

# 12<sup>th</sup> Avenue Interchange at State Route 198

Hanford, California  
06-KIN-198-PM 16.9  
EA 06-487500

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## Initial Study with Proposed Mitigated Negative Declaration



Prepared by the  
State of California Department of Transportation

December 2008



## General Information About This Document

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

The California Department of Transportation (Caltrans) has prepared this Initial Study, which examines the potential environmental impacts of alternatives being considered for the proposed project located in Kings County, California. The document describes the proposed project, the existing environment that could be affected by the project, and potential impacts from the project, and the proposed avoidance, minimization, and/or mitigation measures.

### ***What should you do?***

- Please read this Initial Study. Additional copies of this document as well as the technical studies are available for review at the Caltrans District Office at 1352 West Olive Avenue in Fresno, California 93728 and the Kings County Public Library—Hanford Branch Library at 401 North Douty Street in Hanford, California 93230.
- We welcome your comments. If you have any concerns regarding the proposed project, send your written comments to Caltrans by the deadline. Submit comments via U.S. mail to Caltrans at the following address:

G. William “Trais” Norris III, Senior Environmental Planner  
Sierra Pacific Environmental Analysis Branch  
California Department of Transportation  
2015 East Shields Avenue, Suite 100  
Fresno, California 93726

- Submit comments via email to: [trais\\_norris@dot.ca.gov](mailto:trais_norris@dot.ca.gov).
- Submit comments by the deadline: February 2, 2009

### ***What happens next?***

After comments are received from the public and reviewing agencies, Caltrans may 1) give environmental approval to the proposed project, 2) do additional environmental studies, or 3) abandon the project. If the project is given environmental approval and funding is 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: Caltrans, Attn: G. William “Trais” Norris III, Sierra Pacific Environmental Analysis Branch, California Department of Transportation, 2015 E. Shields Avenue, Ste. 100, Fresno, California 93726; (559) 243-8178 Voice, or use the California Relay Service’s TTY number, (559) 488-4066.

Widen the bridge and ramps at 12<sup>th</sup> Avenue and  
State Route 198 (at post mile 16.9) in Kings County, California

**INITIAL STUDY  
with Proposed Mitigated Negative Declaration**

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA  
Department of Transportation

12-10-08  
Date of Approval

Kelly J Hobbs  
Kelly J. Hobbs, Acting Office Chief  
Office of Environmental Management, South  
California Department of Transportation



## **Proposed Mitigated Negative Declaration**

Pursuant to: Division 13, Public Resources Code

### ***Project Description***

The California Department of Transportation (Caltrans) proposes to modify the State Route 198/12<sup>th</sup> Avenue Interchange (post mile 16.9) in the City of Hanford, Kings County, California. The proposed project would widen the existing 12<sup>th</sup> Avenue overcrossing bridge and roadway, widen and/or realign the existing ramps, and construct a new loop on-ramp for eastbound State Route 198 in the southwest quadrant of the interchange.

### ***Determination***

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

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

The proposed project would have no effect on agricultural resources, cultural resources, noise, geology/soils, hazardous and hazardous materials, hydrology/water quality, land use/planning, mineral resources, population/housing, public services, recreation, or utilities/services systems.

The proposed project would have no significant effect on transportation/traffic or air quality.

In addition, the proposed project would have no significantly adverse effect on the following resources because mitigation measures would reduce potential adverse effects to insignificance:

- Aesthetics would be mitigated by including landscaping, replacement trees, and visually compatible ornamental ground cover, and by placement of drainage or detention ponds and access-controlled fencing where visually unobtrusive if possible.
- Paleontology would be mitigated through mitigation measures identified in this Initial Study/Mitigated Negative Declaration.

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Kelly J. Hobbs, Acting Office Chief  
Office of Environmental Management, South  
Central Region Environmental Division  
California Department of Transportation

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Date



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# Chapter 1 Proposed Project

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## 1.1 Introduction

The California Department of Transportation (Caltrans) proposes to modify the State Route 198/12<sup>th</sup> Avenue interchange (at post mile 16.9) in the City of Hanford in Kings County, California. The proposed project would widen the existing 12<sup>th</sup> Avenue overcrossing bridge and roadway, widen and/or realign the existing ramps, and construct a new loop on-ramp for eastbound State Route 198 in the southwest quadrant of the interchange (see Figures 1.1 and 1.2)

State Route 198 is the main highway to and from the Lemoore Naval Air Station, which is one of the Navy's essential aviation facilities in the western United States. The highway also connects the cities of Lemoore and Hanford.

The proposed project has two funding sources: locally generated funds and Regional Improvement Program funds from the 2008 State Transportation Improvement Program. Construction funding is available from these sources in the fiscal year 2011/2012. The project cost is estimated to be \$23 million. The project is included in the Kings County Association of Governments 2008 Regional Transportation Improvement Program and the 2007 Federal Transportation Improvement Program. The Kings County Association of Governments adopted the most recent Transportation Improvement Plan on January 25, 2006. The 12<sup>th</sup> Avenue Interchange Project is included in the 2007 Kings County Regional Transportation Plan and the 2006 Transportation Improvement Plan.

## 1.2 Purpose and Need

### 1.2.1 Purpose

The purpose of the proposed project is to improve connectivity of the local road system and maintain the acceptable operation of State Route 198/12<sup>th</sup> Avenue interchange.

### 1.2.2 Need

This project is needed to improve safety and traffic operations of the interchange and increase the capacity of 12<sup>th</sup> Avenue.

### **Traffic Operations**

High traffic volumes and inadequate access control have contributed to congestion and less than desirable operating conditions at the interchange. The turns and merges/diverges from 12th Avenue to the on-ramps and from State Route 198 to the off-ramps cause both substantial delays and frequently long lines of backed up traffic, creating traffic conflicts. The congestion and frequent merging result in pronounced speed differences, which hinder motorists attempting to access State Route 198.

An eastbound State Route 198 loop on-ramp would be added to reduce accident rates by reducing turning conflicts. Realignment of the existing eastbound on-ramp entrance and the addition of a new eastbound loop on-ramp would enhance capacity, reduce delays, reduce backups and turning conflicts, and therefore reduce the potential for accidents.

The current Level of Service is D” for the interchange. The Level of Service for the ramps would be “C” or better with the proposed improvements.

The Traffic Study does not show any existing or future queue deficiencies (long waiting lines, accidents etc.) at the off-ramps. Metering is not needed at this time. In the future, ramps would be modified if metering became necessary.

Future demand at the 12th Avenue interchange is expected to increase due to regional population growth and planned commercial development in the area.

### **Increase Capacity of 12<sup>th</sup> Avenue**

City of Hanford has requested that 12<sup>th</sup> Avenue be widened to:

- four lanes from south of the interchange to the Hanford Armona intersection
- six lanes from north of the interchange to the south side of the Wal-Mart shopping center driveway

This improvement would further enhance safety, reduce congestion, and increase connectivity of the local system by increasing the number lanes reducing the bottlenecks on 12<sup>th</sup> Avenue. The current Level of Service at 12<sup>th</sup> Avenue is “F” however, it will improve with the proposed project.

The City of Hanford has also requested that Glendale Avenue maintain access to 12<sup>th</sup> Avenue.

An accident history of the interchange for the most recent three-year period (July 1, 2003 to June 30, 2006) as shown in Table 1.2 indicated that each segment of the interchange is higher than the state average for at least one indicator.

**Table 1.1 Accidents within the Project Area**

(Between July 1, 2003 and June 30, 2006)

Location	Actual Accidents Per Million Vehicle Miles			Average Accidents Per Million Vehicle Miles		
	Fatal	Fatal & Injury	Total	Fatal	Fatal & Injury	Total
Eastbound Off-ramp to 12 <sup>th</sup> Avenue Post mile R16.74	0.00	1.50	2.07	0.005	0.61	1.50
Eastbound On-ramp 12 <sup>th</sup> Avenue Post mile R17.03	0.00	0.00	1.33	0.002	0.32	0.80
Westbound On-ramp from 12 <sup>th</sup> Avenue Post mile R16.8	0.00	0.36	0.55	0.002	0.32	0.80
Westbound Off-ramp to 12 <sup>th</sup> Avenue Post mile R17.07	0.00	0.59	1.47	0.005	0.61	0.50

Source: Caltrans Office of Traffic Operations

High traffic volumes and inadequate access control have led to congestion and less than desirable operating conditions. The accident types indicate congestion on the ramps. Accidents were caused by following too close, failing to yield, making improper turns, and speeding. The turning and merge/diverge movements from 12<sup>th</sup> Avenue and from State Route 198 generated conflicts on the ramps.

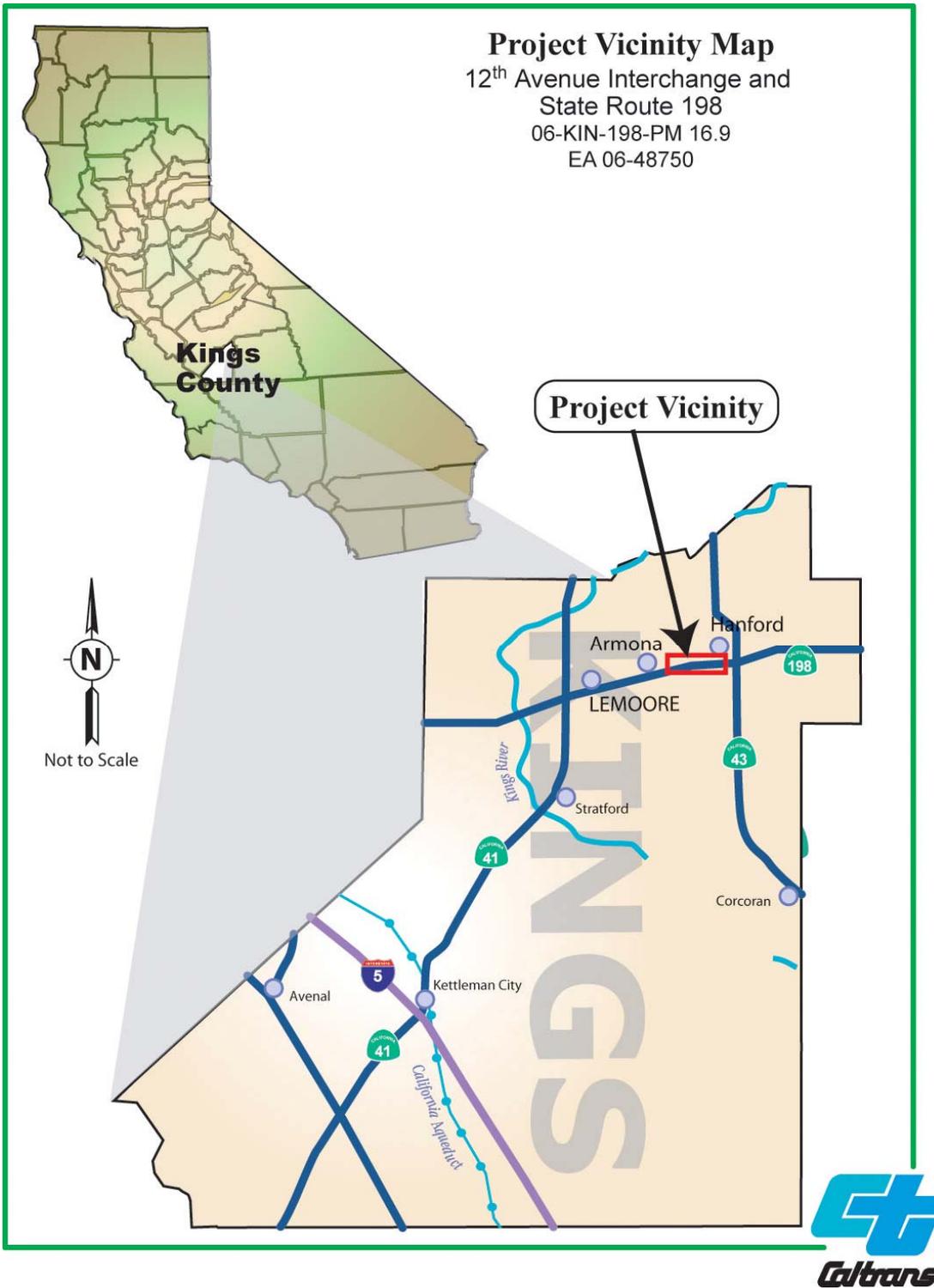


Figure 1.1 Project Vicinity Map

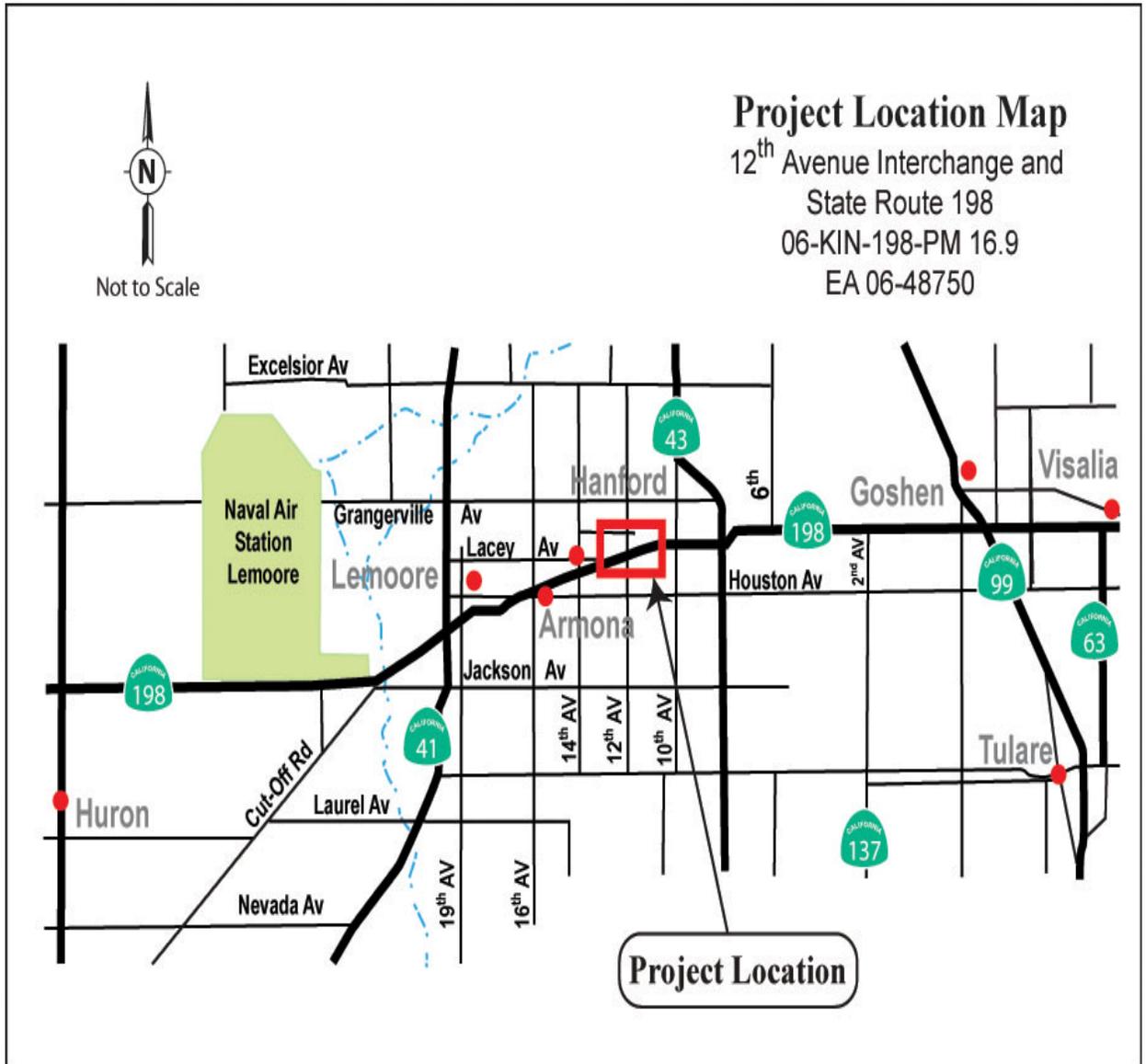


Figure 1.2 Project Location Map

## 1.3 Alternatives

This section describes the proposed alternative that was developed by a multi-disciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts.

### 1.3.1 Build Alternative (Alternative 3)

Alternative 3 would add a loop on-ramp in the southwest quadrant of the interchange. This alternative would widen the existing bridge and build a retaining wall under the 12<sup>th</sup> Avenue interchange structure to accommodate the eastbound loop on-ramp. The existing eastbound on-ramp would be relocated to accommodate an on-ramp south of the proposed eastbound off-ramp, which would provide capacity for the large traffic volumes at this location.

This alternative would do the following:

- Widen 12<sup>th</sup> Avenue to four lanes south of State Route 198 and six lanes north of State Route 198 with each lane measuring 12 feet wide, with a variable median (12 feet to 4 feet wide), 8-foot-wide shoulders, and 5-foot-wide sidewalks
- Widen the westbound off-ramp to three lanes, totaling one left lane, one shared left/right lane, and one right lane
- Widen the eastbound off-ramp to three lanes, totaling two left lanes and one right lane after the eastbound off-ramp relocation

A 450-foot auxiliary lane would be included on northbound 12<sup>th</sup> Avenue. About 4 acres of new right-of-way would be required; this would mainly affect vacant commercial properties. See Figure 1.3.

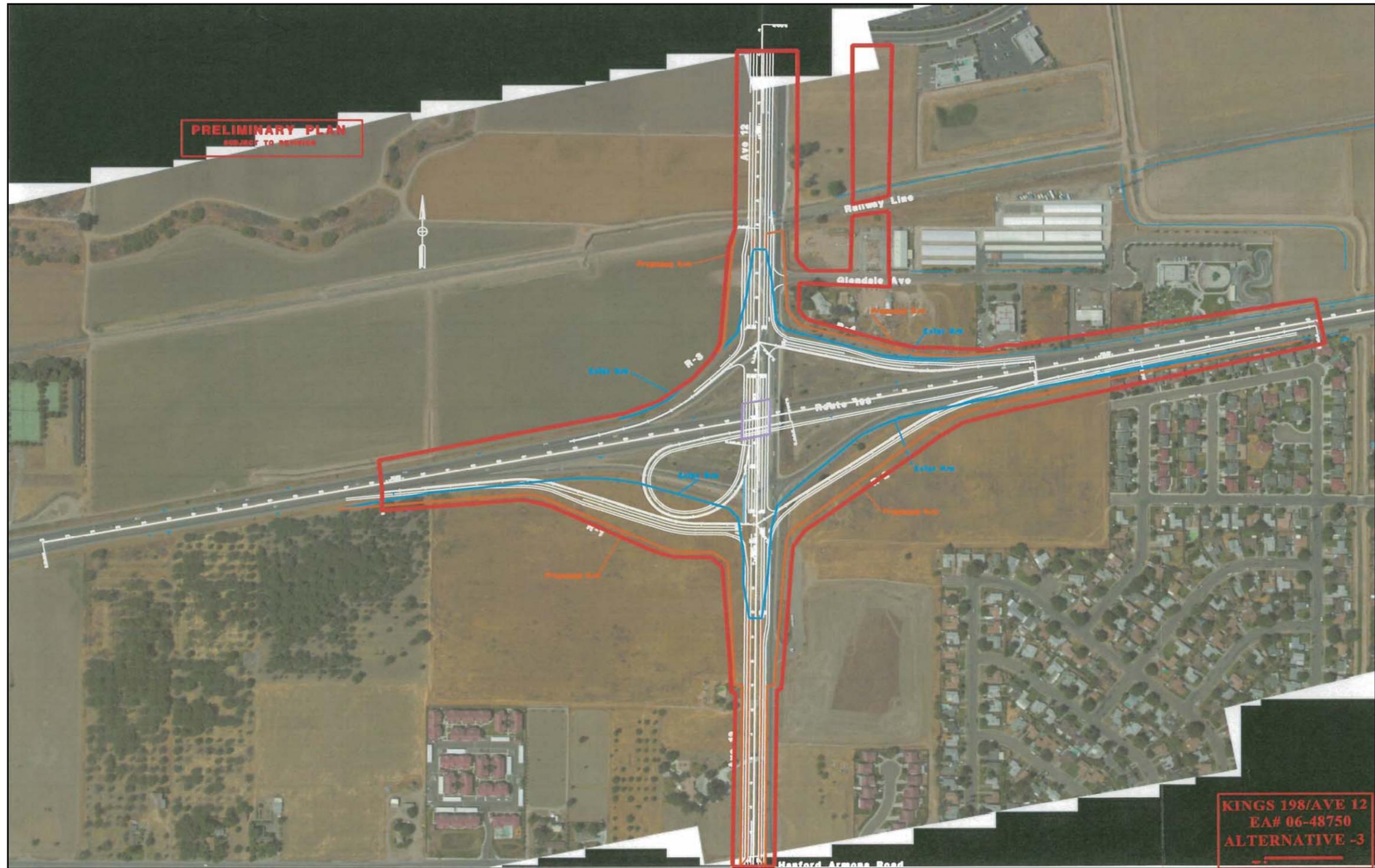


Figure 1.3 Build Alternative



### **1.3.2 No-Build Alternative**

The No-Build Alternative offers a basis for comparison with the build alternative (Alternative 3). This alternative would leave the interchange as it is. It would not meet the purpose and need of the project.

This alternative would not require additional right-of-way. Under the No-Build Alternative, operational deficiency would continue and intensify with increases in regional population and planned commercial development. In addition, accident rates would continue to exceed statewide averages.

### **1.3.3 Alternatives Considered but Eliminated From Further Discussion**

#### ***Alternative 1: Existing Configuration with Widening***

Alternative 1 was considered but eliminated from further consideration because it did not meet traffic capacity requirements. This alternative proposed to maintain the existing interchange diamond configuration while widening the existing bridge and ramps, and providing single side-by-side northbound and southbound left-turn lanes to the on-ramps.

This alternative would do the following: widen the existing bridge structure to 28 feet (in addition to the existing width) to provide four travel lanes measuring 12 feet each, with an 8-foot shoulder and a 5-foot sidewalk on either side of the lanes. It also would widen the westbound off-ramp to three lanes (one left lane, one shared left and right lane and one right lane) and widen the eastbound off-ramp to three lanes (two left lanes and one right lane).

#### ***Alternative 2: Southbound Dual Left-Turn Lanes to State Route 198 Eastbound On-ramp***

Alternative 2 was considered but eliminated from further consideration because right-of-way impacts to the northwest quadrant of the proposed project area were not feasible. This alternative would require a partial right-of-way take, 20 feet, of a new car dealership.

This alternative proposed to maintain the diamond configuration of the interchange while adding dual southbound left-turn lanes for the eastbound State Route 198 on-ramp and widening the existing bridge to accommodate for side-by-side left-turn lanes. The eastbound left-turn lane would have required a dual left-turn lane design.

This alternative would do the following: widen the existing bridge 40 feet to provide for 20-foot symmetric sides, with a 5-foot sidewalk, and widen the westbound off-ramp to three lanes (one left lane, one shared left/right lane and one right lane), and widen the eastbound off-ramp to three lanes (two left lanes and one right lane).

An advisory and a mandatory design exception would be required for this alternative; also, additional right-of-way would be needed. A total of 18 acres, including 15 parcels, would be required.

***Alternative 5: Full Build/Standard***

Alternative 5 was considered but eliminated from further consideration because it required two at-grade railroad crossings to provide access to the east and west sides of Glendale Avenue, and it would close Glendale Avenue. Current railroad requirements indicate that a new railroad crossing would not be approved without an equal number of closed railroad crossings. The closing of Glendale Avenue would create access issues for businesses and residents on Glendale Avenue.

This alternative proposed to change to the existing diamond interchange configuration to include a loop on-ramp in the southwest quadrant of the interchange. This alternative would add two frontage roads that cross the existing railroad lines to provide access to Glendale Avenue. The frontage roads would have been designed to meet or exceed the Caltrans Highway Design Manual's current design standards.

This alternative would require additional right-of-way for mandatory design standards to construct a standard westbound on-ramp; relocate the eastbound loop on-ramp; and realign the eastbound on- and off-ramps. (A total of 20 acres, including 20 parcels, would be required for right-of-way. In addition, two new access permits would need to be obtained from the railway company to accommodate the proposed at-grade crossing.

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

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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 conducted 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.

- Land Use—The proposed project does not conflict with any applicable land use plan, policy or regulation. (Kings County General Plan/Land Use Element, December 1993; and City of Hanford General Plan/Land Use Element, June 2002; Community Impact Assessment/Land Use Technical Memorandum, July 2008)
- Growth—The proposed project would not lead to substantial direct or indirect population growth. (Community Impact Assessment/Land Use Technical Memorandum, July 2008)
- Farmlands/Timberlands—There are no Williamson Act farmlands or agriculturally zoned land uses within the project area. (Community Impact Assessment/Land Use Technical Memorandum, July 2008)
- Cultural Resources—No cultural resources were found during surveys and no further studies are recommended. (Historic Property Survey Report, March 2008)
- Hydrology and Floodplain—The proposed project lies outside of the 100-year and 500-year floodplains. (Water Quality Summary Memo, November 2007, Floodplain Evaluation Report Summary 2006)

- Water Quality and Storm Water Runoff—There are no water resources present in the proposed project area. The proposed project would not generate increases in storm water runoff volume, and there are no storm water drainage facilities being proposed. (Water Quality Summary Memo, November 2007)
- Geology/Soils/Seismic/Topography—No known earthquake faults lie in the project area. The proposed project would not result in substantial soil erosion or loss of topsoil. The proposed project is not located on a geologic unit or on soil that is unstable. (Initial Study)
- Hazardous Waste or Materials—No hazardous waste sites are affected by the project. (Initial Site Assessment, April 2007 and Field Inspection, December 2007)
- Wetlands and other Waters—No federally protected wetlands or other waters exist in the project area. (Natural Environment Study, June 2008)
- Plant Species—No special-status plant species exist in the project impact area. (Natural Environment Study June 2008)

## 2.1 Human Environment

### 2.1.1 Traffic and Transportation/Pedestrian and Bicycle Facilities *Regulatory Setting*

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

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***

The Draft Project Report (August 2008) describes the State Route 198 corridor as an essential highway that has provided vital east-west connection for California, from the Central Coastal Region, through the San Joaquin Valley, to the Sierra Nevada Mountains since 1959.

In the project area, 12<sup>th</sup> Avenue is a north/south (four lanes north of State Route 198 and two lanes south of State Route 198) major collector street that serves the rapidly developing community of Hanford in Kings County from Idaho Street to Flint Street. The existing 12<sup>th</sup> Avenue interchange has intersections with traffic signals and is challenged by the ongoing residential and commercial growth. The project would upgrade the interchange, improving safety and correcting operational problems that result from high traffic volumes and frequent turns at the interchange.

The proposed project is located at the intersection of State Route 198 and 12<sup>th</sup> Avenue within the City of Hanford, in Kings County, California. The proposed project involves the reconstruction of the State Route 198/12<sup>th</sup> Avenue Interchange to improve traffic capacity and operation characteristics.

High traffic volumes and inadequate access control have contributed to the development of congestion and less than desirable operating conditions. The turning and merge/diverge movements from 12th Avenue to the on-ramps and from State Route 198 to the off-ramps cause both substantial delays and frequently long queues, and generates traffic conflicts. The high traffic volumes and frequent turning movements result in pronounced speed differentials that exacerbate problems for motorists attempting to access State Route 198.

### ***Environmental Consequences***

Future demand at the 12<sup>th</sup> Avenue interchange facility is expected to increase due to regional population growth and planned commercial development in this area.

Level of Service is an indicator of operating conditions on a roadway. It is defined in categories ranging from “A” to “F” (Figure 2.1) A level of service of “A” indicates free-flowing traffic with no hindrance to driving speed whereas level of service “F” indicates substantial congestion with slow-moving, stop and go traffic. The transportation concept report has designated level of service of “B” for this segment of State Route 198. Without improvements, this segment of State Route 198 would be expected to deteriorate. Level of Service for State Route 198 Mainline would be “E”

in 2034 unless an auxiliary lane is provided, in which case the Level of Service improves to “C”.

Based on the traffic volume provided by the Office of Traffic Operations, Level of Service are analyzed and summarized in Table 2.1. As shown in the table, Level of Service for the Eastbound Loop On Ramp is N/A (not applicable) for existing and construction 2014 and Future without project 2034 scenarios as there will be no Level of Service for the loop ramp until the project is completed and the loop ramp is built. The Level of Service for 12<sup>th</sup> Avenue (State Route 198 to Hanford Mall Road) would remain “F” even with the construction of the project as no improvements are being done along this arterial road from intersection of State Route 198 and 12<sup>th</sup> Avenue to Hanford Mall Road. The existing Level of Service for 12<sup>th</sup> Avenue (Hanford Armona Road to State Route 198) is “E” and Future without project Level of Service “F” in 2034. However, with the Future with project Level of Service would improve to “C”.

# LEVELS OF SERVICE

## for Multi-Lane Highways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
<b>A</b>		60	Highest level of service. Traffic flows freely with little or no restrictions on maneuverability. <b>No delays</b>
<b>B</b>		60	Traffic flows freely, but drivers have slightly less freedom to maneuver. <b>No delays</b>
<b>C</b>		60	Density becomes noticeable with ability to maneuver limited by other vehicles. <b>Minimal delays</b>
<b>D</b>		57	Speed and ability to maneuver is severely restricted by increasing density of vehicles. <b>Minimal delays</b>
<b>E</b>		55	Unstable traffic flow. Speeds vary greatly and are unpredictable. <b>Minimal delays</b>
<b>F</b>		<55	Traffic flow is unstable, with brief periods of movement followed by forced stops. <b>Significant delays</b>

Source: 2000 HCM, Exhibit 21-3, Speed-Flow Curves with LOS Criteria for Multi-Lane Highways

**Figure 2.1 Levels of Service for Conventional Highway**

The Average Daily Traffic (ADT) counts for 12<sup>th</sup> Avenue from Hanford Armona Road to State Route 198 for construction year and 20 years after construction are shown below in Table 2.1.

**Table 2.1 Traffic and Levels of Service (LOS) Levels**

	Post Mile	ADT 2014 Construction year	ADT 2034	Existing LOS	Construction Year LOS (2014)	Future LOS Without Project (2034)	Future LOS with Project (2034)
Eastbound Off Ramp	R16.7	6,900	12,000	B	B	D	C
Westbound On Ramp	R16.8	4,000	8,500	B	B	C	B
Eastbound Loop On Ramp	R17.0	4,810	7,170	N/A	N/A	N/A	D
Westbound Off Ramp	17.1	6,200	10,800	B	B	D	C
Eastbound Diamond On Ramp	R17.0	1,390	3,630	B	B	D	B
State Route 198 Mainline	R16.9	36,500	63,500	B	B	E	E/C**
12 <sup>th</sup> Avenue (Hanford Armona Road to State Route 198		13,700	23,700	E	E	F	C
12 <sup>th</sup> Avenue (State Route 198 to Hanford Mall Road)		36,500	63,500	E	E	F	F***

Source: Caltrans Office of Traffic Operations

\*\*With an auxiliary lane Level Of Service = C

\*\*\*No modifications done to the arterial way, hence LOS remains same.

A safety analysis field review was conducted on May 8, 2007. The accident history of the interchange for the most recent three-year period (from July 1, 2003 to June 30, 2006) as shown in Table 2.2 indicates that each segment of the interchange is higher than the state average for at least one indicator.

**Table 2.2 Ramps Accident Rates**

(Between July 1, 2003 and June 30, 2006)

Location	Actual Accidents Per Million Vehicle Miles			Average Accidents Per Million Vehicle Miles		
	Fatal	Fatal & Injury	Total	Fatal	Fatal & Injury	Total
Eastbound Off-ramp to 12 <sup>th</sup> Avenue Post mile R16.74	0.00	1.50	2.07	0.005	0.61	1.50
Eastbound On-ramp 12 <sup>th</sup> Avenue Post mile R17.03	0.00	0.00	1.33	0.002	0.32	0.80
Westbound On-ramp from 12 <sup>th</sup> Avenue Post mile R16.8	0.00	0.36	0.55	0.002	0.32	0.80
Westbound Off-ramp to 12 <sup>th</sup> Avenue Post mile R17.07	0.00	0.59	1.47	0.005	0.61	0.50

Source: Caltrans Office of Traffic Operations  
Accidents Per Million Vehicle Miles (MV)

The following have an accident rates higher than the statewide average:

- Eastbound Off-Ramp: Fatal Plus Injury and Total.
- Eastbound On-Ramp: Total Accidents
- Westbound On-Ramp: Fatal Plus Injury
- Westbound Off-Ramp: Total Accidents

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

The proposed project does not generate traffic; increase the number of vehicle trips or volume. This project would not remove or alter a pedestrian or bicycle facility. It would maintain the existing pedestrian and bicycle access. Additional scope of work has been added at the request of the City of Hanford. The City has requested that this project widen 12<sup>th</sup> Avenue to 4-lanes south of the interchange to the Hanford Armona intersection, and widen 12<sup>th</sup> Avenue to 6-lanes north of the interchange to the south side of the Wal-mart shopping center driveway. The additional improvement would

further enhance safety, reduce congestion and increase connectivity of the local system by increasing the number lanes reducing the bottlenecks on 12<sup>th</sup> Avenue.

Transportation Systems Management strategies consist of actions that increase the efficiency of existing roadways. The Traffic Management Plan for this project consists of on and off ramp closures during night and day construction. Lane and ramp closure charts for the construction would be developed during Project Specifications and Estimates stage of the project. Daytime work outside peak hours is anticipated for this project. The closed lanes and ramps would be reopened when there are no construction activities. Traffic would be directed to exit or enter freeway at the closest interchange east and west of 12<sup>th</sup> Avenue. The media would be used to disseminate construction information to the public.

### **2.1.2 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 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 taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

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

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

The existing visual environment of the project area was divided into three landscapes: the Commercial and Industrial Landscape, the Residential and Open Field Landscape, and the State Route 198 Landscape. State Route 198 runs in an east-west direction in the project area, while 12<sup>th</sup> Avenue runs in a north-south direction. The project area is flat or gently sloped, with the approaches to the bridge raised on fill. Existing vegetation in the area is made up mostly of landscape plantings between the ramps and the mainline and along the outside edges of the interchange. The overall project

area has moderate visual quality, with moderate to moderately low vividness, and moderate intactness and unity.

### ***Environmental Consequences***

The proposed project improvements would replace existing highway elements (bridge and on- and off-ramps) with newer elements. The bridge would be placed in the same location it is now, but would be widened. In addition, 12<sup>th</sup> Avenue would be widened to six lanes with a median north of the bridge and four lanes south of the bridge. The eastbound on- and off-ramps would be relocated farther to the south on 12<sup>th</sup> Avenue, and a new loop ramp would be added for traffic traveling southbound on 12<sup>th</sup> Avenue to eastbound State Route 198. A retaining wall would be placed along the portion of the loop ramp under the bridge.

The project would increase the size of the current interchange. By moving the eastbound ramps to the south, the project puts them closer to residential areas. In addition, some trees would have to be removed. But the increased areas between the highway and ramps would allow for additional landscape plantings compared to the current configuration. See Figure 2.2.

The overall visual character of the area is moderately low with moderately low vividness and intactness and moderate unity. An open field presents a foreground without distinguishing characteristics. The highway plantings associated with the eastbound on-ramp, especially the trees, provides some backdrop, although these trees are young and do not create a break of screen of the ramp.

Figure 2.3 shows the existing bridge. Figure 2.4 shows the proposed replacement of the 12<sup>th</sup> Avenue bridge from the State Route 198 Landscape Unit Viewpoint.

While the overall visual character of the California State Route 198 corridor is moderately low, the overall visual quality at this viewpoint is considered moderate, with a moderate vividness, intactness and unity. The overcrossing and associated plantings provide a visual break in the terrain of the area and create a mid-ground focal point that is not present the farther away from the bridge crossing the viewer is located.

Because the new interchange includes additional elements typical of a highway, it is likely that the changes to the visual environment within this view would not change the viewer's response to the current interchange. The addition of mitigation plantings

and the possibility of adding architectural and urban design elements to the bridge would be anticipated to increase a favorable view of the interchange.

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

The avoidance and minimization measures below are proposed to address potential adverse visual impacts to the interchange area and community visual concerns. Implementation of the following avoidance and minimization measures would reduce the visual impacts from the project and would not result in a substantial change in the overall visual quality of the project area:

- Work with the community during final design to develop Aesthetic and Urban Design Guidelines for the project through a formalized process that allows for community input.
- Include trees in the new plantings to replace trees removed by the project to create a focal area and to soften and fit the bridge into the landscape.
- Use drainage or detention ponds, where required, that maximize the allowable landscape. Place any water quality or detention ponds out of clear view of the interchanges from the highway.
- Use a visually compatible ornamental groundcover in any basins or geoswales if they must occur within ornamental landscape areas.
- Locate access-control fencing in visually unobtrusive locations and apply black vinyl coating if placed along pedestrian areas or along local streets.
- If desired by the City, develop bridge architecture to create Community/City Gateways—including possible bridge monuments with decorative lighting, parapet wall treatments, decorative fencing and lighting and abutment/wing wall—to increase the memorability of the 12<sup>th</sup> Avenue overcrossing.



Bottom figure represents open field view five years after planting. Viewpoint is from the west to northwest.

**Figure 2.2 Residential and Open Field Landscape Unit Viewpoint**



**Figure 2.3 State Route 198 Landscape Unit Viewpoint**



(Figure 2.4 represents the State Route 198 view five years after planting—a conceptual view only.) Viewpoint is to the east from the eastbound lanes.

**Figure 2.4 State Route 198 Viewpoint five years after planting**



## **2.2 Physical Environment**

### **2.2.1 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 (such as the Antiquities Act of 1906 [16 USC 431-433], Federal-Aid Highway Act of 1935 [20 USC 78]). Under California law, the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5 protect paleontological resources.

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

A Paleontological Evaluation Report (February 2008) was prepared to address the preservation of valuable paleontological resources that could be discovered during the construction of the proposed project.

Three stratigraphic units were identified in the Central Valley region: the Turlock Lake, Riverbank, and Modesto formations. The Turlock Lake Formation consists of weakly cemented brown to tan sandstone and siltstone from the early to middle Pleistocene period. The Riverbank Formation consists of cemented reddish brown sandstone, siltstone and clay stone from the middle Pleistocene period. The Modesto Formation consists of inter-bedded, largely unconsolidated and poorly sorted, buff to yellowish brown sandstone and siltstone from the late Pleistocene to early Holocene periods.

Each of these stratigraphic units has produced fossil remains at previously recorded fossil sites in the Central Valley.

Sediments of the Riverbank Formation have yielded the fossilized remains of middle Pleistocene plants and animals from numerous previously recorded fossil sites in the Central Valley. Fossils previously reported from the Riverbank Formation include clams, fish, turtles, frogs, snakes, birds, bison, mammoths, mastodons, ground sloths, camels, horses, pronghorns, deer, dire wolves, coyotes, rabbits, rodents, and land plant remains (including wood, leaves, and seeds). Additionally, during the field

survey, fossil burrows and root casts and molds were found in sediments of the Riverbank Formation.

Fossil vertebrates of Rancholabrean North American land-mammal age and fossil wood have previously been reported from sediments of the Modesto Formation. Six sites in Kings County have yielded Rancholabrean vertebrate fossils. These localities include Pleistocene specimens such as mammoth, bison, horse, camel, and dire wolf, among others.

### ***Environmental Consequences***

The planned clearing, grading, and deeper excavation along the 12<sup>th</sup> Avenue/State Route 198 interchange right-of-way could result in adverse impacts to paleontological resources. In addition, because potential fossil-bearing sediments are often found at or near the surface, the construction of supporting facilities (temporary construction offices, lay down areas and parking areas) could adversely affect significant paleontological resources, if new ground disturbance is involved.

Field surveys determined that the Turlock Lake Formation was not exposed in the project vicinity and is not likely to be affected by project construction excavations. Although no fossils are known to directly underlie the proposed project site, there is a high potential for additional fossil remains to be discovered during project construction excavations in the Riverbank and Modesto formations due to prior fossils discoveries in these formations in the San Joaquin Valley.

Based on the Caltrans and Society of Vertebrate Paleontology's criteria for significance of paleontological resources, high sensitivity and potential ratings have been assigned to the Riverbank and Modesto formations. Identifiable fossil remains salvaged from these areas could be scientifically important and significant. Stratigraphic units containing fossils of scientific interest are ranked as high sensitivity.

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

Paleontological mitigation for the project would include the following:

- A nonstandard special provision for paleontology mitigation would be included in the construction contract special provisions section to advise the construction contractor of the requirement to cooperate with the paleontological salvage.

- A qualified principal paleontologist would be retained to prepare a detailed Paleontological Mitigation Plan before construction starts. All geologic work would be performed under the supervision of a professional geologist.
- The qualified principal paleontologist would be present at pre-grading meetings to consult with grading and excavation contractors.
- Near the beginning of excavations, the principal paleontologist would conduct an employee environmental awareness training session for all persons involved in earth moving for the project.
- A paleontological monitor, under the direction of the qualified principal paleontologist, would be onsite to inspect cuts for fossils at all times during original grading involving sensitive geologic formation.
- When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas will be stopped or diverted to allow recovery of fossil remains in a timely manner.
- Bulk sediment samples will be recovered from fossiliferous horizons and processed for microvertebrate remains as determined necessary by the principal paleontologist.
- Fossil remains collected during the monitoring and salvage portion of the mitigation program would be 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.
- The principal paleontologist and geologist will complete a final report that outlines the results of the mitigation program and will be signed.

### **2.2.2 Air Quality**

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

The Clean Air Act, as amended in 1990, is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health

concerns: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM), lead (Pb), and sulfur dioxide (SO<sub>2</sub>).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as the Kings County Association of Governments for San Joaquin Valley Air Basin and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the Regional Transportation Plan, then the proposed project is deemed to meet regional conformity requirements for purposes of the project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is in “non-attainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter. A region is a “non-attainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as non-attainment areas but have recently met the standard are called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy Act and California Environmental Quality Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general,

projects must not cause the carbon monoxide standard to be violated, and in “non-attainment” areas, the project must not cause any increase in the number and severity of violations. If a known carbon monoxide or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

The proposed project is fully funded and is in the 2007 Kings County Regional Transportation Plan, which was found to conform by the Kings County Advisory Government on January 25, 2006, and Federal Highway Administration and Federal Transit Administration (FTA) adopted the air quality conformity finding on October 2, 2006. The proposed *12th Avenue Interchange Project* is also included in the Kings County Advisory Government financially constrained 2007 Transportation Improvement Plan. The Kings County Advisory Government 2007 Transportation Improvement Plan was found to conform by the Federal Highway Administration and the Federal Transportation Administration (FTA) on October 2, 2006. The design concept and scope of the proposed project is consistent with the project description in the 2007 Kings County Regional Transportation Plan, the 2007 Kings County Transportation Improvement Plan, and the assumptions in the Kings County Advisory Government regional emissions analysis

### ***Affected Environment***

The San Joaquin Valley Air Basin is about 250 miles long, averages 35 miles wide and is the second largest air basin in the state (Air Quality Study Report, July 2008). The basin is defined by the Sierra Nevada in the east (8,000 to 14,000 feet in elevation), the Coast Range in the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains in the south (6,000 to 8,000 feet in elevation). The basin opens to the sea at the Carquinez Straits, where the basin could be considered a “bowl” open only to the north.

Although marine air generally flows into the basin from the San Joaquin River delta, the region’s topographic features restrict air movement through and out of the basin. The Coast Range hinders wind access into the basin from the west, the Tehachapi prevent southerly passage of airflow, and the high Sierra Nevada range is a significant barrier to the east. These topographic features result in weak airflow, which becomes blocked vertically by high barometric pressure over the basin. As a result, the basin is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet).

Wind speed and direction play an important role in dispersion and transportation of air pollutants. Wind at the surface and aloft can disperse pollution by mixing vertically and by transporting pollutants to other locations. During the summer, wind speed and direction data indicate that wind usually originates at the north end of the basin and flows in a south-southeasterly direction, through the Tehachapi Pass and into the Southeast Desert Air Basin.

During winter, wind speed and direction data indicate that the wind occasionally originates from the south end of the basin and flows in a north-northwesterly direction. Also, during the winter months, the basin experiences light, variable winds, less than 10 miles per hour. Low wind speeds combined with low inversion layers in the winter create a climate conducive to high carbon monoxide and particulate matter (PM<sub>10</sub>) concentrations.

The project sits in the San Joaquin Valley Air Pollution Control District, which administers air quality regulations developed at the federal, state, and local levels. The U.S. Environmental Protection Agency has classified the basin as an attainment area for carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead, and non-attainment” for ozone and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>).

### ***Environmental Consequences***

All areas designated as non-attainment under the California Clean Air Act are required to prepare plans showing how the area would meet the state air quality standards by its attainment dates. Several regional plans for improving air quality in the basin have been adopted by the air district. These plans include the Fast Track Action Plan, 2007 8-hour Ozone Plan, 2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation, Extreme Ozone Attainment Demonstration Plan, and California State Implementation Plan for Carbon Monoxide.

On October 30, 2006, the U.S. Environmental Protection Agency determined that the San Joaquin Valley had attained the National Ambient Air Quality Standards for Particulate Matter <sub>10</sub>. In response, the air district’s 2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation was adopted by the air district’s Governing Board on September 20, 2007 .

Qualitative Particulate Matter hot spot analysis is required under the U.S. Environmental Protection Agency Transportation Conformity rule for projects of air quality concern, as described in the U.S. Environmental Protection Agency’s Final Rule of March 10, 2006. Projects of air quality concern include highway and transit

projects that involve significant levels of diesel traffic, or any project that is identified in the PM<sub>2.5</sub> or PM<sub>10</sub> State Implementation Plan as a localized air quality concern.

The applicable PM<sub>10</sub> plan for the air district is the 2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation. The main components of the maintenance plan are an attainment emissions inventory, maintenance demonstration, discussion of monitoring network, verification of continued attainment, and a contingency plan. The proposed project would comply with all aspects of the 2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation.

The proposed project would not increase the amount of diesel traffic in the project area and is not listed in the local State Implementation Plan. As such, the proposed project is not required to complete a qualitative particulate matter hot spot analysis.

The U.S. Environmental Protection Agency issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (Code of Federal Regulations, Title 66, Section 17229, March 29, 2001.). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, the U.S. Environmental Protection Agency examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline program, its national low emission vehicle standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, the Federal Highway Administration projects that even with a 64 percent increase in vehicle miles traveled, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3 butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel particulate matter emissions by 87 percent.

As a result, the U.S. Environmental Protection Agency concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control Mobile Source Air Toxics and no further discussion is required because of “unavailable/incomplete information” since research into health impacts of Mobile Source Air Toxics is ongoing.

A regional conformity analysis covering the San Joaquin Valley Air Pollution Control District (including this project) for ozone and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) was carried out, 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 method. Based on this analysis, the region will be in conformity with the State Implementation Plan, including this project, based on the project conformity tests and analysis procedures, as described in 40 CFR 93.109(1). The design concept and scope of the proposed project is consistent with the project design concept and scope used in the regional conformity analysis. Table 2.3 summarizes air quality standards and status.

Air district Rule 7050 (Asbestos-Containing Materials for Surface Applications) regulates the disturbance of naturally occurring asbestos. This project would be required to comply with all local, state, and federal regulations guiding the removal of naturally occurring asbestos. As such, this project would result in a less-than-significant asbestos impact.

**Table 2.3 Air Quality Standards and Status**

Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
Ozone (O <sub>3</sub> ) <sup>a</sup>	1 hour 8 hours	0.09 <u>ppm</u> 0.070 <u>ppm</u>	Nonattainment Nonattainment/Severe	<sup>b</sup> 0.08 <u>ppm</u>	Nonattainment/Serious No Federal Standard	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include a number of known toxic air contaminants.	Low-altitude ozone is almost entirely formed from reactive organic gases (ROG) and nitrogen oxides (NO <sub>x</sub> ) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes. Biologically produced ROG may also contribute.
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 <u>ppm</u> 9.0 <u>ppm</u> <sup>e</sup> 6 <u>ppm</u>	Attainment/Unclassified	35 <u>ppm</u> 9 <u>ppm</u> –	Attainment/Unclassified	Asphyxiant. CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen.	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.
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>a</sup>	24 hours Annual	50 <u>µg/m<sup>3</sup></u> 20 <u>µg/m<sup>3</sup></u>	Attainment	150 <u>µg/m<sup>3</sup></u> –	Attainment	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 <sub>10</sub> .	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).
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>a</sup>	24 hours Annual	– 12 <u>µg/m<sup>3</sup></u>	Nonattainment	35 <u>µg/m<sup>3</sup></u> 15 <u>µg/m<sup>3</sup></u>	Nonattainment	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and

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Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
						and produces surface soiling. Most diesel exhaust particulate matter – considered a toxic air contaminant – is in the PM2.5 size range. Many aerosol and solid compounds are part of PM2.5.	agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO <sub>x</sub> , sulfur oxides (SO <sub>x</sub> ), ammonia, and ROG.
Nitrogen Dioxide (NO <sub>2</sub> )	1 hour Annual	0.25 <u>ppm</u> –	Attainment	– 0.053 <u>ppm</u>	Attainment	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain.	Motor vehicles and other mobile sources; refineries; industrial operations.
Sulfur Dioxide (SO <sub>2</sub> )	1 hour 3 hours 24 hours Annual	0.25 <u>ppm</u> – 0.04 <u>ppm</u> –	Attainment	– 0.5 <u>ppm</u> 0.14 <u>ppm</u> 0.030 <u>ppm</u>	Attainment	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing.
Lead (Pb) <sup>d</sup>	Monthly Quarterly	1.5 <u>µg/m<sup>3</sup></u> –	Attainment	– 1.5 <u>µg/m<sup>3</sup></u>	Attainment	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also considered a toxic air contaminant.	Primary: lead-based industrial process like battery production and smelters. Past: lead paint, leaded gasoline. Moderate to high levels of aerially deposited lead from gasoline may still be present in soils along major roads, and can be a problem if large amounts of soil are disturbed.

Sources: California Air Resources Board Ambient Air Quality Standards chart, 05/17/2006 (<http://www.arb.ca.gov/aqs/aaqs2.pdf>). U.S. Environmental Protection Agency and California Air Resources Board air toxics websites, 05/17/2006

Notes: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

<sup>a</sup> Annual PM10 National Ambient Air Quality Standard revoked October 2006; was 50 µg/m<sup>3</sup>. 24-hr. PM2.5 National Ambient Air Quality Standard tightened October 2006; was 65 µg/m<sup>3</sup>.

<sup>b</sup> [12/22/2006 Federal court decision](#) may affect applicability of Federal 1-hour ozone standard. Prior to 6/2005, the 1-hour standard was 0.12 ppm. Case is still in litigation.

<sup>c</sup> Rounding to an integer value is not allowed for the State 8-hour CO standard. A violation occurs at or above 9.05 ppm.

<sup>d</sup> The Air Resources Board has identified lead, vinyl chloride, and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM10 and, in larger proportion, PM2.5. Both the Air Resources Board and U.S. Environmental Protection Agency have identified various organic compounds that are precursors to ozone and PM2.5 as toxic air contaminants. There is no threshold level of exposure for adverse health effect determined for toxic air contaminants, and control measures may apply at ambient concentrations below any criteria levels specified for these pollutants or the general categories of pollutants to which they belong.

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

Most of the construction impacts to air quality are short term and, therefore, would not result in adverse or long-term conditions. Implementation of the following measures would reduce any air quality impacts resulting from construction activities:

- The construction contractor would comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999). Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience of the public; and damage or injury to any person or property as a result of any construction operation. Section 10 is directed at controlling dust:
  - Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.
  - Spread soil binder on any unpaved roads used for construction purposes and on all project construction-parking areas.
  - Wash trucks off as they leave the right-of-way as necessary to control fugitive dust emissions.
  - Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
  - Develop a special dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
  - Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
  - To the extent feasible, establish Environmentally Sensitive Areas for sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited.
  - Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
  - Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of

the truck) to reduce particulate matter and deposition of particulate during transportation.

- Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

### **2.2.3 Noise and Vibration**

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

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the broad basis for analyzing and abating the effects of highway traffic noise. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between the National Environmental Policy Act and the California Environmental Quality Act.

#### ***California Environmental Quality Act***

The California Environmental Quality Act requires a strict baseline versus build analysis to assess whether a proposed project would 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.

#### ***National Environmental Policy Act and 23 Code of Federal Regulations 772***

For highway transportation projects with Federal Highway Administration (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the criterion for residences (67 decibels) is lower than the criterion for commercial areas (72 decibels).

Table 2.4 lists the noise abatement criteria for use in the National Environmental Policy Act and 23 Code of Federal Regulations 772 analyses. Table 2.5 shows the noise levels of typical activities.

**Table 2.4 Activity Categories and Noise Abatement Criteria**

<b>Activity Category</b>	<b>Noise Abatement Criteria, A-weighted Noise Level, Leq(h)</b>	<b>Description of Activities</b>
<b>A</b>	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>B</b>	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
<b>C</b>	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
<b>D</b>	--	Undeveloped lands
<b>E</b>	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Caltrans Traffic Noise Analysis Manual, 1998

A-weighted decibels are adjusted to approximate the way humans perceive sound. Leq(h) is the steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over 1 hour.

Table 2.5 Typical Noise Levels

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

In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, August 2006, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12-decibel 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 decibel of the criteria.

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

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5-decibel 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 land surrounding the project area is mostly residential, undeveloped and commercial (Community Impact Assessment/Land Use Technical Memorandum, July 2008). Numerous residences sit in the southeast corner of the State Route 198/12<sup>th</sup> Avenue interchange. A miniature golf course and other commercial/retail businesses take up the northeast corner of State Route 198/Avenue 12<sup>th</sup> interchange.

The terrain in the project area is relatively flat, but the 12<sup>th</sup> Avenue overcrossing and its associated on-ramps and off-ramps are elevated. In addition, a berm about 3 feet high (relative to surrounding terrain) runs along the northern property line of a residence north of Lombard Street and west of South Holt Avenue; a property wall about 6 feet high runs along the top of the berm.

Noise measurements and observations were combined with subsequent noise level modeling to estimate existing noise levels at 17 representative sensitive receptors in the study area. See Table 2.6.

Future noise levels were predicted based on traffic volumes expected to produce the highest traffic noise levels that can be anticipated given the traffic-bearing capacities of the freeway mainline and ramps and the congestion that would occur as those capacities are approached.

**Table 2.6 Future Noise Levels**

Receptor # and Location	Existing Noise Level (dBA)	Predicted Noise Level without Project (dBA)	Predicted Noise Level with Project (dBA)	Predicted Noise Level with Abatement (dBA)					Reasonable and Feasible?
				8- foot Wall*	10- foot Wall*	12- foot Wall *	14- foot Wall*	16- foot Wall*	
1-West of Adventure Park	70	72	72	--	--	--	--	--	--
2-Within Adventure Park	75	77	77	73	71	67	66	65	NO
3-Within Adventure Park	75	77	77	73	69	67	65	64	NO
4-Within Adventure Park	75	77	77	70	67	66	65	64	NO
5-Lombard Street	68	72	71	68	67	66	64	64	NO
6-Lombard Street	67	71	71	67	66	65	64	63	NO
7-Lombard Street	67	71	71	67	66	65	64	63	NO
8-Lombard Street	67	71	70	67	65	64	63	63	NO
9-Lombard Street	65	69	69	66	65	64	63	63	NO
10-Lombard Street	59	63	63	62	61	59	59	59	--
11-Lombard Street	61	65	65	64	63	62	61	60	--
12-Lombard Street	62	66	66	65	64	63	62	62	--
13-Lombard Street	63	67	67	66	66	65	65	64	--
14-Parsons Street & Bengston Avenue	57	61	61	--	--	--	--	--	--
15-Parsons Street & Bengston	54	58	58	--	--	--	--	--	--

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

Avenue									
16-Parsons Street & Bengston Avenue	54	58	60	--	--	--	--	--	--
17-12 <sup>th</sup> Avenue	50	54	.57	--	--	--	--	--	--

\*Indicates height of proposed wall that was analyzed.

### ***Environmental Consequences under the California Environmental Quality Act***

The highest predicted noise level with or without the proposed project is 77 dBA at Receptors 2- 4. The existing noise level is 75 dBA. This 2-dBA increase between existing noise levels and the build alternative would not be readily perceptible to the human ear.

### ***Avoidance, Minimization, and/or Noise Abatement***

Noise abatement was considered for eight sensitive noise receptors (Receptors 2–9), where future noise levels, with and without the proposed project, exceed the noise abatement criteria. Figures 2.5 and 2.5.1 show the receptor sites. In these locations, a 5-decibel or higher noise level reduction could be achieved with noise abatement. In all other locations, the future noise levels (with or without the proposed project) exceeded or did not approach the noise abatement criteria, or a 5-decibel noise reduction could not be achieved

Receptors 2, 3 and 4 represent the Hanford Adventure Park along the north side of State Route 198 and east of 12<sup>th</sup> Avenue. Measurements indicate that the existing noise levels are 75 decibels at Receptors 2 and 3, and 4. The predicted future noise levels with and without the proposed project are 77 decibels for all three sensitive noise receptors. Because the predicted future noise levels at these three sensitive noise receptors exceed the 67-decibel noise abatement criterion, Hanford Adventure Park represented by these receptors would be adversely affected by noise.

To achieve at least a 5-decibel reduction, a 10-foot soundwall would be needed. If the cost of the soundwall at this location were less than the total cost allowance, then the soundwall would likely be incorporated into the project. The total cost allowance, calculated in accordance with Caltrans' Traffic Noise Analysis Protocol, is \$46,000 per residence and \$230,000 per barrier.

Receptors 5, 6, 7, 8 and 9 represent 15 single-family residences on the south side of State Route 198 and east of 12<sup>th</sup> Avenue along Lombard Street. Measurements indicate that the existing noise levels are 68 decibels at Receptor 5; 67 decibels at Receptors 6,7, and 8; and 65 decibels at Receptor 9. The predicted future noise levels for these five receptors are 72 decibels without the project and 71 decibels with the project for Receptor 5; 71 decibels with or without the project for Receptors 6 and 7; 71 decibels without the project and 70 decibels with the project for Receptor 8; and 69 decibels with or without the project for Receptor 9.

Because the predicted future noise levels at these five sensitive noise receptors exceed the 67 decibels noise abatement criterion, the 15 single-family residences represented by these receptors would be adversely affected by noise.

All other receptors do not meet the criteria for noise abatement; therefore, under the California Environmental Quality Act, no mitigation is required.

Table 2.5 shows that, without project noise abatement, noise levels at several modeled representative receptors would approach or exceed the applicable noise abatement criterion. However, predicted noise level increases would remain below Caltrans' substantial-increase thresholds accordingly, and abatement measures would not be necessary.

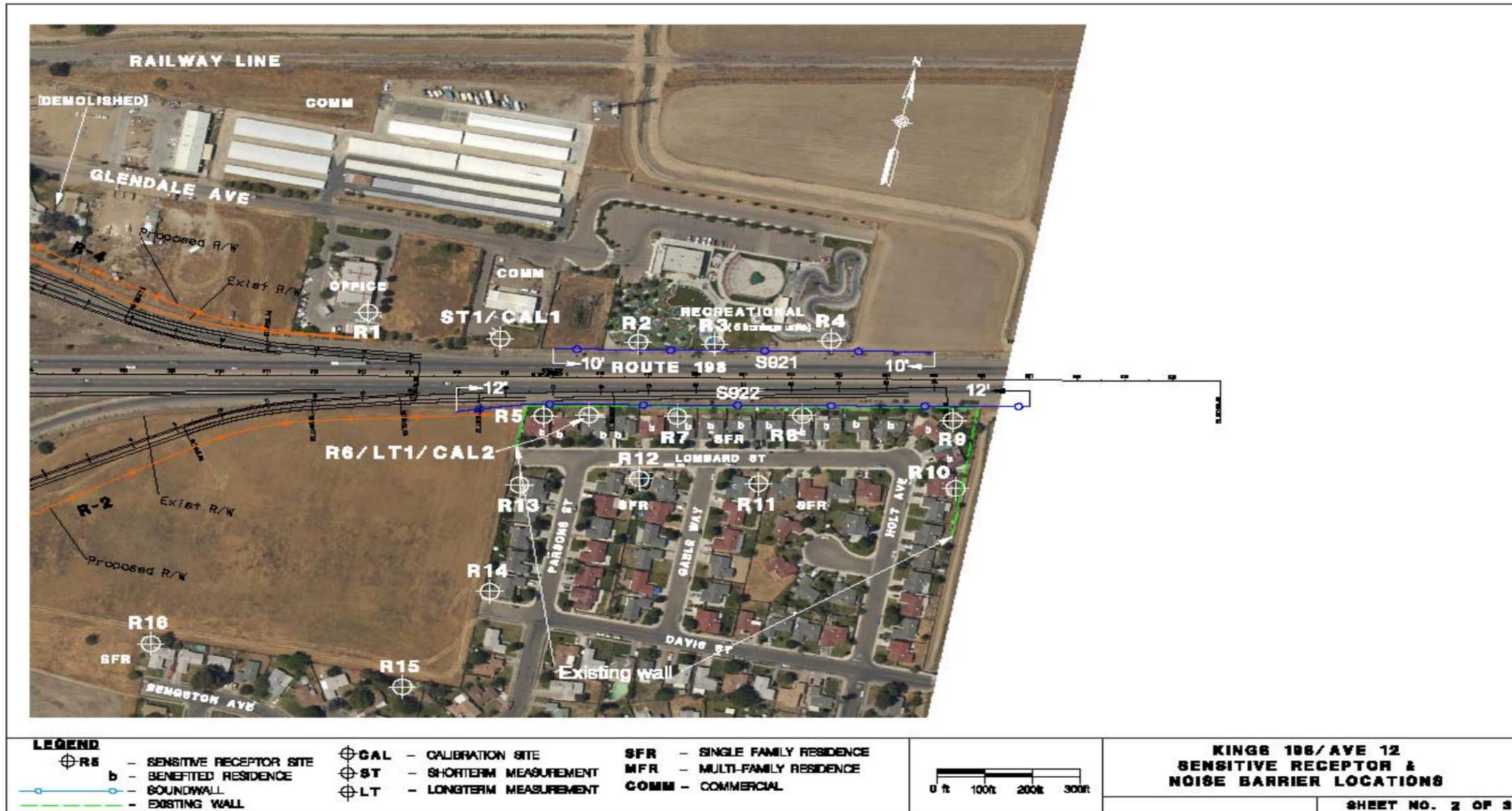


Figure 2.5 Noise Receptors



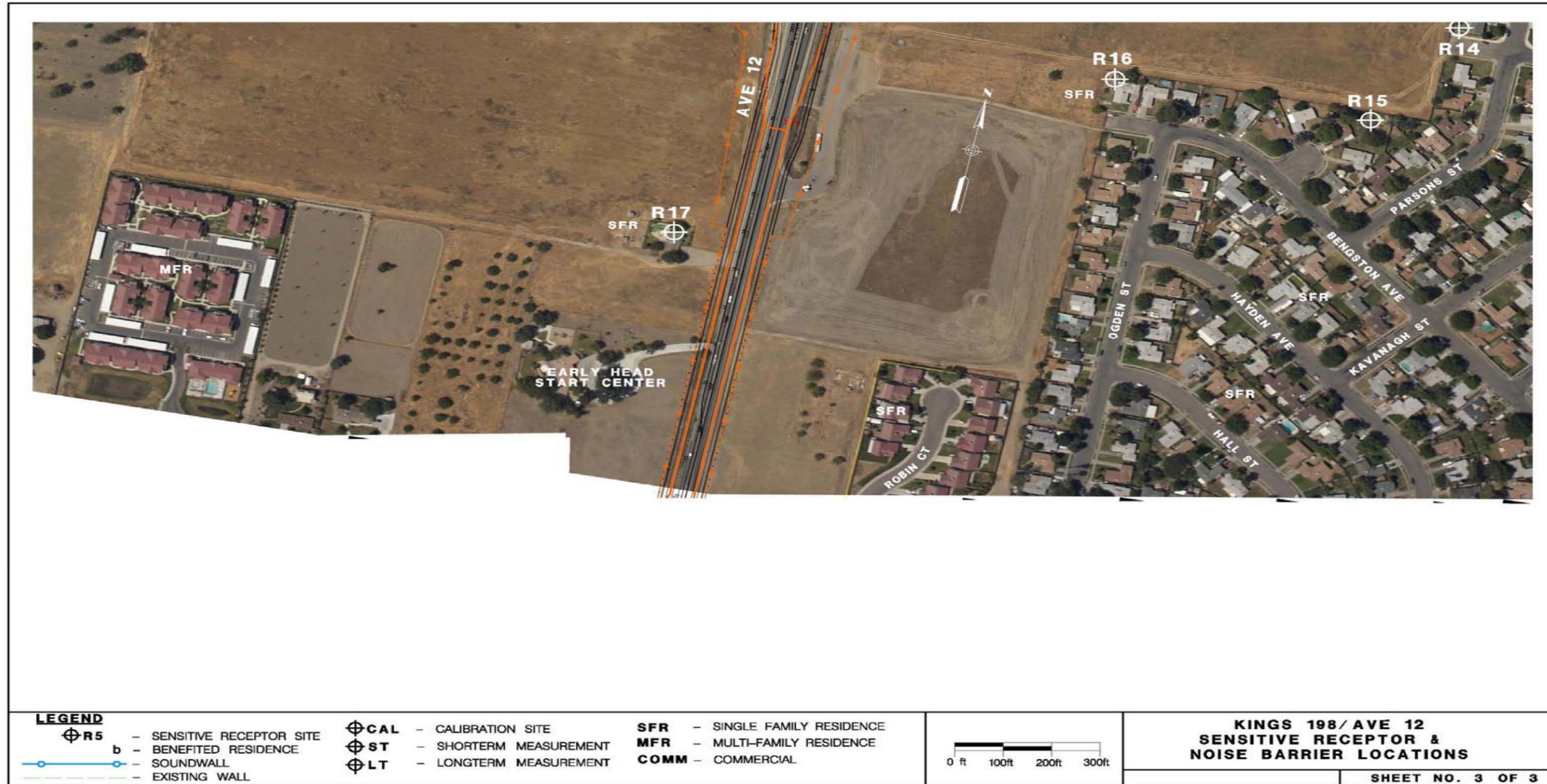


Figure 2.5.1 Noise Receptors 14 – 17



### **Construction Noise and Vibration Abatement**

Implementing the following measures would minimize temporary construction noise and vibration impacts:

- Avoid using impact pile driving, when feasible, for bridge demolition and reconstruction. Use less noise-intrusive piling techniques, such as vibratory pile driving or cast-in-drilled-hole piling.
- Prepare a community noise/vibration monitoring plan, before construction begins, and a noise/vibration control plan to ensure that contractors take all reasonable steps to minimize noise and vibration during construction activities. The noise and vibration control plan shall include construction equipment noise levels and propose noise and vibration control measures to ensure that the contractors will meet the noise and vibration criteria.
- Notify the construction manager of construction noise complaints by the public, so noise monitoring can be conducted, if necessary.
- Implement sound-control devices on all equipment that are no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.
- Conduct truck loading, unloading and hauling operations, so that noise is kept to a minimum, to avoid using routes through residential neighborhoods.
- Erect approved soundwalls as early as possible in the construction process, so subsequent construction noise can be attenuated.
- Use and relocate temporary barriers, such as heavy plywood or moveable insulated sound blankets, to protect sensitive receptors from excessive construction noise.

As directed by the Caltrans' resident engineer, the contractor shall implement appropriate additional noise abatement measures including, but not limited to, changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

## 2.3 Biological Environment

### 2.3.1 Animal Species

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

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanographic and Atmospheric Administration 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 2.3.2. 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 the U.S. Fish and Wildlife Service or National Oceanographic and Atmospheric Administration Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

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

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

The western burrowing owl is a California species of special concern. This owl is a small, terrestrial owl of open prairie and grassland habitats. These owls inhabit relatively flat dry open grasslands where tree and shrub canopies provide less than 30 percent cover.

The burrowing owl and/or evidence of western burrowing owl was not seen in the biological study area during the reconnaissance-level field survey. There are no reported occurrences of this species within 10 miles of the project impact area. It is highly unlikely that this species would occur within the project area given the poor

quality of habitat. However, this species has the potential to occur within 500 feet of the project impact area because surrounding non-native annual grassland provides small mammal burrows and adequate prey base for foraging and nesting. The likelihood of this is low given the quality of the foraging and nesting habitat.

Several bird species were identified during the field surveys of the biological study area. Many of these species are considered migratory birds and are thus protected under the Migratory Bird Treaty Act of 1918 during nesting season. Potential nesting habitat for these migratory birds exists in shrubs and trees in the project impact area and the immediate vicinity. Most notably, American crow nests were seen in ornamental vegetation in the northeastern quadrant of the project impact area. Due to available nesting habitat in the project area, the occurrence of nesting birds is considered likely.

### ***Environmental Consequences***

Direct effects to western burrowing owl might include the displacement of the owl to another area or the loss of suitable nesting and foraging habitat. Indirect effects might include the long-term degradation of the quality of foraging habitat. Direct and indirect impacts to the western burrowing owl would be avoided with implementation of avoidance and minimization measures.

Direct effects to nesting migratory birds might include the displacement of the nesting migratory birds or the loss of suitable nesting habitat. Indirect effects might include the long-term degradation of the quality of nesting habitat. With the implementation of avoidance and minimization measures, project impacts, both direct and indirect, are not likely to affect nesting migratory bird species.

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

To reduce any potential impacts to the western burrowing owl and migratory birds, the following measures are recommended:

- If construction activities are conducted during the typical nesting bird season (February 15–September 15), pre-construction surveys should be conducted by a qualified biologist before any construction activity or vegetation removal to identify potential bird nesting activity.
- If active nest sites of bird species protected under the Migratory Bird Treaty Act are observed within the vicinity of the project site, then the project

activities should be modified and/or delayed as necessary to avoid direct take of the identified nests, eggs, and/or young.

- If active nest sites of raptors and/or bird species protected under the Migratory Bird Treaty Act are observed within the vicinity of the project site, then the California Department of Fish and Game shall be contacted to establish the appropriate buffer around the nest site. Construction activities in the buffer zone should be prohibited until the young have fledged the nest and achieved independence.
- A qualified biologist should document active nests and a letter report should be submitted to the U.S. Fish and Wildlife Service and California Department of Fish and Game documenting project compliance with the Migratory Bird Treaty Act and applicable project mitigation measures.

### **2.3.2 Threatened and Endangered Species**

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

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: United States Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend.

Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, and Caltrans are required to consult with the U.S. Fish and Wildlife Service and the National Oceanographic and Atmospheric Administration 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 the Federal Endangered Species Act defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code, Section 2050, et seq. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to

rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats.

The California Department of Fish and Game is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the California Department of Fish and Game.

For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Game may also authorize impacts to the California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

### ***Affected Environment***

The State Route 198/12<sup>th</sup> Avenue interchange falls within the current distribution of the San Joaquin kit fox. In 2000, the San Joaquin kit fox was seen about eight miles south of the project area during a Caltrans kit fox survey for the 19<sup>th</sup> Avenue/198 Interchange project. In 1999, an Endangered Species Recovery Program biologist saw a potential kit fox den near Jackson Avenue and State Route 41, about eight miles southwest of the project area. In 1993, a dead kit fox (road-kill) was seen along State Route 41 near Harlan Avenue, about 11 miles north of the project area.

No evidence of San Joaquin kit fox was found during a reconnaissance-level survey conducted in May 2007. However, based on the known presence of San Joaquin kit fox within the vicinity, the transient nature of San Joaquin kit fox, and the presence of marginal habitat within the biological study area, this species could occur in the project impact area of all alternatives; therefore, no protocol-level surveys were conducted.

The project impact area is much smaller than the biological area, and it includes areas of direct impact from project activities. The biological study area and the project impact area consist of parcels of land that are highly disturbed and provide minimal areas for wildlife.

The project impact area contains no designated critical habitats; sensitive plant species; federal, state and/or local jurisdictional waterways; or migration or travel corridors for wildlife species.

The Swainson's hawk was not found in the biological study area during field surveys conducted on May 20, 2007. The nearest known occurrence of this species is about 6.2 miles east of the biological study area. Nesting opportunities within the biological study area are limited to marginal eucalyptus and trees within the northeastern quadrant adjacent to 12<sup>th</sup> Avenue. Foraging habitat in the project impact area is poor; however, this species may forage in surrounding non-native annual grassland habitat; this area provides adequate cover for prey such as lizards and small mammals. Therefore, the likelihood that this species would occur in the project impact area or within 500 feet of the project impact area is considered low.

### ***Environmental Consequences***

As defined under Federal Endangered Species Act, indirect effects are those caused by the proposed project, occur at a later time, and are reasonably certain to occur. The State Route 198/12<sup>th</sup> Avenue interchange currently handles traffic traveling at high speeds and is an existing physical barrier for animal dispersal. Construction of any build alternative would increase the difficulty for San Joaquin kit fox dispersal. Furthermore, the build alternative would decrease the amount of potential foraging habitat for San Joaquin kit fox.

Table 2.7 summarizes the temporary and permanent impacts to San Joaquin kit fox foraging habitat in the project impact area. For the purposes of this table, freshwater marsh, urban, and ornamental habitat have been excluded as they do not represent suitable San Joaquin kit fox foraging habitat and are not mitigable habitats per the *Upland Species Programmatic Biological Opinion* (U.S. Fish and Wildlife Service 2004).

**Table 2.7 Impacts to San Joaquin Kit Fox Habitat**

Alternative	Agricultural		Rural		Non-Native Annual Grassland	
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Build Alternative 3	0	0	2.43 acres	2.76 acres	4.31 acres	6.01 acres
No-Build Alternative	--	--	--	--	--	--

Direct effects to the Swainson’s hawk might include the displacement of the hawk to another area or degradation of suitable nesting habitat. Indirect effects to the Swainson’s hawk might include long-term degradation of the quality of foraging habitat.

As proposed, the build alternative would remove trees that could potentially provide nesting habitat. The proposed project would also not indirectly affect foraging habitat for the Swainson’s hawk. Direct effects to the Swainson’s hawk would be avoided by implementation of the proposed avoidance and minimization measures.

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

Direct effects to the San Joaquin kit fox would be avoided by implementation of the proposed avoidance and minimization measures.

In December 2004, the U.S. Fish and Wildlife Service prepared the *Upland Species Programmatic Biological Opinion* (U.S. Fish and Wildlife Service 2004). At this time, the proposed project was not included in the list of Caltrans projects covered by the Programmatic Biological Opinion. To reduce potential impacts to San Joaquin kit fox, Caltrans would request the State Route 198/12<sup>th</sup> Avenue Interchange Project to be included in the Programmatic Biological Opinion. The Programmatic Biological Opinion states that mitigation would be 1.1 units of replacement habitat for every one unit of habitat permanently lost within agricultural and rural lands, which would apply to this project.

At minimum, Caltrans shall implement the following U.S. Fish and Wildlife Service standardized measures to ensure that San Joaquin kit foxes are not adversely affected during construction activities associated with the proposed project. These measures are consistent with the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to Ground

Disturbance (U.S. Fish and Wildlife Service 1999) and the *Upland Species Programmatic Biological Opinion* (U.S. Fish and Wildlife Service 2004).

- No more than 30 days prior to construction, a qualified biologist (as defined by the U.S. Fish and Wildlife Service 1999) would conduct systematic searches for San Joaquin kit fox dens in all suitable habitat in the proposed work area and in a 200-foot-wide buffer around the area. If a den is found, biologists would measure the size; evaluate the shape of the den entrances; and, note tracks, scat, prey remains, or recent excavations at the site. Dens would be classified in one of four den status categories, consistent with those defined by the U.S. Fish and Wildlife Service (1999).
- All San Joaquin kit fox dens would be assigned a number and mapped. Den sites would be flagged in the field with pin flags marked with the den number. Potential, known, and natal or pupping dens would be distinguished from each other in the field by the pin flag color. Information on the size and number of openings, signs of activity, surrounding terrain and habitat type, and distance to concentrations of small mammal prey and other den sites would be recorded.
- Disturbance and destruction of San Joaquin kit fox dens would be avoided where possible. However, if potential dens are located within the proposed work area and cannot be avoided during construction, a qualified biologist would remove these dens by carefully hand excavating them following the procedures described by the U.S. Fish and Wildlife Service (1999).
- If a San Joaquin kit fox natal or pupping den is found in the survey area, the U.S. Fish and Wildlife Service would be notified immediately. The U.S. Fish and Wildlife Service would also receive notification of the results of pre-construction den searches and den excavations within five days after these activities are completed and before construction begins in the area. The U.S. Fish and Wildlife Service would receive written notification of the results within 30 days after these activities are completed.
- Following pre-construction San Joaquin kit fox den searches and den excavations and before construction, biologists would establish exclusion zones around the remaining dens following the procedures described by the U.S. Fish and Wildlife Service (1999). Exclusion zones would be marked in the field with stakes and flagging. The radius of these zones:
  - Potential Den or Atypical Den: 50 feet

- Known Den: 100 feet
- Natal or Popping Den: To be determined after consultation with U.S. Fish and Wildlife Service

Construction-related activities would be prohibited or greatly restricted in these zones. Essential vehicle operation on existing roads and foot travel would be permitted. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities would be prohibited within the exclusion zone.

To reduce any potential impacts to the Swainson's hawk, the following measures are recommended:

- If construction activities are conducted during the typical nesting bird season (February 15–September 15), pre-construction surveys should be conducted by a qualified biologist prior to any construction activity or vegetation removal to identify potential bird nesting activity.
- If active nest sites of bird species protected under the Migratory Bird Treaty Act are observed within the vicinity of the project site, then the project activities should be modified and/or delayed as necessary to avoid direct take of the identified nests, eggs, and/or young.
- If active nest sites of raptors and/or bird species protected under the Migratory Bird Treaty Act are observed within the vicinity of the project site, then California Department of Fish and Game shall be contacted to establish the appropriate buffer around the nest site. Construction activities in the buffer zone should be prohibited until the young have fledged the nest and achieved independence.
- A qualified biologist should document active nests and a letter report should be submitted to the U.S. Fish and Wildlife Service and California Department of Fish and Game documenting project compliance with the Migratory Bird Treaty Act and applicable project mitigation measures.

## 2.4 Temporary and Construction Phase Impacts

### **Noise**

The proposed project would not result in vibration affecting structures along State Route 198. Vibrations created by construction equipment, such as graders, front loaders and backhoes, are the same order of magnitude as ground-borne vibration caused by heavy vehicles traveling on streets and highways. The operation of construction equipment would not cause structural damage to adjacent buildings within the project area.

### **Cultural Resources**

A Historic Property Survey Report was prepared for Caltrans during March 2008. The report stated that no cultural resources were found and no further studies are recommended however, it is Caltrans policy to avoid cultural resources whenever possible and if buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted.

### **Utilities/Emergency Services**

During construction, a Traffic Management Plan would be developed to accommodate local traffic patterns, and emergency services.

Construction of the build alternative and acquisition of right-of-way for the proposed project would require that various utilities be relocated within the project right-of-way. Emergency service and transit providers would be notified in advance of construction activities for use in planning emergency response routing.

### **Air Quality**

Most of the construction impacts to air quality are short term and, therefore, would not result in adverse or long-term conditions. Implementation of the following measures would reduce any air quality impacts resulting from construction activities:

- The construction contractor would comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999). Section 7, "Legal Relations and Responsibility,"

addresses the contractor's responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience of the public; and damage or injury to any person or property as a result of any construction operation.

Section 10 is directed at controlling dust:

- Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.
- Spread soil binder on any unpaved roads used for construction purposes and on all project construction-parking areas.
- Wash trucks off as they leave the right-of-way as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Develop a special dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- To the extent feasible, establish Environmentally Sensitive Areas for sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce particulate matter and deposition of particulate during transportation.
- Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.

- To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.

Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

## **2.5 Cumulative Impacts**

A cumulative effect is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.” There are other Caltrans safety and rehabilitation projects on State Route 198 that may affect some of the special-status species discussed in this document. However, mitigation measures would be taken for each of those potential impacts, and a Biological Opinion would be obtained from the U.S. Fish and Wildlife Service where appropriate.

The State Route 198/12<sup>th</sup> Avenue Interchange Project, along with other proposed Caltrans projects in the area, is not expected to cause measurable cumulative effects to any natural resources in the area.

## **2.6 Climate Change under the California Environmental Quality Act**

### ***Regulatory Setting***

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization’s Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of greenhouse gases related to human activity that include carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1, 1, 1, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate change at the state level. Assembly Bill 1493 requires the California Air

Resources Board (CARB) 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; however, in order to enact the standards, California needed a waiver from the U.S. Environmental Protection Agency (EPA). The waiver was denied by Environmental Protection Agency in December 2007 and efforts to overturn the decision have been unsuccessful. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011.

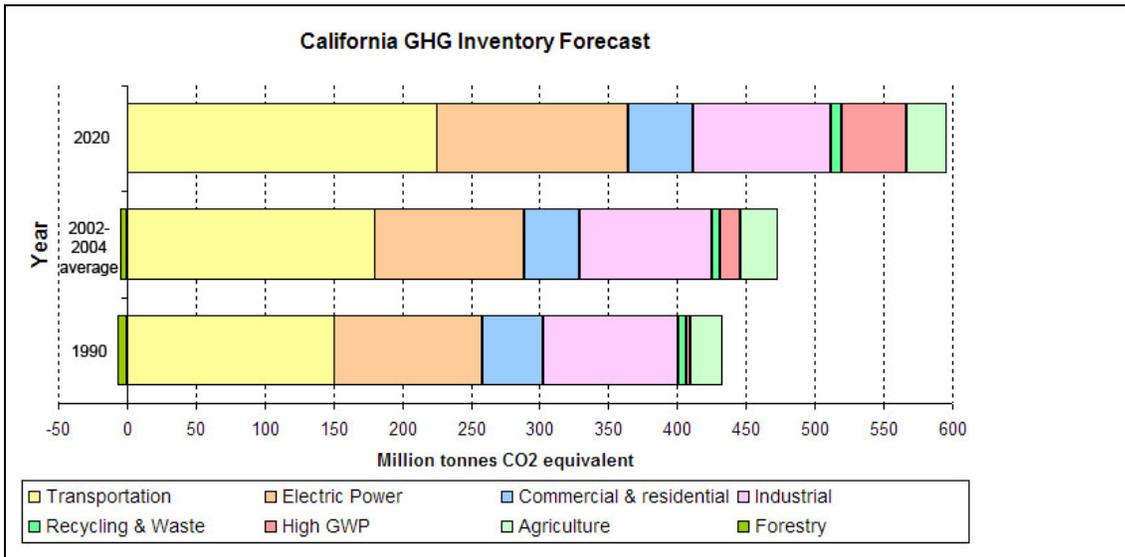
On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this order is to reduce California's greenhouse gas emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall greenhouse gas emissions reduction goals while further mandating that California Air Resources Board create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

With 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.

Climate change and greenhouse gas reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing greenhouse gas emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency (EPA) to regulate greenhouse gas as a pollutant under the Clean Air Act (*Massachusetts vs. Environmental Protection Agency et al.*, 549 U.S. 497 (2007)). The court ruled that greenhouse gases do fit within the Clean Air Act's definition of a pollutant, and that the Environmental Protection Agency does have the authority to regulate greenhouse gases. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

According to *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), 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 gases. In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable.” See CEQA 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. As discussed in the *Limitations and Uncertainties with Modeling* and the *Limitations and Uncertainties with Impact Assessment* sections below, 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.

As part of its supporting documentation for the Draft Scoping Plan, California Air Resources Board recently released an updated version of the greenhouse gas inventory for California (June 26, 2008). Shown below is a graph from that update that shows the total greenhouse gas emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.



Taken from: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

**Figure 2.6 California Greenhouse Gas Inventory**

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 (see *Climate Action Program at Caltrans* (December 2006)), Caltrans has created and is implementing the *Climate Action Program at Caltrans* that was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

One of the main strategies in Caltrans' Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. Transportation's contribution to greenhouse gas emissions is dependent on 3 factors: the types of vehicles on the road, the type of fuel the vehicles use, and the time/distance the vehicles travel. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour). Optimum speeds are between 45 and 50 miles per hour. Looking at the state transportation system as a whole, enhancing operations and improving travel times in high congestion travel corridors will lead to an overall reduction in greenhouse gas emissions.

### **Project Analysis**

The City of Hanford, in Kings County comprises approximately 18,899 acres (29.5 square miles) with over 50 percent of the land either used or set aside for future use of both residential and non-residential uses. According to the United States Census the population for Kings County in 2000 was 138,100 persons. By 2020, the county population is expected to increase over 70 percent to 235,100 persons. Between 2002 and 2025, the city of Hanford is expected an 89 percent increase in population from 43,575 to 82,239.

The project is located within the San Joaquin Valley Air Basin, which is currently classified as "in attainment/unclassified" for Carbon Dioxide federal air quality standards and state standards. Carbon Dioxide is a common indicator of the various greenhouse gases. Carbon Dioxide and most of the greenhouse gases are not currently listed in the Clean Air Act as Priority Pollutants; therefore, there is no federal or state ambient air quality limit for these gases.

The primary purpose of the 12<sup>th</sup> Avenue Interchange Project is to improve connectivity of the local road system and maintain the acceptable operation of State Route 98/12<sup>th</sup> Avenue Interchange.

Section 1.2.2, Need, discusses the traffic operations of the interchange and the increase of capacity of 12<sup>th</sup> Avenue.

An eastbound State Route 198 loop on-ramp would be added to reduce accident rates by reducing turning conflicts. Realignment of the existing eastbound on-ramp entrance and the addition of a new eastbound loop on-ramp would enhance capacity, reduce delays, reduce backups and turning conflicts, and therefore reduce congestion and the potential for accidents.

The 12<sup>th</sup> Avenue Project would have the following greenhouse gas emissions reducing benefits:

- High traffic volumes and inadequate access control have contributed to congestion and less than desirable operating conditions at the interchange. The turns and merges/diverges from 12th Avenue to the on-ramps and from State Route 198 to the off-ramps cause both substantial delays and frequently long lines of backed up traffic, creating traffic conflicts. The congestion and frequent merging result in pronounced speed differences, which hinder motorists attempting to access State Route 198. By improving the flow of traffic and access control with the proposed project the emissions of CO<sub>2</sub> would be reduced.
- 12<sup>th</sup> Avenue would be widened to four lanes from south of the interchange to the Hanford Armona intersection and six lanes from north of the interchange to the south side of the Wal-Mart shopping center driveway. This improvement would further enhance safety, reduce congestion, and increase connectivity of the local system by increasing the number lanes reducing the bottlenecks on 12<sup>th</sup> Avenue. By reducing congestion, increasing connectivity of the local system and reducing the bottlenecks on 12<sup>th</sup> Avenue the emissions of CO<sub>2</sub> would be reduced.

The 12<sup>th</sup> Avenue Interchange Project is included in the Regional Transportation Plan that discusses improved traffic flow, and reduction of congestion and accidents for the region's network. It is within the constrained list of the Final 2005 Regional Transportation Plan. The 2005 San Joaquin Air Basin Transportation Plan contains a conformity analysis which indicates that implementation of the financially constrained Action Elements of the 2005 Regional Transportation Plan and related Plans would result in the generation of air pollutants well below the established "budget" values for 2010, 2020 and 2030, and that the 2005 Regional Transportation

Plan and related plans are, therefore, in conformity with the State Implementation Plan. Thus the project satisfies U.S. Environmental Protection agency’s project-level conformity requirements with the federally mandated regional air quality plan (part of the State Implementation Plan). With an estimated cost of \$23 million, the project cost is less than one percent of the over \$2 billion cost of the major projects and programs included in Within Projected Funds (Constrained) Project list of the Final 2005 Regional Transportation Plan.

Because of the congestion relief anticipated with the implementation of the project, the project is not anticipated to contribute to the climate change effect.

With the current science, project-level analysis of greenhouse gas emissions is limited. There are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO<sub>2</sub> emissions.

First, vehicle fuel economy is increasing. The Environmental Protection Agency’s annual report, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008* (<http://www.epa.gov/oms/fetrends.htm>), which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy, has improved each year beginning in 2005, and is now the highest since 1993. Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52 percent in 2004 with projections at 48 percent in 2008.

**Table 2.8 Required Miles Per Gallon by Alternative**

2015 Required Miles Per Gallon (mpg) by Alternative							
No Action		25% Below Optimized	Optimized (Preferred)	25% Above Optimized	50% Above Optimized	Total Costs Equal Total Benefits	Technology Exhaustion
<b>Cars</b>	27.5	33.9	35.7	37.5	39.5	43.3	52.6
<b>Trucks</b>	23.5	27.5	28.6	29.8	30.9	33.1	34.7

Table 2.7 shows the alternatives for vehicle fuel economy increases currently being studied by the National Highway Traffic Safety Administration in its Draft Environmental Impact Statement (EIS) for New Corporate Average Fuel Economy (CAFE) Standards (June 2008):

Second, near zero carbon vehicles will come into the market during the design life of this project. According to a March 2008 report released by University of California Davis (UC Davis), Institute of Transportation Studies:

“Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California – several in the hands of the general public – with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.

“A number of the U.S. Department of Energy 2010 milestones for fuel cell vehicles development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles.”<sup>1</sup>

Third and as previously stated, California has recently adopted a low-carbon transportation fuel standard. The California Air Resources Board is scheduled to come out with draft regulations for low carbon fuels in late 2008 with implementation of the standard to begin in 2010.

Fourth, driver behavior has been changing as the U.S. economy, and oil prices have changed. In its January 2008 report, *Effects of Gasoline Prices on Driving Behavior and Vehicle Market* (<http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf>), the Congressional Budget Office found the following results based on data collected from California: 1)

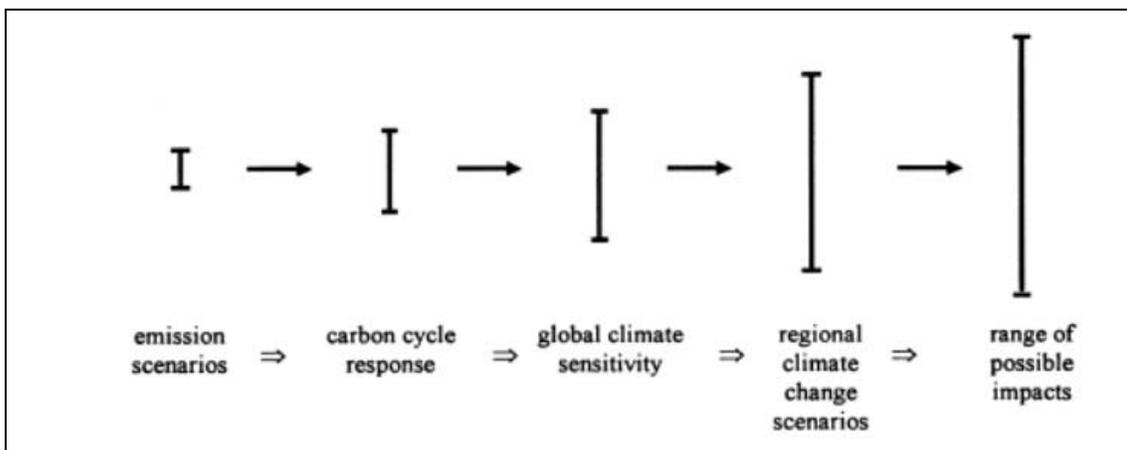
<sup>1</sup> Cunningham, Joshua, Sig Cronich, Michael A. Nicholas. March 2008. *Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy*, UC Davis, Institute of Transportation Studies, pp. 9-10.

freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly; 2) the market share of sports utility vehicles is declining; and 3) the average prices for larger, less-fuel-efficient models have declined over the past five years as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles.

Taken from pp. 3-48 and 3-49 of the National Highway Traffic Safety Administration Draft Environmental Impact Statement for New Corporate Average Fuel Economy

Standards (June 2008), Figure 2.7 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

“Cascade of uncertainties typical in impact assessments showing the uncertainty explosion” as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses.”



**Figure 2.7 Cascade of Uncertainties**

Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what the modeled 11.4- to 20.9-ton increase in Carbon Monoxide emissions would mean for climate change, given the overall California greenhouse gas emissions inventory of approximately 430 million tons of Carbon Monoxide equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to

project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons Carbon Monoxide from 2000 to 2030, which represents an increase of between 25 and 90%.<sup>2</sup>

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing “new” greenhouse gas emissions. Although some of the emission increases might be new, a net global increase, reduction, or no change, is uncertain and there are no models approved by regulatory agencies that operate at the global or even statewide scale.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the recently released Draft Environmental Impact Statement completed by the National Highway Traffic Safety Administration Corporate Average Fuel Economy standards, June 2008. As the text quoted below shows, even when dealing with greenhouse gas emission scenarios on a national scale for the entire passenger car and light truck fleet, the numerical differences among

“In analyzing across the Corporate Average Fuel Economy 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the MY 2011-2015 Corporate Average Fuel Economy alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the climate problem. Emissions of CO<sub>2</sub>, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gases in the year 2000 (EPA, 2008; CAIT, 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of CO<sub>2</sub> emissions from the United

<sup>2</sup> Intergovernmental Panel on Climate Change (IPCC). February 2007. Climate Change 2007: The Physical Science Basis: Summary for Policy Makers. <http://www.ipcc.ch/SPM2feb07.pdf>.

States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies

(which are due in part to growth in global transportation sector emissions).”  
[NHTSA Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards, June 2008, pp.3-77 to 3-78]

### **CEQA Conclusion**

Based on the above, it is Caltrans’ determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding 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 measures are outlined in the following section.

### **AB 32 Compliance**

Caltrans continues to be actively involved on the Governor’s Climate Action Team as California Air Resources Board works to implement AB 1493 and help achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from the California Strategic Growth Plan, which is updated each year. 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 \$107 in transportation funding during the next decade. As shown on the figure below, 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 yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

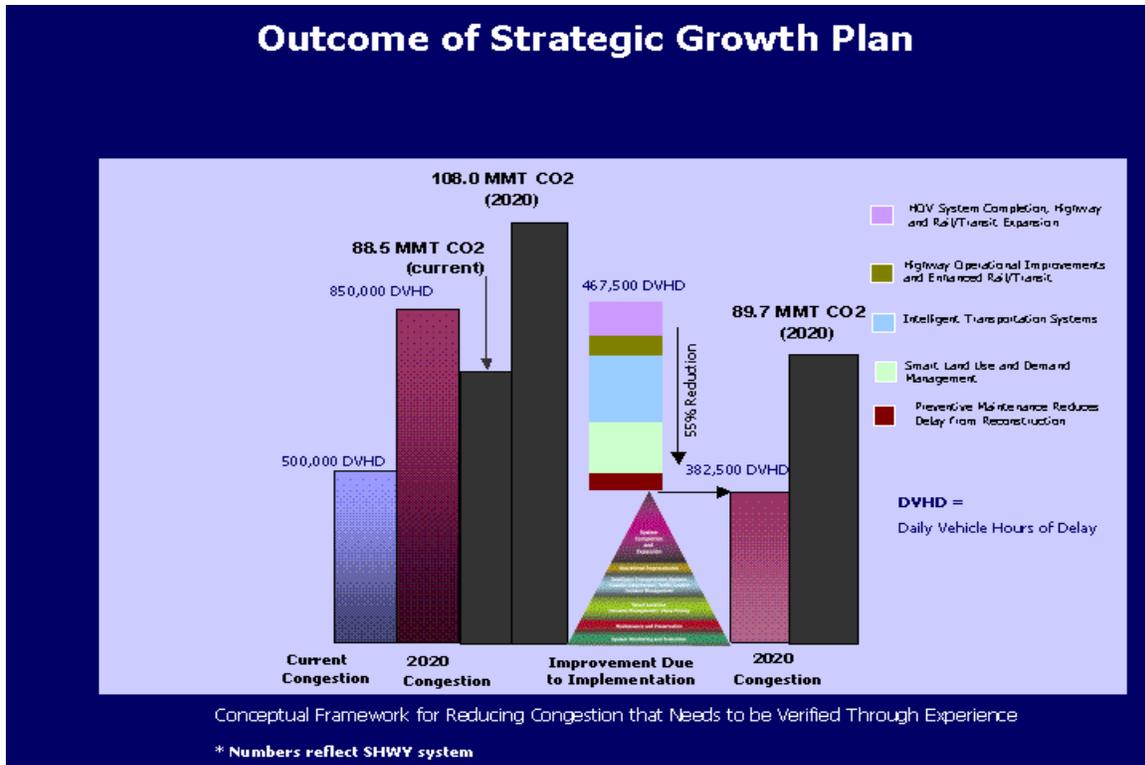


Figure 2.8 Outcome of Strategic Growth Plan

As part of the *Climate Action Program at Caltrans* (December 2006, <http://www.dot.ca.gov/docs/ClimateReport.pdf>), 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 legislation efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by the U.S. Environmental Protection Agency and the California Air Resources 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 at Davis.

Table 2.8 summarizes Caltrans' and statewide efforts that Caltrans is implementing to reduce greenhouse gas emissions. For more detailed information about each strategy, please see *Climate Action Program at Caltrans* (December 2006), available at <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

**Table 2.9 Climate Change Strategies**

Strategy	Program	Partnership		Method/Process	Estimated CO2 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, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement 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 cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
<b>Total</b>					<b>2.72</b>	<b>18.67</b>

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

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures would be included in the project to reduce the greenhouse gas emissions and potential climate change impacts from the project:

- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. Intelligent Transportation Systems is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- Landscaping reduces surface warming, and through photosynthesis, decreases CO<sub>2</sub>. 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 trees where appropriate but not to obstruct the view of the mountains. Caltrans has committed to planting vegetation and trees. These trees and vegetation will help offset any potential CO<sub>2</sub> emissions increase. Based on a formula from the Canadian Tree Foundation, it is anticipated that the planted trees will offset between 7-10 tons of CO<sub>2</sub> per year.
- The project would incorporate the use of energy efficient lighting, such as LED traffic signals. LED bulbs—or balls, in the stoplight vernacular—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 balls themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the projects CO<sub>2</sub> emissions
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with the San Joaquin Valley Air Basin’s rules, ordinances, and regulations in regard to air quality restrictions.



## Chapter 3      Comments and Coordination

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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 are listed below.

Caltrans consulted with the California Highway Patrol in March 2003. The California Highway Patrol was against the closing of Glendale Street because it would mean a longer response time from its area office, which is near the interchange.

Caltrans will send a letter to U.S. Fish and Wildlife Service requesting that the *Upland Species Programmatic Biological Opinion* (U.S. Fish and Wildlife Service 2004) be amended to include this project.



## Chapter 4 List of Preparers

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The following Caltrans Central Region staff prepared this document:

Allam Alhabaly, Transportation Engineer. B.S., Industrial Engineering, California State University, Fresno; 8 years environmental technical studies experience. Contribution: Noise specialist oversight coordinator.

Abdul Rahim Chafi, Transportation Engineer. Ph.D., Environmental Engineering, California Coast University, Santa Ana; B.S., M.S., Chemistry and M.S. Civil/Environmental Engineering, California State University, Fresno; 12 years environmental technical studies experience. Contribution: Air Quality specialist oversight coordinator

Lucy Colwell, Environmental Planner, M.A., Education, National University; 3 years environmental planning experience. Contribution: Wrote Initial Study, oversight coordinator for consultants and coordinated the environmental process for the project.

Tom Fisher, Project Engineer. B.S., Civil Engineering, San Jose State University; 18 years experience in hydraulics. Contribution: Floodplain Report.

Terrence Fox, Engineering Geologist, P.G. M.S., Geology, California State University, Long Beach; B.A., Earth Science, California State University, Fullerton; 20 years environmental experience. Contribution: Water Quality specialist oversight coordinator.

Susan Greenwood, Associate Environmental Planner, B.S., Environmental Health Science, California State University, Fresno; 17 years environmental health, hazardous waste, and hazardous material management experience. Contribution: Hazardous Waste specialist oversight coordinator.

Peter Hansen, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 1 year hazardous waste experience, 7 years paleontology/geology experience. Contribution: Paleontology specialist oversight coordinator.

David Lanner, Environmental Planner. B.F.A., Art, Utah State University; 12 years cultural resources experience. Contribution: Cultural Resources (archaeologist) oversight coordinator.

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### **Parsons Consultants**

Jon Claxton, Biologist. B.S., Biological Sciences, California State Polytechnic University, San Luis Obispo; 7 years experience. Contribution: Wrote Natural Environmental Study.

Lanny H. Fisk Ph.D., California registered Professional Geologist; 25 years experience as a professional paleontologist; Ph.D., Paleobiology plus all the coursework and research for a Ph.D. in Geology. Holds a Bureau of Land Management Scientific Paleontological Collecting Permit, which demonstrates the qualification to do Federal Antiquities Act studies. Contribution: Wrote Paleontological Evaluation Report

Jeff Lomand, Visual Resource Specialist, LA#3576. M.L.A., Landscape Architecture, University of Arizona; B.S., Ornamental Horticulture, Colorado State University; 33 years experience. Contribution: Wrote Visual Impact Assessment Report.

Sam Silverman, Air Quality Specialist. M.S., Environmental Health, University of California, Los Angeles; B.S., Environmental Studies, North UC Santa Barbara. Contribution: Wrote Air Quality Study Report.

Gil Shearin, Transportation Planning Manager. Ph.D., Transportation Planning/Economics and M.S., Aeronautical Engineering/Urban Studies,

Stanford University; M.E., North Carolina State University; 33 years experience. Contribution: Community Impact Assessment.

Mike Weber, Noise Specialist. B.S., Physiology, University of California, Davis; 17 years experience. Contribution: Wrote Noise Study Report.

Eric Wohlgemuth, Archaeologist. Ph.D., Anthropology, University of California, Davis; M.A. and B.A., Anthropology, California State University, Chico; 25 years of archaeology experience. Contribution: Wrote Archaeological Survey Report.



# Appendix A California Environmental Quality Act Checklist

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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 Initial Study/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts and avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

**AESTHETICS** - Would the project:

- |  |                          |                                     |                          |                                     |
|--|--------------------------|-------------------------------------|--------------------------|-------------------------------------|
| a) Have a substantial adverse effect on a scenic vista?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?                                 | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**AGRICULTURE 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. 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

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)?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

d) Expose sensitive receptors to substantial pollutant concentration?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

e) Create objectionable odors affecting a substantial number of people?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

**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?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------

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 U.S. Fish and Wildlife Service?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

**CULTURAL RESOURCES** - Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? Archaeological resources are considered “historical resources” and are covered under a).

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

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------

d) Disturb any human remains, including those interred outside of formal cemeteries?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

**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.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

ii) Strong seismic ground shaking?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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iii) Seismic-related ground failure, including liquefaction?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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iv) Landslides?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Result in substantial soil erosion or the loss of topsoil?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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 offsite landslide, lateral

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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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.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Be located on a site that 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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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h) Expose people or structures to a significant risk of loss, injury, or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**HYDROLOGY AND WATER QUALITY - Would the project:**

a) Violate any water quality standards or waste discharge requirements?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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 that would not support existing land uses or planned uses for which permits have been granted)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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 that would result in substantial erosion or siltation on or offsite?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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 that would result in flooding on or offsite?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) Otherwise substantially degrade water quality?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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floodings as a result of the failure of a levee or dam?

j) Result in inundation by a seiche, tsunami, or mudflow?

**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?

**MINERAL RESOURCES** - Would the project:

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

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

**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 ground borne vibration or ground borne 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?

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**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)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Police protection?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Schools?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Parks?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Other public facilities?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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**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 that might have an adverse physical effect on the environment?

**TRANSPORTATION/TRAFFIC -** Would the project:

- a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
- b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
- c) Result in a change in air traffic patters, 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) Result in inadequate parking capacity?
- g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

**UTILITY 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

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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facilities, the construction of which could cause significant environmental effects?

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) Result in determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g) Comply with federal, state, and local statutes and regulations related to solid waste?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**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, 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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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# Appendix B Title VI Policy Statement

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STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**  
OFFICE OF THE DIRECTOR  
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*Flex your power!  
Be energy efficient!*

January 14, 2005

## **TITLE VI 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, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink that reads "Will Kempton".

WILL KEMPTON  
Director

*"Caltrans improves mobility across California"*



# Appendix C Minimization and/or Mitigation Summary

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## ***Paleontology***

Implementation of a properly designed mitigation program would reduce any potential impacts to paleontological resources to a less than significant impact. A properly designed mitigation program, consistent with Caltrans' Standard Environmental Reference guidelines, would be implemented.

## ***Air Quality***

Most of the construction impacts to air quality are short term and, therefore, would not result in adverse or long-term conditions. Implementation of the following measures would reduce any air quality impacts resulting from construction activities:

- The construction contractor would comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999). Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience of the public; and damage or injury to any person or property as a result of any construction operation. Section 10 is directed at controlling dust:
  - Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions.
  - Spread soil binder on any unpaved roads used for construction purposes and on all project construction-parking areas.
  - Wash trucks off as they leave the right-of-way as necessary to control fugitive dust emissions.
  - Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
  - Develop a special dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- To the extent feasible, establish Environmentally Sensitive Areas for sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce particulate matter and deposition of particulate during transportation.
- Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

### ***Biology***

Direct effects to the San Joaquin kit fox would be avoided by implementation of the proposed avoidance and minimization measures.

In December 2004, the U.S. Fish and Wildlife Service prepared the *Upland Species Programmatic Biological Opinion* (U.S. Fish and Wildlife Service 2004). At this time, the proposed project was not included within the list of Caltrans projects covered by the Programmatic Biological Opinion. To reduce potential impacts to San Joaquin kit fox, Caltrans would request that the State Route 198/12<sup>th</sup> Avenue Interchange Project be included in the Programmatic Biological Opinion.

At minimum, Caltrans shall implement the following U.S. Fish and Wildlife Service standardized measures to ensure that San Joaquin kit foxes are not adversely affected during construction activities associated with the proposed project. These measures are consistent with the U.S. Fish and Wildlife Service Standardized

Recommendations for Protection of the San Joaquin Kit Fox Prior to Ground Disturbance (U.S. Fish and Wildlife Service 1999) and the *Upland Species Programmatic Biological Opinion* (U.S. Fish and Wildlife Service 2004):

- No more than 30 days prior to construction, a qualified biologist (as defined by the U.S. Fish and Wildlife Service 1999) would conduct systematic searches for San Joaquin kit fox dens in all suitable habitat in the proposed work area and in a 200-foot-wide buffer around the area. If a den is found, biologists would measure the size; evaluate the shape of the den entrances; and, note tracks, scat, prey remains, or recent excavations at the site. Dens would be classified in one of four den status categories, consistent with those defined by the U.S. Fish and Wildlife Service (1999).
- All San Joaquin kit fox dens would be assigned a number and mapped. Den sites would be flagged in the field with pin flags marked with the den number. Potential, known, and natal or pupping dens would be distinguished from each other in the field by the pin flag color. Information on the size and number of openings, signs of activity, surrounding terrain and habitat type, and distance to concentrations of small mammal prey and other den sites would be recorded.
- Disturbance and destruction of San Joaquin kit fox dens would be avoided where possible. However, if potential dens are located within the proposed work area and cannot be avoided during construction, a qualified biologist would remove these dens by carefully hand excavating them following the procedures described by the U.S. Fish and Wildlife Service (1999).
- If a San Joaquin kit fox natal or pupping den is found in the survey area, the U.S. Fish and Wildlife Service would be notified immediately. The U.S. Fish and Wildlife Service would also receive notification of the results of pre-construction den searches and den excavations within five days after these activities are completed and before construction begins in the area. The U.S. Fish and Wildlife Service would receive written notification of the results within 30 days after these activities are completed.
- Following pre-construction San Joaquin kit fox den searches and den excavations and before construction, biologists would establish exclusion zones around the remaining dens following the procedures described by the

U.S. Fish and Wildlife Service (1999). Exclusion zones would be marked in the field with stakes and flagging. The radius of these zones:

- Potential Den or Atypical Den: 50 feet
- Known Den: 100 feet
- Natal or Popping Den: To be determined after consultation with U.S. Fish and Wildlife Service

To reduce any potential impacts to the Swainson's hawk, western burrowing owl and migratory birds, the following measures are recommended:

- If construction activities are conducted during the typical nesting bird season (February 15–September 15), pre-construction surveys should be conducted by a qualified biologist prior to any construction activity or vegetation removal to identify potential bird nesting activity.
- If active nest sites of bird species protected under the Migratory Bird Treaty Act are observed within the vicinity of the project site, then the project activities should be modified and/or delayed as necessary to avoid direct take of the identified nests, eggs, and/or young;
- If active nest sites of raptors and/or bird species protected under the Migratory Bird Treaty Act are observed within the vicinity of the project site, then California Department of Fish and Game shall be contacted to establish the appropriate buffer around the nest site. Construction activities in the buffer zone should be prohibited until the young have fledged the nest and achieved independence; and
- A qualified biologist should document active nests and a letter report should be submitted to the U.S. Fish and Wildlife Service and California Department of Fish and Game documenting project compliance with the Migratory Bird Treaty Act and applicable project mitigation measures.

### ***Visual/Aesthetics***

The avoidance and minimization measures below are proposed to address potential adverse visual impacts to the interchange area and community visual concerns. Implementation of the following avoidance and minimization measures would reduce the visual impacts from the project and would not result in a substantial change in the overall visual quality of the project area:

- Work with the community during final design to develop Aesthetic and Urban Design Guidelines for the project through a formalized process that allows for community input.
- Include trees in the new plantings to replace trees removed by the project to create a focal area and to soften and fit the bridge into the landscape.
- Use drainage or detention ponds where required, that maximize the allowable landscape. Place any water quality or detention ponds out of clear view of the interchanges from the highway.
- Use a visually compatible ornamental groundcover in any basins or geoswales if they must occur within ornamental landscape areas.
- Locate access-control fencing in visually unobtrusive locations and apply black vinyl coating if placed along pedestrian areas or along local streets.
- If desired by the City, develop bridge architecture to create Community/City Gateways – including possible bridge monuments with decorative lighting, parapet wall treatments, decorative fencing and lighting and abutment/wing wall – to increase the memorability of the 12<sup>th</sup> Avenue overcrossing.

### ***Construction Noise and Vibration Abatement***

Implementing the following measures would minimize temporary construction noise and vibration impacts:

- Avoid using impact pile driving, when feasible, for bridge demolition and reconstruction. Use less noise-intrusive piling techniques, such as vibratory pile driving or cast-in-drilled-hole piling.
- Prepare a community noise/vibration monitoring plan, before construction begins, and a noise/vibration control plan to ensure that contractors take all reasonable steps to minimize noise and vibration during construction activities. The noise and vibration control plan shall include construction equipment noise levels and propose noise and vibration control measures to ensure that the contractors will meet the noise and vibration criteria.
- Notify the construction manager of construction noise complaints by the public, so noise monitoring can be conducted, if necessary.
- Implement sound-control devices on all equipment that are no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.

- Conduct truck loading, unloading and hauling operations, so that noise is kept to a minimum, to avoid using routes through residential neighborhoods.
- Erect approved soundwalls as early as possible in the construction process, so subsequent construction noise can be attenuated.
- Use and relocate temporary barriers, such as heavy plywood or moveable insulated sound blankets, to protect sensitive receptors from excessive construction noise.

As directed by the Caltrans' resident engineer, the contractor shall implement appropriate additional noise abatement measures including, but not limited to, changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

### ***Utilities/Emergency Services***

During construction, a Traffic Management Plan would be developed to accommodate local traffic patterns, and emergency services.

Construction of the build alternative and acquisition of right-of-way for the proposed project would require that various utilities be relocated within the project right-of-way. Emergency service and transit providers would be notified in advance of construction activities for use in planning emergency response routing.

### **Cultural**

A Historical Property Survey Report was prepared for Caltrans during March 2008. The report stated that no cultural resources were found and no further studies are recommended however, it is Caltrans policy to avoid cultural resources whenever possible and if buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted.

## **List of Technical Studies that are Bound Separately**

Draft Relocation Statement

Air Quality Report

Noise Study Report

Noise Abatement Decision Report

Water Quality Report

Natural Environment Study

Location Hydraulic Study

Historical Property Survey Report

- Historic Study Report
- Historic Resource Evaluation Report
- Historic Architectural Survey Report
- Archaeological Survey Report

Hazardous Waste Reports

- Initial Site Assessment
- Preliminary Site Investigation (Geophysical Survey)

Scenic Resource Evaluation/Visual Assessment

Initial Paleontology Study

Paleontological Evaluation Report