State Avenue at Veterans Boulevard Interchange

Figure 2.5b
Visual Simulation

Looking east towards State Route 99 at the location for the proposed Veterans Boulevard Interchange

Looking east towards State Route 99 and the Veterans Boulevard Interchange

Figure 2.5c
Visual Simulation

- Replacement planting would include the replacement of removed landscaping.
- Areas affected or disturbed by construction would be replanted in the form of new landscape planting and irrigation systems.

2.1.8 Cultural Resources

Regulatory Setting

"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 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 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement between the Advisory Council, 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 CFR 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 CFR 327) (July 1, 2007).

The Archaeological Resources Protection Act applies when a project may involve archaeological resources located on federal or tribal land. Archaeological Resources Protection Act requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act that regulates the "use" of land from historic properties. Historical resources are considered under the California Environmental Quality Act, as well as California Public Resources Code Section 5024.1 that established the California Register of Historical Resources. California Public Resources Code 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

An Archeological Survey Report and Historic Property Survey Report were prepared in November 2010 to document cultural and historic resources within the project. The reports included a records search, literature review, map review, Native American and historical organizations consultation, and a pedestrian site survey.

The 463-acre archaeological Area of Potential Effect consists of portions of State Route 99, North Hayes, Avenue, West Herndon Avenue, North Golden State Boulevard, West Sierra Avenue, West Bullard Avenue, West Barstow Avenue, West Shaw Avenue, and the Union Pacific Railroad. The Area of Potential Effect includes residential and commercial land, orchards, and abandoned agricultural lands.

The records search identified three cultural resources. Archival research and the architectural survey identified 14 resources within the Area of Potential Effect.

Environmental Consequences

The Area of Potential Effect archaeological sensitivity was reviewed using the results of the records search, literature review, interested parties consultation, geological and soils research, and field survey conducted January 26 and 27, 2010.

The records search identified three historic resources within the Area of Potential Effect:

- Farmstead complex (CA-FRE-3465H/P-10-005721)
- Segment of an earthen ditch (CA-FRE-3464H/P-10-005720)
- Harry Edmund Buck Adobe (P-10-005816)

Caltrans determined the above historic resources are not eligible for inclusion in the National Register of Historic Places or California Register.

Archival research and architectural survey identified 14 additional resources within Area of Potential Effect:

- One single family residence at 6506 W. Barstow Avenue (APN 505-070-04S) built in 1955
- One single family residence at 6572 W. Barstow Avenue (APN 505-070-07S) built in 1959
- One-single family residence at 6594 W. Barstow Avenue (APN 505-070-08S) built in 1948
- One single-family residence at 6610 W. Barstow Avenue (APN 505-070-23S) built in 1951
- One single-family residence at 6844 W. Barstow Avenue (APN 505-282-17) built in 1956
- One single-family residence at 7018 W. Barstow Avenue (APN 505-040-18) built c.1924
- One single-family residence at 6526 W. Shaw Avenue (APN 505-060-43) built c.1955
- One single-family residence and two former chicken coops at 6665 W. Shaw Avenue (APN 512-030-31 and 512-030-32) built 1920 and 1951, respectively
- One single-family residence at 6730 W. Shaw Avenue (APN 505-060-19) built in 1954
- One segment of the Union Pacific Railroad (formerly the Southern Pacific Railroad and Central Pacific Railroad) first built in 1872
- One segment of North Golden State Boulevard—a two lane road paralleling the Union Pacific Railroad tracks—previously part of the State Route 99 alignment
- One segment of the Herndon Canal, a partially undergrounded, rock-lined and earthen water-conveyance feature built c.1891
- One segment of the Epstein Canal, a partially undergrounded, earthen water-conveyance feature built c.1920
- One segment of the Herndon-Kearney Transmission line, a 230kV high-voltage power line built c.1950.

Caltrans determine that no state-owned cultural resources are within the Area of Potential Effect.

The literature review and consultation with the Native American Heritage Commission and Native American representatives identified the ethnographic Northern Valley Yokuts village of Kohuou and a previously unrecorded prehistoric archaeological site containing human remains outside the north end of the Area of Potential Effect. The southern portion of the Area of Potential Effect is not sensitive for prehistoric archaeological resources. The pedestrian field survey did not identify any archaeological cultural resources within the Area of Potential Effect.

Based on the soil types and landform age, the Area of Potential Effect is considered to generally be of low sensitivity for deeply buried prehistoric archaeological resources. The soils in the Area of Potential Effect are well-developed and typically form from the Middle Pleistocene Riverbank Formation, which is too old to contain buried archaeological resources.

Avoidance, Minimization, and/or Mitigation Measures

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

If human remains are discovered, 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 will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact District 6 Environmental Branch so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Water Quality and Storm-water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, the Federal Water Pollution Control Act was amended, making the discharge 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. The Federal Water Pollution Control Act was subsequently amended in 1977 and renamed the Clean Water Act. The Clean Water Act, as amended in 1987, directed that storm-water discharges are point source discharges. The 1987 Clean Water Act amendment established a framework for regulating municipal and industrial storm-water discharges under the National Pollutant Discharge Elimination System program. Important Clean Water Act sections are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal project that proposes an activity that may result in a discharge to waters of the United States obtain certification from the state that the discharge will comply with other provisions of the act.
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional Water Quality Control Boards administer this permitting program in California. Section 402(p) addresses storm water discharges and discharges not from storm water.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. 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—and two types of Standard permits, two types of General permits, two types of Regional permits, and two types of Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S. Environmental Protection Act Section 404 (b)(1) Guidelines (U.S. Environmental

Protection Act CFR 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. Environmental Protection Act 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 that would have less adverse effects.

The Guidelines state that U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative, to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic 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 CFR 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 otherwise) 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) required by the Clean Water Act, and regulating discharges to ensure that the objectives are met. Details regarding water quality standards in a project area are

contained in the applicable Regional Water Quality Control Board Basin Plan. States designate beneficial uses for all water body segments, 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, each state identifies waters failing to meet standards for specific pollutants listed in each state 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, the Clean Water Act requires establishing Total Maximum Daily Loads. Total Maximum Daily Loads establish 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, water pollution control, and water quality functions throughout the state. 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 Pollution Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination permits for five categories of storm water dischargers, including Municipal Separate Storm Sewer Systems. The U.S. Environmental Protection Act defines an Municipal Separate Storm Sewer Systems 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 Municipal Separate Storm Sewer Systems by the State Water Resources Control Board. This permit covers 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.

The Caltrans Municipal Separate Storm Sewer Systems Permit, under revision at the time of this update, contains three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below).

2. Caltrans must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges.

3. Caltrans storm-water discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices and other measures.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Statewide Storm Water Management Plan assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The Statewide Storm Water Management Plan describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water discharge and discharge not from storm water. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest Statewide Storm Water Management Plan to address storm-water runoff.

Part of and appended to the Statewide Storm Water Management Plan is the Storm Water Data Report and its associated checklists. The Storm Water Data Report documents the relevant storm water design decisions made regarding project compliance with the Municipal Separate Storm Sewer System National Pollutant Discharge Elimination permit. The preliminary information in the Storm Water Data Report prepared during the Project Initiation Document phase will be reviewed, updated, confirmed, and if required, revised in the Storm Water Data Report prepared for the later phases of the project. The information contained in the Storm Water Data Report may be used to make more informed decisions regarding the selection of best management practices and/or recommended avoidance, minimization, or mitigation measures to address water quality impacts.

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 which result in a Disturbed Soil Area of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the 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 determined risk level. 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 the Caltrans Standard Specifications, a Water Pollution Control Plan is necessary for projects with disturbed soil area 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 body must obtain a 401 Certification that certifies 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 the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before the U.S. Army Corps of Engineers issue 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 that define activities such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals to be used for protecting or benefiting water quality. Waste Discharge Requirements can be issued to address both permanent and temporary discharges from a project.

Affected Environment

A Floodplain and Water Quality Evaluation Report was completed for this project in May 2010. The study evaluated potential impacts resulting from the proposed project on water quality.

The project area is in the San Joaquin River Basin. The river, about 1.5 miles northwest of the project site, is the closest surface water body. The 330-mile-long San Joaquin River is the second longest river in California and the average unimpaired water flow in the main channel at Millerton Reservoir is about 1,800,000 acre-feet per year. The San Joaquin River and its eight major tributaries drain about 32,000 square miles of California's San Joaquin Valley. The river originates high in the Sierra Nevada Mountains and drains most of the area from the southern border of Yosemite National Park south to Kings Canyon National Park, making the river the second largest drainage in the state. The San Joaquin River's tributaries include the Stanislaus River, Tuolumne River, Merced River, Calaveras River, and Mokelumne River.

This portion of the San Joaquin River is currently on the Clean Water Act Section 303(d) list of Water Quality Limited Segments and therefore does not currently meet state water quality standards. Exotic species are currently listed as the only "pollutant" exceeding current standards for this section of the river.

Groundwater quality in Fresno County varies considerably. Most poor quality groundwater is along the western side of the county. Contaminants such as pesticides, petroleum products, and industrial solvents, however, occur in groundwater throughout the county. Dibromochloropropant, a pesticide, is present in large areas in eastern Fresno County and has exceeded the maximum contaminant level in groundwater in many locations. However, dibromochloropropant is gradually diminishing as a groundwater problem for the Fresno area as well as the project area. Dibromochloropropant, banned in 1977, has been diluted and extracted from the aquifer since then.

Nitrate levels in rural groundwater wells have been increasing throughout the county from fertilizers used in agriculture. Nitrate levels may also be elevated in areas served

by domestic septic systems and in areas where dairy operations do not have current treatment procedures.

The Porter-Cologne Water Quality Control Act (1969) requires each Regional Water Quality Control Board within the state to formulate or adopt water quality control plans for all areas of the region. The fourth edition of the Water Quality Control Plan for the Central Valley Region (Basin Plan) was adopted by the Regional Water Quality Control Board. The Basin Plan, which includes the project area, contains standards and recommended control measures for use by other local, state, or federal agencies to avoid degrading water quality. The Basin Plan identifies beneficial uses and water quality objectives to protect water resources and water quality.

The Basin Plan lists the beneficial uses for major surface waters contained in the South Valley Floor Hydrologic Unit. These beneficial uses include protecting water quality for municipal and domestic uses, agricultural uses, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, mitigation of aquatic organisms, fish spawning, and industrial services and supplies.

The project is within the South Valley Floor Hydrologic Unit and the Fresno Hydrologic Sub-Area. Storm drainage-related infrastructure in the city of Fresno is owned, operated, and maintained by the Fresno Metropolitan Flood Control District. The district's local storm-water drainage system consists of storm drains, detention and retention basins, and pump stations.

Environmental Consequences

The potential impacts to water quality can be attributed to soil erosion and suspended solids being introduced into surface waters. Minimization measures for construction and long-term impacts would focus on the control of sediment and suspended solids from entering waterways. The construction activities necessary to complete the proposed project may have an impact on the water quality of waterways. Commonly used construction activity best management practices would be required to minimize any potential impacts to the maximum extent practicable.

After project completion, there is potential for adverse long term impacts to water quality attributed to runoff from regular use and maintenance activities.

Long-term water quality impacts are due to changes in storm-water drainage. Because the project would result in a permanent increase of impervious surfaces (pavement), it

would also result in a permanent increase in runoff and pollutant loading. The primary pollutants are sediments, petroleum distillates, and metals. These substances are washed off the highway surface by rainfall and become runoff. Runoff in significant quantities occurs only during heavy storms that in turn cause the pollutants to be greatly diluted. These storms cause some high flows in the drainage systems, further diluting the pollutants as they are carried from the source. However, drainage design would likely decrease the long-term amount of untreated runoff that reaches storm drains and surface water bodies. Proposed drainage facilities would be determined at the final design stage and would consist of on-site temporary drainage basins or build out of the master plan pipe facilities, depending on the timing of construction.

Caltrans currently uses a statewide Storm Water Management Plan. The Storm Water Management Plan would address Caltrans runoff impacts on water quality standards, development of Total Maximum Daily Loads, and watershed planning. The Storm Water Management Plan would also be used to characterize runoff from Caltrans facilities, storm-drain systems owned or operated by Caltrans, and to aid Caltrans in determining appropriate and adequate best management practices.

Two options have been identified in the December 2010 Drainage Memo prepared by Mark Thomas & Company to handle the storm-water runoff within state right-of way for the project. The total disturbed soil area within the State right-of-way would be 46.8 +/- acres. The total disturbed soil area outside of the state right-of-way varies depending on the chosen Golden State Boulevard connection alternative and proposed drainage basin configurations discussed in Section 2 (Drainage Option 1 and Drainage Option 2) (see Table 2.15).

Table 2.15: Disturbed Soil Area

Drainage Option	Alternative 1—Base	Alternative 4—Jug Handle
Option 1	69.4 +/- acres	82.6 +/- acres
Option 2	73.2 +/- acres	87.4 +/- acres

Source: Floodplain and Water Quality Evaluation Report, December 2010.

Option 1 would direct storm water to a retention or detention basin at the southern quadrant of the interchange and would outlet to the Fresno Metropolitan Flood Control District master-planned storm-drainage system that leads to a retention basin within the Fresno Metropolitan Flood Control District, shed area "EM."

Option 2 would direct storm water to two retention/detention basins (one on each side of State Route 99), one located at the southern quadrant (retention/detention basin) of the interchange (outside the State Route 99 southbound direct on ramp), and one in the northern quadrant (retention basin) of the interchange. The retention basin at the northern quadrant would be the final destination of the runoff collected from the eastern portion of the interchange. The basin in the southern quadrant of the interchange would be the final destination of the runoff collected from the western portion of the interchange, or it may outlet to Fresno Metropolitan Flood Control District's master-planned storm-drainage system.

The proposed project design would incorporate permanent erosion control elements, primarily permanent vegetation, to ensure that storm-water runoff does not cause soil erosion. Implementation of the project-specific long-term mitigation measures, design best management practices, and if necessary, treatment best management practices, would also reduce or avoid impacts on water quality.

During construction, the Veterans Boulevard/State Route 99 interchange project has potential to cause temporary water quality impacts such as erosion caused by grading activities and removal of existing vegetation. Storm-water runoff from the proposed project may transport pollutants to water resources such as the San Joaquin River and storm drains if best management practices are not properly implemented.

Fueling or maintenance of construction vehicles would also occur within the Veterans Boulevard/State Route 99 interchange project site during construction, resulting in a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if

contaminants enter storm drains, open channels, or surface water receiving bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

Avoidance, Minimization, and/or Mitigation Measures

The design and construction of the proposed project must adhere to the requirements in the National Pollutant Discharge Elimination System, Caltrans Storm Water Management Plan, the Caltrans Project Planning and Design Guide, and best management practices.

The following avoidance, minimization, and/or mitigation measures would ensure the elimination of potential water quality impacts both during and after construction:

- Preparation and implementation of construction site best management practices in compliance with the provisions of the Caltrans Statewide National Pollutant Discharge Elimination System Permit and any subsequent permit as they relate to construction activities for the project would be followed. This would include submission of a Notice of Construction to the Regional Water Quality Control Board at least 30 days before the start of construction, preparation and implementation of a Stormwater Pollution Prevention Plan, and submission of a Notice of Construction Completion to the Regional Water Quality Control Board upon completion of construction and stabilization of the project site.
- Consideration and incorporation of Design Pollution Prevention and Treatment Control best management practices for the project in accordance with the procedures outlined in the Stormwater Quality Handbooks, Project Planning and Design Guide would be followed. This would include coordination with the Regional Water Quality Control Board with respect to feasibility, maintenance, and monitoring of Treatment Control best management practices as set forth in the Caltrans Statewide Stormwater Management Plan.
- The project's design would ensure that all storm-water runoff from the new interchange would discharge into temporary drainage basins or master plan pipe facilities once built out. Temporary basins would be designed to handle all storm-water runoff from new paved areas per District 6 Hydraulics design guidelines.

- The following temporary construction best management practices would be used:
  - Sediment Control—Silt Fences, straw bale barriers, fiber rolls, check dams, sediment traps
  - Soil Stabilization—Hydroseeding, straw mulch
  - Preservation of Existing Vegetation—Temporary fencing
  - Temporary Concentrated Flow Conveyance Systems—Earth dikes, drainage swales, velocity dissipation devices, slope drains
  - Sediment Tracking Control—Street sweeping, stabilized construction roadway, entrance/outlet tire wash
  - Waste Management—Temporary concrete washout facility, spill prevention and control, contaminated soil management
  - Other Construction Site Best Management Practices—Stockpile management, temporary protection of drainage inlets during construction, stabilized construction entrance/exit, prepare Statewide Storm Water Management Plan

2.2.2 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. Examples of these statutes are the Antiquities Act of 1906 (16 USC 431-433) and Federal-Aid Highway Act of 1956 (23 USC 305). Under California law, paleontological resources are protected by the California Environmental Quality Act.

Affected Environment

A Paleontological Identification and Evaluation Report was prepared in March 2010. The information provided below is based on that study.

The project lies on the San Joaquin River alluvial fan in the east-central San Joaquin Valley west of the foothills of the Sierra Nevada Mountains. The San Joaquin Valley is bounded by the coastal ranges to the west, the Tehachapi Mountains to the south, the Sierra Nevada Mountains to the east, and the Sacramento-San Joaquin Delta to the north. The northerly-flowing San Joaquin River is approximately one mile north of the northern edge of the project area.

A review was made of paleontological and geological literature relevant to the project area and its vicinity. The review found that the project area is underlain by three paleontological sensitive Pleistocene sedimentary deposits: the Modesto and the Riverbank formations and Turlock Lake deposits.

The Lower Pleistocene Turlock Lake Formation is overlain by the Modesto and/or Riverbank Formations in much of the San Joaquin Valley. The Turlock Lake Formation is about 850,000 to 550,000 years old. The formation is composed of tan and gray arkosic alluvial fan, fan channel, and marsh or lacustrine deposits of fine sand, silt, and clay at the base of the formation, grading upward into coarse sand and occasional coarse pebbly sand or gravel.

The Middle Pleistocene Riverbank Formation unconformably overlies the Turlock Lake Formation and is overlain by the Modesto Formation in much of the San Joaquin Valley and may be exposed on the surface in much of the project area. The Riverbank Formation is between 450,000 and 130,000 years old and is composed of alluvial fan deposits of silt, sand, and some gravel. These very deeply weathered deposits are reddish-brown in color.

The Upper Pleistocene Modesto Formation may be on the surface in portions of the project area. The Modesto Formation is between 42,000 and 14,000 years old and is composed of loosely consolidated alluvial fan deposits of gravel, sand, and silt.

Environmental Consequences

The surface geology of the project area appears to primarily be composed of the Riverbank Formation and, possibly, the Modesto Formation. A thin layer of soil covers these formations. The Turlock Lake Formation underlies the Riverbank Formation at depth. These three formations have a high potential for significant paleontological resources. Where project excavation extends below any artificial fill that may be present, sensitive fossiliferous Pleistocene sediments and soils derived from these formations would be encountered.

Based upon Caltrans guidelines, the Modesto and Riverbank Formations in the project area have high potential for bearing significant vertebrate fossils. These formations are known to contain “significant nonrenewable paleontological resources.” Due to the nature of the fossils within the sedimentary Modesto and Riverbank Formations, those formations cannot be considered to have low potential.

Based on geologic mapping and results of the field survey, the Turlock Lake Formation may occur at a depth of four feet within the project area. The Turlock Lake Formation is known to contain "significant nonrenewable paleontological resources." Due to the nature of the fossils within the sedimentary Turlock Lake Formation, they cannot be considered to have low potential.

Any fossils encountered within the project area are expected to be significant for scientific reasons. Fossils that are significant for scientific reasons need to be taken into account under the California Environmental Quality Act. Fossils, or fossil-bearing strata, are only considered to be nationally significant if they consist of or contain "an outstanding example of fossil evidence of the development of life on earth." Nationally significant fossils are not expected within the project area.

The entire project area has been mapped as Pleistocene non-marine. Near the surface, this includes the Middle Pleistocene Riverbank Formation and, possibly, the Upper Pleistocene Modesto Formation. Any excavation in original soils would affect these deposits, potentially disturbing paleontologically sensitive strata.

Excavation for roadway construction is not anticipated to go deeper than 3 feet, potentially encountering the fossiliferous Modesto or Riverbank formations. Any excavation that reaches a depth of 4 feet has the potential to encounter the Turlock Lake Formation, potentially disturbing paleontological resources. For project construction, excavation is expected to reach depths greater than 4 feet and perhaps greater than 10 feet for overcrossing and railroad bridge abutments, retaining walls, utility conduit easements, and retention basins. Excavation for traffic signals (30 feet deep) and piles (70 feet deep) would contact the fossiliferous Riverbank and Turlock Lake formations.

Avoidance, Minimization, and/or Mitigation Measures

The Paleontological Identification Report/Paleontological Evaluation Report recommends as part of a Paleontological Mitigation Plan that excavation monitoring for the project include the following to avoid and minimize impacts to paleontological resources:

- Conduct a preconstruction field survey, followed by salvage of any observed surface paleontological resources prior to the beginning of grading.
- Attendance at the pre-grade meeting by a qualified paleontologist or a representative. At this meeting, the paleontologist will explain the likelihood

of paleontological resources, what resources may be discovered, and the methods that will be employed if anything is discovered.

- During construction excavation, a qualified vertebrate paleontologic monitor should initially be present on a fulltime basis whenever excavation would occur within sediments that have a high sensitivity rating and on a spot-check basis in sediments that have a low sensitivity rating.
- Paleontological monitor, under the direction of the qualified principal paleontologist would be on site 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.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, repaired, sorted, and cataloged.
- Prepared fossils, copies of all pertinent field notes, photographs, and maps would be deposited in a scientific institution with paleontological collections.
- A final report would outline the results of the mitigation program.
- Where feasible, selected road cuts or large finished slopes in areas of critically interesting geology may be left exposed as important educational and scientific features. This may be possible if no substantial adverse visual impact results.

2.2.3 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 primary 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. The purpose of Comprehensive Environmental Response, Compensation and Liability Act of 1980, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. Resource Conservation and Recovery Act of 1976 provides for “cradle to grave” regulation of hazardous wastes. 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 disturbed during project construction.

Affected Environment

An Initial Site Assessment (July 2010) and Preliminary Site Investigation Report (March 2011) were done for the proposed project. The purpose of this investigation was to determine whether the improvement activities associated with the proposed project could be affected by any recorded or visible hazardous waste problems within and adjacent to the interchange right-of-way, and to recommend any additional Initial Site Assessment work.

The following is a summary of the survey scope:

- Perform a governmental records search to obtain a listing of properties or known incidents shown on federal and state databases for hazardous waste sites within the project area.

- Conduct a site visit to identify any visible exterior areas of potential contamination that might impact the proposed project implementation.
- Examine soils, geotechnical, and groundwater data.

Initial Site Assessments are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. Specialists performed this environmental assessment in general accordance with the guidelines set forth in the Caltrans Initial Site Assessment guidelines, from Chapter 5 "Hazardous Waste Site Investigations" of the Caltrans Project Development Procedures Manual.

A Preliminary Site Investigation was also conducted for the proposed project in February 2011. The objective of this investigation was to evaluate the impacts to the site soil by suspected contaminants of concern in the project area, and evaluate the re-use potential or disposal options for affected shallow soil in the proposed project area.

The Preliminary Site Investigation assessed areas identified in the Initial Site Assessment considered medium to high risk by Caltrans (see Table 2.16).

Table 2.16: Hazardous Materials Databases

Name	Address	Description
George Dakovich and Son	6135 North Golden State Boulevard	A wash rack and separator sump was located adjacent and south of an on-site shop building. An aboveground waste-oil tank was also located in this area and was situated in a secondary containment unit. The separator sump reportedly drains into the on-site septic system, located southwest of the wash rack. A storm-water basin is southwest of the septic system and reportedly contains street runoff. Three diesel aboveground storage tanks were located southwest of the storm-water basin. Surface soil staining was also noted throughout the yard in areas where equipment is currently stored or may have previously been stored or parked.
Seal-Rite Paving Company	6255 West Bullard Avenue	The property is occupied by a series of temporary structures surrounding a central area that appeared to be used for vehicle repair and maintenance. One waste-oil tank was noted in this area as well as a aboveground fuel storage tank mounted on a truck. Stockpiles of various materials including old pavement and soil were noted primarily in the southwestern portion of the site. Surface soil staining

Name	Address	Description
		was noted primarily in the central portion of the site.
Cal Valley General Engineering (formerly Curry Diesel Repair and Singh Trucking)	6271 West Bullard Avenue	The property is occupied by two structures, a shop and an office/garage structure. Various pieces of equipment, tools, parts, tires, fuel (55-gallon drum), and lubricants were located inside the shop and garage. Septic system access covers were noted in the paved area on the east side of the shop between the shop and the office. Three trailer-mounted fuel tanks (approximately one 1,000 gallon and two 500 gallon) were located south of the office/garage building. Minor staining was noted on soil beneath the larger aboveground storage tank. Four drums containing waste oil were noted south of the office/garage building and east of the aboveground storage tanks. The drums were sealed, and no staining was noted on the pavement or soil surrounding the drums. Leakage from the ASTs at these facilities appears to have affected site soils. The extent of impact is not known, but is not likely significant since the ASTs are portable and do not appear to have been present at their locations for an extended period of time.
In-N-Out Sandblasting	6272 West Bullard Avenue	Abrasive blasting activities may result in evaluated metal concentrations in the soil. Evaluation of metal concentrations in the soil in the areas the abrasive blasting occurred should be conducted.
Agricultural burn	Southwest corner of the fig orchard on Bryan Avenue north of the intersection of Bryan Avenue and Veterans Boulevard	Agricultural burning may concentrate metals, agricultural chemicals and related chemicals in soil.
Petroleum pipelines	Crosses the project site along the State Route 99 right-of-way	Although no information was available to indicate releases have occurred from this pipeline, petroleum pipelines typically leak over time.
Roadways	Roadways at the project site including Golden State Boulevard and State Route 99	Golden State Boulevard and SR 99 have existed since at least the 1950s. Commercial distribution and use of leaded gasoline was common before 1973 but has been restricted by the US Environmental Protection Act since the mid 1970s. Aerially deposited lead, generated from the emissions of vehicles fueled by leaded gasoline, is commonly found in soils adjacent to roadways.

Name	Address	Description
Union Pacific Railroad	Union Pacific Railroad crosses the site from southeast to northwest, northeast and parallel to Golden State Boulevard	Railroads have historically used organic and inorganic chemicals to control pests and weeds that could impact soil on and adjacent to the railroad alignment.

Source: Initial Site Assessment, July, 2010.

Environmental Consequences

The following hazardous materials were identified in the Preliminary Site Investigation:

Petroleum Hydrocarbons

During this investigation total petroleum hydrocarbons was detected in elevated concentrations. The following are locations where total petroleum hydrocarbons exceeded the applicable environmental safety limits:

- Dakovich property storm-water retention basin
- Seal-Rite property aboveground storage tanks
- Seal-Rite property canopy maintenance area

Concentrations of total petroleum hydrocarbons were found to attenuate at depths between 18 and 24 inches; therefore, these impacts are not considered a threat to groundwater or to human health, considering proposed uses of the site.

Heavy Metals

Barium, cadmium, total chromium, cobalt, copper, lead, nickel, vanadium, and zinc were detected at the site. These metals were well below regulatory thresholds but above background concentrations. It is possible that soils in the vicinity of the railroad tracks are affected by the presence of heavy metals.

The arsenic concentrations at the site were less than background concentrations established for California. These concentrations do not pose an incremental hazard above the hazard associated with naturally-occurring arsenic.

Volatile and semi-volatile organic compounds

For all properties, samples collected and analyzed for volatile organic compounds and semi-volatile organic compounds were reported not at or above the regulatory thresholds; thus, based on soil sample analytical data, there is no significant hazard.

Dioxin/Furan

Dioxin was present in one surface-soil sample collected at the site of an agricultural burn area. The concentration was well below the California Human Health Screening Levels. The concentration of dioxin does not pose an environmental threat at the concentrations reported.

Aerially Deposited Lead

Detected concentrations of total lead and soluble lead were reported in soil samples collected from the area adjacent to the shoulder of Golden State Boulevard. If soil from this area is excavated and removed from the site, it would be non-hazardous waste under California law.

Avoidance, Minimization, and/or Mitigation Measures

The following conclusions and recommendations were developed for the site based on the evaluation of the data generated for both the Initial Site Assessment and the Preliminary Site Investigation:

Petroleum Hydrocarbons

Since the concentrations of total petroleum hydrocarbons exceeded environmental safety limits, mitigation of the affected soil is recommended at the following sites:

- Dakovich property storm-water retention basin
- Seal-Rite property aboveground storage tanks
- Seal-Rite property canopy maintenance area
- Based on the Preliminary Site Investigation observations, it is estimated the volume of affected soil at these two properties was 5 cubic yards at the Dakovich property and 30 cubic yards at the Seal-Rite property. It is estimated that the cost to remove the affected soil at the two properties would be $15,000, assuming the soil is excavated in a single day and transported as a non-hazardous material to a facility licensed to accept non-hazardous petroleum hydrocarbon affected soil.

2.2.4 Air Quality

Regulatory Setting

The Federal Clean Air Act as amended in 1990 is the federal law that governs air quality. The California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency and

the California Air Resources Board, 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. National Ambient Air Quality Standards and State ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller – PM_{10} and particles of 2.5 micrometers and smaller – $PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). In addition, State standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The National Ambient Air Quality Standards and State standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act and the California Environmental Quality Act. In addition to this type of environmental analysis, a parallel "Conformity" requirement under the Federal Clean Air Act also applies.

Federal Clean Air Act Section 176(c) prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs or projects that are not first found to conform to State Implementation Plan for achieving the goals of Clean Air Act requirements related to the National Ambient Air Quality Standards. "Transportation Conformity" takes place on two levels: the regional, or planning and programming, level, and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the National Ambient Air Quality Standards, and only for the specific National Ambient Air Quality Standards that are or were violated. U.S. Environmental Protection Act regulations at 40 CFR 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these

transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb). However, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans and Federal Transportation Improvement Programs that include all of the transportation projects planned for a region over a period of at least 20 years (for the Regional Transportation Plans), and 4 years (for the Federal Transportation Improvement Programs). Regional Transportation Plans and Federal Transportation Improvement Program conformity is based on use of travel demand and air quality models to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that requirements of the Clean Air Act and the State Implementation Plan are met. If the conformity analysis is successful, the Metropolitan Planning Organization, and the Federal Highway Administration and Federal Transit Administration, make the determinations that the Regional Transportation Plan and Federal Transportation Improvement Program are in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan and/or Federal Transportation Improvement Program must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the Regional Transportation Plan and the Federal Transportation Improvement Program, 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 (CO) and/or particulate matter (PM_{10} or $PM_{2.5}$). A region is "nonattainment" if one or more of the monitoring stations in the region measures violation of the relevant standard, and U.S. Environmental Protection Act officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. Environmental Protection Act, and are then called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for National Environmental Policy Act purposes. Conformity does include some specific procedural and documentation standards for projects that require a "hot spot" analysis. In general, projects must not cause the hot spot-related standard to be violated and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO 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

An Air Quality Study Analysis Report was completed for the project in October, 2010. The project corridor is within the city of Fresno in the San Joaquin Valley Air Basin that consists of approximately 25,000 square miles and covers Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare counties and the western Kern County. The region is characterized by hot, dry summers and cool winters. Monthly average temperature for the last 62 years ranges from 46.1 degrees Fahrenheit in January to 82.0 degrees Fahrenheit in July. January is typically the coldest month in this area. The majority of annual rainfall in the San Joaquin Valley Air Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers along the coastal side of the mountains. Average monthly rainfall measured at the Fresno monitoring station varied from 2.11 inches in January to 0.01 inches in July and August, with an annual total of 10.83 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Table 2.17 describes the state and federal air quality conformity standards and shows the project is in a nonattainment area for the federal and state ozone and particulate matter standards. Therefore, a local hot spot analysis for conformity was required. Currently, there is no hot spot procedure for ozone, which is considered a regional pollutant. The project is in an attainment/maintenance area under federal standards for carbon monoxide and 10-micron-diameter particulate matter.

Table 2.17: State and Federal Conformity Standards

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O_3) [2]	1 hour 8 hours 8 hours (conformity process [5])	0.09 ppm 0.070 ppm ---	--- [4] 0.075 ppm [6] 0.08 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and	I Federal: (1 hour) – No Federal Standard (8 Hour) – Nonattainment/Extreme[a] State: (1 Hour) - Nonattainment (8 Hour) – Nonattainment

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
				Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm [1] 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment / Maintenance State: Attainment / Unclassified
Respirable Particulate Matter (PM_{10}) [2]	24 hours Annual	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ --- [2]	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; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).	Federal: Attainment / Maintenance[b] State: Nonattainment
Fine Particulate Matter ($PM_{2.5}$) [2]	24 hours Annual 24 hours (conformity	--- 12 $\mu g/m^3$ ---	35 $\mu g/m^3$ 15.0 $\mu g/m^3$ 65 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer,	Combustion including motor vehicles, other mobile sources,	Federal: Nonattainment State: Nonattainment

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
	process [5])		(4th highest in 3 years)	and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$.	and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm [7] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment / Unclassified State: Attainment
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours Annual	0.25 ppm --- 0.04 ppm ---	0.075 ppm [8] (98th percentile over 3 years) 0.5 ppm 0.14 ppm 0.030 ppm	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; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not	Federal: Attainment / Unclassified State: Attainment
Lead (Pb)[3]	Monthly Quarterly Rolling 3-month average	1.5 $\mu g/m^3$ --- ---	--- 1.5 $\mu g/m^3$ 0.15 $\mu g/m^3$	Disturbs gastrointestinal system. Causes anemia, kidney disease, and	Lead-based industrial processes like battery production and	Federal: No Designation State: Attainment

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
				neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	
Sulfate	24 hours	25 µg/m^3	---	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.	State Only: **Attainment (entire state)**
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	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.	Federal: No Federal Standard State: Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas.	See particulate matter above.	Federal: No Federal Standard State: Unclassified

Pollutant	Averaging Time	State [9] Standard	Federal [9] Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	State Only: **Attainment (entire state)**

Based on the California Air Resources Board Air Quality Standards chart (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf)

[a] The San Joaquin Valley was reclassified from a Serious nonattainment area for the 8-hour ozone standard to Extreme effective June 4, 2010.

[b] On September 25, 2008, Environmental Protection Act redesignated the San Joaquin Valley to attainment for the PM_{10} National Ambient Air Quality Standard and approved the PM_{10} Maintenance Plan.

Table 2.17 Footnotes:

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; ppb=parts per billion (thousand million)

1 Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the Federal standard occurs at 9.5 ppm due to integer rounding.

2 Annual PM_{10} National Ambient Air Quality Standards revoked October 2006; was 50 $\mu g/m^3$. 24-hr. $PM_{2.5}$ National Ambient Air Quality Standards tightened October 2006; was 65 $\mu g/m^3$. In 9/09 Environmental Protection Act began reconsidering the $PM_{2.5}$ National Ambient Air Quality Standards; the 2006 action was partially vacated by a court decision.

3 The Air Resources Board has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the Air Resources Board and U.S. Environmental Protection Act have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong. Lead National Ambient Air Quality Standards are not required to be considered in Transportation Conformity analysis.

4 Prior to 6/2005, the 1-hour National Ambient Air Quality Standards was 0.12 ppm. The 1-hour National Ambient Air Quality Standards is still used only in 8-hour ozone early action compact areas, of which there are none in California. However, emission budgets for 1-hour ozone may still be in use in some areas where 8-hour ozone emission budgets have not been developed.

5 The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hr) National Ambient Air Quality Standards was not revoked when the 35 $\mu g/m^3$ National Ambient Air Quality Standards was promulgated in 2006. Conformity requirements apply for all National Ambient Air Quality Standards, including revoked National Ambient Air Quality Standards, until emission budgets for the newer National Ambient Air Quality Standards are found adequate or SIP amendments for the newer National Ambient Air Quality Standards are completed.

6 As of 9/16/09, U.S. Environmental Protection Act is reconsidering the 2008 8-hour ozone National Ambient Air Quality Standards (0.075 ppm); U.S. Environmental Protection Act is expected to tighten the primary National Ambient Air Quality Standards to somewhere in the range of 60-70 ppb and to add a secondary National Ambient Air Quality Standards. U.S. Environmental Protection Act plans to finalize reconsideration and promulgate a revised standard by August 2010.

7 Final 1-hour NO_2 National Ambient Air Quality Standards published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial nonattainment area designations should occur in 2012 with conformity requirements effective in 2013. Project-level hot spot analysis requirements, while not yet required for conformity purposes, are expected.

8 U.S. Environmental Protection Act finalized a 1-hour SO_2 standard of 75 ppb in June 2010.

9 State standards are “not to exceed” unless stated otherwise. Federal standards are “not to exceed more than once a year” or as noted above.

Environmental Consequences

The study used data from the air pollution monitors in Fresno. The information used in the analysis was from San Joaquin Valley Air Pollution Control District multi-pollutant monitoring stations at 3425 North First Street that monitored particulate matter 2.5, particulate matter 10, and carbon monoxide. The monitoring station is approximately 8 miles southeast of the project.

The project is in a nonattainment area for federal 2.5-micron-diameter particulate matter and a maintenance area for carbon monoxide. Therefore, local hot spot analyses for conformity purposes are required.

Regional Conformity

The proposed project is listed in the financially constrained 2011 Regional Transportation Plan found to conform by the Council of Fresno County Governments on July 29, 2010. The Federal Highway Administration and Federal Transit Administration made a regional conformity determination on March 2, 2011. The project is also included in the Council of Fresno County Governments financially constrained 2011 Regional Transportation Improvement Program (page 6-34). The Council of Fresno County Governments 2011 Regional Transportation Improvement Program was determined to conform by Federal Highway Administration and the Federal Transit Administration on July 29, 2010. The design concept and scope of the proposed project is consistent with the project description in the 2011 Regional Transportation Plan, Final 2011 Federal Transportation Improvement Program, and the open-to-traffic assumptions of the Council of Fresno County Governments regional emissions analysis.

A regional conformity analysis covering the San Joaquin Valley Air Basin for particulate matter under 2.5 microns in diameter ($PM_{2.5}$), maintenance for particulate matter less than 10 microns in diameter (PM_{10}) was carried out that includes this project, and all reasonably foreseeable and financially constrained regionally significant projects for at least 20 years from the date that the analysis was started. The analysis used the latest planning assumptions, and the most recent emission models and appropriate analysis methods, as determined by Interagency Consultation on February 2011. Based on this analysis, the region will be in conformity with the SIP, including this project, based on the two build alternatives and the no build alternative conformity test(s) and analysis procedures, as described in 40 CFR 93.109(l) or most recent section number. The design concept and scope of the proposed project is consistent with the project design concept and scope used in the

regional conformity analysis. Transportation Control Measures timely implementation evaluation was reviewed and concurred with by Interagency Consultation on March 2, 2011.

Project-Level Conformity

Caltrans has developed a Transportation Project-Level Carbon Monoxide Protocol for assessing carbon monoxide impacts of transportation projects. The procedures and guidelines comply with the following regulations without imposing additional requirements: Section 176(c) of the 1990 Clean Air Act Amendments, federal conformity rules, State and local adoptions of the federal conformity rules, the National Environmental Policy Act, and the California Environmental Quality Act requirements [California Code of Regulations Title 21 Section 1509.3(25)].

Two conformity-requirement decision flow charts are provided in the Transportation Project-Level Carbon Monoxide Protocol and are provided in the Air Quality Conformity Report. An explanatory discussion of the steps used to determine the conformity requirements that apply to new projects is provided below.

3.1.1 Is the project exempt from all emissions analyses? **NO.** The proposed project is not exempt from all emissions analyses.

3.1.2 Is the project exempt from regional emissions analysis? **NO.** The proposed project is an interchange construction project, which would not be exempt from regional emissions analysis per Code of Federal Regulations 93.127. A regional emissions analysis was conducted by the Council of Fresno County Governments as part of the Air Quality Conformity Analysis and demonstrated that the emissions are consistent with the motor vehicle emissions budgets and goals of the relevant State Implementation Plans. The proposed project is not exempt from regional emissions analysis.

3.1.3 Is the project locally defined as regionally significant? **YES.** The proposed project would construct a new interchange. The project was listed as a regionally significant project in the Council of Fresno County Governments Air Quality Conformity Analysis for the 2011 Regional Transportation Plan. The project is defined as regionally significant.

3.1.4 Is the project in a federal attainment area? **NO.** The project is located within an attainment/maintenance area for the federal carbon monoxide standard.

3.1.5 Are there a currently conforming Regional Transportation Plan and Transportation Improvement Program? **YES.**

3.1.6 Is the project included in the regional emissions analysis supporting the currently conforming Regional Transportation Plan and Transportation Improvement Plans? **YES.** The project is included in the Council of Fresno County Governments 2011 Regional Transportation Plan and the 2011 Federal Transportation Improvement Plans (Project ID: FRE111328).

3.1.7 Has the project design/concept and/or scope changed significantly from that in the regional analysis? **NO.** The proposed Build Alternatives are consistent with the project description in the 2011 Regional Transportation Plan and the Federal Transportation Improvement Plans.

3.1.9 Examine local impacts. (Proceed to Section 4.)

Section 4 of the Transportation Project-Level Carbon Monoxide Protocol assesses local analysis. Assessment of the project's effect on localized ambient air quality is based on analysis of carbon monoxide and particulate matter 10 microns emissions, with the focus on carbon monoxide. Localized emissions of carbon monoxide and particulate matter 10 may increase with implementation of the proposed project. Carbon monoxide is used as an indicator of a project's direct and indirect impact on local air quality, because carbon monoxide does not readily disperse in the local environment in cool weather when the wind is fairly still. As stated in the Transportation Project-Level Carbon Monoxide Protocol, the determination of project-level carbon monoxide impacts should be carried out according to the local analysis. The following discussion provides explanatory remarks for every step of the local analysis of the protocol.

Level 1: Is the project in a carbon monoxide nonattainment area? **NO.** The project site is located in a federal attainment/maintenance area.

Level 1 (Continued): Was the area redesignated as "attainment" after the 1990 Clean Air Act? **YES.** The Environmental Protection Agency approved the maintenance plans and redesignation request in 1998.

Level 1 (Continued): Has "continued attainment" been verified with the local Air District, if appropriate? **YES.** The Fresno Urbanized Area continues to be in attainment for carbon monoxide. (Proceed to Level 7).

Level 7: Does the project worsen air quality? **YES.** The proposed project would construct a new highway interchange. Therefore, the proposed project would potentially worsen air quality:

a. *Project does not significantly increase the percentage of vehicles operating in cold start mode. Increasing the number of vehicles operating in cold start mode by as little as 2% should be considered potentially significant.*

   The percentage of vehicles operating in cold start mode is the same or lower for the intersection under study compared to those used for the intersection in the attainment plan. It is anticipated that all vehicles in the intersection are in a fully warmed-up mode. Therefore, this condition is met.

b. *Project does not significantly increase traffic volumes. Increases in traffic volumes in excess of 5% should be considered potentially significant. Increasing the traffic volume by less than 5% may still be potentially significant if there is a corresponding reduction in average speeds.*

   As indicated in Table 2.18, the proposed project would significantly change the traffic volumes along Veterans Boulevard between Bullard Avenue and Golden State Boulevard. Therefore, this condition is not met.

Table 2.18: Traffic Data—Combined Peak Hour Traffic on Veterans Boulevard

Model Year	No-Build Alternative	Build Alternatives	Project Related Increase in Traffic	Percent Increase
2015	760	2,020	1,260	166%
2035	3780	10,060	6,280	166%

Source: Veterans Boulevard/State Route 99 Interchange Project Air Quality Conformity Report, October 2010.
*Note: Sections of Veterans Blvd. currently exist, therefore, under the No Build Alternative data would exist for these sections.

c. *Project improves traffic flow. For uninterrupted roadway segments, higher average speeds (up to 50 mph) should be regarded as an improvement in traffic flow. For intersection segments, higher average speeds and a decrease in average delay should be considered an improvement in traffic flow.*

   As shown in the traffic section, the project would improve the level of service at some intersections in the project area. However, at certain intersections the proposed project would worsen the level of service. Therefore, this criterion is not met.

Level 7 (Continued): Is the project suspected of resulting in higher carbon monoxide concentrations than those existing within the region at the time of attainment demonstration? **NO.** The 2004 update to the 1996 Carbon Monoxide Maintenance Plan projects that the 8-hour carbon monoxide concentrations in the Fresno Urbanized Area would be 4.4 parts per million by 2010. The maximum 8-hour carbon monoxide concentration in the project area was 2.6 parts per million in 2007. Therefore, it is unlikely that the proposed project would result in a new exceedance of the carbon monoxide standards. However, to demonstrate that the proposed project would not result in any new exceedances the carbon monoxide concentrations at the 10 most congested intersections in the project area were modeled. Table 2.19 lists the 1-hour and 8-hour carbon monoxide concentrations under the “with project” opening year (2015) and “build-out” year (2035) conditions. As shown, none of the intersections would result in any concentrations exceeding the 1-hour or 8-hour carbon monoxide standards.

Table 2.19: Carbon Monoxide Concentrations[1]

Intersection	2015/2035 Receptor to Road Centerline Distance (Meters)	2015/2035 With Project 1-Hour CO Concentration (ppm)	2015/2035 With Project 8-Hour CO Concentration (ppm)	Exceeds State Standards	
				1-Hr (20.0 ppm)	8-Hr (9.0 ppm)
1. Shaw Avenue/Polk Avenue	12 / 12	6.0 / 5.3	4.6 / 4.1	No	No
	12 / 12	5.9 / 5.3	4.5 / 4.1	No	No
	12 / 12	5.8 / 5.2	4.5 / 4.0	No	No
	12 / 12	5.7 / 5.1	4.4 / 4.0	No	No
2. Shaw Avenue/ SR 99 southbound ramps	14 / 14	5.8 / 5.2	4.5 / 4.0	No	No
	14 / 14	5.8 / 5.1	4.5 / 4.0	No	No
	12 / 12	5.7 / 5.1	4.4 / 4.0	No	No
	10 / 10	5.6 / 5.0	4.3 / 3.9	No	No
3. Shaw Avenue/ SR 99 northbound ramps	14 / 14	6.2 / 5.2	4.7 / 4.0	No	No
	14 / 14	5.9 / 5.0	4.5 / 3.9	No	No
	12 / 12	5.7 / 5.0	4.4 / 3.9	No	No
	12 / 12	5.7 / 5.0	4.4 / 3.9	No	No
4. Shaw Avenue/Golden State Boulevard	17 / 17	6.1 / 5.2	4.7 / 4.0	No	No
	17 / 17	6.1 / 5.2	4.7 / 4.0	No	No
	17 / 17	6.1 / 5.1	4.7 / 4.0	No	No
	15 / 15	6.1 / 5.1	4.7 / 4.0	No	No
7. Herndon Avenue/SR 99 northbound off-ramp	14 / 14	5.1 / 4.7	4.0 / 3.7	No	No
	10 / 14	5.0 / 4.7	3.9 / 3.7	No	No
	8 / 10	5.0 / 4.7	3.9 / 3.7	No	No
	8 / 8	5.0 / 4.6	3.9 / 3.6	No	No
8. Herndon Avenue/ Golden State Boulevard	22 / 22	5.2 / 4.9	4.0 / 3.8	No	No
	21 / 21	5.1 / 4.8	4.0 / 3.8	No	No
	19 / 19	5.0 / 4.8	3.9 / 3.8	No	No
	17 / 17	4.9 / 4.7	3.8 / 3.7	No	No
9. Parkway Drive/SR 99 southbound on-ramp/Grantland Avenue	14 / 14	5.0 / 4.7	3.9 / 3.7	No	No
	14 / 14	4.9 / 4.7	3.8 / 3.7	No	No
	12 / 12	4.7 / 4.5	3.7 / 3.6	No	No
	7 / 7	4.6 / 4.5	3.6 / 3.6	No	No
10. Herndon Avenue/Polk Avenue	24 / 24	5.1 / 5.1	4.0 / 4.0	No	No
	24 / 24	5.1 / 5.0	4.0 / 3.9	No	No
	22 / 24	5.1 / 5.0	4.0 / 3.9	No	No
	22 / 22	5.1 / 5.0	4.0 / 3.9	No	No
16. Veterans Avenue/Golden State Boulevard	24 / 24	4.6 / 5.0	3.6 / 3.9	No	No
	22 / 22	4.6 / 5.0	3.6 / 3.9	No	No
	21 / 21	4.6 / 5.0	3.6 / 3.9	No	No
	19 / 19	4.6 / 5.0	3.6 / 3.9	No	No
17. Veterans Avenue/Bullard Avenue	24 / 24	4.6 / 5.0	3.6 / 3.9	No	No
	24 / 24	4.6 / 5.0	3.6 / 3.9	No	No
	22 / 22	4.5 / 4.9	3.6 / 3.8	No	No
	22 / 22	4.5 / 4.9	3.6 / 3.8	No	No

Source: Air Quality Conformity Analysis (March 2011) and Veterans Boulevard/State Route 99 Interchange Project Air Quality Conformity Report (October 2010).
Measured at the 3425 N First St, Fresno, CA AQ Station in Fresno County.
ppm=parts per million SR=State Route NB=Northbound
SB=Southbound

1. Includes ambient one-hour concentration of 4.0 ppm and ambient eight-hour concentration of 3.2 ppm.

Particulate Matter Analysis

The proposed project is located within a nonattainment area for federal particulate matter 2.5 standards. Therefore, per 40 Code of Federal Regulations Part 93 analyses are required for conformity purposes. However, the Environmental Protection Agency does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in section 93.123(b)(1) as an air quality concern.

Interagency consultation was initiated February 2011. The United States Environmental Protection Agency and Federal Highway Administration concurred that the project is not a Project of Air Quality Concern was received in March 2011. Therefore, the proposed project is in conformance with the State Implementation Plan (see Chapter 4 and Appendix G).

The project does not qualify as a project of air quality concern because of the following reasons:

i. The proposed project is not a new or expanded highway project and is not considered to significantly affect diesel truck traffic on State Route 99. The proposed project is an interchange construction project that does not increase the capacity of State Route 99. This type of project improves freeway operations by reducing traffic congestion at existing interchanges and improving merge operations. Based on the Traffic Operations Report (Fehr & Peers, August 2010) the proposed project would increase the traffic volumes along Veterans Boulevard. However, the traffic volumes along Veterans Boulevard would not exceed the 125,000 average daily trip threshold for a project of air quality concern. In addition, the total truck average daily trips would remain below the 10,000 vehicle threshold for project of air quality concern (based on a worst case assumption of 8 percent truck trips on Veterans Boulevard). The future traffic volumes along Veterans Boulevard are shown in Table 2.20.

ii. The proposed project does not affect intersections that are at level of service D, E, or F with a significant number of diesel vehicles. As indicated in Traffic Section, the project improves level of service at a majority of the intersections in the project area. The intersections where the proposed project would increase the delay would not be affected by a significant increase in the number of diesel vehicles.

iii. The proposed project does not include the construction of a new bus or rail terminal.

iv. The proposed project does not expand an existing bus or rail terminal.

v. The proposed project is not in or affect locations, areas, or categories of sites that are identified in the particulate matter 2.5 and 10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Therefore, the proposed project meets the Clean Air Act requirements and 40 Code of Federal Regulations 93.116 without any explicit hot-spot analysis. The proposed project would not create a new or worsen an existing particulate matter 2.5 or particulate matter 10 violation.

Table 2.20: Traffic Data—Daily Traffic on Veterans Boulevard (Annual Average Daily Trips/Truck Average Daily Trips)

Model Year	No-Build Alternative	Build Alternatives	Project Related Increase in Traffic
2015	3,800 / 304	10,100 / 808	6,300 / 504
2035	18,900 / 1,512	50,300 / 4,024	31,400 / 2,512

Source: Air Quality Analysis, December 2010.

Construction Impacts

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include carbon monoxide, nitrogen oxides, volatile organic compounds, directly-emitted particulate matter 2.5 and 10, and toxic air contaminants such as diesel exhaust particulate matter.

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 the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate particulate matter 2.5, particulate matter 10, small amounts of carbon monoxide, sulfur dioxide, nitrogen oxides, and volatile organic compounds. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of

soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets that could be an additional source of airborne dust after the mud dries.

Particulate matter 10 emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. Particulate matter 10 emissions would depend on soil moisture, silt content of the 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. Additionally, the San Joaquin Valley Air Pollution Control District has established Regulation VIII for reducing fugitive dust emissions (particulate matter 10). Using standard construction measures such as frequent watering (e.g., twice per day, minimum), fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related particulate matter 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 particulate matter 2.5 and 10 in exhaust emissions. If construction activities increase traffic congestion, 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 the 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; on-road diesel is restricted to less than 15 parts per million of sulfur. Under California law and Air Resources Board regulations, however, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel. As a result, 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. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases.

According to the Guide for Assessing and Mitigating Air Quality Impacts, the San Joaquin Valley Air Pollution Control District's approach to California Environmental Quality Act analyses of construction particulate matter 10 impacts is "to require implementation of effective and comprehensive control measures rather than to require detailed quantification of emissions." Emissions emitted during construction

can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. However, personal communication with San Joaquin Valley Air Pollution Control District staff indicates that project-related construction emissions should be estimated. The recommended thresholds of significance for California Environmental Quality Act analysis of construction emissions should be 10 tons per year of reactive organic gas and nitrogen oxides and 15 tons per year of particulate matter 10.

The proposed construction schedule for all improvements is approximately 30 months and is anticipated to be completed by 2015. The San Joaquin Valley Air Pollution Control District does not provide a model for calculating construction emissions; however, construction emissions for the project could be estimated by using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model, Version 6.3.2 (this model is approved for San Joaquin Valley projects). Construction-related emissions are presented in Table 2.21.

Table 2.21: Maximum Project Construction Emissions

Project Phases	ROG (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	Total PM_{10} (lbs/day)	Exhaust PM_{10} (lbs/day)	Fugitive Dust PM_{10} (lbs/day)
Grubbing/Land Clearing	4.2	17.5	30.9	11.4	1.4	10.0
Grading/Excavation	5.1	22.6	37.4	11.8	1.8	10.0
Drainage/Utilities/Sub-Grade	3.8	16.3	25.5	11.4	1.4	10.0
Paving	2.5	10.7	12.8	1.1	1.1	-
Maximum (pounds/day)	5.1	22.6	37.4	11.8	1.8	10.0
Total (tons/construction project)	1.7	7.2	11.5	4.0	0.6	3.4

Source: Veterans Boulevard/Route 99 Interchange Project Air Quality Conformity Report, October 2010.
CO=carbon monoxide NOx=nitrogen oxide PM=particulate matter
ROG=reactive organic gas lbs=pounds

The emissions presented above are based on the best information available at the time of calculations and assumes he schedule for all improvements would begin in 2013. Default equipment assumptions for the Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model were used in developing the emissions estimates; estimates that can be refined once final engineering is completed for the project. As project construction is expected to be less than five years, construction-related emissions were not considered in the conformity analysis.

As noted in the table, construction emissions for reactive organic gas, nitrogen oxides and particulate matter 10 would not exceed the tons per year thresholds as recommended by San Joaquin Valley Air Pollution Control District staff.

Initial estimates indicate that the Rule 9510 threshold of 2 tons per year for nitrogen oxides may be exceeded; however, detailed construction schedules and equipment use are not available at this time. Therefore, precise calculations cannot be conducted, and it is uncertain if the project would exceed the thresholds established in Rule 9510. As more detailed information becomes available, the project sponsor would reevaluate the estimates of construction-related emissions, and if necessary, submit an application to the Air Pollution Control District to comply with Rule 9510. Should it be determined that the project must comply with Rule 9510, the project may be required to use special provisions during construction such as reduced-emissions construction vehicles as a condition of the permit.

Naturally Occurring Asbestos

The project is located in Fresno County, which is among the counties listed as potentially containing serpentine and ultramafic rock. However, the proposed project is not within the area of the county containing known deposits of serpentine or ultramafic rocks. Therefore, the impact from naturally occurring asbestos during project construction would be minimal to none.

Qualitative Project-Level Mobile Source Air Toxics Discussion

In addition to the criteria air pollutants for which there are federal ambient air quality standards, the Environmental Protection Act also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

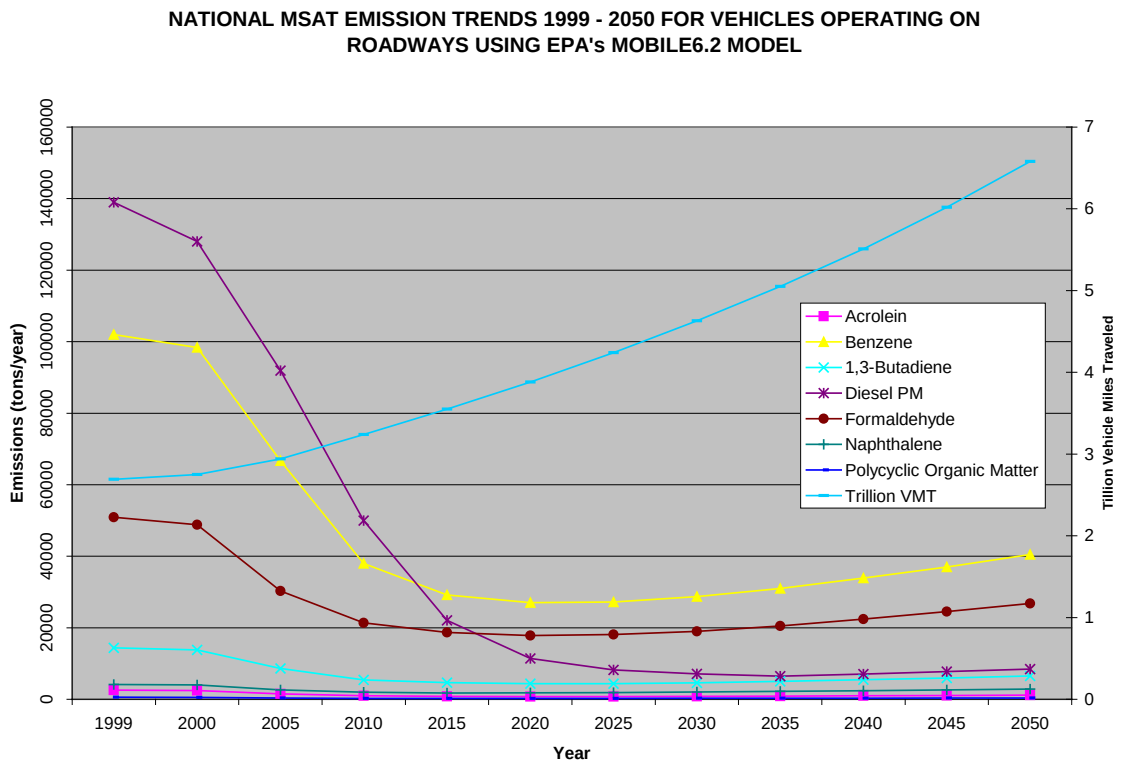
A 2007 Environmental Protection Act rule requires controls that would dramatically decrease mobile source air toxics emissions through cleaner fuels and cleaner engines. According to an Federal Highway Administration analysis using the Environmental Protection Act MOBILE6.2 model, even if vehicle activity (vehicle-miles traveled) increases by 145 percent, as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority mobile source air toxics is projected for 1999 to 2050 (see Figure 2.6). Using the EMFAC2007 emission model in place of the MOBILE6.2 model, the projected reduction in mobile source air toxics emissions would be slightly different in California.

In September 2009, the Federal Highway Administration issued guidance to advise its division offices as to when and how to analyze mobile source air toxics in the national Environmental Policy Act process for highways. This analysis follows the Federal Highway Administration guidance.

For each of the project alternatives, 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. The proposed project is an interchange construction project that increases the capacity of Veterans Boulevard. This type of project improves roadway operations by reducing traffic congestion and improving traffic operations. The proposed build alternatives would reduce the delay at a majority of the intersections in the project area.

For all future alternatives (No-Build Alternative and build alternatives), emissions are projected to be lower than present levels in the design year as a result of the Environmental Protection Act's national control programs projected to reduce mobile source air toxics emissions by 72 percent between 1999 and 2050.

Figure 2.6: National Mobile Source Air Toxics Emission Trends



Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle-miles travelled growth rates, and local control measures. However, the magnitude of the Environmental Protection Act-projected reductions is so great (even after accounting for growth in vehicle-miles traveled) that mobile source air toxics emissions in the study area are likely to be lower in the future.

In summary, due to the level of service improvements, it is expected that there would be similar or lower mobile source air toxics emissions in the study area relative to the No-Build Alternative. The Environmental Protection Act's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region-wide mobile source air toxics levels to be substantially lower than they are today.

Avoidance, Minimization, and/or Mitigation Measures

The following measures would reduce or minimize air pollutant emissions associated with construction activities:

- To reduce fugitive dust emissions the construction contractor would adhere to the requirements of San Joaquin Valley Air Pollution Control District Regulation VIII.
- The construction contractor shall comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications.
- The construction contractor shall comply with San Joaquin Valley Air Pollution Control District Rule 9510 and submit and air impact assessment application, if it is determined that the construction-related emissions exceed the established thresholds.

Consistent with Regulation VIII, fugitive particulate matter 10 prohibitions of the San Joaquin Valley Air Pollution Control District, the following controls are required to at all construction sites and as specifications for the project:

- All disturbed areas, including storage piles not being actively used for construction purposes would be effectively stabilized for dust emissions with water, chemical stabilizer/suppressant, a tarp or other suitable cover, or vegetative ground cover.

- All on-site unpaved roads and off-site unpaved access roads would be effectively stabilized for dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities would be effectively controlled for fugitive dust emissions by applying water or by presoaking.
- When materials are transported off-site, all material would be covered or effectively wetted to limit visible dust emissions and at least six inches of freeboard space from the top of the container would be maintained.
- All operations would limit or quickly remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- Following the addition or removal of materials from the surface of outdoor storage piles, the piles would be stabilized for fugitive dust emission by using water or chemical stabilizer/suppressant.
- Within urban areas, track-out would be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day would prevent carryout and track-out.

Construction of the project requires the implementation of control measures set forth under Regulation VIII. The following additional control measures would further reduce construction emissions and should be implemented with the project:

- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Install wind breaks at the windward side(s) of the construction area.

- Suspend excavation and grading activity when winds exceed 20 miles per hour (regardless of wind speed, an owner/operator must comply with the Regulation VIII 20 percent opacity limitation).
- Limit area excavation, grading, and other construction activity at any one time.

The following construction equipment control measures would reduce construction exhaust emissions:

- Properly and routinely maintain all construction equipment, as recommended by the manufacturer manuals, to control exhaust emissions.
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling emissions.
- Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use.
- Curtail construction during periods of high ambient pollutant concentrations; this may include stopping of construction activity traffic peak hours on adjacent roadways.

Climate Change

Climate change is analyzed in Chapter 3. Neither the United States Environmental Protection Agency (U.S. Environmental Protection Act) nor Federal Highway Administration has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on 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.

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 inform the National Environmental Policy Act decision. The four strategies set forth by Federal Highway Administration to lessen climate change impacts correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change. Strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

2.2.5 Noise and Vibration

Regulatory Setting

The National Environmental Policy Act 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 National Environmental Policy Act and California Environmental Quality Act. Sound levels are measured in decibels or dBA.

California Environmental Quality Act

The California Environmental Quality Act requires a strictly No-Build Alternative 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 the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The remainder of this section will focus on the National Environmental Policy Act 23 Code of Federal Regulations 772 noise analysis; please see Chapter 3 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 the Federal Highway Administration and Caltrans involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. 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 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) is lower than the noise abatement criteria for commercial areas (72 dBA).

Table 2.22 lists the noise abatement criteria for use in the National Environmental Policy Act 23 CFR 772 analysis.

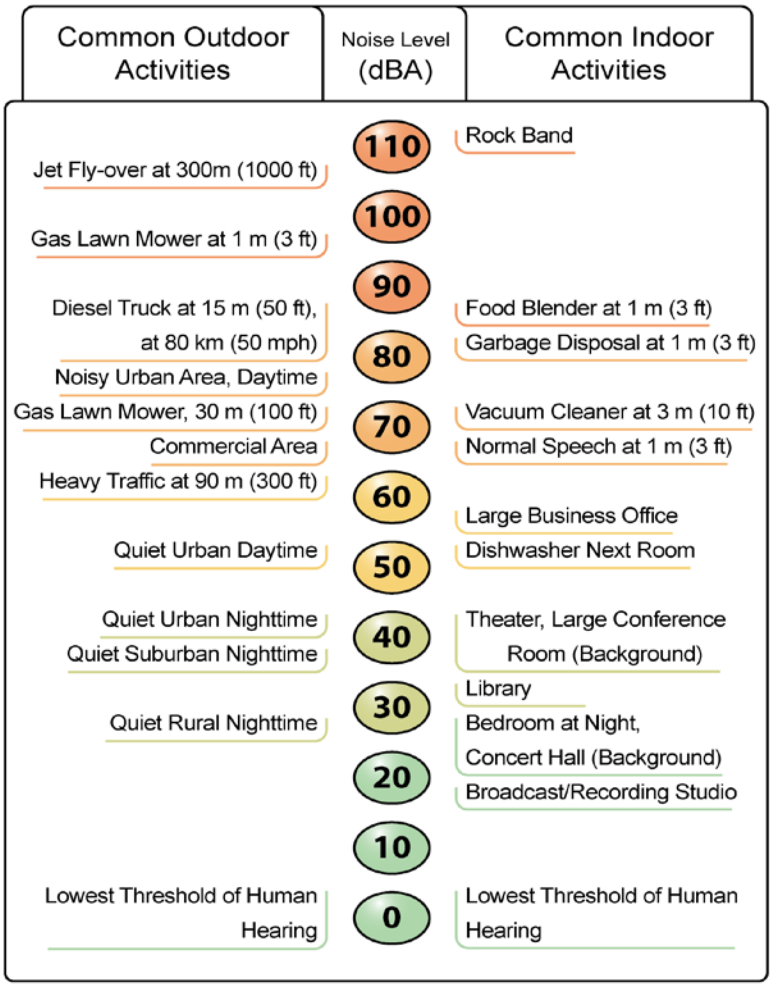
Table 2.22: Activity Categories and Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, Noise Level (dBA), 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 its intended purpose
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

Source: Caltrans, 2006. *Traffic Noise Analysis* Protocol, August.
A-weighted decibels (dBA) are adjusted to approximate the way humans perceive sound. Leq(h) is the steady dBA level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over 1 hour.

In accordance with Caltrans *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier 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.

Table 2.23: Typical Noise Levels



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

The Caltrans *Traffic Noise Analysis Protocol (August 2006)* sets forth criteria for determining when an abatement measure is feasible and reasonable. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the 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 basically a cost-benefit analysis. Factors used in determining whether a proposed noise

abatement measure is reasonable include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

Affected Environment

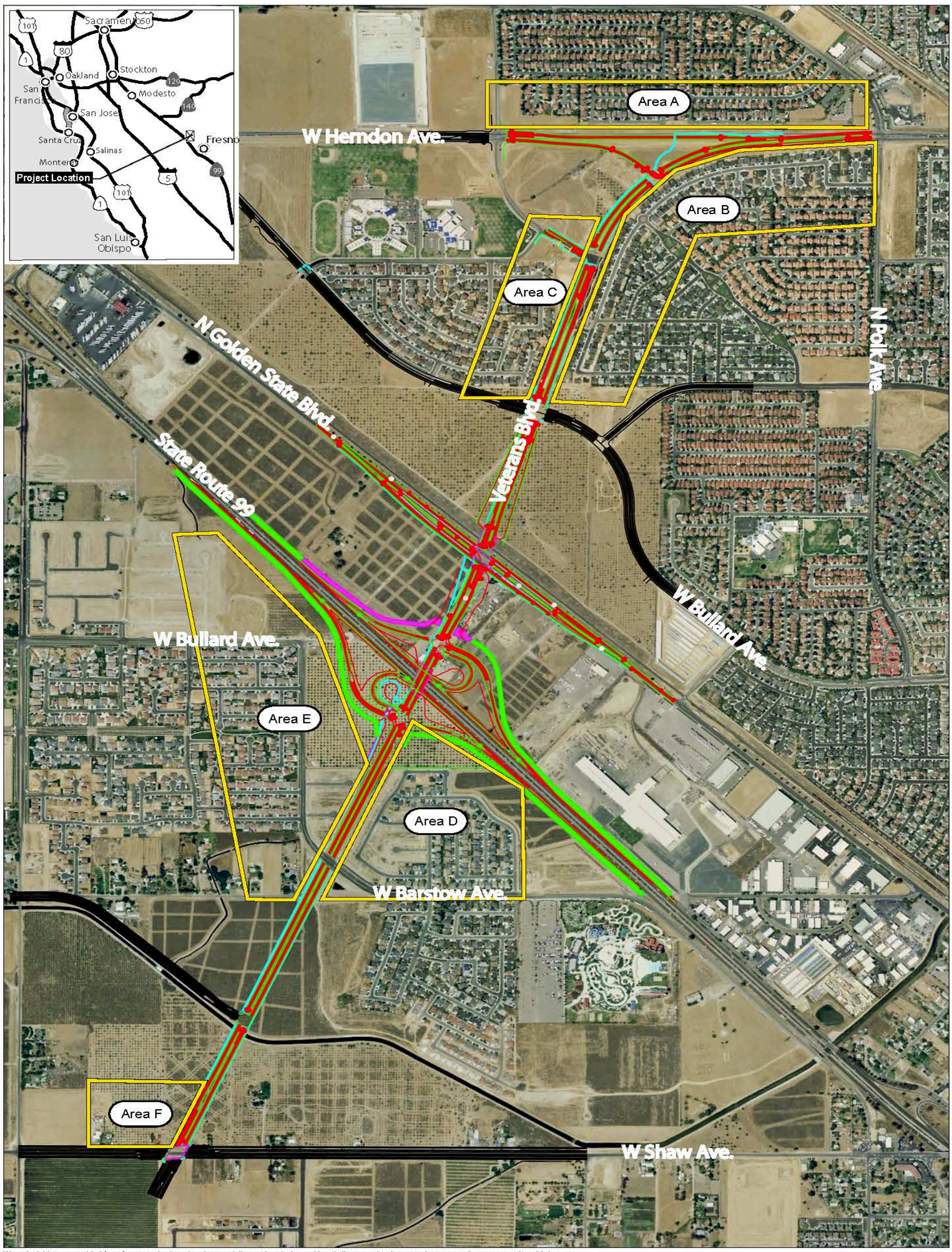
The following analysis is based on the Veterans Boulevard/State Route 99 Interchange Construction Project Noise Study Report completed November 2010 and the Veterans Boulevard/State Route 99 Interchange Construction Project Noise Abatement Decision Report completed February 2011.

Land uses in the project vicinity consist of single-family residential and light industrial. The terrain is generally flat. Most of the residential development areas along the project alignment have existing soundwalls to provide noise reduction from existing and future traffic noise sources. Four residential land uses near the southern portion of the project area have exterior active use areas such as backyards, which would be directly exposed to traffic noise from the proposed project.

Existing traffic noise levels in the project vicinity were documented through short-term and long-term noise measurements. A short-term noise measurement location was selected to represent the major developed area within the project area along the existing portion of the project roadway segments. The results indicate that the average hourly traffic noise levels at this location range from 70.5 dBA to 75.1 dBA L_{eq}(h). The generalized land use data and location of particular sensitive receptors were the basis for the selection of the noise monitoring and analysis sites. The short- and long-term noise monitoring locations, the modeled receptor locations, and the locations of existing soundwalls are shown in Figures 2.7a–2.7k.

Environmental Consequences Under the National Environmental Policy Act

Noise impacts were evaluated pursuant to 23 CFR 772 and the Traffic Noise Analysis Protocol. When traffic noise impacts are identified, noise abatement measures must be considered. Traffic noise impacts result from one or more of the following occurrences: (1) an increase of 12 dBA or more over their corresponding existing peak noise level, or (2) predicted noise levels approach or exceed the noise abatement criteria. The predicted noise levels were calculated to predict the design-year (2035) condition, which meets the 20-year planning horizon required to show noise levels 20 years following construction of the project.



*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7a
Monitoring, Receptors, and Barrier Location Overview

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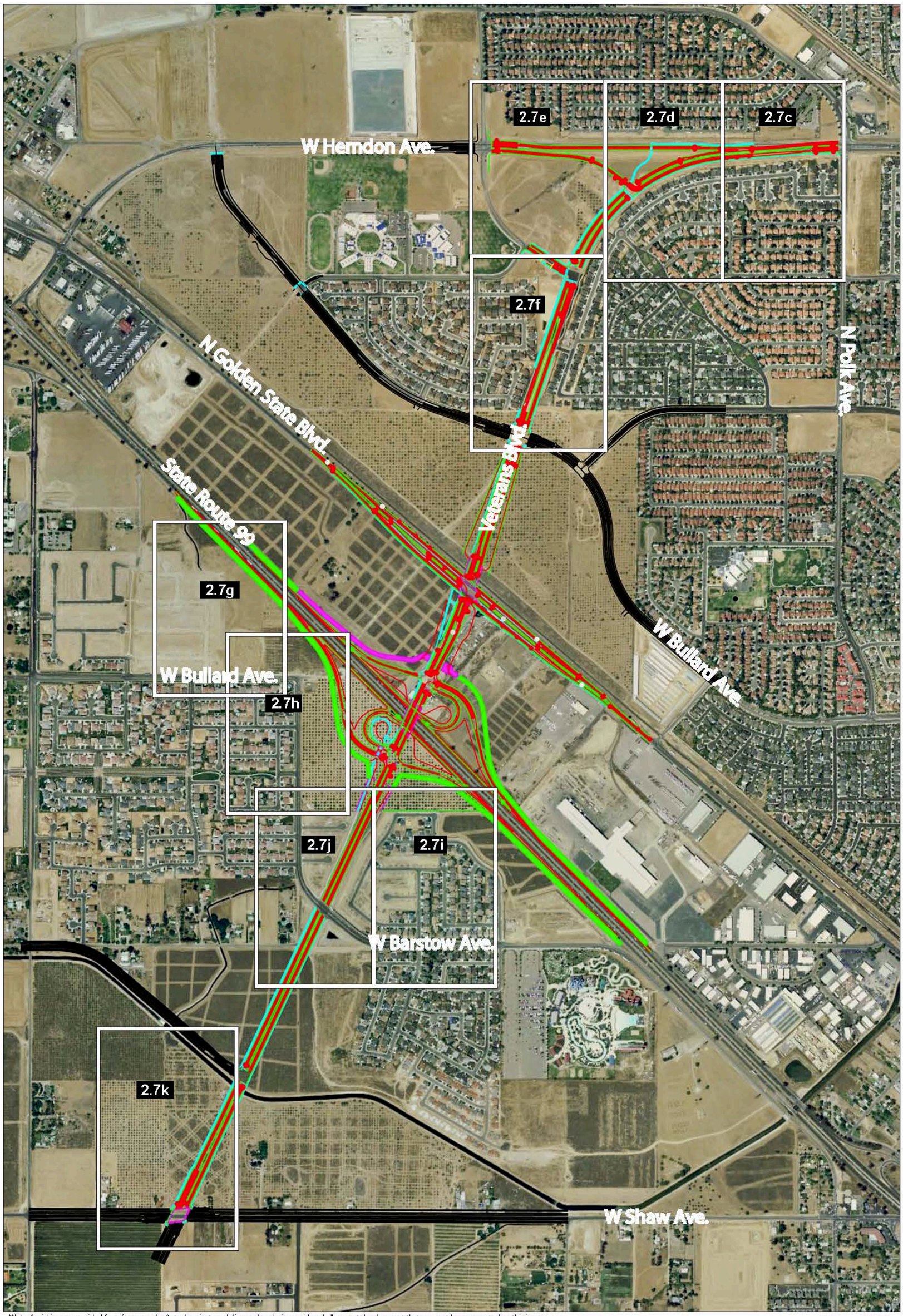
STUDY AREAS



*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7b
Monitoring, Receptors, and Barrier Locations

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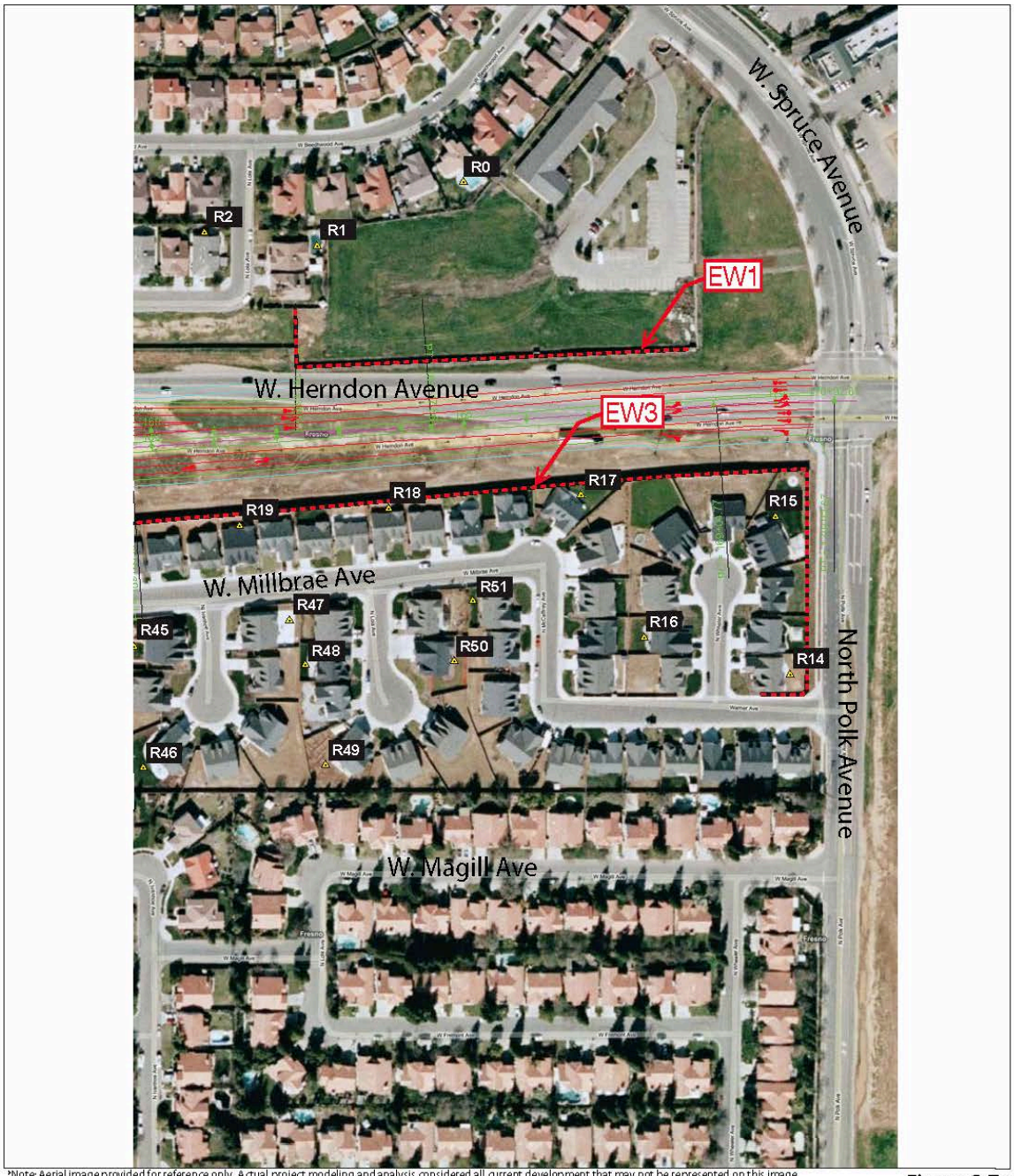
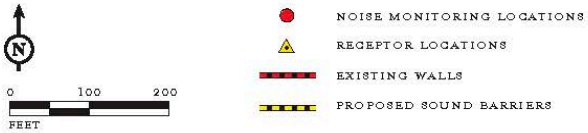
2.7c FIGURE PAGE AREAS

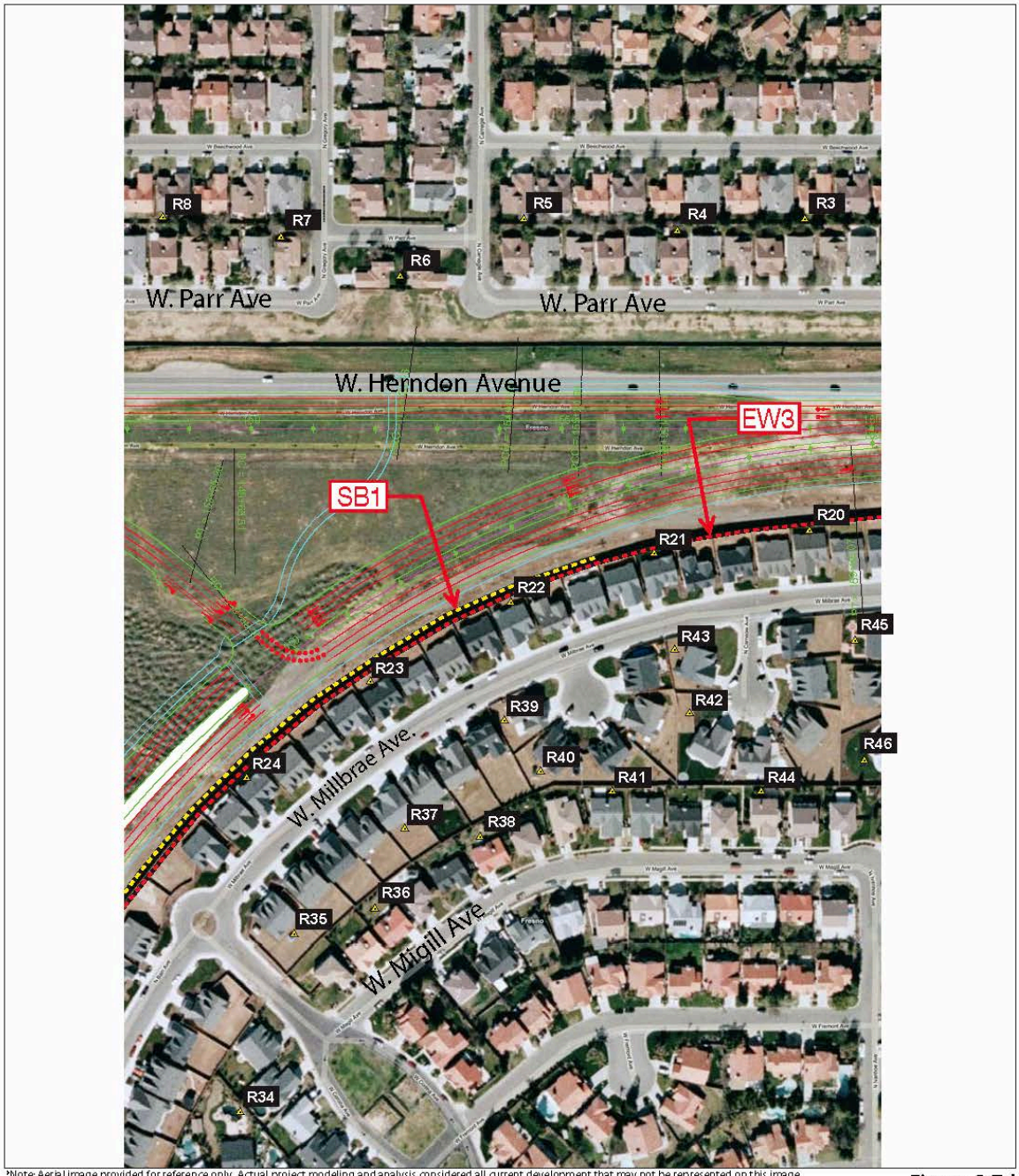


*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7c

Monitoring, Receptors, and Barrier Locations

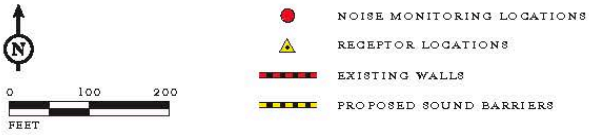




*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7d

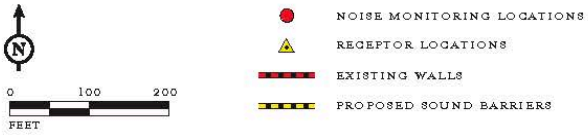
Monitoring, Receptors, and Barrier Locations



*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7e

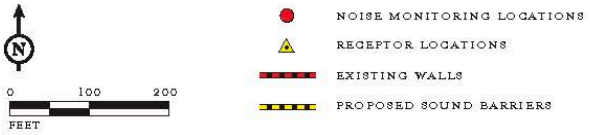
Monitoring, Receptors, and Barrier Locations

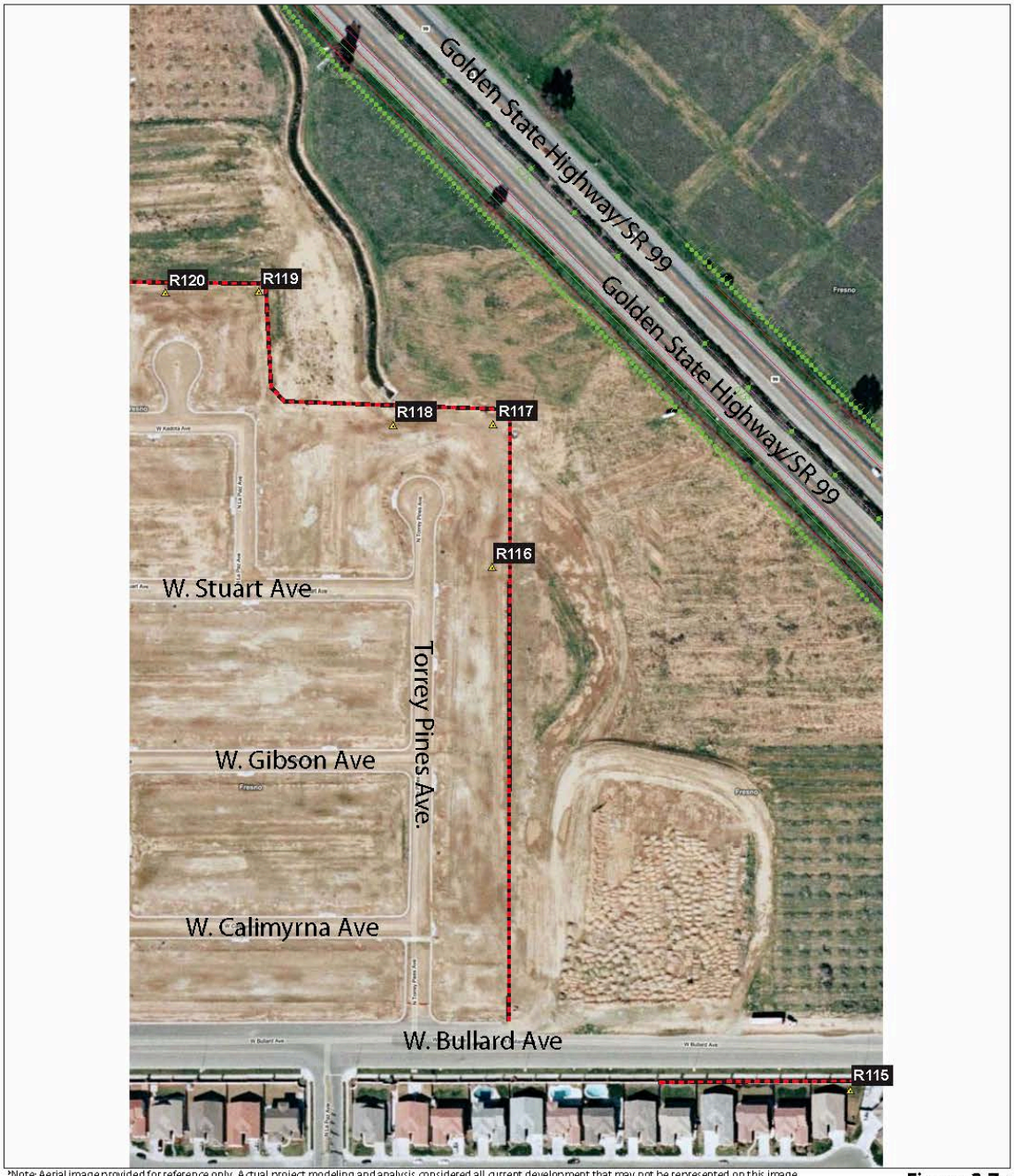


*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7f

Monitoring, Receptors, and Barrier Locations

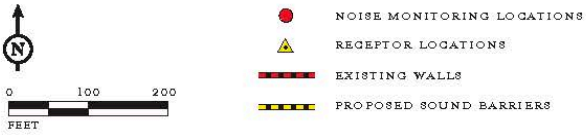


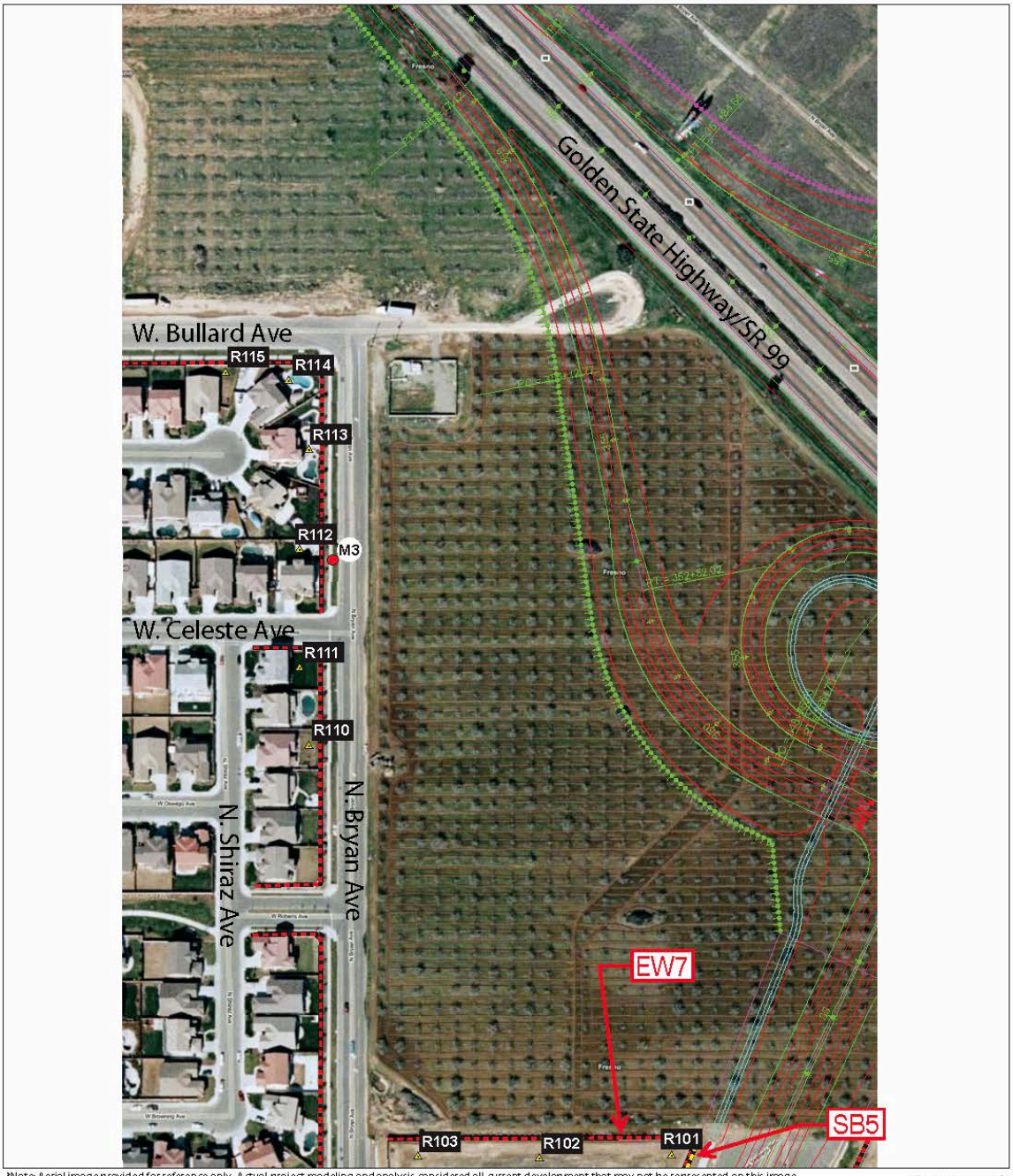


*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7g

Monitoring, Receptors, and Barrier Locations

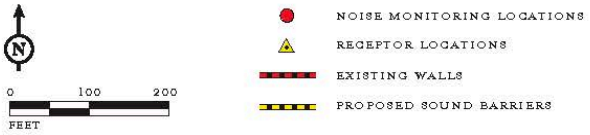


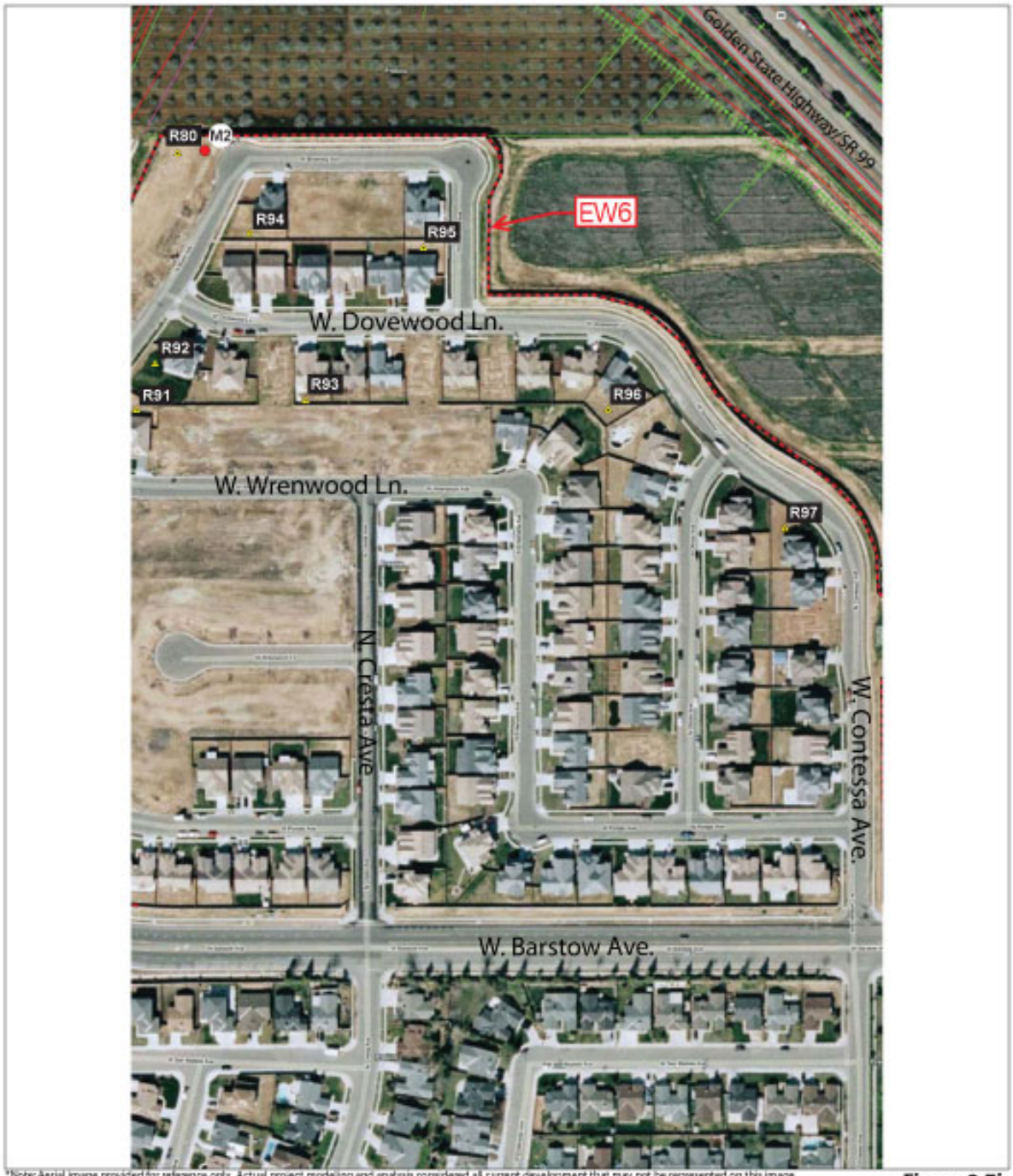


*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7h

Monitoring, Receptors, and Barrier Locations





*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

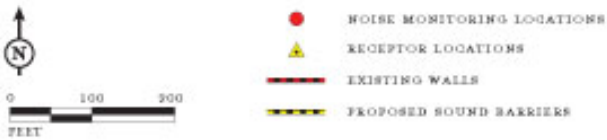
Figure 2.7i

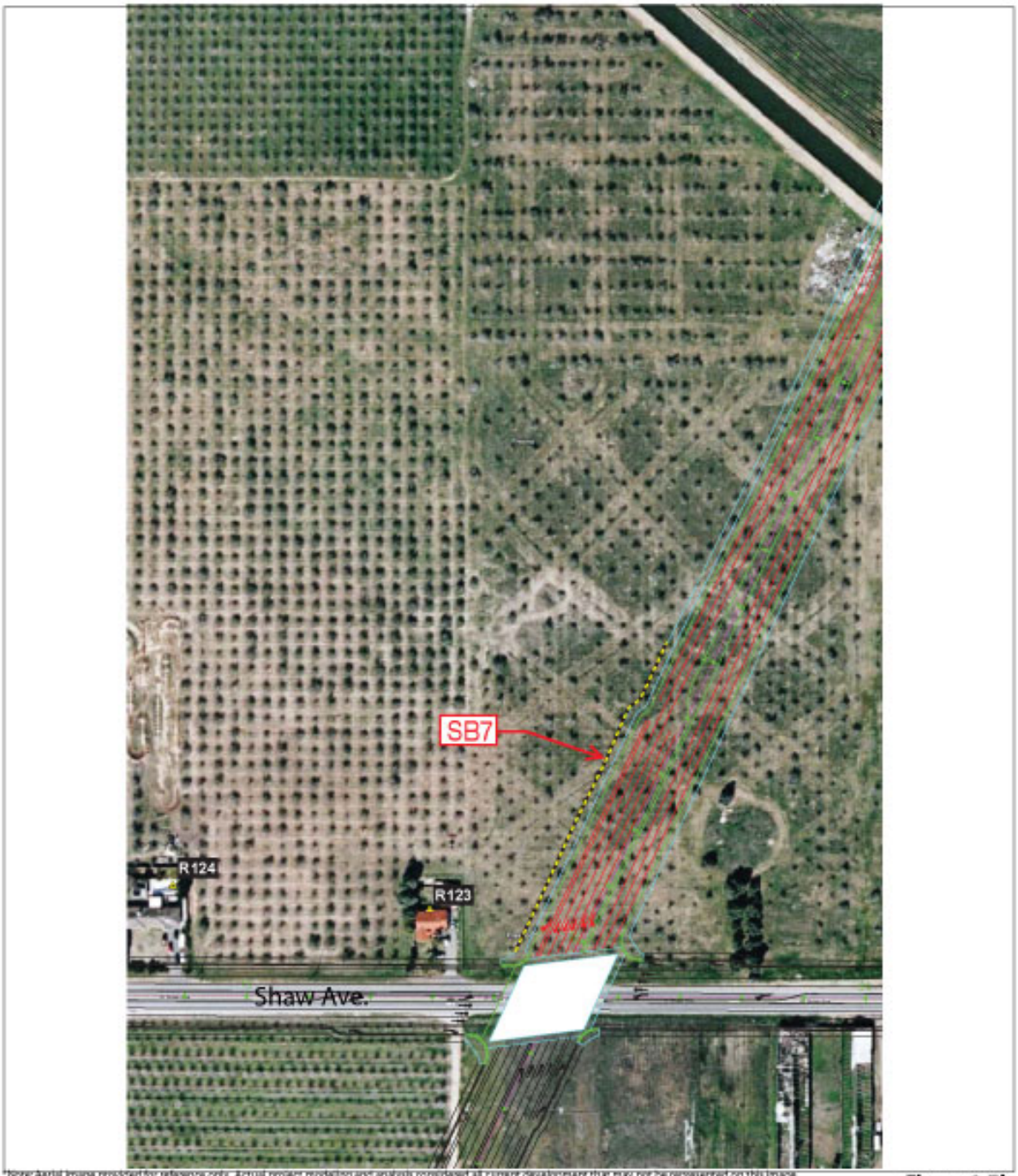
Monitoring, Receptors, and Barrier Locations

*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7j

Monitoring, Receptors, and Barrier Locations





*Note: Aerial image provided for reference only. Actual project modeling and analysis considered all current development that may not be represented on this image

Figure 2.7k

Monitoring, Receptors, and Barrier Locations

The project study area was divided into smaller subareas (Areas A to F) for purposes of the noise analysis. Within the subareas, a total of 124 receptor locations were modeled to represent the land uses in the project vicinity. Modeling results indicate that none of the 124 modeled receptor locations would experience noise impacts that "approach or exceed" the Noise Abatement Criteria under the applicable Activity Category B (67) for 2035 with-project conditions for both Alternative 1 (Base) and Alternative 4 (Jug Handle). However, with implementation of the project, 55 of the modeled receptor locations would experience a substantial noise increase of 12 dBA or more above existing levels. Therefore, traffic noise impacts are predicted to occur at Activity Category B land uses; noise abatement must be considered.

Of note, as shown in the traffic noise model results summarized in Table 2.24, some of the modeled receptor locations would experience perceptible increases in traffic noise levels under Future year 2035 conditions without the project. This is due to the fact that, while this project (the new interchange and grade separation) would not be built under this condition, some of the modeled roadways in the project area have approval and are expected to be built under these future no-project conditions.

Noise Abatement Considered

Noise abatement measures were evaluated for all receptors that would be exposed to a substantial increase in traffic noise levels over existing conditions. Sound barriers were analyzed to reduce traffic noise impacts for each sensitive receptor location. The sound barriers that were analyzed for each affected study area are described in the following discussion below. Proposed noise abatement measures were evaluated for reasonableness and feasibility. The Traffic Noise Analysis Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft environmental document, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination.* Noise abatement is considered to be acoustically feasible if it provides noise reduction of at least 5 dBA at receptors subject to noise impacts. Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The preliminary reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. This *reasonable allowance* is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the

allowance, the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the preliminary determination is that abatement is not reasonable.

Area A

The traffic noise modeling results indicate predicted noise levels at modeled receptor locations in this area (receptors R0 through R13) would not approach or exceed the noise abatement criterion (67 dBA L_{eq}[h]) or result in a substantial increase in noise of 12 dBA or more over existing conditions. The two existing sound walls in this area, 8-foot high EW1 and 6-foot high EW2, are shown in Figures 2.7c and 2.7e. Therefore, as no impact would occur at any of the modeled receptor locations in Area A noise abatement does not need to be considered in this area. Therefore no further analysis for this study area is necessary.

Area B

The traffic noise modeling results indicate traffic levels at residences in Area B are predicted to be 52 to 63 dBA L_{eq}(h) under Alternative 1 (Base) conditions in the design year and 53 to 63 dBA L_{eq}(h) under Alternative 4 (Jug Handle) conditions in the design year. Increases in noise at residences in Area B would range from 5 dBA to 20 dBA in the design year for both build alternatives. Because the predicted noise level in the design year would result in a substantial (12 dBA or greater) increase in noise over existing conditions, traffic noise impacts are predicted at residences in this area, and noise abatement must be considered. Modeled affected receptor locations R21 to R30, R32, R33, and R52 to R61 represent a total of 74 residences in Area B.

Detailed modeling analysis was conducted for two barriers to protect these affected receptors. The sound barriers SB1 and SB2 were modeled immediately adjacent to the existing 6-foot high wall EW3 and the existing 6-foot high wall EW4 to determine the benefit of raising the wall height to 16 feet. The results show that neither sound barrier SB1 or SB2 at any of the modeled heights would result in at least a 5 dBA reduction in traffic noise levels at any of the modeled receptor locations. Therefore, sound barriers SB1 and SB2 are not considered feasible and further analysis is not required.

Area C

The traffic noise modeling results indicate traffic noise levels at residences in Area C are predicted to be 56 to 64 dBA L_{eq}(h) in the design year under both build alternatives, and that the noise increase at residences would be 11 dBA to 19 dBA in the design year. Because the predicted noise level in the design year would result in a

substantial (12 dBA or greater) increase in noise over existing conditions, traffic noise impacts are predicted at residences in this area, and noise abatement must be considered. Modeled affected receptor locations R62 through R73, and R75 through R79 represent a total of 39 residences in Area C.

Detailed modeling analysis was conducted for one new sound barrier to protect these affected receptors. Sound barrier SB3 was modeled immediately adjacent to existing wall EW5 to determine the benefit of raising the wall height from the existing 8 feet to 16 feet. The results show that barrier heights of 14 and 16 feet would result in a reduction of at least 5 dBA at modeled receptor locations R62 and R63 under Alternative 1 (Base) conditions; similarly, a height of 16 feet would result in a reduction of at least 5 dBA at modeled receptor locations R62 and R63 under Alternative 4 (Jug Handle). Therefore, this sound barrier is considered feasible at these heights and must be analyzed for being reasonable from a cost perspective.

Area D

The traffic noise modeling results indicate traffic noise levels at residences in Area D are predicted to be 56 to 64 dBA L_{eq}(h) in the design year under both build alternatives, and that the increase in noise would be 4 dBA to 18 dBA in the design year. Because the predicted noise level in the design year would result in a substantial (12 dBA or greater) increase in noise over existing conditions, traffic noise impacts are predicted at residences in this area, and noise abatement must be considered. Modeled receptor locations R82 through R87 represent a total of 17 residences.

Detailed modeling analysis was done for one new sound barrier to protect these affected receptors. Sound barrier SB4 was modeled immediately next to the existing wall EW6 to determine the benefit of raising the existing 8-foot-high wall to 16 feet. The results show that a barrier height of 14 feet would result in a reduction of at least 5 dBA at modeled receptor locations R84 under Alternative 1 (Base) conditions while the Alternative 4 (Jug Handle) barrier heights of 14 feet and 16 feet would result in a reduction of at least 5 dBA. Therefore, this sound barrier is considered feasible at these heights and must be analyzed for being reasonable from a cost perspective.

Area E

The traffic noise modeling results indicate traffic noise levels at residences in Area E are predicted to be 56 to 65 dBA L_{eq}(h) under Alternative 1 (Base) conditions in the design year, and 56 to 64 dBA L_{eq}(h) under Alternative 4 (Jug Handle) conditions in the design year. The resulting increases in noise at residences would be 3 dBA to 18 dBA in the design year. Because the predicted noise level in the design year would

result in a substantial (12 dBA or greater) increase in noise over existing conditions, traffic noise impacts are predicted at residences in this area, and noise abatement must be considered. Modeled affected receptor locations R98 through R101, R104, R106, R107, R121, and R122 represent a total of 14 residences.

Detailed modeling analysis was conducted for two new sound barriers to protect these affected receptors. Sound barrier SB5 was modeled immediately adjacent to the existing 8-foot high wall EW7 to determine the benefit of raising the existing wall height up to 16 feet high. A second sound barrier, SB6, was modeled in Area E along the edge of right-of-way between the residential property on Barstow Avenue and the proposed water basin in the southwest quadrant of the Veterans Boulevard and Bryan Avenue intersection. This sound barrier was modeled in 2-foot increments at heights from 6 to 16 feet.

For sound barrier SB5, a 12-foot barrier would result in a reduction of at least 5 dBA at modeled receptor location R100; a height of 14 feet would result in a reduction of at least 5 dBA at modeled receptor locations R99 and R100; and a height of 16 feet would result in a reduction of at least 5 dBA at modeled receptor locations R98 through R101 under Alternative 1 (Base) conditions. Under Alternative 4 (Jug Handle) a barrier height of 14 feet would result in a reduction of at least 5 dBA at modeled receptor locations R99 and 100; and a height of 16 feet would result in a reduction of at least 5 dBA at modeled receptor locations R98 through R100. Similarly, for sound barrier SB6, the results show that heights of 12, 14, and 16 feet would result in a reduction of at least 5 dBA at modeled receptor location R121 under both build alternative conditions. Therefore, these sound barriers are considered feasible at these heights and must be analyzed for being reasonable from a cost perspective.

Area F

The traffic noise modeling results indicate traffic noise levels at the two residences in Area F are predicted to be 54 and 59 dBA L_{eq}(h) in the design year, and that the increase in noise would be 14 dBA to 19 dBA in the design year. Because the predicted noise level in the design year would result in a substantial (12 dBA or greater) increase in noise over existing conditions, traffic noise impacts are predicted at residences in this area, and noise abatement must be considered. Modeled affected receptor locations R123 and R124 represent two residences.

Detailed modeling analysis was conducted for one new sound barrier to protect these affected receptors. Sound barrier SB7 was modeled along the edge-of-shoulder

beginning at post mile 39.4 on Veterans Boulevard and extended north along the west side of Veterans Boulevard to post mile 45. This wall was modeled in two-foot increments at heights from 6 feet to 16 feet. The results show that sound barrier SB7 would not reduce traffic noise levels by 5 dBA at either of the modeled receptor locations in this area at any of the modeled heights. Therefore, sound barrier SB7 is not considered feasible and further analysis is not required.

The existing and predicted future traffic noise levels at affected modeled receptor locations are shown in Table 2.24. The analyzed study areas, the modeled receptor locations, and the sound barrier locations are shown in Figures 2.7a–2.7k.

Construction Impacts

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate construction area. Two types of short-term noise impacts would occur during project construction. The first type would be from construction crew commutes and transport of construction equipment and materials to the project site, and would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities would be moved on site, remain for the duration of each construction phase, and not add to the daily traffic volume in the project vicinity. A high single-event noise exposure potential at a maximum level of 87 dBA L_{max} from trucks passing 50 feet away would exist. However, the projected construction traffic would be minimal when compared to existing traffic volumes on State Route 99 and other affected streets, and its associated long-term noise level change would not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would be less than substantial.

Table 2.24: Existing and Predicted Future Noise Results with and without the Project

						Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
Area	**Barrier Name**	**Receptor Number**	**Number of Represented Dwelling Units**	**Existing Noise Level, dBA Leq(h)**	**Design Year Noise Level without Project, dBA Leq(h)**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**
Area A	**EW1**	**R0**	4	54	57	59	5	-	-	-	-	-	-	-	-	-	60	6	-	-	-	-	-	-	-	-	-
	EW1	**R1**	6	56	58	60	4	-	-	-	-	-	-	-	-	-	61	5	-	-	-	-	-	-	-	-	-
	NA	**R2**	6	55	57	60	5	-	-	-	-	-	-	-	-	-	60	5	-	-	-	-	-	-	-	-	-
	NA	**R3**	6	55	57	59	4	-	-	-	-	-	-	-	-	-	60	5	-	-	-	-	-	-	-	-	-
	NA	**R4**	6	55	56	59	4	-	-	-	-	-	-	-	-	-	59	4	-	-	-	-	-	-	-	-	-
	NA	**R5**	6	56	57	60	4	-	-	-	-	-	-	-	-	-	60	4	-	-	-	-	-	-	-	-	-
	NA	**R6**	2	62	62	64	2	-	-	-	-	-	-	-	-	-	64	2	-	-	-	-	-	-	-	-	-
	NA	**R7**	6	56	56	58	2	-	-	-	-	-	-	-	-	-	59	3	-	-	-	-	-	-	-	-	-
	NA	**R8**	6	55	57	59	4	-	-	-	-	-	-	-	-	-	59	4	-	-	-	-	-	-	-	-	-
	NA	**R9**	6	55	57	58	3	-	-	-	-	-	-	-	-	-	58	3	-	-	-	-	-	-	-	-	-
	NA	**R10**	4	56	58	59	3	-	-	-	-	-	-	-	-	-	59	3	-	-	-	-	-	-	-	-	-

						Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
Area	**Barrier Name**	**Receptor Number**	**Number of Represented Dwelling Units**	**Existing Noise Level, dBA Leq(h)**	**Design Year Noise Level without Project, dBA Leq(h)**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**
	EW2	**R11**	2	62	63	63	1	-	-	-	-	-	-	-	-	-	63	1	-	-	-	-	-	-	-	-	-
	EW2	**R12**	2	55	57	58	3	-	-	-	-	-	-	-	-	-	58	3	-	-	-	-	-	-	-	-	-
	EW2	**R13**	2	55	58	58	3	-	-	-	-	-	-	-	-	-	58	3	-	-	-	-	-	-	-	-	-
Area B	**SB1**	**R14**	2	48	51	53	5	-	NA	NA	NA	NA	53	53	No	No	54	6	-	NA	NA	NA	NA	54	54	No	No
		R15	3	53	56	58	5	-	NA	NA	NA	NA	58	58	No	No	59	6	-	NA	NA	NA	NA	59	59	No	No
		R16	4	50	54	56	6	-	NA	NA	NA	NA	56	56	No	No	56	6	-	NA	NA	NA	NA	56	56	No	No
		R17	3	53	57	59	6	-	NA	NA	NA	NA	59	59	No	No	60	7	-	NA	NA	NA	NA	60	60	No	No
		R18	4	50	55	57	7	-	NA	NA	NA	NA	57	57	No	No	58	8	-	NA	NA	NA	NA	58	58	No	No
		R19	4	51	56	59	8	-	NA	NA	NA	NA	59	59	No	No	59	8	-	NA	NA	NA	NA	59	59	No	No
		R20	4	48	54	58	10	-	NA	NA	NA	NA	58	58	No	No	58	10	-	NA	NA	NA	NA	58	58	No	No
		R21	4	47	54	58	11	-	NA	NA	NA	NA	58	58	No	No	59	12	S.I.	NA	NA	NA	NA	58	58	No	No
		R22	4	47	55	60	13	S.I.	NA	NA	NA	NA	59	58	No	No	60	13	S.I.	NA	NA	NA	NA	59	58	No	No
		R23	4	46	56	61	15	S.I.	NA	NA	NA	NA	60	59	No	No	61	15	S.I.	NA	NA	NA	NA	60	59	No	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
		R24	4	45	55	60	15	S.I.	NA	NA	NA	NA	59	58	No	No	60	15	S.I.	NA	NA	NA	NA	59	58	No	No
		R25	3	43	54	59	16	S.I.	NA	NA	NA	NA	58	57	No	No	59	16	S.I.	NA	NA	NA	NA	58	57	No	No
		R26	4	42	55	59	17	S.I.	NA	NA	NA	NA	58	57	No	No	59	17	S.I.	NA	NA	NA	NA	58	57	No	No
		R27	4	42	56	60	18	S.I.	NA	NA	NA	NA	59	58	No	No	60	18	S.I.	NA	NA	NA	NA	59	58	No	No
		R28	4	42	56	60	18	S.I.	NA	NA	NA	NA	59	58	No	No	60	18	S.I.	NA	NA	NA	NA	59	58	No	No
		R29	4	42	55	59	17	S.I.	NA	NA	NA	NA	58	57	No	No	59	17	S.I.	NA	NA	NA	NA	58	57	No	No
		R30	4	43	52	56	13	S.I.	NA	NA	NA	NA	56	56	No	No	56	13	S.I.	NA	NA	NA	NA	55	55	No	No
		R31	4	43	50	54	11	-	NA	NA	NA	NA	54	54	No	No	53	10	-	NA	NA	NA	NA	54	54	No	No
		R32	5	43	51	55	12	S.I.	NA	NA	NA	NA	55	55	No	No	55	12	S.I.	NA	NA	NA	NA	55	55	No	No
		R33	5	44	53	56	12	S.I.	NA	NA	NA	NA	56	56	No	No	56	12	S.I.	NA	NA	NA	NA	56	56	No	No
		R34	3	43	51	54	11	-	NA	NA	NA	NA	54	54	No	No	54	11	-	NA	NA	NA	NA	54	54	No	No
		R35	3	44	51	55	11	-	NA	NA	NA	NA	54	54	No	No	55	11	-	NA	NA	NA	NA	54	54	No	No
		R36	3	45	52	55	10	-	NA	NA	NA	NA	55	54	No	No	55	10	-	NA	NA	NA	NA	55	54	No	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
		R37	3	45	52	55	10	-	NA	NA	NA	NA	55	55	No	No	55	10	-	NA	NA	NA	NA	55	55	No	No
		R38	3	45	51	54	9	-	NA	NA	NA	NA	54	54	No	No	54	9	-	NA	NA	NA	NA	54	54	No	No
		R39	2	48	54	57	9	-	NA	NA	NA	NA	57	56	No	No	58	10	-	NA	NA	NA	NA	57	56	No	No
		R40	2	47	52	55	8	-	NA	NA	NA	NA	55	54	No	No	55	8	-	NA	NA	NA	NA	55	54	No	No
		R41	5	47	51	54	7	-	NA	NA	NA	NA	54	54	No	No	54	7	-	NA	NA	NA	NA	54	54	No	No
		R42	2	48	52	55	7	-	NA	NA	NA	NA	54	54	No	No	55	7	-	NA	NA	NA	NA	55	55	No	No
		R43	2	49	54	57	8	-	NA	NA	NA	NA	56	56	No	No	57	8	-	NA	NA	NA	NA	57	57	No	No
		R44	4	46	51	53	7	-	NA	NA	NA	NA	53	53	No	No	53	7	-	NA	NA	NA	NA	53	53	No	No
		R45	2	50	54	56	6	-	NA	NA	NA	NA	56	56	No	No	56	6	-	NA	NA	NA	NA	56	56	No	No
		R46	4	46	50	52	6	-	NA	NA	NA	NA	52	52	No	No	53	7	-	NA	NA	NA	NA	53	53	No	No
		R47	2	51	54	57	6	-	NA	NA	NA	NA	57	57	No	No	57	6	-	NA	NA	NA	NA	57	57	No	No
		R48	2	50	53	55	5	-	NA	NA	NA	NA	55	55	No	No	55	5	-	NA	NA	NA	NA	55	55	No	No
		R49	2	46	50	53	7	-	NA	NA	NA	NA	53	53	No	No	53	7	-	NA	NA	NA	NA	53	53	No	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
		R50	4	49	53	55	6	-	NA	NA	NA	NA	55	55	No	No	55	6	-	NA	NA	NA	NA	55	55	No	No
		R51	2	51	55	57	6	-	NA	NA	NA	NA	57	57	No	No	57	6	-	NA	NA	NA	NA	57	57	No	No
	SB2	**R52**	2	43	59	63	20	S.I.	NA	NA	NA	NA	63	62	No	No	63	20	S.I.	NA	NA	NA	NA	63	63	No	No
		R53	3	42	56	60	18	S.I.	NA	NA	NA	NA	59	58	No	No	60	18	S.I.	NA	NA	NA	NA	59	58	No	No
		R54	2	42	55	60	18	S.I.	NA	NA	NA	NA	58	57	No	No	60	18	S.I.	NA	NA	NA	NA	58	57	No	No
		R55	2	46	58	63	17	S.I.	NA	NA	NA	NA	60	59	No	No	63	17	S.I.	NA	NA	NA	NA	59	59	No	No
		R56	2	46	55	59	13	S.I.	NA	NA	NA	NA	57	57	No	No	59	13	S.I.	NA	NA	NA	NA	57	57	No	No
		R57	2	44	54	58	14	S.I.	NA	NA	NA	NA	57	56	No	No	58	14	S.I.	NA	NA	NA	NA	57	56	No	No
		R58	4	44	52	56	12	S.I.	NA	NA	NA	NA	55	55	No	No	56	12	S.I.	NA	NA	NA	NA	55	55	No	No
		R59	4	43	52	55	12	S.I.	NA	NA	NA	NA	55	55	No	No	55	12	S.I.	NA	NA	NA	NA	55	55	No	No
		R60	3	43	52	56	13	S.I.	NA	NA	NA	NA	55	55	No	No	56	13	S.I.	NA	NA	NA	NA	55	55	No	No
		R61	1	43	53	57	14	S.I.	NA	NA	NA	NA	56	56	No	No	57	14	S.I.	NA	NA	NA	NA	56	56	No	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
Area C	**SB3**	**R62**	2	45	60	64	19	S.I.	NA	NA	62	60	59	59	Yes	No	64	19	S.I.	NA	NA	62	61	60	59	Yes	No
		R63	3	45	59	63	18	S.I.	NA	NA	62	60	59	58	Yes	No	63	18	S.I.	NA	NA	62	60	59	58	Yes	No
		R64	2	45	58	62	17	S.I.	NA	NA	61	60	59	58	Yes	No	62	17	S.I.	NA	NA	61	60	59	58	Yes	No
		R65	2	44	58	62	18	S.I.	NA	NA	61	60	60	59	Yes	No	62	18	S.I.	NA	NA	61	60	60	59	Yes	No
		R66	3	45	56	60	15	S.I.	NA	NA	58	57	56	56	Yes	No	60	15	S.I.	NA	NA	58	57	56	56	Yes	No
		R67	2	45	56	60	15	S.I.	NA	NA	58	57	57	56	Yes	No	60	15	S.I.	NA	NA	59	58	57	56	Yes	No
		R68	1	46	55	59	13	S.I.	NA	NA	58	57	56	56	Yes	No	59	13	S.I.	NA	NA	58	57	57	56	Yes	No
		R69	1	45	55	59	14	S.I.	NA	NA	58	57	56	55	Yes	No	59	14	S.I.	NA	NA	58	57	56	56	Yes	No
		R70	2	45	54	57	12	S.I.	NA	NA	57	57	57	57	Yes	No	57	12	S.I.	NA	NA	57	57	57	57	Yes	No
		R71	1	44	55	59	15	S.I.	NA	NA	57	56	56	55	Yes	No	59	15	S.I.	NA	NA	57	57	56	55	Yes	No
		R72	1	44	55	58	14	S.I.	NA	NA	58	57	57	56	Yes	No	58	14	S.I.	NA	NA	58	57	57	56	Yes	No
		R73	1	44	55	59	15	S.I.	NA	NA	57	57	56	56	Yes	No	59	15	S.I.	NA	NA	57	57	56	56	Yes	No
		R74	4	45	53	56	11	-	NA	NA	55	55	54	54	Yes	No	56	11	-	NA	NA	55	55	54	54	Yes	No

						Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
Area	**Barrier Name**	**Receptor Number**	**Number of Represented Dwelling Units**	**Existing Noise Level, dBA Leq(h)**	**Design Year Noise Level without Project, dBA Leq(h)**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**
		R75	4	44	54	58	14	S.I.	NA	NA	57	57	56	56	Yes	No	58	14	S.I.	NA	NA	57	57	57	56	Yes	No
		R76	4	45	54	58	13	S.I.	NA	NA	57	56	56	56	Yes	No	58	13	S.I.	NA	NA	57	56	56	56	Yes	No
		R77	6	46	55	60	14	S.I.	NA	NA	59	58	58	58	Yes	No	60	14	S.I.	NA	NA	59	58	58	58	Yes	No
		R78	1	45	57	61	16	S.I.	NA	NA	60	59	59	60	Yes	No	62	17	S.I.	NA	NA	60	59	59	60	Yes	No
		R79	3	46	54	58	12	S.I.	NA	NA	58	58	57	58	Yes	No	58	12	S.I.	NA	NA	58	58	58	58	Yes	No
Area D	**SB4**	**R80**	2	51	55	60	9	-	NA	NA	NA	NA	60	60	Yes	No	60	9	-	NA	NA	NA	NA	60	60	Yes	No
		R81	3	51	56	62	11	-	NA	NA	NA	NA	62	61	Yes	No	62	11	-	NA	NA	NA	NA	62	61	Yes	No
		R82	3	51	56	63	12	S.I.	NA	NA	NA	NA	61	61	Yes	No	63	12	S.I.	NA	NA	NA	NA	61	61	Yes	No
		R83	3	51	56	64	13	S.I.	NA	NA	NA	NA	60	60	Yes	No	64	13	S.I.	NA	NA	NA	NA	60	60	Yes	No
		R84	3	47	56	64	17	S.I.	NA	NA	NA	NA	60	59	Yes	No	64	17	S.I.	NA	NA	NA	NA	59	59	Yes	No
		R85	3	46	59	64	18	S.I.	NA	NA	NA	NA	60	60	Yes	No	64	18	S.I.	NA	NA	NA	NA	60	60	Yes	No
		R86	3	46	56	60	14	S.I.	NA	NA	NA	NA	57	56	Yes	No	59	13	S.I.	NA	NA	NA	NA	57	56	Yes	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
		R87	2	46	54	58	12	S.I.	NA	NA	NA	NA	55	55	Yes	No	58	12	S.I.	NA	NA	NA	NA	55	55	Yes	No
		R88	3	46	53	56	10	-	NA	NA	NA	NA	55	55	Yes	No	56	10	-	NA	NA	NA	NA	55	54	Yes	No
		R89	3	48	54	57	9	-	NA	NA	NA	NA	56	56	Yes	No	57	9	-	NA	NA	NA	NA	56	55	Yes	No
		R90	2	48	54	58	10	-	NA	NA	NA	NA	56	56	Yes	No	58	10	-	NA	NA	NA	NA	56	56	Yes	No
		R91	2	52	56	59	7	-	NA	NA	NA	NA	59	59	Yes	No	59	7	-	NA	NA	NA	NA	59	59	Yes	No
		R92	2	52	57	60	8	-	NA	NA	NA	NA	59	59	Yes	No	60	8	-	NA	NA	NA	NA	59	59	Yes	No
		R93	4	51	55	57	6	-	NA	NA	NA	NA	56	56	Yes	No	56	5	-	NA	NA	NA	NA	56	56	Yes	No
		R94	3	54	58	60	6	-	NA	NA	NA	NA	60	60	Yes	No	60	6	-	NA	NA	NA	NA	60	60	Yes	No
		R95	4	56	60	60	4	-	NA	NA	NA	NA	60	60	Yes	No	60	4	-	NA	NA	NA	NA	60	60	Yes	No
		R96	4	58	62	62	4	-	NA	NA	NA	NA	62	62	Yes	No	62	4	-	NA	NA	NA	NA	62	62	Yes	No
		R97	4	58	62	62	4	-	NA	NA	NA	NA	62	62	Yes	No	62	4	-	NA	NA	NA	NA	62	62	Yes	No
Area E	**SB5**	**R98**	1	47	57	64	17	S.I.	NA	63	61	60	60	59	Yes	No	64	17	S.I.	NA	62	61	60	60	59	Yes	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
		R99	1	51	57	64	13	S.I.	NA	62	61	60	59	59	Yes	No	64	13	S.I.	NA	62	61	60	59	59	Yes	No
		R100	1	50	55	65	15	S.I.	NA	62	61	60	59	59	Yes	No	64	14	S.I.	NA	62	61	60	59	59	Yes	No
		R101	1	53	57	65	12	S.I.	NA	63	62	61	61	60	Yes	No	64	11	-	NA	63	62	61	61	60	Yes	No
		R102	3	52	56	61	9	-	NA	61	60	60	60	60	Yes	No	61	9	-	NA	61	60	60	60	60	Yes	No
		R103	3	51	55	59	8	-	NA	59	59	58	58	58	Yes	No	58	7	-	NA	58	58	58	58	58	Yes	No
		R104	4	49	55	62	13	S.I.	NA	61	60	59	59	58	Yes	No	62	13	S.I.	NA	61	59	59	58	58	Yes	No
		R105	4	48	54	59	11	-	NA	59	58	57	57	57	Yes	No	59	11	-	NA	59	58	57	57	57	Yes	No
		R106	3	46	58	63	17	S.I.	NA	62	61	60	60	60	Yes	No	63	17	S.I.	NA	62	61	60	60	60	Yes	No
		R107	1	45	54	57	12	S.I.	NA	57	57	56	56	56	Yes	No	57	12	S.I.	NA	57	57	56	56	56	Yes	No
		R108	3	46	53	56	10	-	NA	56	56	55	55	55	Yes	No	56	10	-	NA	56	56	55	55	55	Yes	No
		R109	2	47	54	57	10	-	NA	57	56	56	56	56	Yes	No	57	10	-	NA	57	56	56	56	56	Yes	No
		R110	3	54	58	59	5	-	NA	59	59	59	59	59	Yes	No	59	5	-	NA	59	59	59	59	59	Yes	No
		R111	1	54	58	59	5	-	NA	59	59	59	59	59	Yes	No	59	5	-	NA	59	59	59	59	59	Yes	No

						Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
Area	**Barrier Name**	**Receptor Number**	**Number of Represented Dwelling Units**	**Existing Noise Level, dBA Leq(h)**	**Design Year Noise Level without Project, dBA Leq(h)**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**	**Design Year Noise Level with Project, dBA Leq(h)**	**Design Year Noise Level with Project minus Existing Conditions, dBA**	**Impact Type**	**6 Feet**	**8 Feet**	**10 Feet**	**12 Feet**	**14 feet**	**16 Feet**	**Feasible?**	**Reasonable?**
		R112	2	56	60	60	4	-	NA	60	60	60	60	60	Yes	No	61	5	-	NA	61	61	61	61	61	Yes	No
		R113	1	58	61	62	4	-	NA	62	62	62	62	62	Yes	No	62	4	-	NA	62	62	62	62	62	Yes	No
		R114	1	58	62	62	4	-	NA	62	62	62	62	62	Yes	No	62	4	-	NA	62	62	62	62	62	Yes	No
		R115	2	57	61	61	4	-	NA	61	61	61	61	61	Yes	No	61	4	-	NA	61	61	61	61	61	Yes	No
		R116	2	57	61	61	4	-	NA	61	61	61	61	61	Yes	No	61	4	-	NA	61	61	61	61	61	Yes	No
		R117	2	59	63	63	4	-	NA	63	63	63	63	63	Yes	No	63	4	-	NA	63	63	63	63	63	Yes	No
		R118	2	59	62	62	3	-	NA	62	62	62	62	62	Yes	No	62	3	-	NA	62	62	62	62	62	Yes	No
		R119	2	54	58	58	4	-	NA	58	58	58	58	58	Yes	No	58	4	-	NA	58	58	58	58	58	Yes	No
		R120	2	56	59	59	3	-	NA	59	59	59	59	59	Yes	No	59	3	-	NA	59	59	59	59	59	Yes	No
	SB6	**R121**	1	45	61	63	18	S.I.	61	60	59	58	57	56	Yes	No	63	18	S.I.	61	60	59	58	57	56	Yes	No
		R122	1	44	56	59	15	S.I.	57	57	57	56	56	55	Yes	No	59	15	S.I.	57	57	57	56	56	55	Yes	No
Area F	**SB7**	**R123**	1	40	57	59	19	S.I.	57	56	56	55	55	55	No	No	59	19	S.I.	57	56	56	55	55	55	No	No

Area	Barrier Name	Receptor Number	Number of Represented Dwelling Units	Existing Noise Level, dBA Leq(h)	Design Year Noise Level without Project, dBA Leq(h)	Alternative 1 - Base Noise Levels, dBA Leq(h) for various barrier heights											Alternative 4 – Jug Handle Noise Levels, dBA Leq(h) for various barrier heights										
						Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?	Design Year Noise Level with Project, dBA Leq(h)	Design Year Noise Level with Project minus Existing Conditions, dBA	Impact Type	6 Feet	8 Feet	10 Feet	12 Feet	14 feet	16 Feet	Feasible?	Reasonable?
		R124	1	40	53	54	14	S.I.	52	52	52	51	51	51	No	No	54	14	S.I.	52	52	52	52	51	51	No	No

Source: Noise Study Report, November 2010.
S.I. = Substantial Increase
Bold noise levels indicate the receptor and barrier height at which a feasible (minimum 5 dBA) reduction in noise levels would be experienced with insertion of the indicated sound barrier.

The second type of short-term noise impact is related to excavation, grading, and roadway construction. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and, therefore, the noise levels along the project alignment as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 2.25 lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments based on a distance of 50 feet between the equipment and a noise receptor.

Table 2.25: Typical Construction Equipment Maximum Noise Levels

Type of Equipment	Range of Maximum Sound Levels (dBA at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	74 to 84	80
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Cranes	79 to 86	82
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Dozers	77 to 90	85
Tractors	77 to 82	80
Front-End Loaders	77 to 90	86
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	86
Air Compressors	76 to 89	86
Trucks	81 to 87	86

Source: Noise Study Report, November 2010.
dBA = A-weighted decibel
ft = feet
L_{max} = Maximum Instantaneous Noise Level

Typical noise levels at 50 feet from an active construction area range up to 91 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front loaders.

Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three or four minutes at lower power settings.

Construction of the proposed project is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise associated with the use of construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 50 feet from the active construction area for the grading phase. As shown in Table 2.25, the maximum noise level generated by each excavator is assumed to be approximately 86 dBA L_{max} at 50 feet from the earthmover in operation. Each bulldozer would generate approximately 85 dBA L_{max} at 50 ft. The maximum noise level generated by water trucks and pickup trucks is approximately 86 dBAL_{max} at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 6 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 91 dBAL_{max} (at a distance of 50 feet from an active construction area).

The closest unprotected noise sensitive receptors to roadway improvement construction areas would be the residential property on Barstow Avenue in the southwest quadrant of the Veterans Boulevard and Bryan Avenue intersection and the residential property on Shaw Avenue in the northwest quadrant of the Veterans Boulevard and Shaw Avenue intersection. These land uses, which do not have any existing walls or structures for shielding, are approximately 120 and 110 feet, respectively, from potential construction areas. Therefore, these sensitive receptor locations may be subject to short-term noise reaching 84 dBA L_{max} generated by construction activities along the project alignment.

Avoidance, Minimization, and/or Abatement Measures

The reasonableness of a sound barrier was determined by comparing the estimated cost of building the sound barrier against the total reasonable allowance. The cost calculations of the sound barrier included all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, and retaining barriers. Construction cost estimates are compared to reasonableness allowances in this report to identify which barrier configurations are reasonable from a cost perspective.

The total reasonable allowance was determined based on the number of benefited residences multiplied by the reasonable allowance per residence. Construction cost estimates were based on the project engineer's estimates for construction of standard masonry block sound barriers. If the estimated sound barrier construction cost exceeded the total reasonable allowance, the sound barrier was determined not to be reasonable. However, if the estimated sound barrier construction cost was within the total reasonable allowance, the sound barrier was determined to be reasonable. A summary of the feasible sound barriers and the reasonable determination is shown in Table 2.26.

After comparing the estimated cost of constructing the sound barrier and the total reasonable allowance (see Noise Abatement Decision Report 2011 for all calculations), there are no sound barriers that are considered reasonable for this project under 23 Code of Regulations 772. The residences would experience an increase in noise levels, but the predicted noise levels would not exceed the applicable Noise Abatement Criteria of 67 dBA Leq(h).

If during final design, conditions have substantially changed, noise abatement may be determined necessary. The final noise abatement decision would be made upon completion of the project design and the public involvement processes.

Construction Noise Abatement

To minimize the construction noise impact for sensitive land adjacent to the project site, construction noise is regulated by Caltrans Standard Specifications Section 7-1.0011, "Sound Control Requirements." Section 7-1.0011 states that noise levels generated during construction would comply with applicable local, state, and federal regulations and that all equipment would be fitted with adequate mufflers according to the manufacturer's specifications.

No adverse noise impacts from construction are anticipated because construction would occur in accordance with Caltrans Standard Specifications Section 7-1.011 and applicable local noise standards. Construction noise would be short-term and intermittent. The following measures would minimize temporary construction noise impacts:

- All equipment would have sound-control devices that are no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust.

- As directed by Caltrans, the contractor would implement appropriate additional noise abatement measures including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

Table 2.26: Summary of Abatement Key Information

Sound Barrier	Critical Receptor	Length (feet)	Height (feet)	Noise Reduction Range (dBA)	Protected Receptors	Number of Benefited Residences1	Reasonable Allowance per Residence	Total Reasonable Allowance	Estimated Sound Wall Cost	Reasonable?
Alternative 1 - Base										
SB3	**R62**	1,662	14	0 - 5	R62	2	$49,000	$98,000	$698,040	**No**
			16	0 - 5	R62, R63	5	$49,000	$245,000	$797,760	**No**
SB4	**R84**	1,049	16	0 - 5	R84	3	$49,000	$147,000	$503,520	**No**
SB5	**R100**	907	12	0 - 5	R100	1	$49,000	$49,000	$326,520	**No**
			14	0 - 6	R99, R100	2	$51,000	$102,000	$380,940	**No**
			16	0 - 6	R98 - R101	4	$51,000	$204,000	$435,360	**No**
SB6	**R121**	926	12	0 - 5	R121	1	$49,000	$49,000	$333,360	**No**
			14	0 - 6	R121	1	$51,000	$51,000	$388,920	**No**
			16	0 - 7	R121	1	$51,000	$51,000	$444,480	**No**
Alternative 4 – Jug Handle										
SB3	**R62**	1,662	16	0 - 5	R62, R63	5	$49,000	$245,000	$797,760	**No**
SB4	**R84**	1,049	14	0 - 5	R84	3	$49,000	$147,000	$440,580	**No**
			16	0 - 5	R84	3	$49,000	$147,000	$503,520	**No**
SB5	**R100**	907	14	0 - 5	R99, R100	2	$49,000	$98,000	$380,940	**No**
			16	0 - 5	R98 - R100	3	$49,000	$147,000	$435,360	**No**
SB6	**R121**	926	12	0 - 5	R121	1	$49,000	$49,000	$333,360	**No**
			14	0 - 6	R121	1	$51,000	$51,000	$388,920	**No**
			16	0 - 7	R121	1	$51,000	$51,000	$444,480	**No**

Source: Noise Abatement Decision Report, February 2011.

2.3 Biological Environment

2.3.1 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 United States Code 1344) is the primary 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 says 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.

U.S. Army Corps of Engineers issues two types of 404 permits: Standard and General Permits. Nationwide permits, a type of General permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers 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. Environmental Protection Agency 40 CFR Part 230), and whether permit approval is in the public interest. The 404 (b)(1) Guidelines were developed by the U.S. Environmental Protection Agency in conjunction with U.S. Army Corps of Engineers and allows the discharge of dredged or fill material into the aquatic system (waters of the United States) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to

the proposed discharge that would have lesser effects on waters of the United States and not have any other significant adverse environmental consequences.

Executive Order 11990 (Protection of Wetlands) 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 and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction in wetlands unless the agency head finds 1) 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 (streamside) vegetation, whichever is wider. Wetlands under jurisdiction of the U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and 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 Board also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

Affected Environment

A Natural Environment Study for the project was completed in February 2011. The preliminary jurisdictional determination was completed in February 2010. Verification by U.S. Army Corps of Engineers has not been received. The impacts to biological resources from Alternatives 1 and 4 are very similar. Consequently, for the

purpose of this impacts evaluation, the maximum impacts from the two alternatives are discussed.

Aquatic resources in the biological study area are managed or created by human activity. Herndon Canal passes through the south end of the biological study area, and there are six relatively small detention basins present within the biological study area. Some of the agricultural fields are bisected by irrigation ditches. These ditches such as the Radin-Kamp Ditch appear abandoned. Though other irrigation ditches are present, they appear to be unused. Some have a concrete lining. Approximately 1.22 acres of potential jurisdictional waters of the U.S. are present in the study area, consisting of the Herndon Canal and a tributary. No jurisdictional wetlands are present in the biological study area. Approximately 5.27 acres of non-jurisdictional waters are present in the study area, consisting of 5.10 acres of manmade detention basins and 0.17 acres of irrigation ditches.

Environmental Consequences

The project would result in 0.159 acre of permanent and 0.070 acre of temporary impacts to waters of the U.S. at the Herndon Canal. Permanent impacts would be due to construction of the new road and placement of a box culvert in Herndon Canal. A 30-foot buffer around the new box culvert has been designated as a temporary impact area to allow for construction of the box culvert crossing.

The project will also result in permanent and temporary impacts to additional non-jurisdictional waters as a result of project construction, including 0.003 acre of permanent impacts to an upland irrigation ditch, 0.1 acre of temporary impacts to a retention basin, and 0.006 acre of temporary impacts to an upland irrigation ditch. No permanent impacts to the constructed basins would occur (see Table 2.27).

Permits from the U.S. Army Corps of Engineers and Regional Water Quality Control Board would likely be required for placement of the culvert in Herndon Canal.

Table 2.27: Impacts to Waters of the U.S. (acres)

Type	Permanent	Temporary	Total
Total potential jurisdictional Waters of the U.S. at Herndon Canal	0.159	0.070	0.229
Retention Basin	0.000	0.100	0.100
Upland irrigation ditch	0.003	0.006	0.009
Total non-jurisdictional waters	0.003	0.106	0.109

Source: Natural Environment Study (April 211)

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would minimize potential impacts to aquatic, wetland, and riparian habitats in the biological study area:

- U.S. Army Corps of Engineers would determine any compensatory mitigation required during the Nationwide Permit process. Mitigation for impacts to jurisdictional waters of the United States may require payment into a mitigation bank and/or payment of an 'in-lieu fee'.
- Prior to issuance of grading permits, the agency in favor of the project would obtain any additional required permits such as a Regional Water Quality Control Board 401 Water Quality Certification.
- All clearing would be confined to the minimal area necessary to allow construction activities. Work areas would be clearly flagged or fenced prior to start of construction to avoid impacting adjacent areas.
- Measures consistent with the current Caltrans Construction Site Best Management Practices manual (including the Storm Water Pollution Prevention Plan and Water Pollution Control Program Manuals [http://www.dot.ca.gov/hq/construc/ Construction_Site_BMPs.pdf]) would be used to minimize impacts to waters of the U.S. during construction.
- A Water Pollution Control Program would be prepared by the contractor with required Regional Water Quality Control Board provisions. The Water Pollution Control Program would contain a Spill Response Plan with instructions and procedures for reporting spills, the use and location of spill containment equipment, and the use and location of spill collection materials.

- Following project completion, all areas temporarily disturbed during construction would be re-contoured to pre-project conditions and be re-vegetated with native local herbaceous species approved by a qualified biologist.
- Dredge or fill of Herndon Canal would occur outside of the irrigation season when the canal is dry between October and April.

2.3.2 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, 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 2.3.5. 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 National Marine Fisheries Service candidate species.

The following federal laws and regulations pertain to wildlife:

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

The following state laws and regulations pertain to wildlife:

- California Environmental Quality Act
- California Endangered Species Act
- Sections 1601–1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

Affected Environment

The impacts to biological resources from Alternative 1 (Base) and Alternative 4 (Jug Handle) are almost identical. Consequently, for the purpose of this impacts evaluation, the maximum impacts of the two alternatives are discussed.

A Natural Environment Study for the project was completed in February 2011. A list of sensitive wildlife and plant species potentially occurring within the biological study area was compiled to evaluate potential impacts resulting from project construction. Sources used to compile the list include the California Natural Diversity Data Base 2010, the U.S. Fish and Wildlife Service online list (2011), and the California Native Plant Society Online Edition (2011) referencing the Madera, Gregg, Lanes Bridge, Biola, Herndon, Fresno North, Fresno South, Kearney Park, and Kerman 7.5' United States Geologic Survey quadrangles. These lists are included in the Veterans Boulevard Natural Environmental Study.

The special status species lists obtained from the California Natural Diversity Data Base, California Native Plant Society, and U.S. Fish and Wildlife Service were reviewed to determine which species could potentially occur within the vicinity of the project area. The cumulative list includes numerous species representing a variety of habitat types (see Table 2.28 and Appendix H). The list includes each species' protection status, habitat information, status in the biological study area, and supporting comments as necessary.

The determination of whether a species could potentially occur within the biological study area was based on the availability of suitable habitat within the species' known range. Species requiring specific habitat not present in the vicinity of the project were eliminated as potentially occurring and are not discussed further.

The majority of the biological study area consists of agricultural and developed areas that provides habitat for a limited number of resident wildlife species. Wildlife likely to occur in the biological study area includes common and widespread species typical of agricultural and disturbed areas. Wildlife species observed in the biological study area include California ground squirrel (*Spermophilus beecheyi*), black-tailed jack rabbit (*Lepus californicus*), Audubon's cottontail (*Sylvilagus audubonii*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), song sparrow (*Melospiza melodia*), northern mockingbird (*Mimus polyglottos*), cliff swallow (*Petrochelidon pyrrhonota*), European starling (*Sturnus*

vulgaris), mourning dove (*Zenaida macroura*), and western fence lizard (*Sceloporus occidentalis*).

The composition of plant communities and land uses in the vicinity is similar to that within the biological study area. The surrounding area supports non-native grassland, orchards, agricultural fields, and development. The vast majority of undeveloped land in the biological study area and nearby areas is extensively managed and/or disturbed. Though the San Joaquin River lies approximately one mile north, the land between the river and the biological study area is either open or residential; there is no vegetative cover to facilitate wildlife movement between the biological study area and the river's riparian corridor.

The habitat types in the biological study area reflect those found throughout the region. There are no obvious migration routes or wildlife corridors, and no significant or unique resources that would attract wildlife to the biological study area.

Table 2.28: List of Special-Status-Species that have Potential to Occur within the Biological Study Area and in a 10-Mile Radius of the Biological Study Area

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Mammals					
Antrozous pallidus	Pallid bat	CSC	Occurs in variety of habitat types; most common in xeric ecosystems. Roosts in rocky outcrops, cliffs, and crevices, trees, buildings, and in rocks near the ground.	HP	Foraging opportunities exist in the biological study area. An abandoned building at the southern limit of the biological study area provides potential night roost habitat. No suitable day roost habitat is available. One 1909 CNDDB record exists within a 10-mile radius of the BSA. No bats were observed during surveys.
Eumops perotis californicus	Western mastiff bat	CSC	Occurs in many open, semi-arid to arid habitats. Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings.	HP	Grassland in the biological study area provide foraging habitat for this species. An abandoned building at the southern limit of the biological study area provides potential night roost habitat. No suitable day roost habitat is available. The CNDDB includes two records of western mastiff bats from 1991: 1) 5 miles southeast of the biological study area and 2) 7.4 miles from the biological study area No bats were observed during surveys.
Lasiurus blossevillii	Western red bat	CSC	Roosts in trees, usually in edge habitats. Forages over a variety of habitats including grasslands, shrublands, open woodlands and forests, croplands, and around streetlights.	HP	Fig orchard, olive trees, and residential areas provide potential roosting habitat; grassland areas and streetlights provide foraging habitat. No CNDDB occurrences are within 10 miles of the biological study area. No bats were observed during surveys.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Taxidea taxus	American badger	CSC	Occurs throughout California and the United States. Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert.	A	No habitat exists in the biological study area. Species not observed during surveys. A road kill record from 1988 exists for 1 mile northeast of the project.
Birds					
Agelaius tricolor	Tricolored blackbird	CSC	Nests in freshwater marshes with tules or cattails, or in other dense vegetation such as thistle, blackberry thickets, etc. are in close proximity to open water. The species forages in a variety of habitats including pastures, agricultural fields, rice fields, and feedlots within a few miles of nesting areas.	A	No habitat exits in the biological study area. Species not observed during surveys. One 34-year-old CNDDB record is listed within 10 miles of the biological study area; habitat was eliminated for flood control. Detention basins are too small and lack suitable vegetation for nesting habitat.
Athene cunicularia hypugaea	Western burrowing owl	CSC	Burrow sites in open, dry annual or perennial grasslands, deserts, and scrublands are characterized by low-growing vegetation. The species is a subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	HP	Marginal foraging habitat is present in the biological study area. Burrows observed do not appear suitable for nesting. The nearest 2000 CNDDB record is about 9.3 miles northeast of the biological study area. The species was not observed during surveys.
Elanus leucurus	White-tailed kite	SFP	The species forages in undisturbed, open grasslands, meadows, farmlands, emergent wetlands and nests near the foraging area in groves of dense, broad-leafed deciduous trees, rolling hills/valley margins with scattered oaks, river bottomlands, and marshes next to deciduous woodlands.	HP	Marginally suitable nesting and foraging habitat occurs in the biological study area. The surrounding area provides better nesting and foraging habitat than what is present in the biological study area. See discussion in Section 4.3. There are no CNDDB records within 10 miles of the biological study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Circus cyaneus	Northern harrier	CSC	The species is associated with annual grasslands in or near emergent wetlands or on sagebrush flats near water. Harriers forage over grasslands and marsh edges and nest on the ground.	A	The species was not observed during surveys. There are no CNDDB occurrences within 60 miles of the biological study area. No nesting habitat is in biological study area.
Lanius ludovicianus	Loggerhead shrike	CSC	The species prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	HP	Foraging and nesting habitat is present in the biological study area. The species was not observed during surveys. There are no CNDDB records within 10 miles of the biological study area.
Spea hammondi	Western spadefoot toad	CSC	The species occurs primarily in grassland habitats but is also found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	A	No habitat is in the biological study area. The species was not observed during surveys. Three CNDDB records are at least 7 miles from the biological study area.
Fish					
Mylopharodon conocephalus	Hardhead	CSC	The species occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage in clear, deep pools with sand-gravel-boulder substrate and slow water velocity.	A	Habitat is not present in the biological study area. The species was not observed during surveys.
Invertebrates					
Efferia antiochi	Antioch efferian robberfly	CA SA	The species is known only from Antioch, Fresno, and Scout Island in the San Joaquin River. It is apparently associated with sand dunes and sandy soils.	A	Habitat is not present in biological study area. The sole CNDDB record is more than 50 years old and 4 miles east of the biological study area. The biological study area is regularly disturbed. Surrounding areas are either developed or are similarly disturbed agricultural areas. No sand dunes are present in or near the biological study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Linderiella occidentalis	California Linderiella Fairy Shrimp	CA SA	The species occurs in seasonal pools (e.g., vernal pools) in unplowed grasslands with old alluvial soils underlain by hardpan or heavy clay or in sandstone depressions. It tolerates a wide temperature range and pool size.	HP	Habitat is present in the biological study area in the form of roadside puddles. Shrimp were observed in areas of standing water during aquatic habitat assessment. No protocol-level dip net fairy shrimp surveys were done. There are four CNDDB records within 10 miles of the biological study area.
Lytta molesta	Molestan blister beetle	CA SA	The species occurs in the San Joaquin Valley from eastern Contra Costa County south to Tulare and Kern counties. It is associated with grassland habitats and vernal pools. The larvae are parasitic on solitary bees.	A	The sole CNDDB records are historical and undated. The biological study area is within the historic range of the species but habitat is not present. No vernal pools occur within the biological study area.
Metapogon hurdi	Hurd's metapogon robberfly	CA SA	The species is known only from the Antioch Dunes and Fresno area. It is apparently associated with sand dunes and sandy soils.	A	Habitat is not present in biological study area. The biological study area is regularly disturbed. Surrounding areas are either developed or are similarly disturbed agricultural areas. No sand dunes are present in or near the biological study area.

Source: Natural Environment Study (April 211)

Status Codes

Federal

FE: Federally listed; Endangered
FT: Federally listed, Threatened
FPE: Federally Proposed for Listing as Endangered elsewhere in their range.
FPT: Federally Proposed for Listing as Threatened
FC: Federal Candidate
FD: Federally Delisted

California Native Plant Society (CNPS) designations:

List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common
List 3: Plants about which we need more information; a review list.
List 4: Plants of limited distribution; a watch list

State
ST: State listed; Threatened
SE: State listed; Endangered
SFP: State Fully Protected
SWL: State Watch List
CSC: California Species of Special Concern
CNDDB: California Natural Diversity Database

Habitat Presence:
HP: Habitat is, or may be present
P: Species is present
A: No habitat present and no further work needed

CA SA: Special Animal: General term that refers to taxa that the CNDDB is interested in tracking regardless of legal or protection status: Includes the following categories in addition to those listed above:

- Taxa that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
- Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools, etc.)
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).

ft=feet **mi.=miles** **NE=Northeast** **SE=Southeast** **cm=centimeter(s)**

Bats

Three special status bat species have potential to occur in the biological study area: pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), and western red bat (*Lasiurus blossevillii*). The pallid, western mastiff, and western red bat are all California species of special concern.

The pallid bat is a locally common species of low elevations and is a yearlong resident through most of its range. It uses a wide variety of habitats from sea level up through mixed conifer forests but is most common in open, dry habitats with rocky areas for roosting. This bat forages among trees and shrubs and over open ground, often taking prey on the ground. Its diet is a variety of insects and spiders, including large, hard-shelled prey often carried to a perch or night roost for consumption.

Caves, crevices, and sometimes hollow trees and buildings are used for day roosts. Roosts must protect bats from high temperatures. Night roosts may be in more open sites, such as porches and open buildings. Pallid bats are social and most roost in groups of 20 or more individuals. Maternity colonies form in early April and may have 10 to 100 individuals. Males may roost separately or in the nursery colony. The sole pallid bat record in the California Natural Diversity Database within a 10-mile radius of the biological study area is from 1909.

The western mastiff bat, the largest bat species in North America, ranges from Mexico through the southwestern United States. It is found in a variety of habitats from desert scrub to oak woodland to high elevation meadows of mixed conifer forests. This bat's distribution is limited by the availability of drinking water and suitable roosting habitat. The western mastiff bat is primarily a cliff-dwelling species that generally roosts under exfoliating rock slabs (e.g., granite, sandstone or columnar basalt). It has also been found in similar crevices in large boulders and buildings.

Roosts are generally high above the ground, allowing a clear vertical drop of at least 10 feet below the entrance to gain speed for flight. Because they roost in cliff faces, feed high above the ground, and generally do not occur in large numbers, they are rarely seen. The California Natural Diversity Database includes two records of western mastiff bats from 1991. The closest record is from approximately 5 miles southeast of the biological study area in orchards, fields, and scattered residences. The location for the second record is given as 'Washington Grammar School,' currently in urban surroundings approximately 0.5 mile from the intersection of State Route 41 and State Route 180 and 7.4 miles from the biological study area.

The western red bat is typically solitary, roosting primarily in tree foliage or shrubs from sea level up through coniferous forests. Trees typically used by western red bat include cottonwood, oak, box elder and sycamore. Western red bats are also known to roost in orchards in the Sacramento Valley. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).

Preferred roost sites have the following characteristics: generally hidden from view from all directions except below; lack obstruction beneath, allowing the bat to drop downward for flight; lack lower perches that would allow visibility by predators; have dark ground cover to minimize solar reflection; have nearby vegetation to reduce wind and dust; and generally are on the south or southwest side of a tree. Western red bats typically feed on moths along forest edges, in small clearings, or around streetlights. The western red bat has not been reported by the California Natural Diversity Database within 10 miles of the biological study area.

Although the orchards present in the biological study area offer suitable roosting habitat for the pallid bat and the western red bat, no sign of roosting bats was observed during surveys of the biological study area. Suitable roosting habitat for western mastiff bat is not present in the biological study area.

The orchards and non-native grasslands of the biological study area also provide potential foraging habitat and bats could be present in the biological study area.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia*) is a state species of concern; it has no federal status. Burrowing owls occur in warmer valleys, open, dry grasslands, deserts, and scrublands associated with agriculture and urban areas that support populations of California ground squirrels. Burrowing owls nest below ground and use abandoned burrows of other species, most commonly ground squirrel burrows. They also use pipes, culverts, piles of rock and debris, and nest boxes where natural burrows are scarce. Breeding season is February through August. Burrowing owls feed primarily on insects; they also eat small mammals, reptiles, and carrion.

A habitat assessment was conducted in July 2009 that followed guidelines in the California Department of Fish and Game Staff Report on Burrowing Owls, October 1995. Signs of burrowing owl presence were observed at two sites in the southern end of the biological study area. A burrowing owl pellet casting was found along the side

of Herndon Canal, and a second casting was found in the orchard south of the canal on a dirt road near a burrow complex. Suitable burrows were observed at multiple locations throughout the biological study area, particularly along the sides of Herndon Canal and the Union Pacific Railroad tracks. Fig orchards, grasslands, and mowed fields provide potential foraging habitat for burrowing owls. Based on these findings, the biological study area may support burrowing owls.

The nearest California Natural Diversity Database occurrence for burrowing owls is 9.3 miles northeast of the biological study area. This record is from 2000.

White-tailed Kite

The white-tailed kite (*Elanus leucurus*) is a California fully protected species; however, it has no formal federal status.

White-tailed kites nest and forage in a variety of settings. The species occurs from western Oregon to northern Baja California. In California, white-tailed kites range throughout the Central Valley, west side of the Sierra Nevada Mountains, and the coast and coastal valleys from Humboldt County south. White-tailed kites build stick nests in the tops of trees and breed from February to October, with a peak from May to August. Nesting usually occurs in lowland groves of oaks, willows or sycamores often near small streams. They typically nest near open grassland and meadows where they can feed on voles and other small mammals.

Suitable nesting trees for white-tailed kites are present in the biological study area. The trees are along State Route 99 and around the buildings between State Route 99 and Golden State Boulevard.

The grasslands, non-orchard agricultural fields, and ruderal/disturbed areas provide 104.9 acres of potential foraging habitat for white-tailed kites. Though the California Natural Diversity Database has no records of white-tailed kites within 50 miles of the biological study area, suitable habitat is present and this species could occur in the biological study area.

California Horned Lark

The California horned lark (*Eremophila alpestris actia*) has no formal federal status but is on the State Watch List. This lark is a common resident in a variety of open habitats that generally lack trees, large shrubs, or dense vegetation. Grasslands, oak savannahs, deserts, mowed or disked fields, and alpine meadows all provide potential

habitat. Horned larks feed by walking along the ground looking for food, and eat primarily insects, snails, and spiders as well as grass and forb seeds.

California horned larks nest in depressions on the ground in the open. They breed from March through July, with peak activity in May. Outside of breeding season, they often form large flocks that forage and roost together.

Most California Natural Diversity Database records for horned lark are west and north of the biological study area; however, there is one record approximately 7.5 miles northeast of the biological study area. In 1992, 10–20 pairs were seen near the San Joaquin River. This is the only record within 10 miles.

The non-native grasslands and agricultural fields present in the biological study area provide 219.10 acres of potential habitat for horned larks. However, the habitat value is decreased by the level and frequency of disturbance in the biological study area and the proximity to residential development. Residential land uses often include domestic pets such as dogs and cats that are a threat to ground nesting birds such as the California horned lark.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is a state species of concern; it has no federal status. This bird is considered a common resident and winter visitor in lowlands and foothills throughout California. Loggerhead shrikes prefer open habitats with scattered shrubs, trees, fences, utility lines, or other perches. Grassy pastures or sparse ground cover allows them to spot prey easily. Highest densities occur in open hardwood and mixed canopy habitats. Loggerhead shrikes often occur in open cropland.

Loggerhead shrikes feed on large insects, small birds, mammals, amphibians, reptiles, fish, carrion, and various other invertebrates. Shrikes often sit immobile and watch for prey from an aboveground perch, then ambush their quarry. Nests are constructed in dense shrubs, trees, or tangle of vines and are usually well concealed.

The orchards in the biological study area provide 187.4 acres of potential nesting and foraging habitat for this species. The non-native grasslands and fields provide marginal foraging habitat. The California Natural Diversity Database includes no records for loggerhead shrikes within 10 miles of the biological study area; however, this species occurs in a variety of habitats and could occur in the biological study area. No loggerhead shrikes were observed during surveys.

California Linderiella Fairy Shrimp

The California linderiella fairy shrimp (*Linderiella occidentalis*) is classified by the California Department of Fish and Game as a "special animal." It has no formal federal status.

The California linderiella fairy shrimp is the most widely distributed fairy shrimp in California. It is endemic to vernal pools and similar ephemeral freshwater habitats and ranges throughout the Central Valley and the coastal ranges of California.

This species has been documented on most landforms, geologic formations, and soil types supporting vernal pools in California. California linderiella fairy shrimp have been found in vernal pools that vary widely in size, though they tend to be in deeper pools. They mature quickly (4 to 5 weeks) while tolerating a wide range of water temperatures, turbidity, and duration of inundation.

There are 11 small constructed depressions within the biological study area that become inundated during the rainy season. These areas are along the sides of dirt roads and the railroad tracks; the largest area is at the end of a road and is less than one foot deep. Though this habitat is unlikely to support a self-sustaining population of California linderiella fairy shrimp, this species is known to occur sporadically in such habitats. No focused surveys for California linderiella fairy shrimp were conducted in the biological study area, but hundreds of fairy shrimp were observed in a large indented area during aquatic habitat assessments in November 2008. Shrimp were not collected and could not be identified. Therefore, this species is assumed to be present in the biological study area.

Environmental Consequences

Bats

Demolition and removal of bat roosts could cause roost abandonment or direct mortality of adult bats or their young. Construction during the day in spring and summer could adversely affect bat nursery colonies at a critical phase of breeding, resulting in significant impacts to bats.

The project would permanently remove 47.4 acres of orchards that provide potential roosting and foraging habitat for bats. Additionally, up to 63.6 acres of other agricultural fields, grassland, and ruderal/disturbed habitat would be permanently removed. These habitats provide potential foraging areas for bat species.

Access and staging areas totaling 41.3 acres would be temporary impacts to potential bat foraging habitat.

Western Burrowing Owl

The project would permanently remove a maximum of 105 acres of non-native grasslands and agricultural land that provide potential burrows and foraging habitat for the western burrowing owl. Additionally, up to 66 acres of this habitat would be temporarily affected by access and staging areas. Construction activities such as nearby noise or disturbance that damage burrows or prevent adult bats and their young from normal foraging activities could adversely affect the owls. Displacement from burrows could directly affect burrowing owls.

White-tailed Kite

The project would result in 63.6 acres of permanent and 41.3 acres of temporary impacts to non-native grasslands, non-orchard agricultural fields, and ruderal/disturbed areas that provide suitable foraging habitat for white-tailed kite.

White-tailed kites could nest in trees along State Route 99 and Golden State Boulevard. Construction during the breeding season could disturb nesting activities, possibly resulting in nest abandonment, loss of young and reduced health and vigor of eggs and/or nestlings. Removal of any active nest or otherwise injuring, pursuing or killing a white-tailed kit or their young or eggs is prohibited under the California Endangered Species Act and the Migratory Bird Treaty Act and would constitute a substantial impact. Implementation of preconstruction surveys and avoidance and minimization measures would prevent direct impacts to white-tailed kits.

California Horned Lark

The project would remove a maximum of 57.6 acres of non-native grasslands and agricultural fields that provide potential nesting and foraging habitat for this species. Up to 37.1 additional acres of these habitats would be temporarily affected by access and staging areas. Construction during the breeding season could disturb nesting activities, possibly resulting in nest abandonment, loss of young and reduced health and vigor of eggs and/or nestlings.

Loggerhead Shrike

Loggerhead shrikes could nest in the biological study area. Construction during the breeding season could disturb nesting activities, possibly resulting in nest abandonment, loss of young, and reduced health and vigor of eggs and/or nestlings.

California Linderiella Fairy Shrimp

Direct impacts to California linderiella fairy shrimp and California linderiella fairy shrimp habitat include grading, disking, filling, excavating, or paving areas of ponding water within the biological study area. Three of the 11 seasonal depressions totaling 0.558 acre of potential California linderiella fairy shrimp habitat would be directly affected by road construction.

Indirect impacts to California linderiella fairy shrimp and California linderiella fairy shrimp habitat include altering the drainage patterns around the area of ponding water within a 250-foot buffer. Hydrology to pooling areas may be disrupted, increased, or decreased. Impacts to hydrology may negatively affect the pooling areas. In addition, construction related wash water or petrochemicals from equipment leaks could enter the pooling areas, adversely affecting water quality and directly killing any shrimp present.

Project activities that occur within 250 feet of California linderiella fairy shrimp habitat are considered indirect effects. Eight seasonal depressions consisting of 0.312 acre of potential California linderiella fairy shrimp habitat is within 250 feet of project construction and would be affected indirectly by road construction.

Avoidance, Minimization, and/or Mitigation Measures

Bats

The following avoidance and minimization measures would minimize any potential impacts to special status bats:

- The year prior to the start of construction, focused bat roosting surveys would determine whether the trees in the biological study area provide roosting habitat for bat colonies. Focused roosting surveys should be conducted between April 1 and September 15 when bats are most likely present in the biological study area. Focused day surveys would search for day roosting bats, suitable entry points, roost cavities or crevices, and bat carcasses, fecal matter and urine staining. If bats are found to occupy the biological study area, a qualified bat biologist must conduct focused day and night emergence surveys to determine population size and bat species present. The bat biologist would use this information to prepare a Bat Exclusion and Mitigation Plan to be approved by the City of Fresno, California Department of Fish and Game, and Caltrans. Bats can only be evicted from their roosting colonies between March 1 to April 15 and August 15 to October 15.

- If bats were not detected during focused surveys, or if bats were evicted, a preconstruction bat survey of all structures and trees to be affected by the project would be done no more than 14 days prior to construction start by a qualified biologist familiar with bats, their habitats, and identification of bat sign.

Western Burrowing Owl

- The year prior to construction start, protocol level surveys for burrowing owl in accordance with the California Department of Fish and Game Staff Report on Burrowing Owl (1995) must be conducted to determine use of the biological study area by burrowing owls and to allow time to develop a Burrowing Owl Mitigation Plan in consultation with the California Department of Fish and Game.
- A preconstruction survey for nesting burrowing owls would be conducted in the biological study area and vicinity by a qualified biologist no more than 30 days prior to initiation of earthmoving activities. Any active burrow found during preconstruction surveys would be mapped on the construction plans. If no active burrows are found, no further avoidance, minimization, or mitigation measures are required. Results of preconstruction surveys would be provided to the California Department of Fish and Game.
- If burrowing owls are observed within the biological study area during either the year prior to construction or the 30 day preconstruction surveys, a Burrowing Owl Mitigation Plan would be developed by a qualified biologist in cooperation with the California Department of Fish and Game. The mitigation plan would likely require no disturbance to occur within 60 feet of occupied burrows during the non-breeding season (September 1 through January 31) or within 250 feet (or otherwise determined by the biologist and the California Department of Fish and Game) during the breeding season (February 1- August 31). If owls must be moved away from the disturbance area, passive eviction and relocation is preferable to trapping. Relocation would only be used during the non-breeding season by a qualified biologist and would occur in coordination with the California Department of Fish and Game. Owls would be excluded from burrows in the immediate impact zone by installing one-way doors in burrow entrances. One-way doors would be left in place 48 hours prior to construction to ensure owls have left the burrow before excavation begins.

White-tailed Kite

- Preconstruction surveys for white-tailed kite and their nests in the biological study area and a 0.5-mile buffer around the biological study area are required no more than 14 days prior to construction, if construction is to occur during the nesting season (February 15 to September 1).
- All trees scheduled for removal would be removed during the non-nesting season (between September 2 and February 14) to avoid take of a nest or bird. If trees have to be removed during the nesting season, a qualified biologist must first survey these trees for nesting birds.
- If white-tailed kites are observed within 0.5 mile of the biological study area, a qualified biologist would evaluate the potential for the proposed project to disturb nesting activities.
- If white-tailed kites are observed within 0.5 mile of the biological study area, California Department of Fish and Game would be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities and whether a biological monitor is required. California Department of Fish and Game may require a construction buffer around the nesting birds or may require that construction within 0.5 mile of the nest stop until nesting is complete.

California Horned Lark

- A preconstruction survey for nesting horned larks would be conducted in the biological study area and a 250-foot buffer established by a qualified biologist no more than 14 days prior to initiation of earthmoving activities if the project is to be constructed during the nesting season (February 15 to September 1).
- If nesting horned larks are found within the biological study area, a setback of 500 feet (or as determined as appropriate by the biologist) from the nesting area would be established and maintained during the nesting season from nest building to fledglings leaving the nest. This setback applies whenever construction or other ground disturbing activities must begin when nests are occupied.
- Setbacks would be marked by brightly colored temporary fencing.

Loggerhead Shrike

- A preconstruction survey for nesting loggerhead shrikes would be conducted in the biological study area and a 250-foot buffer established by a qualified biologist no more than 14 days prior to the start of construction or vegetation removal during the nesting season.
- If nesting loggerhead shrikes are found within the biological study area, a setback of 500 feet (or as determined appropriate by the biologist) from the nesting area would be established and maintained from February 15 to September 1.
- Setbacks would be marked by brightly colored temporary fencing.

California Linderiella Fairy Shrimp

Minimization measures would include the following provisions:

- All on-site construction personnel shall receive pre-construction training by a qualified biologist regarding the assumed presence of California linderiella fairy shrimp and the importance of avoiding impacts to these species and their habitat.
- Potential California linderiella fairy shrimp habitat not directly impacted by project construction would be designated as environmental sensitivity areas in the field and clearly indicated as such on project construction plans.
- Environmental sensitivity areas would be fenced with brightly colored fencing prior to beginning construction. Environmental sensitivity area fencing would be placed at least 10 feet from the upper edge of the seasonal depressions. No building related activities would be allowed in the environmental sensitivity area.
- Best management practices such as straw swaddles would protect California linderiella fairy shrimp habitat from construction runoff.
- A qualified biologist would monitor the environmental sensitivity area fence installation and inspect environmental sensitivity area fencing once weekly to ensure compliance.

2.3.3 Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 USC Section 1531, et seq. (see also 50 CFR 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: 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 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." California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by 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.

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

such anadromous species, continental shelf fishery resources, and fishery resources in special areas.

Affected Environment

The impacts to biological resources from Alternatives 1 and 4 are very similar. Consequently, for the purpose of this impacts evaluation, the maximum impacts of the two alternatives are discussed.

A Natural Environment Study for the project was completed in February 2011. A list of sensitive wildlife and plant species potentially occurring within the biological study area and a 10-mile radius of the biological study area was compiled to evaluate potential impacts resulting from project construction. Sources used to compile the list include the California Natural Diversity Data Base 2010, the U.S. Fish and Wildlife Service online list (2011), and the California Native Plant Society Online Edition (2011) referencing the Madera, Gregg, Lanes Bridge, Biola, Herndon, Fresno North, Fresno South, Kearney Park, and Kerman 7.5' minute United State Geological Survey quadrangles. These lists are included in the Veterans Boulevard Natural Environmental Study.

The special status species lists obtained from the California Natural Diversity Data Base, California Native Plant Society, and U.S. Fish and Wildlife Service were reviewed to determine which species could potentially occur within the vicinity of the biological study area (see Table 2.29 and Appendix H).

The determination of whether a species could potentially occur within the biological study area was based on the availability of suitable habitat within the species' known range. Species requiring specific habitat not present in the vicinity of the project were eliminated as potentially occurring and are not discussed further.

Table 2.29: List of Threatened and Endangered Species that have Potential to Occur within the Biological Study Area and in a 10-Mile Radius of the Biological Study Area

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Mammals					
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE; SE	Historically occupied grassland and alkali desert scrub communities of the San Joaquin Valley floor. This subspecies is restricted to a few remaining alkali sink areas of marginal habitat.	A	No habitat exists in the biological study area. Not observed during surveys. No recent CNDDB occurrences exist (records are from 1890s); this species has a very limited distribution. There are no known remaining populations of this species in Merced, Madera, or Fresno Counties. Habitat no longer exists for two records; two other records from 1934 are 0.5–5 miles west of Kiernan. A record from 1898 is 4 miles southeast on State Route 99.
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST	Inhabits annual grasslands or grassy open stages with scattered shrubby vegetation. Requires loose-textured sandy soils for burrowing.	A	No suitable denning or foraging habitat exists in the biological study area. No kit fox observed during USFWS protocol level surveys. One CNDDB occurrence exists within 10 miles, dating back to 1993. Most of the development on this end of town occurred within the last 20 years, rendering San Joaquin kit fox habitat unsuitable.
Birds					
Buteo swainsoni	Swainson's hawk	ST	The species breeds in stands with few trees in juniper-sage flats, riparian areas and oak savannahs. It requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	HP	Foraging and nesting habitat is present in the biological study area. The species was not observed during surveys. There are no CNDDB records within 10 miles of the biological study area.
Reptiles					
Gambelia sila	Blunt-nosed leopard lizard	FE, SE	The species inhabits open, sparsely vegetated areas in the San Joaquin Valley including native-type grasslands, alkali playa, chenopod	A	No habitat is in the biological study area. The species was not observed during surveys. Grassland areas in the biological study area are heavily degraded and disturbed. This

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			scrub, and valley saltbush scrub. The species is not found in heavily degraded areas.		species has a very limited distribution on the Valley floor and in the foothills of the coastal range. There are no CNDDB records within 10 miles of the biological study area.
Thamnophis gigas	Giant garter snake	FT; ST	The species is found in streams and sloughs, usually with mud bottoms. The species is one of the most aquatic of garter snakes and is usually found in areas of freshwater marsh, low-gradient streams with emergent vegetation, drainage canals, irrigation ditches, ponds, and small lakes.	A	Habitat is not present in the biological study area. The species was not observed during surveys. There are no CNDDB records within 10 miles of the biological study area.
Amphibians					
Ambystoma californiense	California tiger salamander	FT; CSC	The species is most commonly found in grasslands or open woodland habitats. It lives in vacant or mammal-occupied burrows (e.g., California ground squirrel, valley pocket gopher) and occasionally other underground retreats throughout most of the year. It lays eggs on submerged stems and leaves, usually in shallow ephemeral or semi-permanent pools and ponds that fill during heavy winter rains. Sometimes it lays eggs in permanent ponds.	A	Habitat is not present in the biological study area. The species was not observed during surveys. The closest CNDDB record (2001) is 0.5 mile northeast.
Rana aurora draytonii	California red-legged frog	FT	The species is found in lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation; it also requires uplands for estivation.	A	No habitat is in the biological study area. Not observed during surveys. No CNDDB listed occurrences within 10 miles.
Invertebrates					

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Branchinecta conservatio	Conservancy fairy shrimp	FE	The species is found in turbid playa pools in grasslands of the Central Valley. It requires a cool, stable temperature regime. Generally it is found in larger, deeper pools that remain inundated for 3–4 months.	A	Habitat is not present in the biological study area. The species was not observed during aquatic assessment surveys. No fairy shrimp dip net surveys were done. There are no CNDDB records for this species from Fresno or Madera County.
Branchinecta lynchi	Vernal pool fairy shrimp	FT	The species is endemic to the grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains. It is typically associated with small, shallow vernal pools with relatively short periods of inundation. The species is found in larger pools in the southern extent of its range.	HP	Habitat is present in the biological study area. No protocol level surveys were done. However, shrimp were observed in areas of standing water during aquatic assessment surveys. There are 12 CNDDB records within 10 miles of the biological study area, most are north of Fresno.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	The species occurs only in the Central Valley in association with blue elderberry (*Sambucus mexicana*). It prefers branches greater than 1 inch (2.5 cm) in diameter.	HP	Two elderberry shrubs occur in the biological study area but 200 feet beyond the project impacts area. There are two CNDDB records within 10 miles of the biological study area. A stem inventory and VELB exit hole survey was conducted.
Cordylanthus palmatus	Palmate-bracted bird's-beak	FE, SE, CNPS 1B	The species is an annual hemiparasitic that lives in alkaline valley and foothill grassland, chenopod scrub (15–510 feet elevation). It blooms May to October.	A	Habitat is not present. The species was not observed during surveys. The biological study area is regularly disturbed and soils are mildly acidic. The sole CNDDB record is from 1937 and more than 10 miles from the biological study area.

Source: Natural Environment Study (April 211)

Status Codes

Federal

FE: Federally listed; Endangered
FT: Federally listed, Threatened
FPE: Federally Proposed for Listing as Endangered elsewhere in their range.

California Native Plant Society (CNPS) designations:

List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common

FPT: Federally Proposed for Listing as Threatened
FC: Federal Candidate
FD: Federally Delisted
State
ST: State listed; Threatened
SE: State listed; Endangered
SFP: State Fully Protected
SWL: State Watch List
CSC: California Species of Special Concern
CNDDB: California Natural Diversity Database
CA SA: Special Animal: General term that refers to taxa that the CNDDB is interested in tracking regardless of legal or protection status: Includes the following categories in addition to those listed above:

- Taxa that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
- Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools, etc.)
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).

List 3: Plants about which we need more information; a review list.

List 4: Plants of limited distribution; a watch list
Habitat Presence:
HP: Habitat is, or may be present
P: Species is present
A: No habitat present and no further work needed

ft=feet **mi.=miles** **NE=Northeast** **SE=Southeast** **cm=centimeter(s)**

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is a State-listed threatened species and a U.S. Fish and Wildlife Service Migratory Non-game Bird of Management Concern. Swainson's hawks are long distance migrants, wintering primarily in South America and returning north to breed. In California, Swainson's hawks occur in the northeastern portion of the state, in the Great Basin Province, and in the Central Valley. They return to the Central Valley in mid-March, and begin migrating south in August. Nests are built in the tops of large trees, primarily those associated with riparian habitats. Swainson's hawks prefer nesting areas that provide nearby foraging grounds of grasslands, irrigated pasture, alfalfa, hay and wheat crops. In California, Swainson's hawks have become almost entirely dependent on annual grassland and crops such as alfalfa for foraging habitat. Agriculture and urbanization have eliminated most of the native grassland that formerly provided foraging habitat for this species. The hawks are known to forage up to 15 miles from their nest sites.

The biological study area is located at the eastern edge of the range for Swainson's hawks in the Central Valley. All of the records for this species are 14 miles or more west of the biological study area and are associated with a river.

Suitable Swainson's hawk nest trees are present in the biological study area. The trees are on State Route 99 and around the buildings between State Route 99 and Golden State Boulevard. No Swainson's hawks or their nests were observed during surveys.

The agricultural fields, grasslands, and ruderal/disturbed areas in the biological study area provide 268.9 acres of potential foraging habitat for Swainson's hawks.

Valley Elderberry Longhorn Beetle

The Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as threatened. This species ranges from Redding to Bakersfield, into the western foothills of the Sierra Nevada Mountains, and into the eastern foothills of the coastal range. Critical habitat was designated for Valley elderberry longhorn beetle in Sacramento County and essential habitat for the recovery of the species exists in Solano County. The Valley elderberry longhorn beetle is typically found in mature riparian vegetation associated with large river systems, but its range extends from the valley floor to 3,000 feet in elevation.

The beetle is dependent on its host plant, blue elderberry (*Sambucus mexicana*), which is a common component of Central Valley riparian forests. Valley elderberry longhorn beetle larvae feed and mature within elderberry stems one inch or larger in

diameter and then exit prior to metamorphosing to the pupal stage. Exit holes created by the larvae are generally the only evidence of beetle use. Because the larval beetles cannot be detected within the stems until the adults emerge, Valley elderberry longhorn beetle are assumed to be present within stems of sufficient size anywhere within the beetle's known range.

There are two elderberry plants in the north end of the biological study area adjacent to the base of an overhead transmission line (see Figure 5). The plants are 200 feet outside of the project impact area. The plants have multiple stems of one-inch diameter at ground level or larger that could support Valley elderberry longhorn beetle larvae. The California Natural Diversity Database has a record of Valley elderberry longhorn beetle approximately 2 miles north of the biological study area near the San Joaquin River. The Valley elderberry longhorn beetle was not observed, but potential Valley elderberry longhorn beetle exit holes exist on both shrubs.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is federally listed as threatened. The species is endemic to vernal pools and similar ephemeral freshwater habitats and ranges in the Central Valley from Shasta County to Merced County and northern Fresno County. Vernal pool fairy shrimp are known to occur in disjunct populations within various sized vernal pools and swales throughout most of the length of the Central Valley. Vernal pool fairy shrimp typically inhabit vernal pools with clear to tea-colored water but are most commonly in grass- or mud-bottomed swales, or basalt flow depressions; they are also found in other seasonally ponded areas. Vernal pool fairy shrimp are also known to occupy human-made areas that regularly pool water of at least 1 inch in depth for 14 days or longer. These areas can be tire tracks, livestock ponds, or other artificially created areas that hold water.

This species can mature quickly (three to four weeks) and is tolerant of variation in water temperature. These characteristics allow populations to persist in short-lived, shallow pools; vernal pool fairy shrimp would also persist later into the spring where pools are longer lasting. Vernal pool fairy shrimp appear to have a sporadic distribution within vernal pool complexes, often only inhabiting a few pools.

There are 11 small human-made depressions within the biological study area that become inundated during the rainy season. These areas are along dirt roads and the railroad tracks. The largest area, which is less than one foot deep, is at the end of a dirt section of road within the proposed Veterans Boulevard alignment south of

N. Hayes Avenue. No focused surveys for vernal pool fairy shrimp were conducted in the biological study area, but an assessment of the aquatic habitat in the biological study area was conducted in November 2008 where 100s of fairy shrimp were observed in a large inundated area south of N. Hayes Avenue. Though this habitat is unlikely to support a self-sustaining population of vernal pool fairy shrimp, this species is known to occur sporadically in such habitats, and vernal pool fairy shrimp is assumed to be present.

Environmental Consequences

Swainson's Hawk

The project would result in 63.6 acres of permanent and 41.3 acres of temporary impacts to non-native grasslands, non-orchard agricultural fields, and ruderal/disturbed areas that provide suitable foraging habitat for Swainson's hawk.

If Swainson's hawks are nesting in or near the biological study area, construction during the breeding season could disturb nesting activities, possibly resulting in nest abandonment, loss of young birds, and reduced health and vigor of eggs and/or nestlings. Removal of any active nest or otherwise injuring, pursuing, or killing a Swainson's hawk or their young or eggs is prohibited under the California Endangered Species Act and the Migratory Bird Treaty Act and would constitute a substantial impact.

The proposed project would not result in 'take' of any species listed as threatened or endangered under California Endangered Species Act. Therefore, no California Department of Fish and Game incidental take permit is required. If Swainson's hawk or other nesting migratory birds or California burrowing owls are found during pre-construction surveys, the California Department of Fish and Game would be consulted to determine avoidance and minimization measures and any mitigation measures that may be required.

Valley Elderberry Longhorn Beetle

The U.S. Fish and Wildlife Service considers all construction activities within 20 feet of an elderberry shrub to constitute a potentially adverse affect to Valley elderberry longhorn beetle and construction activities within 100 feet of an elderberry shrub are considered potential effects to Valley elderberry longhorn beetle and require formal Section 7 consultation under the Endangered Species Act to determine impacts to Valley elderberry longhorn beetle.

The two elderberry shrubs located in the biological study area are beyond 100 feet of any construction activities known at this time. Staging areas and access roads, however, are not known at this time and design of roadways could change. Thus there is a potential for unforeseen changes to impact the elderberry shrubs. The shrubs could be removed or trimmed or dust from construction could impact the Valley elderberry longhorn beetle's flight patterns.

Due to the avoidance and minimization measures listed below, the proposed project would not impact Valley elderberry longhorn beetle or its host plant.

Vernal Pool Fairy Shrimp

Direct impacts to vernal pool fairy shrimp and vernal pool fairy shrimp habitat include grading, disking, filling, excavating or paving areas of ponding water within the biological study area. Three of the 11 seasonal depressions cannot be avoided and would be directly affected due to road construction. Direct impacts to vernal pool fairy shrimp habitat total 0.558 acre.

Indirect impacts to vernal pool fairy shrimp and vernal pool fairy shrimp habitat include altering the drainage patterns around the area of ponding water within a 250-foot buffer. Hydrology to pooling areas may be disrupted or increased or decreased, negatively affecting the pooling areas. Construction related wash water or petrochemicals from equipment leaks could enter the pooling areas, adversely affecting water quality and directly killing any shrimp present.

Project activities that occur within 250 feet of vernal pool fairy shrimp habitat are considered indirect effects. Eight seasonal depressions consisting of 0.312 acre of potential vernal pool fairy shrimp habitat are within 250 feet of project construction. The depressions, therefore, would be indirectly affected by road construction.

The proposed project is likely to adversely affect vernal pool fairy shrimp and/or its habitat. The species is listed as endangered under Federal Endangered Species Act. Due to the implementation of the avoidance and minimization measures, however, the proposed project would have no effect on vernal pool fairy shrimp. Consultation with U.S. Fish Wildlife Service for impacts to vernal pool fairy shrimp is required under Section 7 of Federal Endangered Species Act and a Biological Assessment was prepared and submitted to U.S. Fish Wildlife Service on August 4, 2011 to address these impacts. On August 4, 2011, Caltrans, acting as the federal lead for National Environmental Policy Act, initiated consultation with U.S. Fish Wildlife Service.

The mitigation proposed for effects to the vernal pool fairy shrimp is consistent with the mitigation set forth in the U.S. Army Corps of Engineers Programmatic Biological Opinion on Listed Vernal Pool Crustaceans dated February 28, 1996 (Appendix F). It is anticipated that the U.S. Fish Wildlife Service would conclude that the mitigation proposed for effects to the vernal pool fairy shrimp would adequately compensate for impacts to this species.

Avoidance, Minimization, and/or Mitigation Measures

Swainson's Hawk

- All trees scheduled for removal would be removed during the non-nesting season (September 2 to February 14) to avoid take of a nest or bird. All trees to be removed during the nesting season must be cleared by a qualified biologist.
- Preconstruction surveys for nesting Swainson's hawks would be conducted in the biological study area and within a 0.5-mile radius of the biological study area if construction would occur during the nesting season (February 15 to September 1). Surveys would be conducted by a qualified biologist and would occur a maximum of 14 days prior to the start of vegetation clearing and groundbreaking activities.
- If nesting Swainson's hawks are found within 0.5 mile of the biological study area, a qualified biologist, in consultation with the California Department of Fish and Game, would evaluate the potential for project activities to disturb nesting.
- California Department of Fish and Game would be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities and whether or not a biological monitor is required. California Department of Fish and Game may require a construction buffer around the nesting birds, a biological monitor to be on-site, or that construction within 0.5 mile of the nest tree stop until nesting is complete.

Valley Elderberry Longhorn Beetle

The elderberry shrubs are 200 feet from the project impact area and no ground-disturbing project activities would occur within 200 feet of the elderberry shrubs. The location of the elderberry shrubs would be marked on the construction plans.

- Before groundbreaking activities, the elderberry shrubs would be protected with 4-foot-high orange mesh plastic fencing 100 feet from the edge of the

shrub's drip line. The fencing would be strung tightly on posts set a maximum of 9 feet apart. The fencing would be checked and maintained weekly by a qualified biologist. The area inside the fencing would be designated an environmentally sensitive area and marked as such on the plans. Signs attached to the fencing would mark this area as an environmentally sensitive area and state that "This is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. The species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." No personnel or equipment is allowed access to the environmentally sensitive area at any time.

- Dust control best management practices would be used in the environmentally sensitive area to prevent disruption of flight patterns of any Valley elderberry longhorn beetle present on the shrubs. Dust control measures on un-vegetal areas may include the application of water to graded and disturbed land. To avoid attracting Argentine ants, at no time would water be sprayed within the environmentally sensitive area.
- Mandatory preconstruction training by a qualified biologist for the contractor and all personnel working on-site would address the Valley elderberry longhorn beetle, the environmentally sensitive area, and the measures listed above.

Vernal Pool Fairy Shrimp

Minimization measures would include the following provisions:

- All on-site construction personnel would receive preconstruction training by a qualified biologist regarding the assumed presence of vernal pool fairy shrimp and the importance of avoiding impacts to these species and their habitat.
- Potential vernal pool fairy shrimp habitat not directly affected by project construction would be designated as environmentally sensitive areas clearly indicated as such on project construction plans.
- Environmentally sensitive areas would be protected by brightly colored fencing prior to beginning construction. Environmentally sensitive area fencing would be placed at least ten feet from the upper edge of the seasonal depressions. No construction activities would be allowed in the environmentally sensitive area.

- Best management practices such as straw swaddles would protect vernal pool fairy shrimp habitat from construction runoff.
- A qualified biologist would monitor the environmentally sensitive area fence installation and inspect the fencing once weekly to ensure compliance.

2.4 Cumulative Impacts

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act Guidelines Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under the California Environmental Quality Act can be found in Section 15355 of the California Environmental Quality Act Guidelines. A definition of cumulative impacts under the National Environmental Policy Act can be found in 40 Code of Federal Regulations, Section 1508.7 of the Council on Environmental Quality regulations.

Impacts to project-specific resources have been discussed throughout this document. Section 2.1 Human Environment described potential environmental impacts in land use, growth, farmlands/timberlands, community impacts, utilities, and transportation. Section 2.2 Physical Environment addressed potential impacts to visual/aesthetics, cultural resources, hydrology and floodplains, water quality, geology, paleontology, hazardous materials and air quality. Section 2.3 Biological Environment described

potential impacts to natural communities, wetlands, plant species, animal species, threatened and endangered species, and invasive species.

Based on these analyses, it was determined that the following resources may be cumulatively affected by the proposed project:

- Farmlands/Timberlands
- Visual/Aesthetics
- Water Quality
- Air Quality
- Natural Communities
- Wetlands and Other waters
- Threatened and Endangered Species

Global climate change was not included in this cumulative analysis. Climate change is by its very nature a cumulative impact and is discussed separately in Section 3.2.6.

Affected Environment

Table 2.30 explains each of the above resources and the area studied for the purpose of the cumulative impact analysis.

Table 2.30: Resource Area Considered for Cumulative Impacts Analysis

Resource	Area Studied
Farmlands/Timberlands	Proposed Veterans Boulevard corridor (1-mile radius) from Shaw Avenue (south) to Herndon Avenue (north)
Visual/Aesthetics	Proposed Veterans Boulevard corridor (1-mile radius) from Shaw Avenue (south) to Herndon Avenue (north)
Water Quality	Tulare-Buena Vista Watershed
Air Quality	San Joaquin Valley Air Pollution Control District regulatory boundary
Noise	Proposed Veterans Boulevard corridor (1-mile radius) from Shaw Avenue (south) to Herndon Avenue (north)

Table 2.31 summarizes the proposed development in the project area that may contribute to cumulative impacts for the proposed project. This table includes recently built projects and reasonably foreseeable future projects that would potentially affect the same resources as the proposed project. This list was compiled from the City of Fresno 2035 General Plan.

Table 2.31: Projects Evaluated for Cumulative Impacts Analysis

Name	Proposed Uses
El Paseo (northwest Fresno)	The proposed project is in northwest Fresno and is generally bound by W. Herndon Ave. to the north, N. Bryan and W. Bullard avenues to the east, Carnegie Avenue to the south, and State Route 99 to the west. The applicant proposes to develop a 238-acre project at the northwest gateway of the City of Fresno. The final development would include retail, office, hospitality, and entertainment uses.
Westlake (northwest Fresno)	Granville at Westlake, Inc. is proposing to develop a 460-acre project with residential and commercial uses within an area west of State Route 99 bounded by W. Gettysburg Ave., W. Shields Ave., N. Garfield Ave., and N. Grantland Ave.

Environmental Consequences

Farmlands/Timberlands

A 1-mile radius around the proposed Veterans Boulevard corridor from Shaw Avenue (south) to Herndon Avenue (north) was used to evaluate the potential for significant cumulative effects. The only other proposed project within the 1-mile radius to impact farmland is the El Paseo (northwest Fresno). The proposed project would convert 130.5 acres of California Resource Agency–designated farmland of statewide importance to commercial land use. However, the project would not cause other impacts that could convert agricultural land to nonagricultural use. The farmland impact analysis concluded that the proposed project would result in no substantial impacts under the California Environmental Quality Act to prime farmland, farmland of statewide importance, or regional importance. In additional, no substantial impacts to any property held under a Williamson Act contract was found. As such, the proposed project would not have cumulatively considerable impacts to farmlands.

Visual/Aesthetics

Developments next to the proposed Veterans Boulevard corridor from Shaw Avenue (south) to Herndon Avenue (north) were used to evaluate the potential for substantial cumulative effects. The proposed project would not substantially degrade the total visual experience for the roadway user along the route. The regional landscape currently consists of an urbanized environment with similar features to those proposed by the project. Additionally, the proposed improvements are added to an already-existing freeway infrastructure on State Route 99. The introduction of a new interchange and grade separation are new prominent features. The existing view quality would be affected by this change; however, it would not be substantially

degraded by the proposed project. With avoidance and/or minimization measures, the proposed project would not have cumulatively considerable impacts to visual/aesthetic resources.

Water Quality

The Tulare-Buena Vista watershed was used as the study area for the cumulative water quality impacts analysis. The analysis concluded the proposed project would not substantially affect water quality. All projects listed in Table 2.34 have potential to affect water quality temporarily during construction and permanently. Impervious surfaces, a construction result of most of those projects, would increase the amount of storm-water runoff as well as introduce new sources of pollutants that, if transported to surface water bodies, could degrade water quality. With mitigation measures, the proposed project would not have cumulatively considerable impacts to water quality.

Air Quality

Developments within the jurisdiction of the San Joaquin Valley Air Pollution Control District were studied for cumulative impacts to air quality. For the pollutant particulate matter 10, a 1-mile radius around the proposed project was used as the study area. A project is not eligible for federal funds unless it is found to be in conformance with the applicable State Implementation Plan. The proposed project is included in the State Transportation Improvement Program that is considered to be in conformance with the State Implementation Plan. With mitigation measures, the proposed project would not have cumulatively considerable impacts to air quality. The project is also included in the Fresno Regional Transportation Plan and conforms to the Federal Transportation Improvement Program. With mitigation measures, the proposed project would not have cumulatively considerable impacts to air quality.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required.

Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance Under the California Environmental Quality Act

The proposed project by the California Department of Transportation (Caltrans) and the Federal Highway Administration 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. Federal Highway Administration responsibility for environmental review, consultation, and any other action required in accordance with 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 USC 327. Caltrans is the lead agency under the California Environmental Quality Act and National Environmental Policy Act.

One of the primary differences between 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, would 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 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 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 a significant effect on any environmental resource is possible, an environmental impact statement 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 that 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 this project and California Environmental Quality Act significance.

3.2 Discussion of Significant Impacts

Less than Significant Effects of the Proposed Project

The California Environmental Quality Act Checklist concluded in Appendix A the following impacts would have a less than significant effect on the environment:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Cultural Resources
- Geology and Soil
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Service
- Recreation
- Transportation
- Utilities and Service System

Significant Environmental Effects of the Proposed Project

The following impacts would have a significant effect on the environment without mitigation:

- Biological Resources
- Hazard and Hazardous Materials
- Hydrology and Water Quality

Unavoidable Significant Environmental Effects

Noise

A significant impact would occur under California Environmental Quality Act if the project resulted in a significant noise increase over existing baseline conditions. Whether the significant increase would result in a significant adverse impact is determined based on the context and intensity of the significant noise increase by comparing the existing noise level to the predicted noise level with the project.

Modeling results indicate that of the 124 modeled receptor locations, 55 would experience a significant increase in traffic noise levels for 2035 under with-project conditions compared to the noise levels experienced under existing conditions. These affected modeled receptor locations represent 142 single-family residential units with implementation of Alternative 1 (Base) and 145 single-family residential units with implementation of Alternative 4 (Jug Handle).

It should be noted that, as shown in Table 2.24, no modeled receptor location would experience traffic noise levels that would exceed the City's maximum allowable noise exposure standard of 65 dBA L_{dn}[1] for residential land uses from transportation noise sources.[2]

Based on the studies conducted to date as summarized in the noise impact analysis of this document, there are no abatement or mitigation in the form of sound barriers that would be considered reasonable for this project. Therefore, the affected residences would experience a significant and unavoidable increase in noise levels with implementation of the proposed project. If during final design, conditions have substantially changed, noise abatement may be determined necessary. The final decision on noise abatement would be made upon completion of the project design and the public involvement processes.

Significant Irreversible Environmental Changes

None.

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[1] The noise levels shown in Table 2.24 are stated in terms of peak-hour L_{eq}. However, peak-hour noise levels are always in excess of the weighted 24-hour average day-night noise level L_{dn}. As shown in Table 2.24, no predicted noise level would exceed 65 dBA L_{eq}, and therefore, no predicted noise level would exceed the 65 dBA L_{dn} threshold.

[2] Fresno, City of. 2002. *2025 Fresno General Plan Noise Element*. Table 8. February. It should be noted that noise levels of up to 65 dBA L_{dn} are considered acceptable for residential units in the vicinity of the Burlington Northern Santa Fe and Union Pacific mainline tracks, such as the proposed project vicinity.

3.2.1 Climate Change under the California Environmental Quality Act

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 gases, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization's 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 gasses related to human activity and include carbon dioxide (CO_2), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

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 due to climate change such as adjusting transportation design standards to withstand more intense storms and higher sea levels.[1]

Transportation sources (passenger cars, light-duty trucks, other trucks, buses and motorcycles) in California are second only to electricity generation as a greenhouse gas emitting source. Conversely, the main greenhouse gas emissions source in the United States is electricity generation followed by transportation. The dominant greenhouse gas is CO_2, mostly from fossil fuel combustion.

There are four primary strategies for reducing greenhouse gas emissions from transportation sources: 1) improve system and operation efficiencies; 2) reduce growth of vehicle miles traveled; 3) transition to lower greenhouse gas fuels; and 4) improve vehicle technologies. To be most effective all four should be pursued collectively. The following regulatory setting section outlines state and federal efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

[1] http://climatechange.transportation.org/ghg_mitigation/

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 proactive approach to dealing with greenhouse gas emissions and climate change at the state level.

Assembly Bill 1493, Pavley. Vehicular Emissions: Greenhouse Gases (Assembly Bill 1493), 2002: requires the California Air Resources Board 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 United States 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 June 1, 2005, by then-Governor Arnold Schwarzenegger): the goal of this executive order is to reduce California's greenhouse gas emissions to the following levels: 1) 2000 levels by 2010; 2) 1990 levels by the 2020; and 3) 80 percent below the 1990 levels by 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: 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 plan that includes market mechanisms and implements rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing Assembly Bill 32, including the recommendations made by the State's Climate Action Team.

Executive Order S-01-07: Governor 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 10 percent by 2020.

Senate Bill 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.

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. 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 direct federal agencies to participate in the interagency Climate Change Adaptation Task Force that is engaged in developing a U.S. strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. Environmental Protection Act, 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 Act has the authority to regulate greenhouse gas. The Supreme Court held that the U.S. Environmental Protection Act Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution that 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. Environmental Protection Act 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 which 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 Act's Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles was published on September 15, 2009. 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 Act 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 memorandum on May 21, 2010.

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, 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 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 January 24, 2011, the U.S. Environmental Protection Agency along with the U.S. Department of Transportation and California announced a single timeframe for proposing fuel economy and greenhouse gas standards for model years 2017–2025 cars and light-trucks. Proposing the new standards in the same timeframe (September 1, 2011) signals continued collaboration that could lead to an extension of the current National Clean Car Program.

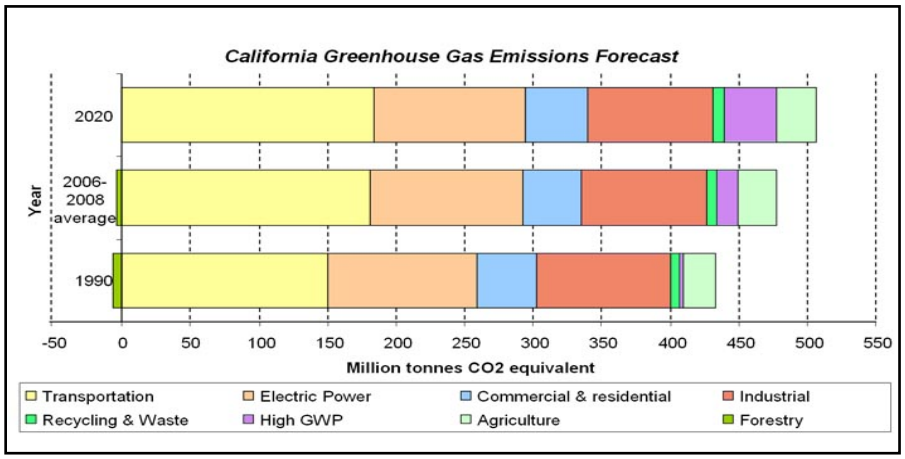
Project Analysis

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 participate in a potential impact through its incremental contribution combined with the contributions of all other

sources of greenhouse gas. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See 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 contains the main strategies California will use to reduce greenhouse gas. 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 forecast is an estimate 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.

Figure 3.1: California Greenhouse Gas Forecast

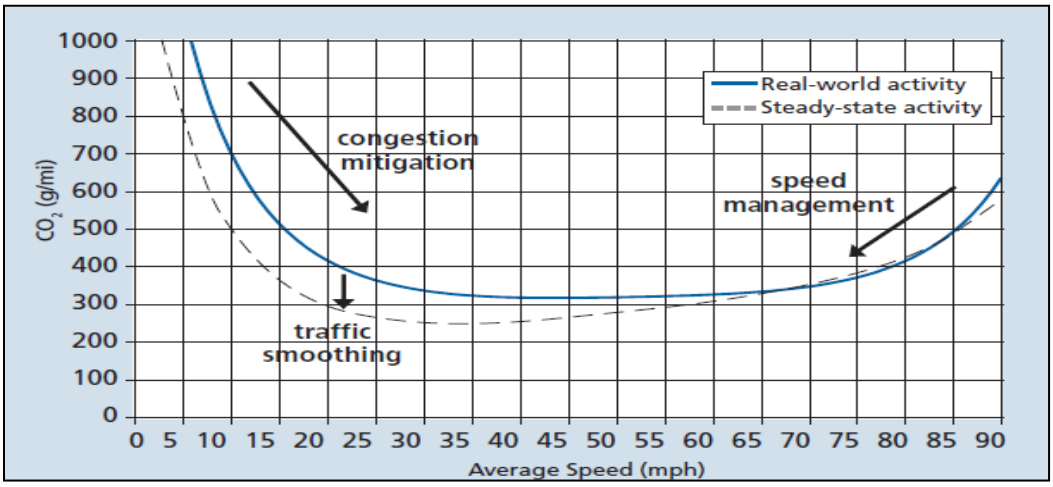


Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

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 (December 2006)

One of the main strategies in the Caltrans' Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. 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 mph; the most severe emissions occur from 0–25 miles per hour (see Figure 3.2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors greenhouse gas emissions, particularly CO_2, may be reduced.

Figure 3.2: Fleet CO_2 Emissions vs. Speed (Highway)



The purpose of the proposed project is to address potential delays and extensive queuing due to congestion, which would bring about inefficient fuel consumption, deteriorating air quality, and unacceptable level of service conditions. The proposed project would not generate new vehicular traffic trips since it would not construct new homes or businesses. However, there is a possibility that some traffic currently using other routes would be attracted to the new facility, thus resulting in slight increases in vehicle miles traveled. The impact of greenhouse gas emissions is a global rather than a local issue. However, due to lack of global models for project-level analyses, the impact of the build alternative on greenhouse gas emissions was calculated using traffic data for the project region. Using the roadway level of service data, segment lengths, and traffic volumes, LSA Associates calculated the local vehicle miles traveled and vehicle hours traveled within the project area. The project would reduce the regional vehicle miles traveled and vehicle hours traveled in 2035 (see Table 3.1).

Table 3.1: Regional Vehicle Miles Traveled and Vehicle Hours Traveled

Alternative	VMT	VHT	Average Speed
Existing	30,500	1,775	17.2 mph
2035 No-Build	61,400	4,480	13.7 mph
2035 Build	58,200	3,940	14.8 mph

Source: Traffic Operations Report (August 2010)

Table 3.2 lists the estimated daily CO_2 emissions associated with the vehicle trips in the project area for the Existing and 2035 conditions. These emissions are based on emissions factors from the EMFAC2007 model. The CO_2 emissions numbers listed in Table 3.3 are only useful for a comparison between project alternatives. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions would be because CO_2 emissions are dependent on other factors that are not part of the model such as the fuel mix (EMFAC model emission rates are only for direct engine-out CO_2 emissions, not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives such as ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles.

As shown in Table 3.2, the proposed project would result in a slight decrease in CO_2 emissions in the project area compared to the No Build Alternative. However, when compared to the existing conditions, both the 2035 No Build and 2035 Build Alternatives would result in an increase in CO_2 emissions in the project area.

Table 3.2: Carbon Dioxide Emissions by Alternative (metric tons)

	Existing Conditions	2035 No-Build Alternative	2035 Build Alternatives	Change from No- Build Alternative (%)
Carbon Dioxide Emissions	30.2	56.2	50.9	-5.3 (-9.4%)

Source: LSA Associates, Inc., 2010

According to *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in California Environmental Quality Act Documents*, 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 participate in a potential impact through its incremental contribution combined with the contributions of all other sources of Greenhouse Gas Emissions. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See California Environmental Quality Act Guidelines sections 15064(i)(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.

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 onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Construction emissions were estimated for the project using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 6.3.1. Total carbon dioxide emissions for construction of the project are estimated at 1,324 metric tons. As discussed below, idling times would be restricted to ten minutes in each direction for passenger cars during lane closures and five minutes for construction vehicles. Restricting idling times reduces harmful emissions from passenger cars and diesel-powered construction vehicles.

Operational Emissions

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. As part of the Climate Action Program at Caltrans, 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 is

working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and in light and heavy-duty trucks. However, it is important to note that control of the fuel economy standards is held by the Environmental Protection Agency and Air Resource Board. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California, Davis.

One of the main strategies to reduce greenhouse gas emissions is to make California's transportation system more efficient. 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. Relieving congestion by enhancing operations and improving travel times in high congestion travel corridors would lead to an overall reduction in greenhouse gas emissions.

California Environmental Quality Act Conclusion

While construction would result in a slight increase in greenhouse gas emissions during construction, it is anticipated that the project would not result in any increase in operational greenhouse gas emissions. Based on the project resulting in less congestion and improved safety, Caltrans anticipates that greenhouse gas emissions would not increase in the future build conditions when compared to the future no build conditions. 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 significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measurements are outlined in the following sections.

Greenhouse Gas Reduction Strategies

Assembly Bill 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as California Air Resources Board works to implement the Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Many of the strategies the Caltrans is using to help meet the targets in Assembly Bill 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 greenhouse gas 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 CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 3.3 The Mobility Pyramid.

Figure 3.3: The 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 is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting 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 that the U.S. Environmental Protection Act and Air Resources Board hold the control of the fuel economy standards. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California, Davis.

Table 3.3 summarizes Caltrans and statewide efforts that Caltrans 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 3.3: 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	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & greenhouse gas 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, California Environmental Protection Agency, Air Resource Board, California Energy Commission		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash	1.2 .36	3.6

Strategy	Program	Partnership		Method/ Process	Estimated CO_2 Savings (MMT)	
		Lead	Agency		2010	2020
				cement mix > 50% fly ash/slag mix		
Goods Movement	Office of Goods Movement	California Environmental Protection Agency, Air Resource Board, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated

Source: Caltrans, 2009. Standard Environmental Reference. July.

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures will be included in the project to reduce the greenhouse gas emissions and potential climate change impacts:

- Landscaping reduces surface warming, and through photosynthesis, decreases CO_2. The project proposes planting in the intersection slopes, drainage channels, and seeding in areas adjacent to frontage roads and planting a variety of different-sized plant material and scattered skyline trees where appropriate but not to obstruct the view of the mountains. Caltrans has committed to planting a minimum of 40 trees. These trees would help offset any potential CO_2 emissions increase. Based on a formula from the Canadian Tree Foundation , it is anticipated that the planted trees would offset between 7–10 tons of CO_2 per year.
- The project would incorporate the use of energy efficient lighting such as LED traffic signals. LED bulbs cost $60 to $70 apiece but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which would also help reduce the projects CO_2 emissions.
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction. In addition, the contractor must comply with Title 13, California Code of Regulations §2449(d)(3) was adopted by the Air Resources Board on June 15, 2008. This regulation restricts idling of construction vehicles to no longer than 5 consecutive minutes. Compliance with this regulation reduces harmful emissions from diesel-powered construction vehicles.

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 would 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.

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 would help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Schwarzenegger signed Executive Order S-13-08 directing a number of state agencies to address California's vulnerability to sea level rise caused by climate change. The California Natural Resources Agency, through the interagency Climate Action Team, was directed to coordinate with local, regional, state and federal public and private entities to develop a state Climate Adaptation Strategy. The Climate Adaptation Strategy would summarize the best known science on climate change impacts to California, assess California's vulnerability to the identified impacts, and then outline solutions that can be implemented within and across state agencies to promote resiliency.

As part of its development of the Climate Adaptation Strategy (see Table 3.1), the Natural Resources Agency was directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010 to advise how California should plan for future sea level rise:

- Relative sea level rise projections for California, 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

- 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 for California.

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.

Until the final report from the National Academy of Sciences is released, interim guidance has been released by The Coastal Ocean Climate Action Team 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, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects as of the date of Executive Order S-13-08 may, but are not required to, consider these planning guidelines.

Furthermore Executive Order S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level 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 impacts, Caltrans 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 would 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 report on Sea Level Rise Assessment which is due to be released in 2012.

While estimates vary, sea level is expected to rise an additional 22 to 35 inches by the year 2100.[1] Although these projections are on a global scale, the rate of sea level rise along California's coast is relatively consistent with the worldwide average rate observed over the past century. Therefore, it is reasonable to assume that changes in worldwide sea level rise would also be experienced along California's coast.[2] The area of the project would not be affected by a 1-meter (approximately 39 inch) rise in sea level. Therefore, the potential effects of climate change on the proposed project would not be significant.

[1] California Climate Change Center, 2006. *Our Changing Climate. Assessing the Risks to California.* CEC-500-2006-077. July.

[2] California, State of. Department of Water Resources, 2006. *Progress on Incorporating Climate Change into Management of California's Water Resources.* July.

Chapter 4 Comments and Coordination

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 project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, public meetings, and informal communication with the public, businesses, and interested parties as studies were being conducted. This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

4.1 Public Agencies

City of Fresno-Public Works Department

The project is in the City of Fresno's jurisdiction and is included in the city's General Plan Study area. The city has provided input to ensure minimal impacts to residents and business owners. The city has also been actively involved to ensure that any changes would not affect its commitments to the local community.

California Regional Water Quality Control Board

The Regional Water Quality Control Board was consulted for concurrence on the re-vegetation plan. Consultation continues as the 401 Permit is acquired later in the project development process.

Fresno Metropolitan Flood Control District

The Fresno Metropolitan Flood Control District was consulted for concurrence on the drainage plan. Consultation continues as the project moves further into design.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers was consulted for concurrence on the jurisdictional waters determination. Consultation continues as the 404 Permit is acquired later in the project development process.

U.S. Fish and Wildlife Service

Caltrans coordinated with the Service to determine federally listed threatened and endangered species in the project area and initiated consultation with the Service under Section 7 of the Endangered Species Act for potential effects to federal listed species on August 4, 2011. Details on Caltrans' determinations of potential effects to listed species and the status of consultation are presented in Section 2.3.5.

California Department of Fish and Game

Caltrans coordinated with the Department of Fish and Game to determine state listed special-status species in the project area and to participate in field surveys. Consultation continues as the 1602 Permit is acquired later in the project development process. A Section 2081 Incidental Take Permit or Section 2080.1 Consistency Determination for Threatened and Endangered Species would be needed.

4.2 Public Outreach

Notice of Preparation

A notice of preparation was sent out and recorded at the State Clearinghouse on February 17, 2010.

Archaeological and Historical Resources Consultation

During a January 13, 2010 telephone conversation with Jim Redmoon (Cultural Resources Representative of the Dumna Tribal Government) he requested that the project information be e-mailed to him. On January 13, 2010, the consultation letter and project maps were e-mailed to Mr. Redmoon. On January 15, 2010, LSA Associates received an e-mail stating "We have an area of concern near the project; it should have come up in the Sacred Lands Files at the Native American Heritage Commission." During a January 15, 2010 telephone call Mr. Redmoon was highly concerned about the project area north of Bullard Avenue and requested that he be able to accompany the archaeological surveyor during the pedestrian survey. LSA Associates coordinated with Mr. Redmoon, and several members of the Dumna tribe surveyed the area of potential effects north of Bullard Avenue. Mr. Redmoon was highly concerned that the site at Herndon did not appear in the Sacred Lands File records search and LSA Associates agreed to contact the Native American Heritage Commission regarding this.

During a February 3, 2010 telephone conversation with Dave Singleton (Program Analyst, Native American Heritage Commission), he stated that the Native American Heritage Commission had received forms for the sacred site at Herndon but had not

received maps. Mr. Singleton stated that he and Mr. Redmoon had spoken the previous week, and Mr. Redmoon was working on submitting a map to the Native American Heritage Commission for their files. Mr. Singleton discussed the site at Herndon and confirmed that Native American burials had previously been removed from this area, but were never recorded.

On December 18, 2009, LSA Associates sent a letter describing the project with maps depicting the area of potential effects to the Fresno Historical Society. No response to the letter was received within three weeks and LSA Associates made a follow-up telephone call. During a January 13, 2010 telephone conversation, Sharon Hiigel, Society Curator, stated that she would need to look into this and call LSA back if the Fresno Historical Society had any information or concerns about the project area. No response has been received to date.

Public Meeting

A public meeting was held on February 24, 2010 to inform all interested parties about the project. The purpose of the meeting was to present the project alternatives and obtain input from local agencies, businesses, organizations, and the public.

Approximately 49 people signed in at the door. The meeting was held as an open house. This format allowed members of the public to hear a detailed overview of the project by the project manager, review maps and other exhibits, and ask questions and direct comments to members of the project team. Below is a brief summary of the written comments received at the public information meeting:

- Support of Alternative 4 (Jug Handle) and less in favor of the alternatives that go under the Union Pacific Railroad.
- Questions and concerns about how homes on the east side of Veterans Boulevard would have access to the schools on the west side of Veterans Boulevard. Will current access still be available so that children can walk to school?
- The Class I bicycle path away from the overpasses should be 12 feet wide, not the 10 feet wide shown on the cross section.
- Questions and concerns about who is paying for the project.

Below is a brief summary of the comments that were received by telephone and e-mail:

- Concerns about the safety of students who walk to school and concern over speed limits on Veterans Boulevard.
- Concerns about nearby land uses south of Shaw Avenue between Bryan Avenue and Grantland Avenue being developed with a shopping center, gas station, or similar commercial facilities and this land being facilitated by construction of the Veterans Boulevard interchange and Veterans Boulevard improvements.

Interagency Consultation

The Council of Fresno County Governments Regional Transportation Plan and Federal Transpiration Improvement Program meet United States Environmental Protection Agency and Federal Highway Administration air quality conformity requirements for carbon monoxide, ozone and particulate matter. Regional particulate matter 2.5 and 10 microns compliance was accounted for during the current approved Regional Transportation Plan and Federal Transportation Improvement Program conformity determination.

Interagency consultation was initiated in February 2011. United States Environmental Protection Agency and Federal Highway Administration concurrence, that the project is not a Project of Air Quality Concern, was received March 2, 2011(see Appendix G). With this concurrence, the proposed project is in conformance with the State Implementation Plan.

Chapter 5 List of Preparers

This document was prepared by the following staff:

Caltrans Staff

Allam Alhabaly, Transportation Engineer. B.S., California State University, Fresno, School of Engineering; 11 years of experience in environmental technical studies, with emphasis on noise studies. Contribution: Oversight review of the Noise Study Report.

Randall Bonds, Environmental Planner. B.S., Ecology, California State University, Fresno; 11 years of environmental planning experience. Contribution: Environmental Coordinator.

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Kirsten Helton, Senior Environmental Planner. B.A., Economics, California State University, Fresno; 19 years of environmental planning experience. Contribution: Environmental Document Peer Reviewer

Kelly Hobbs, Senior Environmental Planner. B.A., History, California State University, Fresno; 14 years experience in California history; 10 years of experience in environmental planning management. Contribution: Branch Chief and Environmental Document Peer Reviewer.

Mandy Marine, Associate Environmental Planner/Native American Coordinator, Archaeologist. B.A., Anthropology, California State University, Fresno; more than 20 years of California archaeology experience. Contribution: District Native American Coordinator.

Patricia Moyer, Environmental Planner. B.S., Biology/Ecology, California State University, Fresno; 14 years of biology experience. Contribution: Review of Biological Studies.

Shawn Ogletree, Associate Environmental Planner. B.S., Environmental Conservation of Natural Resources, Texas Tech University; B.S., Wildlife/Fisheries Management, Texas Tech University; MPH, California State University, Fresno; 10 years of environmental health, environmental technical studies experience; 9 years of biology experience. Contribution: Review of Hazardous Waste Studies.

Ken J. Romero, Senior Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 7 years of environmental technical studies experience. Contribution: Oversight review of the Noise Study Reports, Air Quality Reports and Water Quality Reports. Contribution: Review and Approval of Air Quality and Water Quality Studies.

Richard C. Stewart, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 21 years of hazardous waste and water quality experience; 5 years of paleontology/geology experience. Contribution: Review Paleontological Studies.

John Whitehouse, Associate Environmental Planner. M.A., Archaeology and Heritage, University of Leicester; 17 years of experience in architectural history; 25 years of experience in California archaeology. Contribution: Review of Cultural Resource Studies.

QA/QC Reviewers

Dan Waterhouse, Associate Environmental Planner. B.S., Business Administration, California State University, Fresno; more than 20 years of environmental analysis experience. Contribution: Environmental Document QA/QC Review.

Kimely Sawtell, Associate Environmental Planner. M.A., Geography, California State University, Fresno; more than 11 years of environmental analysis experience. Contribution: Environmental Document QA/QC Review.

Kirsten Helton, Senior Environmental Planner. B.A., Economics, California State University, Fresno; more than 19 years of environmental analysis experience. Contribution: Environmental Document QA/QC Review.

Consulting Staff

Richard Harlacher, Principal Biologist and Wetlands Specialist. M.S., Biology, California State Polytechnic University, Pomona; 30 years of wildlife biology and wetlands experience. Contribution: Project management and project coordination.

Bill Mayer, Principal Environmental Planner. B.S., Urban Planning, California State Polytechnic University, Pomona; 35 years of environmental planning experience. Contribution: Project management and project coordination.

Edward Heming, Senior Environmental Planner. M.S., Environmental Planning, California State University, Fullerton; 8 years of environmental planning and environmental science experience. Contribution: Environmental Impact Report/Environmental Assessment, Community Impact Report, and project management and project coordination.

Kelly Jackson, Senior Environmental Planner. B.S., Environmental Science, University of Washington, Tacoma; 5 years of environmental planning experience. Contribution: Farmland Impact Report, Floodplain and Water Quality Impact Report and Community Impact Report.

Amberly Morgan, Environmental Planner. B.A., Environmental Studies, California State University, Sacramento; 4 years of environmental planning experience. Contribution: Visual Impact Report.

Justin Howland, Assistant Environmental Planner. B.L.A., Landscape Architecture, University of Oregon, Eugene; 3 years of environmental planning experience. Contribution: Environmental Impact Report/Environmental Assessment, Community Impact Report, Visual Impact Report.

Ali Summers, Biologist. B.S. Wildlife Science, Oregon State University, Corvallis; 10 years of biology experience. Contribution: Natural Environment Study.

Mike Trueblood, Biologist. B.S., Wildlife, Fish, and Conservation Biology; University of California, Davis; 8 years of biology experience. Contribution: Mapping.

Chapter 6 Distribution List

The following officials, agencies and interested parties have received either a copy of the environmental document or a notice informing them of its availability.

Federal Elected Officials

- The Honorable Dianne Feinstein, U.S. Senator
- The Honorable Barbara Boxer, U.S. Senator
- The Honorable Jeff Denham, U.S. Congressman, 18th District

Federal Agencies

- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service

State Elected Officials

- The Honorable Tom Berryhill, California Senator, 14th District
- The Honorable Linda Halderman, California Assembly Member, 29th District

State Agencies

- California Air Resources Board
- California Department of Community Services and Development
- California Department of Conservation
- California Department of Conservation – Reclamation Board
- California Department of Education
- California Department of Fish and Game, Region 4
- California Department of General Services – Office of Public School Construction
- California Department of Parks and Recreation
- California Department of Toxic Substance Control
- California Department of Transpiration – Planning Headquarters
- California Energy Commission
- California Environmental Protection Agency
- State Water Resources Control Board – Region 5

- Central Valley Regional Water Quality Control Board
- California Highway Patrol
- California Integrated Waste Management Board
- California Native American Heritage Commission
- California Natural Resources Agency
- California Public Utilities Commission
- California State Clearinghouse
- California State Lands Commission – Land Management Division
- Delta Protection Commission
- Office of Emergency Services

Regional Agencies

- Fresno Council of Governments
- San Joaquin Valley Air Pollution Control District

County Agencies

- Fresno County – Planning and Land Use
- Fresno County Sheriff's Office

City Agencies

- City of Fresno Mayor's Office – Ashley Swearengin, Mayor
- City of Fresno City Council – Andreas Borgeas, Councilmember District 2
- City of Fresno Development and Resource Management Department
- City of Fresno Fire Department
- City of Fresno Police Department
- City of Fresno Public Works
- City of Fresno Park, After School, Recreation and Community Services Department
- Fresno Area Express

Other Interested Parties

- Asian American Chamber of Commerce
- Central Valley Hispanic Chamber of Commerce
- Central Unified Schools District – Operational Services Department
- Fresno Chamber of Commerce
- Environmental Affairs Council
- Fresno Merchants Association

Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. 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 2 of this environmental impact report/environmental assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Except for noise, discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2. Noise impacts under the California Environmental Quality Act are discussed in Chapter 3.

	Potentially significant impact	Less than significant impact 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 that 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))?	☐	☐	☐	☒
d) Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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 that 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?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and 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?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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:				
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?	☐	☐	☐	☒
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			

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	this good-faith effort 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 California Environmental Quality Act 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 using measures that help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.			
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?	☐	☒	☐	☐
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?	☐	☐	☒	☐

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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 stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
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) Result in 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?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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:	☐	☐	☐	☐
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐

Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)

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

Pursuant to Section 4(f) of the 1966 Department of Transportation Act, it is the policy of the federal government that special effort be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Parks and Recreational Facilities

The Central Unified School District operates two schools near the proposed project. Rio Vista Middle School is located at 6240 West Palo Alto Avenue and River Bluff Elementary School, which is located at 6150 West Palo Alto Avenue. These schools are located outside the proposed project impact area for both alternatives.

Rio Vista Middle School is located a quarter of a mile north/northwest of the proposed project. Recreational facilities for students at the school are limited to six basketball courts, four tennis courts, two baseball fields, two softball fields, three multipurpose fields, one football field and one 400-meter track. There is a chain-link fence/concrete cinder block wall around the school and the school's recreational facilities are not open to the public.

River Bluff Elementary School is located adjacent to Rio Vista Middle School. Recreational facilities for students at the school are limited to three basket ball courts, two playgrounds, two multipurpose fields, one baseball field, one softball field and a verity of outdoor games such as foursquare and tetherball. A chain-link

fence/concrete cinder block wall surrounds the school and the school's recreational facilities are not open to the public.

The Central Unified School District does not provide organized or substantial "walk-on" recreational purposes to the community. According to Federal Highway Administration's Section 4(f) Policy Paper when a playground serves only school activities and function, the playground/recreational facilities for students is not considered subject to Section 4(f) (Section 4(f) Policy Paper, March 1, 2005); therefore, these school would not be considered Section 4(f) resources. Therefore, the provisions of Section 4(f) are not triggered.

Wildlife Refuges

No Section 4(f) wildlife refuges are located within the project limits of any of the build alternatives and would not otherwise be used by any of the build alternatives. Therefore, the provisions of Section 4(f) are not triggered.

Historic Properties

The project would have no adverse effect on 3 historic resources within the Area of Potential Effect. Caltrans has determined that the historic resources are not eligible for inclusion in the National Register of Historic Places and there are no State-owned cultural resources within the Area of Potential Effect (refer to Chapter 2).

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov

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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"

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

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Marzo 16, 2012

LA NO DISCRIMINACION
POLITICA DE ESTADO

El Departamento de Transporte de California, en el Título VI del Acta de Derechos Civiles de 1964 y los estatutos relacionados, asegura que ninguna persona en el Estado de California podrán, por motivos de raza, color, origen nacional, sexo, discapacidad, religion, la orientacion sexual, o edad, se excluidos de la participación en, negársele los beneficios de, o ser de otra manera sujeto a discriminación bajo cualquier programa o actividad que administra.

Para obtener información sobre cómo presentar una denuncia basada en motivos de raza, color, origen nacional, sexo, discapacidad, religion, la orientacion sexual, o edad, por favor visite la siguiente página: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Si necesita esta información en un formato alternativo, por ejemplo en Braille o en un idioma distinto del Inglés, por favor póngase en contacto con Mario Solis, Gerente, el Título VI y el Programa de estadounidenses con Discapacidades, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Teléfono: (916) 324-1353, TTY 711, fax (916) 324-1869, o vía e-mail: *mario_solis@dot.ca.gov*.

MALCOLM DOUGHERTY
Accion Directora

"Caltrans improves mobility across California"

Appendix D Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Relocation Assistance Advisory Services

"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:

<u>Moving Expenses</u>

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 nor more than $20,000.

Additional Information

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, *except* for any Federal law providing local "Section 8" Housing Programs.

Any person, business, farm or nonprofit organization, which 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

For more information or a brochure on the residential relocation program, please contact Kelly Hobbs, 855 M Street, Suite 200, Fresno, CA 93721.

The brochure on the residential relocation program is also available in English at http://www.dot.ca.gov/hq/row/pubs/residential_english.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/residential_spanish.pdf.

If you own or rent a mobile home that may be moved or acquired by Caltrans, a relocation brochure is available in English at http://www.dot.ca.gov/hq/row/pubs/mobile_eng.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/mobile_sp.pdf.

Business and Farm Relocation Assistance Program

For more information or a brochure on the relocation of a business or farm, please contact Kelly Hobbs, 855 M Street, Suite 200, Fresno, CA 93721.

The brochure on the business relocation program is also available in English at http://www.dot.ca.gov/hq/row/pubs/business_farm.pdf and in Spanish at http://www.dot.ca.gov/hq/row/pubs/business_sp.pdf.

Additional Information

No relocation payment received would be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project would not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments would not be required to move unless at least one comparable "decent, safe, and sanitary" replacement residence, open to all persons regardless of race, color, religion, sex, or national origin, is available or has been made available to them by the state.

Any person, business, farm, or non-profit organization, which has been refused a relocation payment by Caltrans, or believes that the payments are inadequate, may appeal for a hearing before a hearing officer or Caltrans' Relocation Assistance Appeals Board. No legal assistance is required; however, the displacee may choose to obtain legal council at his/her expense. Information about the appeal procedure is available from Caltrans' Relocation Advisors.

The information above is not intended to be a complete statement of all of Caltrans' laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of Caltrans' relocation programs.

Important Notice

To avoid loss of possible benefits, no individual, family, business, farm, or non-profit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at 855 M Street, Suite 200, Fresno, CA 93721.

Appendix E Minimization and/or Mitigation Summary

Relocations

The following measures would be required to address property displacements and relocations associate with the proposed project (also refer to the tech study):

- All displacees would be contacted by a Relocation Agent who would ensure that eligible displaced residents receive their full relocation benefits including advisory assistance, and that all activities be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources shall be available to all displaced residents free of discrimination. At the time of the first written offer to purchase, owner occupants are given a detailed explanation of the "Relocation Program and Services." Tenant occupants of properties to be acquired are contacted soon after the first written offer to purchase and also are given a detailed explanation of the "Relocation Program and Services." In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, relocation advisory assistance would be provided to any person, business, farm, or non-profit organization displaced as a result of acquisition of real property for public use.
- The Uniform Relocation Assistance and Real Property Acquisitions Policies Act (Uniform Act) of 1970 (Public Law 91-646, 84 Stat. 1894) mandates that payments be made available to eligible residents, businesses, and nonprofit organizations displaced or affected by projects. The Uniform Act provides for equitable land acquisition policies.
- Where acquisition is unavoidable, the provisions of the Uniform Act and the 1987 Amendments as implemented by the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the Department of Transportation dated March 2, 1989 would be followed. An independent appraisal of the affected property would be obtained, and an offer for the full appraisal would be made.

Utilities/Emergency Services

Minimization measures to alleviate impacts to utilities and emergency services are as follows:

- The project would be designed to minimize conflicts with utilities in the project area. The project would include relocation of those utilities that would be inaccessible for maintenance or access purposes as a result of the project.
- The contractor would be required to notify utility users of any short-term, limited interruptions of service.
- If unexpected underground utilities are encountered, the contractor would coordinate with the utility provider to develop plans to address the utility conflict, protect the utility if needed, and limit service interruptions.
- The contractor would be required to prepare and implement a traffic management plan that would identify the locations of temporary lane closures and signage to facilitate local traffic and through-traffic requirements.
- The project special provisions of the highway contract would require that emergency service providers (i.e., law enforcement, fire protection, and ambulance services) be given adequate advance notice of any road closures during the construction phases of the proposed project.

Traffic and Transportation/Pedestrian and Bicycle Facilities

Construction-related Traffic Impacts

The project would implement the following measures to reduce construction-related traffic impacts:

- The contractor would be required to prepare and implement a traffic management plan that would identify the locations of temporary detours and signage to facilitate local traffic patterns and through-traffic requirements.
- The project special provisions of the highway contract would require that emergency service providers (i.e., law enforcement, fire protection, and ambulance services) be given adequate advance notice of any street closures during the construction phases of the proposed project.
- Construction activities would be coordinated to avoid blocking or limiting access to homes and businesses to the extent possible. Residents would be notified in advance about potential access or parking effects before construction activities begin.

- Any interchange, ramp, or road closures required during construction would, to the extent possible, be limited to nighttime hours to reduce effects on businesses in the study area.

Visual/Aesthetics

The following minimization measures, to be completed in cooperation with the District 6 landscape architect, would incorporate design features and methods to avoid permanent adverse impacts:

- Architectural elements of existing structures along State Route 99 would be incorporated into the new overcrossing and undercrossing structures.
- Overcrossing and undercrossing structures would include architectural bridge fence, architectural concrete under bridge abutments, and painted bridge façade stripe with Fresno County – Federal #20109 Brick Red striping paint.
- Highway art may also be incorporated to break up the built environment and enhance the quality of the driving experience. Artistic design elements must be consistent with community goals.
- Replacement planting would include the replacement of removed landscaping.
- Areas affected or disturbed by construction would be replanted in the form of new landscape planting and irrigation systems.

Cultural Resources

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

If human remains are discovered, 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 will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact District 6 Environmental Branch so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Water Quality and Stormwater Runoff

The design and construction of the proposed project must adhere to the requirements in the National Pollutant Discharge Elimination System, Caltrans Stormwater Management Plan, the Caltrans Project Planning and Design Guide, and best management practices. The following avoidance, minimization, and/or mitigation measures would ensure the elimination of potential water quality impacts both during and after construction:

- Preparation and implementation of construction site best management practices in compliance with the provisions of Caltrans' Statewide National Pollutant Discharge Elimination System Permit and any subsequent permit as they relate to construction activities for the project would be followed. This would include submission of a Notice of Construction to the Regional Water Quality Control Board at least 30 days before the start of construction, preparation and implementation of a Stormwater Pollution Prevention Plan, and submission of a Notice of Construction Completion to the Regional Water Quality Control Board upon completion of construction and stabilization of the project site.
- Consideration and incorporation of Design Pollution Prevention and Treatment Control best management practices for the project in accordance with the procedures outlined in the Stormwater Quality Handbooks, Project Planning and Design Guide would be followed. This would include coordination with the Regional Water Quality Control Board with respect to feasibility, maintenance, and monitoring of Treatment Control best management practices as set forth in Caltrans' Statewide Stormwater Management Plan.
- The project's design would ensure that all storm-water runoff from the new interchange would discharge into temporary drainage basins or Master Plan pipe facilities once built out. Temporary basins would be designed to accommodate all the storm-water runoff from new paved areas per District 6 Hydraulics design guidelines.
- The following temporary construction best management practices would be used:
    - Sediment control – Silt Fences, straw-bail barriers, fiber rolls, check dams, sediment traps
    - Soil stabilization – Hydroseeding, straw mulch

- Preservation of existing vegetation – Temporary fencing
- Temporary concentrated flow conveyance systems – Earthen dikes, drainage swales, velocity dissipation devices, slope drains
- Sediment tracking control – Street sweeping, stabilized construction roadway, entrance/outlet tire wash
- Waste management – Temporary concrete washout facility, spill prevention and control, contaminated soil management
- Other construction site best management practices – Stockpile management, temporary protection of drainage inlets during construction, stabilized construction entrance/exit, prepare Statewide Storm Water Management Plan

Paleontology

The Paleontological Identification Report/Paleontological Evaluation Report recommends that excavation monitoring for the project include the following to avoid and minimize impacts to paleontological resources as part of a Paleontological Mitigation Plan:

- Preconstruction field survey would be done, followed by salvage of any observed surface paleontological resources prior to the beginning of grading
- A qualified paleontologist or his/her representative would attend the pre-grade meeting. At this meeting, the paleontologist would explain the likelihood of paleontological resources, what resources may be discovered, and the methods that will be employed if anything is discovered.
- A qualified vertebrate paleontologic monitor would initially be present during construction excavation on a full-time basis whenever excavation occurred within the sediments that have a high sensitivity rating and on a spot-check basis in sediments that have a low sensitivity rating.
- Paleontological monitor, under the direction of the qualified principal paleontologist would be on site 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.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, repaired, 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 that outlines the results of the mitigation program.
- Where feasible, selected road cuts or large finished slopes in areas of critically interesting geology may be left exposed as important educational and scientific features. This may be possible if no substantial adverse visual impact results.

Hazardous Waste or Materials

The following conclusions and recommendations were developed for the site based on the evaluation of the data generated for both the Initial Site Assessment and the Preliminary Site Investigation:

Petroleum Hydrocarbons

Since the concentrations of total petroleum hydrocarbons exceeded environmental safety limits, mitigation of the affected soil is recommended at the following sites:

- Dakovich property stormwater retention basin
- Seal-Rite property above-ground storage tanks
- Seal-Rite property canopy maintenance area
- Based on the PSI observations, it is estimated the volume of affected soil at these two properties was 5 cubic yards at the Dakovich property and 30 cubic yards at the Seal-Rite property. It is estimated that the cost to remove the affected soil at the two properties would be $15,000, assuming the soil is excavated in a single day and transported as a non-hazardous material to a facility licensed to accept non-hazardous petroleum hydrocarbon impacted soil.

Air Quality

The following measures would reduce or minimize air pollutant emissions associated with construction activities:

- To reduce fugitive dust emissions, the construction contractor would adhere to San Joaquin Valley Air Pollution Control District Regulation VIII.

- The construction contractor would comply with Caltrans Standard Specifications Section 7-1.01F and Caltrans Standard Specifications Section 10.
- The construction contractor would comply with San Joaquin Valley Air Pollution Control District Rule 9510 and submit an air impact assessment application if construction-related emissions exceed the established thresholds.

Consistent with Regulation VIII, fugitive particulate matter 10 prohibitions of the San Joaquin Valley Air Pollution Control District, the following controls and project specifications are required at all construction sites:

- All disturbed areas, including storage piles, actively used for construction purposes, would effectively stabilize dust by using water, chemical stabilizer/suppressant, or cover such as a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads would be effectively stabilize dust emissions by using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities would effectively control fugitive dust emissions by using applications of water or by presoaking.
- When materials are transported off-site, all material would be covered, or effectively wetted to limit visible dust emissions. At least 6 inches of freeboard space from the top of the container would be maintained.
- All operations would limit or quickly remove accumulations of mud or dirt from adjacent public streets at the end of each workday. (Dry rotary brushes are expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Blower devices are also expressly forbidden.)
- Following the addition or removal of materials, the surface of outdoor storage piles would be effectively stabilized for fugitive dust emission by using sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track out would be immediately removed when it extends 50 or more feet from the site and at the end of each workday.

- Any site with 150 or more vehicle trips per day would get carryout and track out prevention.

Construction of the project requires the implementation of control measures set forth under Regulation VIII. The following additional control measures would further reduce construction emissions and should be implemented with the project:

- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Install wind breaks at windward side(s) of construction area.
- Suspend excavation and grading activity when winds exceed 20 mph (regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation).
- Limit area excavation, grading, and other construction activity at any one time.

The following construction equipment control measures would reduce construction exhaust emissions:

- Properly and routinely maintain all construction equipment, as recommended by the manufacturer manuals, to control exhaust emissions.
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling emissions.
- Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use.
- Curtail construction during periods of high ambient pollutant concentrations such as stopping construction activities at peak traffic hours on adjacent roadways.

Noise and Vibration

No adverse noise impacts from construction are anticipated because construction would occur in accordance with Caltrans Standard Specifications Section 7-1.011 and applicable local noise standards. Construction noise would be short-term, intermittent,

and overshadowed by local traffic noise. Further, implementing the following measures would minimize the temporary noise impacts from construction:

- Equipment would have sound-control devices no less effective than the devices on the original equipment. No equipment would have unmuffled exhaust.
- As directed by Caltrans, the contractor would implement appropriate additional noise mitigation measures including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

Biological Environment

The following avoidance and minimization measures would reduce potential impacts to aquatic, wetland, and riparian habitats occurring in the biological study area:

- The U.S. Army Corps of Engineers would determine any compensatory mitigation required during the Nationwide Permit process. Mitigation for impacts to jurisdictional Waters of the United States may require payment into a mitigation bank and/or payment of an 'in-lieu' fee.
- Prior to issuance of grading permits, required permits such as a Regional Water Quality Control Board 401 Water Quality Certification would be obtained.
- All clearing would be confined to the minimal area necessary for construction activities. Work areas would be clearly flagged or fenced prior to start of construction to avoid affecting adjacent areas.
- Measures consistent with the current Caltrans Construction Site Best Management Practices manual (including the Storm Water Pollution Prevention Plan and Water Pollution Control Program Manuals [http://www.dot.ca.gov/hq/construc/Construction_Site_BMPs.pdf) would be implemented to minimize impacts to waters of the U.S. during construction.
- A Water Pollution Control Program would be prepared by the contractor in accordance with typical provisions required by the Regional Water Quality Control Board. The Water Pollution Control Program would contain a Spill Response Plan with instructions and procedures for reporting spills, the use

and location of spill containment equipment, and the use and location of spill collection materials.

- Following project completion, all areas temporarily disturbed during construction would be re-contoured to pre-project conditions and be re-vegetated with native local herbaceous species approved by a qualified biologist.
- Dredge or fill of Herndon Canal would occur outside of the irrigation season when the canal is dry between October and April.

Bats

The following avoidance and minimization measures would minimize any potential impacts to special status bats:

- The year prior to the start of construction, focused bat roosting surveys would determine whether the trees in the biological study area provide roosting habitat for bat colonies. Focused roosting surveys should be conducted between April 1 and September 15 when bats are most likely to be present in the biological study area. Focused day surveys would search for day roosting bats, suitable entry points, roost cavities or crevices, presence of day roosting bats, dead carcasses, fecal matter and urine staining. If bats are found to occupy the biological study area, a qualified bat biologist must conduct focused day and night emergence surveys to determine population size and bat species present. The bat biologist would use this information to prepare a '*Bat Exclusion and Mitigation Plan'* to be approved by the City, California Department of Fish and Game and Caltrans. Bats can only be evicted from their roosting colonies between March 1 to April 15 and August 15 to October 15.
- If bats were not detected during focused surveys, or if bats were evicted, a pre-construction bat survey of all structures and trees to be affected by the project would be conducted no more than 14 days prior to construction start by a qualified biologist.(i.e., a biologist familiar with bats, their habitats, identification of bat sign, etc.)

Western Burrowing Owl

- The year prior to construction start, protocol level surveys for burrowing owl in accordance with the California Department of Fish and Game Staff Report on Burrowing Owl (1995) must be conducted to determine use of the biological study area by burrowing owls and to allow time to develop a

'Burrowing Owl Mitigation Plan' in consultation with the California Department of Fish and Game.

- A pre-construction survey for nesting burrowing owls would be conducted in the biological study area and vicinity by a qualified biologist no more than 30 days prior to initiation of earthmoving activities. Any active burrow found during pre-construction surveys would be mapped on the construction plans. If no active burrows are found, no further avoidance, minimization or mitigation measures are required. Results of pre-construction surveys would be provided to the California Department of Fish and Game.
- If burrowing owls are observed within the biological study area during either of the year prior to construction or the 30 day pre-construction surveys, a *'Burrowing Owl* Mitigation *Plan'* will be developed by a qualified biologist in cooperation with the California Department of Fish and Game. The mitigation plan would likely require the following:
- No disturbance will occur within 60 feet of occupied burrows during the non-breeding season (September 1 through January 31) or within 250 feet (or otherwise determined by the biologist and the California Department of Fish and Game) during the breeding season (February 1- August 31).If owls must be moved away from the disturbance area, passive eviction and relocation is preferable to trapping.
- Relocation would only be implemented during the non-breeding season by a qualified biologist and will occur in coordination with the California Department of Fish and Game. Owls would be excluded from burrows in the immediate impact zone by installing one-way doors in burrow entrances. One-way doors would be left in place 48 hours prior to construction to ensure owls have left the burrow before excavation.

White-tailed Kite

- Preconstruction surveys for white-tailed kite and their nests of the biological study area and a 0.5 mile buffer around the biological study area are required no more than 14 days prior to construction, if construction is to occur during the nesting season (February 15 to September 1).
- All trees scheduled for removal would be removed during the non-nesting season (between September 2 and February 14), to avoid take of a nest or bird. If trees have to be removed during the nesting season, a qualified biologist must first survey these trees for nesting birds.

- If white-tailed kites are observed within 0.5 mile of the biological study area, a qualified biologist would evaluate the potential for the proposed project to disturb nesting activities.
- If white-tailed kites are observed within 0.5 mile of the biological study area, California Department of Fish and Game would be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities and whether a biological monitor is required. California Department of Fish and Game may require a construction buffer around the nesting birds or may require that construction within 0.5 mile of the nest stop until nesting has been completed.

California Horned Lark

- A preconstruction survey for nesting horned larks would be conducted in the biological study area and a 250-foot buffer established by a qualified biologist no more than 14 days prior to initiation of earthmoving activities if the project is to be constructed during the nesting season February 15 to September 1)
- If nesting horned larks are found within the biological study area, a setback of 500 feet (or as determined as appropriate by the biologist) from the nesting area would be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground disturbing activities must begin during the nesting season in the presence of nests that are known to be occupied.
- Setbacks would be marked by brightly colored temporary fencing.

Loggerhead Shrike

- A preconstruction survey for nesting loggerhead shrikes shall be conducted in the biological study area and a 250-foot buffer established by a qualified biologist no more than 14 days prior to construction start if building or vegetation removal is to occur in the nesting season.
- If nesting loggerhead shrikes are found within the biological study area, a setback of 500 feet (or as determined as appropriate by the biologist) from the nesting area would be established and maintained from February 15 to September 1.
- Setbacks would be marked by brightly colored temporary fencing.

California Linderiella Fairy Shrimp

Minimization measures would include the following provisions:

- All on-site construction personnel shall receive pre-construction training by a qualified biologist regarding the assumed presence of California linderiella fairy shrimp and the importance of avoiding impacts to these species and their habitat.
- Potential California linderiella fairy shrimp habitat not directly impacted by project construction would be designated as environmental sensitivity areas in the field and clearly indicated as such on project construction plans.
- Environmental sensitivity areas would be fenced with brightly colored fencing prior to beginning construction. Environmental sensitivity area fencing would be placed at least 10 feet from the upper edge of the seasonal depressions. No building related activities would be allowed in the environmental sensitivity area.
- Best management practices such as straw swaddles would protect California linderiella fairy shrimp habitat from construction runoff.
- A qualified biologist would monitor the environmental sensitivity area fence installation and inspect environmental sensitivity area fencing once weekly to ensure compliance.

Swainson's Hawk

- All trees scheduled for removal would be removed during the non-nesting season (September 2 to February 14) to avoid take of a nest or bird. All trees to be removed during the nesting season must be cleared by a qualified biologist.
- Preconstruction surveys for nesting Swainson's hawks would be conducted in the biological study area and within a 0.5-mile radius of the biological study area if construction would occur during the nesting season (February 15 to September 1). Surveys would be conducted by a qualified biologist and would occur a maximum of 14 days prior to the start of vegetation clearing and groundbreaking activities.
- If nesting Swainson's hawks are found within 0.5 mile of the biological study area, a qualified biologist, in consultation with the California Department of Fish and Game, would evaluate the potential to disturb nesting activities.

- California Department of Fish and Game would be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activities and whether a biological monitor is required or not. California Department of Fish and Game may require a construction buffer around the nesting birds, a biological monitor to be on-site, or no construction within 0.5 mile of the nest tree until nesting has been completed.

Valley Elderberry Longhorn Beetle

Elderberry shrubs are 200 feet from the project impact area. No ground disturbing project activities would occur within 200 feet of the elderberry shrubs. The location of the elderberry shrubs would be marked on the construction plans.

- Before groundbreaking activities the elderberry shrubs would be protected with orange mesh plastic fencing 100 feet from the edge of the shrub's drip line. The fencing is to be at least 4 feet tall. The fencing would be strung tightly on posts set a maximum of 9 feet apart. The fencing would be checked and maintained weekly by a qualified biologist. The area inside the fencing would be designated an environmental sensitivity area and marked as such on the plans. Signs would be posted on the fencing that state "*This is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. The species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines and imprisonment*." No access to the environmental sensitivity area is allowed by any personnel or equipment at any time.
- Dust control best management practices would be employed in the area of the environmental sensitivity area to prevent dust from impacting the flight pattern of any Valley elderberry longhorn beetle present on the shrubs. Dust control measures may include application of water to graded and disturbed areas that are un-vegetated. To avoid attracting Argentine ants, at no time would water be sprayed within the environmental sensitivity area.
- A mandatory preconstruction training of the contractor and all personnel working on-site would be provided by a qualified biologist and would address Valley elderberry longhorn beetle, the environmental sensitivity area, and the measures listed above.

Vernal Pool Fairy Shrimp

Minimization measures would include the following provisions:

- All on-site construction personnel shall receive pre-construction training by a qualified biologist regarding the assumed presence of vernal pool fairy shrimp and the importance of avoiding impacts to these species and their habitat.
- Potential vernal pool fairy shrimp habitat not directly impacted by project construction would be designated as environmental sensitivity areas in the field and clearly indicated as such on project construction plans.
- Environmental sensitivity areas would be fenced with brightly colored fencing prior to beginning construction. Environmental sensitivity area fencing would be placed at least 10 feet from the upper edge of the seasonal depressions. No building related activities would be allowed in the environmental sensitivity area.
- Best management practices such as straw swaddles would protect vernal pool fairy shrimp habitat from construction runoff.
- A qualified biologist would monitor the environmental sensitivity area fence installation and inspect environmental sensitivity area fencing once weekly to ensure compliance.

Appendix F Farmland Conversion Impact Rating

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 8/2/10	4. Sheet 1 of 1
1. Name of Project Veterans Boulevard/SR99 Interchange	5. Federal Agency Involved Ca Department of Transportation	
2. Type of Project New interchange	6. County and State Fresno, CA	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 8/2/10	2. Person Completing Form D. Durham
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated 1,153,812 / Average Farm Size 285
5. Major Crop(s) Grapes, Row Crops, Orchards	6. Farmable Land in Government Jurisdiction Acres: 1,250,984 % 32.7	7. Amount of Farmland As Defined in FPPA Acres: N/A % 32.7
8. Name Of Land Evaluation System Used California Storie System	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS 8/5/10

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment _____			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		58	62		
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor		58	62	0	0
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		0	0		
B. Total Acres Statewide And Local Important Farmland		31	36		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.000268	0.000312		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		N/A	N/A		
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*		8.3	8.3		
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	9	9		
2. Perimeter In Nonurban Use	10	7	7		
3. Percent Of Corridor Being Farmed	20	8	8		
4. Protection Provided By State And Local Government	20	10	10		
5. Size of Present Farm Unit Compared To Average	10	2	2		
6. Creation Of Nonfarmable Farmland	25	0	0		
7. Availability Of Farm Support Services	5	4	4		
8. On-Farm Investments	20	1	1		
9. Effects Of Conversion On Farm Support Services	25	0	0		
10. Compatibility With Existing Agricultural Use	10	2	2		
TOTAL CORRIDOR ASSESSMENT POINTS	160	43	43	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	8.3	8.3		
Total Corridor Assessment (From Part VI above or a local site assessment)	160	43	43	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	51.3	51.3	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Veterans Boulevard	31-36	8/2/10	YES ☐ NO ☑

5. Reason For Selection:

Signature of Person Completing this Part: DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Appendix G Interagency Consultation

Terry Goewert/D06/Caltrans/CAGov
03/02/2011 08:52 AM

To Randall Bonds/D06/Caltrans/CAGov@DOT, Abdul Rahim Chafi/D06/Caltrans/CAGov@DOT
cc
bcc
Subject Fw: PM10 and PM2.5 Memo for FRE-99 Veteran's Blvd Interchange Project-6005 EA

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—— Forwarded by Terry Goewert/D06/Caltrans/CAGov on 03/02/2011 08:52 AM ——

<OConnor.Karina@epamail.epa.gov>
03/01/2011 04:29 PM

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Subject Re: PM10 and PM2.5 Memo for FRE-99 Veteran's Blvd Interchange Project-6005 EA

EPA concurs that this is not a project of air quality concern.

Karina O'Connor
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oconnor.karina@epa.gov

From: Terry Goewert <terry_goewert@dot.ca.gov>

To: Cari Anderson <cari@caconsulting.org>, Kristine Cai <kcai@fresnocog.org>, Mike Bitner <mbitner@fresnocog.org>, Lauren Dawson <ldawson@fresnocog.org>, Ty Phimmasone <Ty.Phimmasone@mcagov.org>, Vincent Liu <vliu@kerncog.org>, Rob Ball <rball@kerncog.org>, Joseph Stramaglia <jstramaglia@kerncog.org>, Raquel Pacheco <rpacheco@kerncog.org>, Rachel Audino <Rachel.Audino@co.kings.ca.us>, Bruce Abanathie <Bruce.Abanathie@co.kings.ca.us>, Derek Winning <derek@maderactc.org>, Richard Poythress <richard@maderactc.org>, Matt Fell <Matt.Fell@mcagov.org>, Tanisha Taylor <Taylor@sjcog.org>, Wil Ridder <ridder@sjcog.org>, Sam Kaur <Kaur@sjcog.org>, Carlos Yamzon <cyamzon@stancog.org>, Jim Schoeffling <jschoeffling@stancog.org>, Elizabeth Wright <EWright@co.tulare.ca.us>, Mark Hays <MAHays@co.tulare.ca.us>, Ben Giuliani <BGiuliani@co.tulare.ca.us>, Eddie Wendt <Ewendt@co.tulare.ca.us>, Dan Barber <daniel.barber@valleyair.org>, Katy Linebach <Katy.Linebach@valleyair.org>, Jeff Lindberg <jlindber@arb.ca.gov>, Dennis Wade <dwade@arb.ca.gov>, Jon Taylor <jtaylor@arb.ca.gov>, Mike Brady <Mike_Brady@dot.ca.gov>, Melissa Garza <mgarza@fresnocog.org>, Muhaned Aljabiry <Muhaned.Aljabiry@dot.ca.gov>, Heidi Andrade <heidi_andrade@dot.ca.gov>, Steve Curti <steve_curti@dot.ca.gov>, Ken Romero <ken_j_romero@dot.ca.gov>, Terry Goewert <Terry_Goewert@dot.ca.gov>, Sharri Bender Ehlert <sharri_bender_ehlert@dot.ca.gov>, Pat Robledo <pat_robledo@dot.ca.gov>, Sinaren Pheng <sinarath_pheng@dot.ca.gov>, Ken Baxter <ken_baxter@dot.ca.gov>, Doris Lo/R9/USEPA/US@EPA, Karina O'Connor/R9/USEPA/US@EPA, Frances Wicher/R9/USEPA/US@EPA, Scott Carson <Scott.Carson@dot.gov>, Joseph Vaughn <Joseph.Vaughn@dot.gov>, Ted Matley <Ted.Matley@fta.dot.gov>, Dennis Jacobs <dennis_jacobs@dot.ca.gov>, Lima Huy <Lima_huy@dot.ca.gov>, La Nae Van Valen <la.nae.van.valen@dot.ca.gov>, Garth Hopkins <garth.hopkins@dot.ca.gov>, Jim Perrault <james.perrault@dot.ca.gov>, Arvinder Bajwa <arvinder_bajwa@dot.ca.gov>, Alex Marcucci <Alex@sierraresearch.com>, Kym Sterner <ksterner@dowlinginc.com>, Jaylen French <jcfrench@stancog.org>, Roberto Brady <RBrady@co.tulare.ca.us>, Abhijit Bagde <abhijit_bagde@dot.ca.gov>, 'Crow, Jason@ARB''<jcrow@arb.ca.gov>, Rosa Park

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Date: 02/23/2011 10:21 AM

Subje ct: PM10 and PM2.5 Memo for FRE-99 Veteran's Blvd Interchange Project-6005 EA

Interagency Consultation Partners,

Caltrans and the Council of Fresno County Governments is providing the following PM10 and PM2.5 Hot Spot Conformity Assessment for the FRE-99 Veteran's Boulevard Interchange Improvements.

Interagency Consultation Partners are requested to concur that this project is not a Project of Air Quality Concern by replying to all.

The environmental document is an Environmental Assessment, therefore EPA and FHWA concurrence is requested by March 11, 2011.

An interagency conference call will be held upon request. Plase contact Abdul Chafi at 559.243.8225 or at achafi@dot.ca.gov if you have any questions.

(See attached file: Veterans Memo2 PM Hot Spot 2011.doc)

Terry Goewert
Air Quality Specialist-Associate Environmental Planner
Central Region Environmental Engineering
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559.243.8215 fax[attachment "Veterans Memo2 PM Hot Spot 2011.doc" deleted by Karina OConnor/R9/USEPA/US]

Terry Goewert/D06/Caltrans/CAGov
03/03/2011 09:14 AM

To Abdul Rahim Chafi/D06/Caltrans/CAGov@DOT, Randall Bonds/D06/Caltrans/CAGov@DOT
cc
bcc
Subject Fw: PM10 and PM2.5 Memo for FRE-99 Veteran's Blvd Interchange Project-6005 EA

next step public notices before conformity request

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—— Forwarded by Terry Goewert/D06/Caltrans/CAGov on 03/03/2011 09:13 AM ——

<Joseph.Vaughn@dot.gov>
03/03/2011 09:12 AM

To <terry_goewert@dot.ca.gov>
cc <OConnor.Karina@epamail.epa.gov>, <mike_brady@dot.ca.gov>, <cari@caconsulting.org>, <achafi@dot.ca.gov>
Subject RE: PM10 and PM2.5 Memo for FRE-99 Veteran's Blvd Interchange Project-6005 EA

FHWA concurs that this is not a project of air quality concern.

Joseph Vaughn
Air Quality Specialist/MPO Coordinator
FHWA, CA Division
(916) 498-5346
-----Original Message-----
From: Terry Goewert [mailto:terry_goewert@dot.ca.gov]
Sent: Wednesday, February 23, 2011 10:21 AM
To: Cari Anderson; Kristine Cai; Mike Bitner; Lauren Dawson; Ty Phimmasone; Vincent Liu; Rob Ball; Joseph Stramaglia; Raquel Pacheco; Rachel Audino; Bruce Abanathie; Derek Winning; Richard Poythress; Matt Fell; Tanisha Taylor; Wil Ridder; Sam Kaur; Carlos Yamzon; Jim Schoeffling; Elizabeth Wright; Mark Hays; Ben Giuliani; Eddie Wendt; Dan Barber; Katy Linebach; Jeff Lindberg; Dennis Wade; Jon Taylor; Mike Brady; Melissa Garza; Muhaned Aljabiry; Heidi Andrade; Steve Curti; Ken Romero; Terry Goewert; Sharri Bender Ehlert; Pat Robledo; Sinaren Pheng; Ken Baxter; Doris Lo; Karina O'Connor; Frances Wicher; Carson, Scott (FHWA); Vaughn, Joseph (FHWA); Matley, Ted (FTA); Dennis Jacobs; Lima Huy; La Nae Van Valen; Garth Hopkins; Jim Perrault; Arvinder Bajwa; Alex Marcucci; Kym Sterner; Jaylen French; Roberto Brady; Abhijit Bagde; Crow, Jason@ARB; Rosa Park; Aaron Hoyt; Troy Hightower; Kai Han; Tom Dumas; Errol Villegas; Kim Kloeb; Michael Costa
Cc: Andy Chesley; Vince Harris; Dana Cowell; Jesse B Brown; Marjorie Kirn; Patricia Taylor; Ronald E Brummett; Ted Smalley; Terri King; Tony Boren; Barbara Steck; Elizabeth Wright; Robert Phipps
Subject: PM10 and PM2.5 Memo for FRE-99 Veteran's Blvd Interchange Project-6005 EA

Appendix H Special-Status Species

Table H.1: List of Special-Status-Species that have Potential to Occur Within the Biological Study Area and in a 10-Mile Radius of the Biological Study Area

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Mammals					
Antrozous pallidus	Pallid bat	CSC	Occurs in variety of habitat types; most common in xeric ecosystems. Roosts in rocky outcrops, cliffs, and crevices, trees, buildings, and in rocks near the ground.	HP	Foraging opportunities exist in the biological study area. An abandoned building at the southern limit of the biological study area provides potential night roost habitat. No suitable day roost habitat is available. One 1909 CNDDB record exists within a 10-mile radius of the BSA. No bats were observed during surveys.
Eumops perotis californicus	Western mastiff bat	CSC	Occurs in many open, semi-arid to arid habitats. Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings.	HP	Grassland in the biological study area provide foraging habitat for this species. An abandoned building at the southern limit of the biological study area provides potential night roost habitat. No suitable day roost habitat is available. The CNDDB includes two records of western mastiff bats from 1991: 1) 5 miles southeast of the biological study area and 2) 7.4 miles from the biological study area No bats were observed during surveys.
Lasiurus blossevillii	Western red bat	CSC	Roosts in trees, usually in edge habitats. Forages over a variety of habitats including grasslands, shrublands, open woodlands and forests, croplands, and around streetlights.	HP	Fig orchard, olive trees, and residential areas provide potential roosting habitat; grassland areas and streetlights provide foraging habitat. No CNDDB occurrences are within 10 miles of the biological study area. No bats were observed during surveys.
Dipodomys nitratoides exilis	Fresno kangaroo rat	FE; SE	Historically occupied grassland and alkali desert scrub communities of the San Joaquin Valley floor. This	A	No habitat exists in the biological study area. Not observed during surveys. No recent CNDDB occurrences exist (records are from

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			subspecies is restricted to a few remaining alkali sink areas of marginal habitat.		1890s); this species has a very limited distribution. There are no known remaining populations of this species in Merced, Madera, or Fresno Counties. Habitat no longer exists for two records; two other records from 1934 are 0.5–5 miles west of Kiernan. A record from 1898 is 4 miles southeast on State Route 99.
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST	Inhabits annual grasslands or grassy open stages with scattered shrubby vegetation. Requires loose-textured sandy soils for burrowing.	A	No suitable denning or foraging habitat exists in the biological study area. No kit fox observed during USFWS protocol level surveys. One CNDDB occurrence exists within 10 miles, dating back to 1993. Most of the development on this end of town occurred within the last 20 years, rendering San Joaquin kit fox habitat unsuitable.
Taxidea taxus	American badger	CSC	Occurs throughout California and the United States. Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert.	A	No habitat exists in the biological study area. Species not observed during surveys. A road kill record from 1988 exists for 1 mile northeast of the project.
Birds					
Agelaius tricolor	Tricolored blackbird	CSC	Nests in freshwater marshes with tules or cattails, or in other dense vegetation such as thistle, blackberry thickets, etc. are in close proximity to open water. The species forages in a variety of habitats including pastures, agricultural fields, rice fields, and feedlots within a few miles of nesting areas.	A	No habitat exits in the biological study area. Species not observed during surveys. One 34-year-old CNDDB record is listed within 10 miles of the biological study area; habitat was eliminated for flood control. Detention basins are too small and lack suitable vegetation for nesting habitat.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
Athene cunicularia hypugaea	Western burrowing owl	CSC	Burrow sites in open, dry annual or perennial grasslands, deserts, and scrublands are characterized by low-growing vegetation. The species is a subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	HP	Marginal foraging habitat is present in the biological study area. Burrows observed do not appear suitable for nesting. The nearest 2000 CNDDB record is about 9.3 miles northeast of the biological study area. The species was not observed during surveys.
Elanus leucurus	White-tailed kite	SFP	The species forages in undisturbed, open grasslands, meadows, farmlands, emergent wetlands and nests near the foraging area in groves of dense, broad-leafed deciduous trees, rolling hills/valley margins with scattered oaks, river bottomlands, and marshes next to deciduous woodlands.	HP	Marginally suitable nesting and foraging habitat occurs in the biological study area. The surrounding area provides better nesting and foraging habitat than what is present in the biological study area. See discussion in Section 4.3. There are no CNDDB records within 10 miles of the biological study area.
Buteo swainsoni	Swainson's hawk	ST	The species breeds in stands with few trees in juniper-sage flats, riparian areas and oak savannahs. It requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	HP	Foraging and nesting habitat is present in the biological study area. The species was not observed during surveys. There are no CNDDB records within 10 miles of the biological study area.
Circus cyaneus	Northern harrier	CSC	The species is associated with annual grasslands in or near emergent wetlands or on sagebrush flats near water. Harriers forage over grasslands and marsh edges and nest on the ground.	A	The species was not observed during surveys. There are no CNDDB occurrences within 60 miles of the biological study area. No nesting habitat is in biological study area.
Lanius ludovicianus	Loggerhead shrike	CSC	The species prefers open country for hunting, with perches for scanning, and fairly dense shrubs	HP	Foraging and nesting habitat is present in the biological study area. The species was not observed during surveys. There are no

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			and brush for nesting.		CNDDB records within 10 miles of the biological study area.
Reptiles					
Gambelia sila	Blunt-nosed leopard lizard	FE, SE	The species inhabits open, sparsely vegetated areas in the San Joaquin Valley including native-type grasslands, alkali playa, chenopod scrub, and valley saltbush scrub. The species is not found in heavily degraded areas.	A	No habitat is in the biological study area. The species was not observed during surveys. Grassland areas in the biological study area are heavily degraded and disturbed. This species has a very limited distribution on the Valley floor and in the foothills of the coastal range. There are no CNDDB records within 10 miles of the biological study area.
Thamnophis gigas	Giant garter snake	FT; ST	The species is found in streams and sloughs, usually with mud bottoms. The species is one of the most aquatic of garter snakes and is usually found in areas of freshwater marsh, low-gradient streams with emergent vegetation, drainage canals, irrigation ditches, ponds, and small lakes.	A	Habitat is not present in the biological study area. The species was not observed during surveys. There are no CNDDB records within 10 miles of the biological study area.
Amphibians					
Ambystoma californiense	California tiger salamander	FT; CSC	The species is most commonly found in grasslands or open woodland habitats. It lives in vacant or mammal-occupied burrows (e.g., California ground squirrel, valley pocket gopher) and occasionally other underground retreats throughout most of the year. It lays eggs on submerged stems and leaves, usually in shallow ephemeral or semi-permanent pools	A	Habitat is not present in the biological study area. The species was not observed during surveys. The closest CNDDB record (2001) is 0.5 mile northeast.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			and ponds that fill during heavy winter rains. Sometimes it lays eggs in permanent ponds.		
Rana aurora draytonii	California red-legged frog	FT	The species is found in lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation; it also requires uplands for estivation.	A	No habitat is in the biological study area. Not observed during surveys. No CNDDB listed occurrences within 10 miles.
Spea hammondi	Western spadefoot toad	CSC	The species occurs primarily in grassland habitats but is also found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	A	No habitat is in the biological study area. The species was not observed during surveys. Three CNDDB records are at least 7 miles from the biological study area.
Fish					
Mylopharodon conocephalus	Hardhead	CSC	The species occurs in low- to mid-elevation streams in the Sacramento-San Joaquin drainage in clear, deep pools with sand-gravel-boulder substrate and slow water velocity.	A	Habitat is not present in the biological study area. The species was not observed during surveys.
Invertebrates					
Branchinecta conservatio	Conservancy fairy shrimp	FE	The species is found in turbid playa pools in grasslands of the Central Valley. It requires a cool, stable temperature regime. Generally it is found in larger, deeper pools that remain inundated for 3–4 months.	A	Habitat is not present in the biological study area. The species was not observed during aquatic assessment surveys. No fairy shrimp dip net surveys were done. There are no CNDDB records for this species from Fresno or Madera County.
Branchinecta lynchi	Vernal pool fairy shrimp	FT	The species is endemic to the grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains. It is typically	HP	Habitat is present in the biological study area. No protocol level surveys were done. However, shrimp were observed in areas of standing water during aquatic assessment

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			associated with small, shallow vernal pools with relatively short periods of inundation. The species is found in larger pools in the southern extent of its range.		surveys. There are 12 CNDDB records within 10 miles of the biological study area, most are north of Fresno.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	The species occurs only in the Central Valley in association with blue elderberry (*Sambucus mexicana*). It prefers branches greater than 1 inch (2.5 cm) in diameter.	HP	Two elderberry shrubs occur in the biological study area but 200 feet beyond the project impacts area. There are two CNDDB records within 10 miles of the biological study area. A stem inventory and VELB exit hole survey was conducted.
Efferia antiochi	Antioch efferian robberfly	CA SA	The species is known only from Antioch, Fresno, and Scout Island in the San Joaquin River. It is apparently associated with sand dunes and sandy soils.	A	Habitat is not present in biological study area. The sole CNDDB record is more than 50 years old and 4 miles east of the biological study area. The biological study area is regularly disturbed. Surrounding areas are either developed or are similarly disturbed agricultural areas. No sand dunes are present in or near the biological study area.
Linderiella occidentalis	California Linderiella Fairy Shrimp	CA SA	The species occurs in seasonal pools (e.g., vernal pools) in unplowed grasslands with old alluvial soils underlain by hardpan or heavy clay or in sandstone depressions. It tolerates a wide temperature range and pool size.	HP	Habitat is present in the biological study area in the form of roadside puddles. Shrimp were observed in areas of standing water during aquatic habitat assessment. No protocol-level dip net fairy shrimp surveys were done. There are four CNDDB records within 10 miles of the biological study area.
Lytta molesta	Molestan blister beetle	CA SA	The species occurs in the San Joaquin Valley from eastern Contra Costa County south to Tulare and Kern counties. It is associated with grassland habitats and vernal pools. The larvae are parasitic on solitary	A	The sole CNDDB records are historical and undated. The biological study area is within the historic range of the species but habitat is not present. No vernal pools occur within the biological study area.

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			bees.		
Metapogon hurdi	Hurd's metapogon robberfly	CA SA	The species is known only from the Antioch Dunes and Fresno area. It is apparently associated with sand dunes and sandy soils.	A	Habitat is not present in biological study area. The biological study area is regularly disturbed. Surrounding areas are either developed or are similarly disturbed agricultural areas. No sand dunes are present in or near the biological study area.
Plants					
Atriplex cordulata	Heartscale	CNPS 1B	The species is an annual found in chenopod scrub, valley and foothill grasslands, meadows, alkaline flats, and scalds in the Central Valley with sandy soils (3 -1230 ft). It blooms April to October.	A	Habitat is not present in the biological study area. The species was not observed during surveys. Soils in the biological study area are mildly acidic. The CNDDB lists one 1937 record in the area. The listed record is more than 10 miles away.
Atriplex minuscula	Lesser saltscale	CNPS 1B	The species is an annual found in chenopod scrub, playas, valley and foothill grassland in alkaline, sandy soils (50–650 feet elevation). It blooms May to October.	A	Habitat is not present in the biological study area. The species was not observed during surveys. Soils in the biological study area are mildly acidic. The CNDDB lists one record in area, from 1948. The record is more than 10 miles away.
Atriplex persistens	Vernal pool smallscale	CNPS 1B	The species is an annual found in vernal pools (30–380 feet elevation).It blooms June to October.	A	Habitat is not present. It was not observed during surveys. No vernal pools are in the biological study area.
Castilleja campestris ssp. *succulenta*	Succulent owl's clover	FT, SE, CNPS 1B	The species is an annual hemiparasitic. It occurs in vernal pools in valley and foothill grasslands (80–2500 feet elevation). It blooms April to May.	A	Habitat is not present. No vernal pools are in the biological study area. The sole CNDDB record (1992-1993) is 7 miles east.
Caulanthus	California	FE, SE,	The species is an annual that	A	Habitat is not present. Not observed during

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
californicus	jewel-flower	CNPS 1B	occurs in nonnative grassland, upper Sonoran subshrub scrub, and cismontane juniper woodland and scrub communities on subalkaline sandy soils (200–3300 feet elevation), and blooms February to May.		surveys, populations on the San Joaquin Valley floor have been extirpated. The sole CNDDB record is historical and undated.
Cordylanthus palmatus	Palmate-bracted bird's-beak	FE, SE, CNPS 1B	The species is an annual hemiparasitic that lives in alkaline valley and foothill grassland, chenopod scrub (15–510 feet elevation). It blooms May to October.	A	Habitat is not present. The species was not observed during surveys. The biological study area is regularly disturbed and soils are mildly acidic. The sole CNDDB record is from 1937 and more than 10 miles from the biological study area.
Delphinium recurvatum	Recurved larkspur	CNPS 1B, SJMSCP	The species is a perennial that lives in alkaline valley foothill grassland, chenopod scrub, cismontane woodlands (10–2460 ft), and blooms March to May.	A	Habitat is not present. The species was not observed during surveys. The biological study area is regularly disturbed and soils are mildly acidic. The sole CNDDB record is from 1956 and more than 10 miles from the biological study area.
Eriastrum hooveri	Hoover's eriastrum	CNPS 4; Delisted	The species is found on sparsely vegetated alkaline alluvial fans or sandy soils, in chenopod scrub, valley and foothill grassland, and pinyon/juniper woodland.	A	Habitat is not present in the biological study area. The sole record is from 1979; habitat has since been eliminated by agriculture.
Imperata brevifolia	California satintail	CNPS 2	The species is a perennial rhizomatous grass that occurs in mesic areas (meadows, stream sides, alkali seeps) in coastal scrub, chaparral, riparian scrub (0–1600 feet elevation), and blooms September to May.	A	Habitat is not present in the biological study area. The species was not observed during surveys. The sole CNDDB record for project vicinity is based on a nonspecific 1893 collection approximately 7 miles east.
Leptosiphon serrulatus	Madera leptosiphon	CNPS 1B	The species is an annual found in cismontane woodland, lower	A	Habitat is not present in the biological study area. The species was not observed during

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
			coniferous forest, meadows, and decomposed granite (1000–4300 feet elevation). It blooms April–May.		surveys. The sole CNDDB record in the vicinity is based on a nonspecific 1889 collection. This record is more than 10 miles from the biological study area. Elevation of the biological study area (290 feet) is well below the typical range for this species.
Orcuttia inaequalis	San Joaquin Valley orcutt grass	FT, SE, CNPS 1B	The species is an annual found in vernal pools (30–2500 feet elevation) and blooms April–September.	A	Habitat is not present. The species was not observed during surveys. The biological study area is regularly disturbed; no vernal pools occur within limits. All CNDDB records are at least 7 miles away and at least 18 years old.
Orcuttia pilosa	Hairy orcutt grass	FE, SE, CNPS 1B	The species is an annual found in vernal pools (150–650 feet elevation) and blooms May–September.	A	Habitat is not present. The species was not observed during surveys The biological study area is regularly disturbed; no vernal pools occur within its limits. Both CNDDB records are more than 3 miles away and over 20 years old.
Sagittaria sanfordii	Sanford's arrowhead	CNPS 1B	The species is a perennial rhizomatous herb found in marshes and swamps, standing or slow-moving freshwater ponds, marshes, and ditches (0–2100 feet elevation). It blooms May–October.	A	Habitat is not present in the biological study area. The species was not observed during surveys. The only detention basin within the biological study area that holds water for a significant duration is too deep and steep-sided to provide potential habitat for this species. All four CNDDB records within 10 miles of the biological study area are from the 1950s; subsequent searches at the recorded locations did not find any plants of this species.
Tropidocarpum capparideum	Caper-fruited tropidocarpum	CNPS 1B	The species is an annual found on alkaline hills in valley and foothill grasslands at low elevations (0–1500 feet). It blooms March–April.	A	Habitat is not present. The species was not observed during surveys The biological study area is regularly disturbed; soils are mildly acidic. Most CNDDB records are pre-

Scientific Name	Common Name	Status	Habitat Requirements	Habitat Present/Absent	Rationale
					1950 and subsequent searches have had negative results.
Habitats					
Great Valley Mixed Riparian Forest	----	----	The species is tall, dense broadleafed riparian forest on floodplains, usually below 500 feet elevation. Typically comprosed of box elder (*Acer negundo*), California walnut (*Juglans hindsii*), Fremont cottonwood (*Populus fremontii*), and several willows (*Salix* ssp.)	A	Habitat is not present in biological study area.
Northern Claypan Vernal Pool	----	----	The species is low-growing herbaceous community dominated by annual herbs and grasses. It typically occurs in depressions and other micro-relief in grassland communities underlain by silica-cemented hardpan soils.	A	Habitat is not present in biological study area.

Source: Natural Environment Study (April 211)

Status Codes

Federal
FE: Federally listed; Endangered
FT: Federally listed, Threatened
FPE: Federally Proposed for Listing as Endangered elsewhere in their range.
FPT: Federally Proposed for Listing as Threatened
FC: Federal Candidate
FD: Federally Delisted
State
ST: State listed; Threatened
SE: State listed; Endangered
SFP: State Fully Protected

California Native Plant Society (CNPS) designations:
List 1A: Plants presumed extinct in California.
List 1B: Plants rare and endangered in California and throughout their range.
List 2: Plants rare, threatened or endangered in California but more common

List 3: Plants about which we need more information; a review list.

List 4: Plants of limited distribution; a watch list
Habitat Presence:
HP: Habitat is, or may be present
P: Species is present
A: No habitat present and no further work needed

SWL: State Watch List
CSC: California Species of Special Concern
CNDDB: California Natural Diversity Database
CA SA: Special Animal: General term that refers to taxa that the CNDDB is interested in tracking regardless of legal or protection status: Includes the following categories in addition to those listed above:

- Taxa that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
- Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California.
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, vernal pools, etc.)
- Taxa designated as a special status, sensitive, or declining species by other state or federal agencies, or non-governmental organization (NGO).

ft=feet **mi.=miles** **NE=Northeast** **SE=Southeast** **cm=centimeter(s)**

List of Technical Studies Bound Separately

Air Quality Report
Air Quality Conformity Analysis
Biological Assessment
Community Impact Assessment
Farmland Conversion Assessment
Floodplain and Water Quality Evaluation Report
Historical Property Survey Report/Archaeological Survey Report
Historical Resources Evaluation
Initial Site Assessment
Noise Study Report
Noise Abatement Decision Report
Natural Environment Study
Paleontological Identification and Evaluation Report
Preliminary Site Investigation
Traffic Operations Report
Visual Impact Assessment