Plainsburg/Arboleda Freeway Project

On State Route 99 in Merced County
10-Mer-99-KP 0.0/16.9 (PM 0.0/10.5)
10-415700/415800

Environmental Assessment with Finding of No Significant Impact/ Final Environmental Impact Report

Prepared by the
U.S. Department of Transportation
Federal Highway Administration
and the
State of California Department of Transportation

March 2006

General Information About This Document

What's in this document?

The California Department of Transportation (Caltrans) and the Federal Highway Administration have prepared this Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact, which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Merced County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or mitigation measures.

An Environmental Impact Report/Environmental Assessment dated November 2005 was circulated for public review from January 10, 2006 to February 24, 2006. A public hearing was held on June 13, 2003 during a previous circulation period.

A total of 15 comments were received. The comments and responses to the comments, as well as a confirmation letter from the State Clearinghouse stating that the document was sent to state agencies for review, are presented in Appendix I, which has been added to the document since the draft circulation. Appendix J, containing the Biological Opinion, has also been added.

Elsewhere, a vertical line in the outside margin of the text indicates where changes have been made to the document since the November 2005 draft document was circulated.

What happens after this?

The proposed project has completed environmental compliance after the circulation of this document. When funding is approved, the California Department of Transportation and the Federal Highway Administration can design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Lance Brangham, San Joaquin Valley Analysis Branch, 2015 East Shields Avenue, Suite 100, Fresno CA 93726; (559) 243-8294 Voice, or use the California Relay Service TTY number, 1-800-735-2929.

Federal Highway Administration
Finding of No Significant Impact
For
SR-99 Plainsburg/Arboleda Freeway Project
From Chowchilla River to McHenry Road
Merced County, California

The Federal Highway Administration has determined that this project will not have any significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by the Federal Highway Administration and determined to adequately and accurately discuss the environmental issues and impacts. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. The Federal Highway Administration takes full responsibility for the accuracy, scope and content of the attached environmental assessment.

6/30/2006
DATE

For
Gene K. Fong
Division Administrator
Federal Highway Administration

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SCH# 20003051094
10-MER-99-Kp 0.0/16.9 (PM 0.0/10.5)
41570/41580

State Route 99 from the Chowchilla River to McHenry Avenue

FINAL ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

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

THE STATE OF CALIFORNIA
Department of Transportation

6/26/06
Date of Approval

Kome Ajise
Kome Ajise
District Director
District 10
California Department of Transportation

10-MER-99-KP 0.0/16.9 (PM 0.0/10.5)
415700/415800

State Route 99, from the Madera/Merced county line,
kilometer post 0.0 (post mile 0.0) to kilometer post 16.9 (post mile 10.5),
just south of the City of Merced city limits

ENVIRONMENTAL ASSESSMENT/ ENVIRONMENTAL IMPACT REPORT

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

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration, and
THE STATE OF CALIFORNIA
Department of Transportation

11/28/2005
Date of Approval

Kome Ajise
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12/20/05
Date of Approval

for Gene K. Fong
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Federal Highway Administration

Summary

The Federal Highway Administration, in cooperation with the California Department of Transportation (Caltrans), proposes to make safety and operational improvements along the State Route 99 corridor between the Madera/Merced county line at kilometer post 0.0 (post mile 0.0) and McHenry Road in Merced County at kilometer post 16.9 (post mile 10.5).

The project would eliminate at-grade turns, including median crossings and private driveways, and upgrade the expressway to a six-lane freeway, with standard-width shoulders. Within the project limits, Caltrans would add two interchanges. Along with a newly constructed east frontage road, the existing southbound lanes of State Route 99 would be turned over to the County of Merced for use as a frontage road.

Caltrans circulated an Environmental Assessment/Initial Study for the project in May 2003. During the public comment period, it was determined that this project would have an adverse impact on farmlands because of the number of acres that would have to be converted from farmland to other uses. Because of that impact, an Environmental Impact Report was then required for the project. This document fulfills that requirement

Purpose and Need

The proposed project would increase safety for the traveling public, correct roadway deficiencies, accommodate increased traffic demands (both present and future), and provide route continuity. By increasing State Route 99 from four lanes to six and limiting access to two new interchanges, this section of State Route 99 would see decreases in congestion, a reduced number of accidents involving cross-median traffic and at-grade intersections, improved compatibility of truck and car traffic, and improved efficiency for emergency vehicles.

The route connects major population centers in the San Joaquin Valley to the rest of the state and is an integral part of the urban road network, carrying high volumes of regional and local traffic. Route continuity would be consistent with local, regional, and state plans, and would maintain local and regional land uses.

Project Alternatives

The project is divided into two sections: the southern Plainsburg section and the northern Arboleda section. The southern Plainsburg section runs from the Chowchilla River to Buchanan Hollow Road (kilometer posts 0.0 to 7.4 [post miles 0.0 to 4.6]) and consists of four build alternatives and one no-build alternative. The northern Arboleda section runs from Buchanan Hollow Road to McHenry Road (kilometer posts 7.4 to 16.9 [post miles 4.6/10.5]) and consists of two build alternatives and a no-build alternative.

This project would select one alternative for each section. The selection of an alternative for one section does not limit which alternative can be selected for the other section. This means the construction of one alternative in the southern Plainsburg section would not affect the selection of another alternative for the northern Arboleda section, or vice versa.

All build alternatives would widen the existing four-lane highway to a six-lane freeway. This project would realign the road to the east of the current alignment, upgrade shoulders, and construct two new interchanges. Each build alternative would place the interchanges in slightly different locations along the alignment.

A no-build alternative would keep the road as it is and would not improve safety or relieve existing and future congestion in the project area. All project alternatives are explained in detail in Chapter 2.

Plainsburg Alternative 1B and Arboleda Alternative 5 have been selected together as the Recommended Alternative because these build alternatives meet the purpose and need of the project. These build alternatives also minimized farmland impacts, while avoiding a potential hazardous waste contamination site.

Affected Environment and Consequences

The proposed project lies in southern Merced County, California, in the San Joaquin Valley. The project is just south of the Merced city limits and extends south to the Merced/Madera county line. Land use in the project area is rural-residential and agricultural. Agriculture includes dairy farming, row crops, and orchards.

Local Planning, Growth and Infrastructure

The proposed project is consistent with the general plan for the City of Merced and County of Merced and other regional planning documents. The proposed interchanges would provide direct and safe freeway access to rural and agricultural lands

surrounding the project. The project is intended to meet the existing and projected traffic demand based on local land use plans. The project would not induce growth beyond current plans.

Other projects near the project area include:

- Caltrans Mission Avenue interchange and State Route 99 freeway conversion (to begin construction in 2006)
- Merced County Campus Parkway
- University of California at Merced campus and campus community, east of Lake Yosemite (classes began in September 2005)
- Merced/Atwater Expressway (environmental document pending)
- U.S. Army Corps of Engineers-proposed canal realignment and development

As a result of the project, the existing State Route 99 southbound lanes and the newly constructed east frontage road would be relinquished to Merced County for operation and maintenance. If necessary, Caltrans would restore the road to serviceable condition before relinquishment. No additional impacts to resources—environmental, social or otherwise—would be anticipated.

Housing and Businesses

Up to 20 residential and/or up to five commercial and/or industrial displacements could occur as a result of this project. Concerns regarding environmental justice and relocation assistance have been identified and addressed. A survey of real estate listings found adequate available replacement housing for single-family homes and businesses in the area. The Caltrans relocation assistance program would be used to help those being relocated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Farmland

The proposed project would acquire between 303 to 546 hectares (750 to 1,350 acres) of farmland. It would also acquire between 24 to 91 hectares (60 to 226 acres) of farmland protected under the Williamson Act. In conformance with the Farmland Protection Policy Act, a Farmland Conversion Impact Rating Form was completed resulting in a rating of 148.

Water Quality and Wetlands

The project area lies in a floodplain, as described by the Federal Emergency Management Agency. However, the new alignment and road profile would not change the existing flow pattern; the proposed freeway would be raised to reduce any future potential for closure because of flooding. Potential impacts to water quality would be avoided through the implementation of avoidance measures and best management practices.

All impacts to jurisdictional wetland and/or other waters of the U.S. would be temporary, except for the realignment of Deadman Creek. The realignment would permanently replace up to 0.60 hectare (0.15 acre) of the original streambed with a new streambed of up to 0.77 hectare (0.19 acre) for all alternatives.

Vegetation/Habitat/Endangered Species

Habitats within the project area have been substantially modified by agricultural development, notably plowing, farming, and grazing. Because of this disturbance, most areas within the project area were determined to be unsuitable for special-status plant species. In addition, no impacts to rare and sensitive vegetation are anticipated as a result of the proposed project.

Although vegetation and habitat are relatively poor as a result of land use in the area, these lands do provide some foraging areas for animal species, including some federally or state listed species or species of concern: the San Joaquin kit fox, burrowing owl, mountain plover, Swainson's hawk, western pond turtle, bats, and the valley elderberry longhorn beetle. Impacts to these species would be mitigated through the use of conservation easements and relinquishment, acquisition and/or easements, and various construction restrictions (environmentally sensitive areas, construction windows, and other avoidance measures).

Pre-construction surveys and other best management practices would be used to identify and avoid any direct take of special-status species in the project area.

Before construction, the following permits or agreements would be required: a 1602 Streambed Alteration Agreement, a 401 Water Quality Permit, and a 404 Nationwide permit for wetlands. Also, if species mortality occurs as a result of project disturbance, a state 2081 take permit would be required. A Biological Opinion was completed on February 6, 2006.

Historical and Cultural Resources

Historical and cultural resources studies identified four archaeological sites and 27 historic architectural properties (including 10 bridges) within the project's area of potential effect. Caltrans determined that two of the four archaeological sites were ineligible for the National Register of Historic Places. The remaining two archaeological sites were formally evaluated and proposed eligible (under criterion D) for the National Register of Historic Places.

On February 17, 2006, the Federal Highway Administration and the State Office of Historic Preservation agreed to a Finding of No Adverse Effect. All 27 of the historical architectural properties were found ineligible, either during previous evaluations or studies conducted for this project.

Paleontological Resources

Caltrans studied the potential for paleontological resources to be found within the project area. Caltrans found that deep excavation work could encounter scientifically significant vertebrate specimens because of known fossil sites nearby. Because of that possibility, paleontological monitoring is warranted. The project area would require monitoring in areas where the excavation is below the uppermost few feet of sediment.

Noise

Caltrans studied 18 noise receptors (single-family residences) in the project area for noise impacts. Of those, 16 met the Federal Highway Administration criteria for consideration of noise abatement, but only two locations (with five receptors) met the reasonability requirements.

Construction of a realigned roadway would increase the noise level in a rural area where residences are few and scattered. Sound barriers were found to be feasible for isolated sensitive receptors, but only two were deemed reasonable to construct.

Hazardous Waste

The most prominent hazardous waste concern is the Merced City Truck Stop. Studies indicate it is contaminated with hydrocarbons and would likely require remediation. Plainsburg Alternatives 1A and 2 would acquire this property.

Four underground storage tanks lie within the Caltrans right-of-way. Regardless of which alternative were chosen, they would need to be removed during construction.

Table S.1 Summary of Major Potential Impacts From Alternatives

Potential Impact		Plainsburg 1A & Arboleda 4	Plainsburg 1B & Arboleda 4	Plainsburg 2 & Arboleda 4	Plainsburg 3 & Arboleda 4	Plainsburg 1A & Arboleda 5	Plainsburg 1B & Arboleda 5	Plainsburg 2 & Arboleda 5	Plainsburg 3 & Arboleda 5	No-Build Alternative
Farmland converted	**Total**	323.1 hectares (800.1 acres)	345.3 hectares (854.3 acres)	459.4 hectares (1,135.3 acres)	553.9 hectares (1,368.6 acres)	307.8 hectares (760.6 acres)	345.2 hectares (835.2 acres)	444.8 hectares (1,099.2 acres)	539.5 hectares (1,333.1 acres)	None
	Prime Unique	101.5 hectares (250.8 acres)	95.8 hectares (236.7 acres)	91.0 hectares (224.9 acres)	108.2 hectares (267.3 acres)	96.1 hectares (237.5 acres)	101.2 hectares (250.0 acres)	96.4 hectares (238.2 acres)	113.6 hectares (280.6 acres)	None
Business displacements		2	2	2	2	1	1	1	1	None
Housing displacements		20	20	21	21	18	18	19	19	None
Utility service relocation		10	10	10	10	10	10	10	10	None
Consistency with the Merced County General Plan		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Air quality		Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	Does not worsen existing conditions or create new violations	No Change
Noise	**# of receptors ≥ 66 Leq**	6	6	4	4	11	11	9	9	No Change
	# of receptors increasing by ≥ 12 dBA	1	0	0	0	2	1	1	1	No Change
Water quality		No long-term effects on water quality	No long-term effects on water quality	No long-term effects on water quality	No long-term effects on water quality	No long-term effects on water quality	No long-term effects on water quality	No long-term effects on water quality	No long-term effects on water quality	No Change
Total waters of the United States		Permanent: 0.06 hectare (0.15 acre) Temporary: 0.14 hectare (0.35 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.14 hectare (0.35 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.16 hectare (0.39 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.17 hectare (0.42 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.14 hectare (0.35 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.14 hectare (0.35 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.16 hectare (0.39 acre)	Permanent: 0.06 hectare (0.15 acre) Temporary: 0.17 hectare (0.42 acre)	None
Increase in floodplain		No impact on floodplain	No impact on floodplain	No impact on floodplain	No impact on floodplain	No impact on floodplain	No impact on floodplain	No impact on floodplain	No impact on floodplain	No Change
Cultural resources		2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	2 archaeological sites: 1 pre-historic, 1 pre-historic/ historic	No Change
Number of potential hazardous waste sites		3	2	3	2	3	2	3	2	None

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Table S-1 Summary of Major Potential Impacts From Alternatives (continued)

Potential Impact	Plainsburg 1A & Arboleda 4	Plainsburg 1B & Arboleda 4	Plainsburg 2 & Arboleda 4	Plainsburg 3 & Arboleda 4	Plainsburg 1A & Arboleda 5	Plainsburg 1B & Arboleda 5	Plainsburg 2 & Arboleda 5	Plainsburg 3 & Arboleda 5	No-Build Alternative
Volume of fill	3,008,000 cubic meters	3,015,000 cubic meters	3,129,000 cubic meters	3,129,000 cubic meters	2,720,000 cubic meters	2,270,000 cubic meters	2,841,000 cubic meters	2,841,000 cubic meters	None
Visual quality	None	None	None	None	None	None	None	None	No Change
Cumulative impacts	None	None	None	None	None	None	None	None	NA
Growth inducement	None	None	None	None	None	None	None	None	No Change

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List of Abbreviated Terms

Caltrans	California Department of Transportation
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
KP	kilometer post
LOS	Level of Service
NEPA	National Environmental Policy Act
PM	post mile

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation and the Federal Highway Administration propose to widen a segment of State Route 99 from the Chowchilla River to McHenry Road in Merced County (see Figures 1-1 and 1-2). This stretch is about 16.9 kilometers (10.5 miles) long.

This segment of State Route 99 is a four-lane expressway with 3.6-meter (12-foot) lanes, 2.4-meter (8-foot) outside shoulders, and 1.5-meter (5-foot) inside shoulders. It has several at-grade intersections where local street traffic can enter or exit the highway. The project would realign the roadway, increase the road to six lanes, upgrade the segment to freeway standards, close the at-grade intersections, and build two new interchanges.

The environmental analysis and preliminary design for this project was funded in the 1998/1999 Regional Statewide Transportation Improvement Program. It is also included in the Merced County Association of Governments' 2004 Regional Transportation Plan and the 2004 cost-constrained Merced County Regional Transportation Improvement Plan.

1.2 Purpose and Need

Purpose

The purpose of the proposed project is to:

- Improve safety.
- Reduce congestion.
- Improve route continuity.

Need

High accident rates and lack of route continuity have been identified as problems along this segment of State Route 99. In addition, the road capacity of the segment does not meet future growth and traffic demands, which would result in decreased level of service over time.

Also, this segment does not comply with the Route Concept Report for State Route 99. The road is currently a four-lane highway; the Route Concept Report envisions the road as a six-lane freeway.

Improve Safety

All intersections in the project limits are at grade, meaning intersecting local roads meet the highway at the same level, usually at stop signs. Motorists coming onto the highway from local roads must accelerate to highway speeds without the benefit of a merge lane. The potential for accidents increases when motorists attempt to merge onto State Route 99 without having adequate space to get up to the proper highway speed. Accidents also occur at these intersections when motorists on the local roads attempt to cross State Route 99, but do not allow enough time to cross safely.

These types of accidents are of particular concern during bad weather. Dense fog is common in the San Joaquin Valley during the winter months. Fog can greatly reduce visibility, making it more difficult for motorists to merge onto or cross the highway.

Another safety issue is the space between the intersections on the west side of the State Route 99 and the Southern Pacific Railroad crossing. Large vehicles (tractor-trailers, etc.) waiting to merge onto the highway from the west frontage roads often stretch across the railroad tracks, blocking the rail line.

Reduce Congestion

Population projections for the state and region indicate steady growth through the year 2040. Increases in interregional traffic and growth in Merced and the San Joaquin Valley are expected to generate traffic demands beyond the existing capacity of State Route 99.

Increased traffic on State Route 99 through Merced County has led to traffic congestion problems on State Route 99. As the traffic congestion grows and the level of service decreases, accident rates and operational difficulties are expected to increase. Caltrans uses “level of service” as an indicator of how freely traffic flows. Level of service is rated in a range from “A” to “F.” Level of service “A” indicates free-flowing traffic, with no hindrance to driving speed caused by traffic conditions; level of service “F” indicates substantial congestion, with slow-moving, stop-and-go traffic (Figure 1-3).

The increasing number of vehicles using State Route 99 has led to an accident rate above the statewide average, posing safety issues throughout the route. The high occurrence and expected increase of at-grade cross-traffic on this route is expected to lead to additional safety and operational concerns in the future. Currently, 36,000 vehicles operate within the proposed project limits each day. State Route 99 within the project area operates at level of service "C." By 2024, the average daily traffic count is expected to reach 78,000, which would result in level of service "F" under existing conditions (Table 1.1). For the proposed freeway to operate at a level of service "C" (the federal design standard for rural freeways), six lanes are required for the 20-year design period.

Table 1.1 Traffic Levels

State Route 99 (post miles 0.0 to 10.5)	Year	
	2004	2024
Number of Vehicles (average daily traffic count)	36,000	78,000
Level of Service (existing roadway)	C	F

Route Continuity

The Route Concept Report for State Route 99 identifies the road as freeway ultimately, from the State Route 99/Interstate 5 interchange to Sacramento. More than two-thirds of State Route 99 in Merced County already meet freeway standards. The section north of the project area will be a freeway once the Mission Avenue interchange project is constructed. Improving State Route 99 to freeway standards within the proposed project limits would create continuity with sections of State Route 99 immediately north and south of the project limits.

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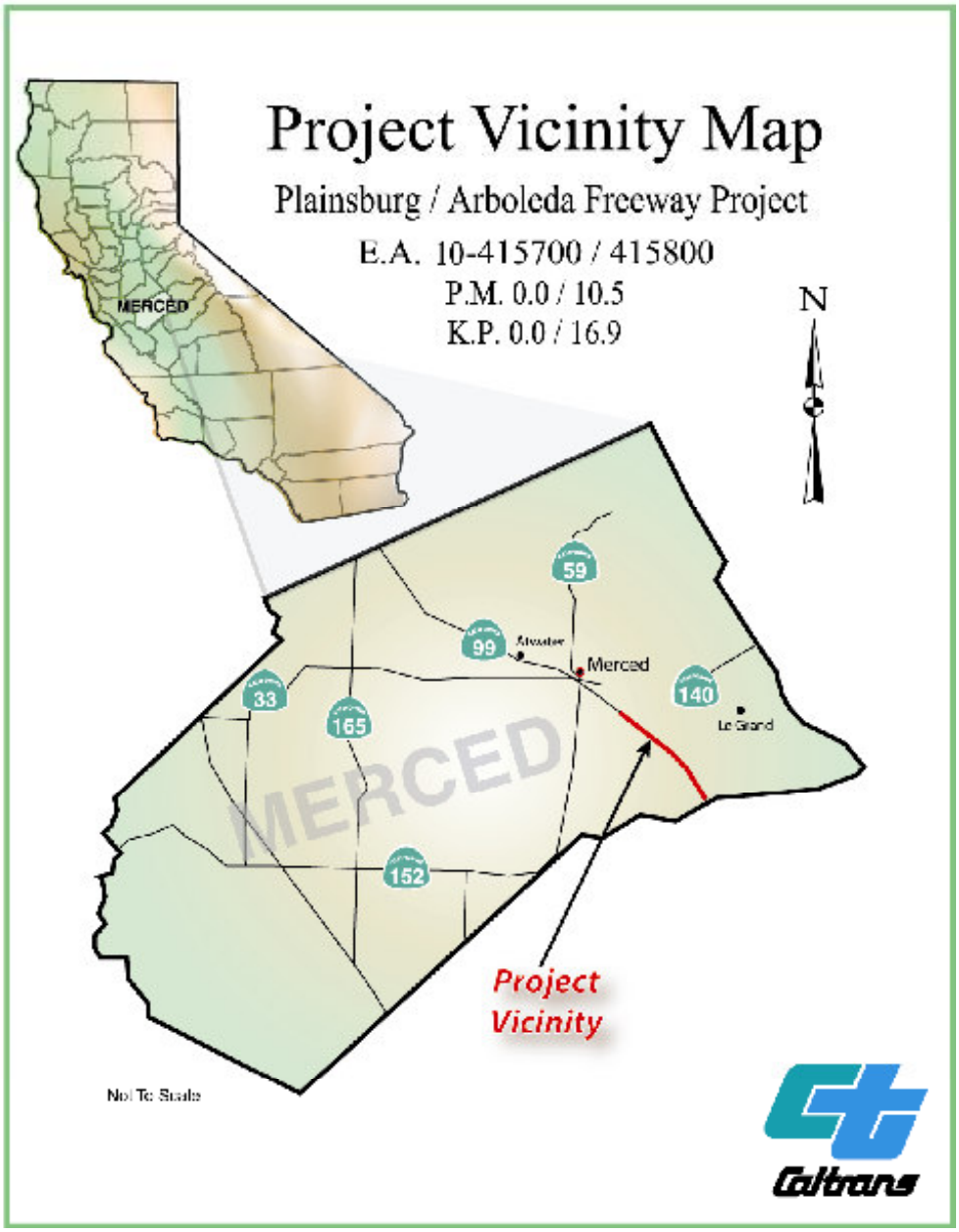

Figure 1-1 Project Vicinity Map

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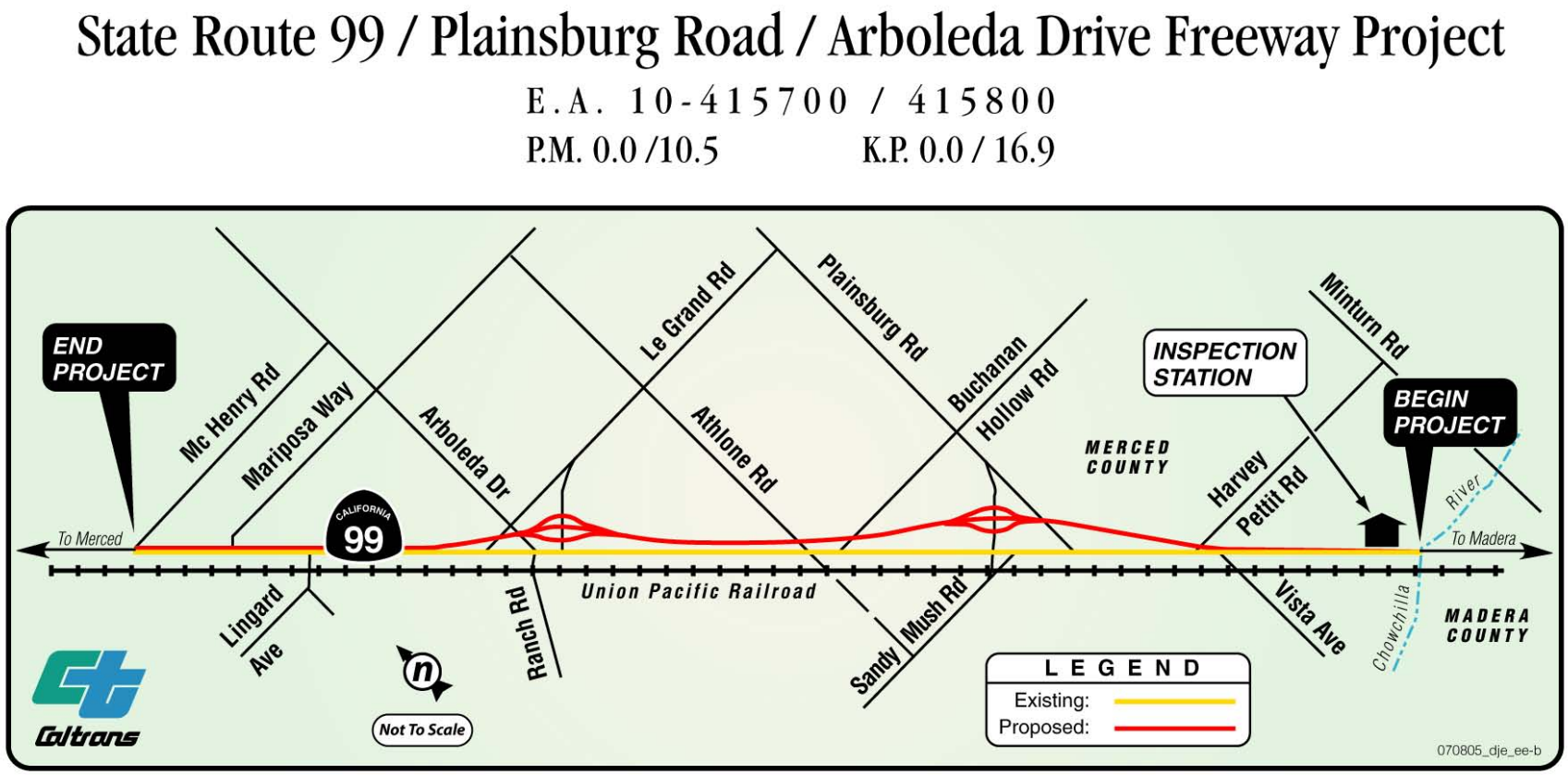

Figure 1-2 Project Location Map

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LEVELS OF SERVICE
for Freeways

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

Figure 1-3 Levels of Service

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Chapter 2 Alternatives

2.1 Alternative Development Process

This chapter describes the alternatives and how they meet the purpose and need of the project. Discussion includes a no-build alternative, various build alternatives, and alternatives considered but eliminated from detailed study. All alternatives would conform to the Americans with Disabilities Act of 1990, as appropriate.

2.2 Project Alternatives

Along with widening the road to six lanes, the project would build two interchanges along the proposed alignment. Six build alternatives are being considered: four in the southern Plainsburg section (see maps in Chapter 9) and two in the northern Arboleda section. Selection of a build alternative in the southern Plainsburg section will not affect the selection of a build alternative for the northern Arboleda section, or vice versa. Each of the alternatives follows a similar path with similar characteristics:

- All alternatives avoid moving or disrupting the existing Southern/Union Pacific mainline railway located to the west of the project.
- All alternatives maintain the same relative locations for placement of the interchanges.
- All alternatives maintain a similar path to the original State Route 99.
- All alternatives use the current southbound lanes of State Route 99 as a west frontage road.

Each of the build alternatives would accomplish the following:

- Provide freeway continuity with existing and planned freeways, which is consistent with the Route Concept Report for State Route 99.
- Provide for more efficient flow of traffic on State Route 99.
- Potentially reduce accidents and fatalities on State Route 99 within the project area resulting from at-grade highway crossings.
- Provide safer access to State Route 99.
- Upgrade the existing roadway from an expressway to a freeway, consistent with the Route Concept Report for State Route 99 (which ultimately envisions State Route 99 as an eight-lane roadway).

- Upgrade the road to current design standards, including standard-width paved shoulders.
- Elevate State Route 99 above the 100-year floodplain.
- Provide for capacity on State Route 99 through the project's 20-year planning horizon.
- Improve compatibility of truck and car traffic on State Route 99.
- Provide safe, local traffic access to State Route 99 through the addition of interchanges and new frontage roads.
- Maintain consistency with local and regional land use planning.
- Close the at-grade intersections at Buchanan Hollow Road, Athlone Road, Ranch Road, Arboleda Drive, Le Grand Road, Worden Avenue, Pioneer Road, Lingard Road, Mariposa Way, and McHenry Road.

The impacts of each alternative are discussed in Chapter 3 Affected Environment, Environmental Consequences, and Mitigation Measures.

Alternatives in the Southern Plainsburg Section

Common Features of the Southern Plainsburg Alternatives

All of the southern Plainsburg build alternatives would do the following:

- Construct a six-lane freeway on eight-lane right-of-way from the Chowchilla River to Buchanan Hollow Road.
- Construct a diamond interchange at Sandy Mush Road/Plainsburg Road.
- Construct an eastern frontage road resulting from Harvey Petitt Road to Athlone Road.
- Construct five new bridges at South Dutchman Creek and Dutchman Creek.
- Remove the northbound bridges on South Dutchman Creek and Dutchman Creek.
- Convert the existing southbound lanes into the western frontage roads from Vista Avenue to Athlone Road.
- Realign a section of Sandy Mush Road to connect to the new interchange.
- Realign a section of Plainsburg Road to connect to the new interchange.
- Close at-grade intersections at Vista Road, Harvey Petitt Road, Plainsburg Road, Sandy Mush Road, and Buchanan Hollow Road.
- Construct drainage basins between the proposed western frontage road and the proposed State Route 99.

- Provide enough room for the proposed replacement of the southbound Livingston Inspection Facility, which is not part of this project.

Plainsburg Alternative 1A

Alternative 1A would realign State Route 99 to the east (see maps in Chapter 9). The new alignment would then veer farther east away from the proposed frontage road, starting south of Harvey Petitt Road, to allow room for the Plainsburg interchange, which would be approximately 240 meters (787 feet) east of the existing State Route 99 centerline. This alternative would acquire approximately 115.7 hectares (286 acres) of new right-of-way.

Plainsburg Alternative 1B

Alternative 1B would realign State Route 99 to the east. The new alignment would then veer farther east away from the proposed frontage road, starting north of the Chowchilla Inspection Facility, to allow room for the Plainsburg interchange, which would be approximately 240 meters (787 feet) east of the existing State Route 99 centerline. This alternative avoids the Merced City Truck Stop. This alternative would acquire approximately 135.6 hectares (335 acres) of new right-of-way.

Plainsburg Alternative 2

Alternative 2 would realign State Route 99 to the east. The new alignment would then veer farther east, starting south of Harvey Petitt Road, to allow room for the Plainsburg interchange and the realigned frontage road. The Plainsburg interchange would be located 460 meters (1,509 feet) from the existing State Route 99 centerline.

A half-mile section of the proposed western frontage road would be realigned east from the Southern Pacific Railroad track. This would move the intersection of the proposed western frontage road and Sandy Mush Road away from the railroad track to allow vehicle storage between the intersection and the track. This alternative would acquire approximately 159.9 hectares (395 acres) of new right-of-way.

Plainsburg Alternative 3

Alternative 3 would realign State Route 99 to the east. The new alignment would then veer farther east, starting north of the Chowchilla Inspection Facility, to allow room for the Plainsburg interchange and the proposed frontage road. This alternative avoids the Merced City Truck Stop. The Plainsburg interchange would be located 460 meters (1,509 feet) from the existing State Route 99 centerline.

A half-mile section of the proposed western frontage road would be realigned east from the Southern Pacific Railroad track. This would move the intersection of the proposed western frontage road and Sandy Mush Road away from the railroad track to allow vehicle storage between the intersection and the track. This alternative would acquire approximately 187.0 hectares (462 acres) of new right-of-way.

Alternatives in the Northern Arboleda Section

Common Features of the Northern Arboleda Alternatives

Both of the build alternatives would do the following:

- Construct a six-lane freeway on eight-lane right-of-way from Buchanan Hollow Road to McHenry Road, just east of the existing highway.
- Construct a new east frontage road from Buchanan Hollow Road to McHenry Road.
- Convert the existing southbound lanes into the western frontage road from Buchanan Hollow Road to McHenry Road.
- Construct 9 new bridges at Deadman Creek and Duck Slough.
- Modify Le Grand Road, Arboleda Drive, Worden Avenue, and Pioneer Road to accommodate the interchange and the eastern frontage road.
- Close the at-grade intersections at Athlone Road, Ranch Road, Arboleda Drive, Le Grand Road, Worden Avenue, Pioneer Road, Lingard Road, Mariposa Way, and McHenry Road.

Arboleda Alternative 4

Alternative 4 would create an interchange that would tie into Arboleda Drive, approximately 320 meters (1050 feet) from the existing State Route 99 centerline. This alternative would acquire approximately 178.9 hectares (442 acres) of new right-of-way.

Arboleda Alternative 5

Alternative 5 would create an interchange that would tie into Le Grand Drive, approximately 320 meters (1050 feet) from the existing State Route 99 centerline. This alternative would acquire approximately 163.3 hectares (403.7 acres) of new right-of-way.

No-Build Alternatives

The no-build alternatives would leave the respective segment (northern or southern) of State Route 99 as a four-lane expressway. The existing expressway would continue to operate with non-standard shoulders and would not accommodate future traffic levels. At-grade intersections and median crossings would remain open, increasing the potential for traffic conflicts. Direct access, from existing local road at-grade intersections and private driveways, would remain on State Route 99.

This alternative would not address the purpose and need of providing route continuity, improving safety and reducing congestion.

Recommended Alternative

Plainsburg Alternative 1B and Arboleda Alternative 5 have been selected together as the Recommended Alternative because these build alternatives meet the purpose and need of the project. They also minimized farmland impacts, while avoiding a potential hazardous waste contamination site.

The estimated cost for Alternative 1B is $100,180,000. The estimated cost of Alternative 5 is $170,542,000.

2.3 Alternatives Considered and Withdrawn

Transportation Systems Management

The Transportation Systems Management alternative features activities that maximize the efficiency of the present system. Possible options included in this alternative are ridesharing, high occupancy vehicle lanes on existing roadways, and traffic signal timing optimization. This limited construction alternative is usually relevant only for major projects proposed in urban areas with populations of more than 200,000.

Before selecting an alternative for major projects in rural areas, though, it is important to demonstrate that reconstruction and rehabilitation of the existing system would not adequately correct identified deficiencies and meet the project need. Below are the reasons the Transportation Systems Management alternative has been eliminated from further study:

- Using only Transportation Systems Management measures to improve traffic flow on this segment of State Route 99 would make this the only stretch of State Route 99 not built to freeway standards. The Route Concept Report for State Route 99 calls for an ultimate eight-lane freeway from the Interstate 5/State Route 99 interchange to Sacramento.

- The at-grade intersections and other direct access points onto State Route 99, where the accident rates are the highest, cannot be closed without providing alternative access for landlocked parcels. That may not be possible using Transportation Systems Management measures.

- Transportation Systems Management measures would not provide for future capacity on State Route 99. While the current level of service is "C," future levels of service are expected to decrease to "F" by the year 2024.

- Transportation Systems Management measures would not provide for safer and improved compatibility between truck and car traffic on State Route 99.

Chapter 3 Affected Environment, Environmental Consequences, and Mitigation Measures

This chapter explains the impacts that the project would have on the human, physical, and biological environments in the project area. It describes the existing environment that could be affected by the project and potential impacts from each of the alternatives.

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

- Geology/Soil/Seismic/Topography: No major geological features are in the project area. No geologic or seismic features would alter the project design or affect public health (Geotechnical Report, January 2004).
- Pedestrian and Bicycle Facilities: The project would not affect the Merced County Regional Bicycle Network. It would also not adversely affect pedestrian and bicycle access.
- Invasive Species: The project area contains no species that is on the State of California Department of Food and Agriculture Noxious Weed List. Construction would not likely lead to further spread of invasive species.

3.1 Hydrology, Water Quality, Storm Water Runoff

Regulatory Setting

The main federal law regulating water quality is the Clean Water Act. Section 401 of the act requires a water quality certification from the state board or regional board when a project: 1) requires a federal license or permit (a Section 404 permit is the most common federal permit for Caltrans projects), and 2) will result in a discharge to "waters of the United States." Waters are defined as anything that might be considered waterways either on a commercial or recreational scale.

Section 402 of the act establishes the National Pollutant Discharge Elimination System permit system for the discharge of any pollutant (except dredge or fill

material) into waters of the United States. To ensure compliance with Clean Water Act Section 402, the State Water Resources Control Board has issued a National Pollutant Discharge Elimination System Statewide Storm Water Permit to regulate storm water discharges from Caltrans facilities. The permit regulates storm water discharges from the Caltrans right-of-way both during and after construction, as well as from existing facilities and operations.

In addition, the State Water Resources Control Board has issued a construction general permit for most construction activities covering greater than 0.40 hectare (1 acre) that are part of a Common Plan of Development exceeding 2.2 hectares (5 acres) or that have the potential to substantially impair water quality. Some construction activities may require an individual construction permit. All Caltrans projects that must comply with the construction general permit require a Storm Water Pollution Prevention Plan, while all other projects require a Water Pollution Control Program. Subject to Caltrans' review and approval, the contractor prepares both the Storm Water Pollution Prevention Plan and the Water Pollution Control Program. The Storm Water Pollution Prevention Plan and Water Pollution Control Program identify construction activities that may cause pollutants in storm water and measures to control these pollutants. Since neither the Storm Water Pollution Prevention Plan nor the Water Pollution Control Program is prepared at this time, the following discussion focuses on anticipated pollution controls.

Additional laws regulating water quality include the Porter-Cologne Water Quality Act, Safe Drinking Water Act, and Pollution Prevention Act. State water quality laws are codified in the California Water Code.

Affected Environment

The project lies in the South Valley Floor Hydrologic Area of the San Joaquin River Watershed, which drains to the Pacific Ocean via the San Francisco Bay. Groundwater flows primarily to the southwest.

Municipal use of groundwater as a drinking supply has been impaired by elevated nitrates concentrations in Merced County. The sources of nitrates are agricultural, dairy, and waste discharge activities. Groundwater is also impaired by elevated arsenic concentrations from sediments in the groundwater aquifer.

In addition, dibromcholopropane (commonly known as DBCP) has been detected in many groundwater wells in the San Joaquin River region. Municipal use of groundwater as a drinking water supply has been impaired by elevated DBCP

concentrations in groundwater near several cities within the San Joaquin River region, including Chowchilla, Madera, Merced, and the Modesto-Turlock area.

The following surface water bodies are found in the project limits:

- Chowchilla River is at the southern end of the project limits and runs east/west across State Route 99.
- South Dutchman Creek is near Vista Avenue and runs east-west across State Route 99.
- Dutchman Creek is near the future truck scale and runs east-west across State Route 99.
- Deadman Creek is near Athlone Road.
- An irrigation canal lies to the east of the existing alignment, just south of Arboleda Drive.
- An irrigation canal crosses the existing alignment and Le Grand Road.
- An irrigation canal lies near the intersection of Worden Avenue and the existing alignment.
- Mariposa Creek runs to the north of Mariposa Avenue and crosses the existing alignment.
- Irrigation canals lie to the east of the existing alignment and north of Mariposa Avenue.

Several dairies sit within the proposed project area. The Porter-Cologne Water Quality Act considers dairies to be generators of wastes that may contaminate groundwater. Wastes produced by dairies include manure and solids, which are high in nitrogen, ammonia, urea, and salts.

Impacts

Contaminants in runoff from roads, highways and bridges include the following:

- **Sediment:** Sediment is produced when soil particles are eroded from the land and transported to surface water. Natural erosion usually occurs gradually because vegetation protects the ground. However, when land is cleared or disturbed, the rate of erosion increases. The vegetation is removed and soil left exposed, to be quickly washed away in the next rain. Soil particles settle out of the water in lakes, streams or bays onto aquatic plants and rocks. This sediment prevents sunlight from reaching aquatic plants, clogs fish gills, chokes other organisms,

and can smother fish spawning and nursery areas. Sediment can also carry other pollutants such as heavy metals and pesticides.

- **Heavy Metals:** Heavy metals come from some natural sources such as minerals in rocks, sand, vegetation, and salts. They can also come from non-natural sources such as car and truck exhaust, worn tires and engine parts, break linings, weathered paint and rust. Heavy metals are toxic to aquatic life and can potentially contaminate groundwater.
- **Oils and Grease:** Oils and grease are leaked onto road surfaces from car truck engines, spilled at fueling stations, and discarded directly onto pavement or into storm sewers instead of being taken to a recycling station.
- **Aerially Deposited Lead:** Lead gets into the soil as a result of engine exhaust (from vehicles using leaded gasoline as fuel). High levels of lead in soils can be a threat to humans during construction and operations of the highway. Soil absorbs lead, and humans can inhale dust-containing contaminated soils. The threat to water quality is minimal during construction as all runoff would be prevented from flowing into a nearby water body. After construction, major portions of the contaminated soil would be underneath either the concrete or asphalt. Therefore, the probability of soluble lead leaching via infiltrated rainfall is low.
- **Debris:** Grass and shrub clippings, pet waste, food containers, and other household wastes and litter can lead to unsightly and polluted waters.

Other potential adverse impacts to surface water quality include slight changes in temperature, acidity, dissolved oxygen, nutrient concentrations, toxicity, and ionic concentrations. The minor impacts would not have a substantial impact on water quality, but could adversely affect aquatic life. The water quality impacts from these pollutant sources could be short-term and long-term.

Short-term impacts to surface water quality could occur during construction of the project. The primary impacts would occur from exposure of loose soil during excavation, grading and filling activities during construction. The suspended solids, dissolved solids and organic pollutants in surface water runoff could increase while nearby soils are disturbed and dust is generated.

Construction activities from this project are not expected to intercept or alter groundwater recharge, discharge, flow conditions, or groundwater quality.

Avoidance, Minimization and Mitigation Measures

Caltrans studies determined that long-term and short-term impacts to the quality of water resources could occur during construction of the project. Management measures and best management practices would be needed to address water quality impacts during planning, design, construction, and operational and maintenance stages.

Key management measures for roads, highway and bridges include the following:

- Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss.
- Limit land disturbance such as clearing and grading and cut/fill to reduce erosion and sediment loss.
- Limit disturbance of natural drainage features and vegetation.
- Place bridge structures so sensitive and valuable aquatic ecosystems are protected.
- Prepare and implement an approved Storm Water Pollution Prevention Plan.
- Ensure proper storage and disposal of toxic material.
- Incorporate pollution prevention into operation and maintenance procedures to reduce pollutant loads to surface runoff.
- Develop and implement runoff pollution controls for existing road systems to reduce pollutant concentrations and volumes.

The assessment of mitigation measures to avoid or minimize negative impacts of this project on water quality are based on the following:

- Caltrans' project development process
- Caltrans environmental planning process
- Best management practices in the Caltrans Construction Site Best Management Practices Manual
- Caltrans Standard Specifications
- Caltrans Standard Special Provisions
- Caltrans construction inspection and contract enforcement procedures

Storm water best management practices are selected for each individual project during the production of the Storm Water Pollution Prevention Plan. The selection of the best management practices depends on the specific circumstances and conditions in the project area. Best management practices are applied to meet the maximum extent practicable and best conventional technology/best available technology

requirements and to address compliance with water quality standards. Best management practices are described in detail in the Construction Site Best Management Practices Manual.

In the project development phases, plans need to be developed to ensure that there would be no detrimental discharge into any body of water. In the construction phase, the contractor has responsibility, as stated in Caltrans Standard Specifications Section 7-1.01G, to take necessary steps to eliminate potential impacts. Standard Specifications Section 7-1.01G requires the construction contractor to implement pollution control practices related to construction projects via a Water Pollution Control Program or a Storm Water Prevention Plan.

The proposed project is expected to disturb more than one acre of soil, so the following would be required:

1. A Notification of Construction is to be submitted to the appropriate Regional Water Quality Control Board at least 30 days before construction starts. The Notice of Construction form requires a tentative start date and duration, location, description of project, estimate of affected area, and name of resident engineer with telephone number.

2. A Storm Water Pollution Prevention Plan is to be prepared and implemented during construction to the satisfaction of the resident engineer.

3. A Notice of Construction Completion is to be submitted to the Regional Water Quality Control Board upon completion of the construction and stabilization of the site. A project is considered complete when the criteria for final stabilization in the State General Construction Permit are met.

Coordination with the Central Valley Regional Water Quality Control Board would be necessary to ensure that any actions follow the appropriate guidelines. In addition, best management practices are required during all construction activities. If adequate measures and precautions are taken, the proposed project would not adversely affect the water quality in the proposed project area. Section 404 certification would ensure appropriate measures are implemented.

3.2 Hazardous Waste/Materials

Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

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

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

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

Hazardous waste in California is regulated mainly under the authority of the federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if such material is disturbed during project construction.

Affected Environment

Current land use within the proposed project area is rural-residential and agricultural, with dairy farming, row crops (mainly cotton), and orchards (vineyards and almonds) the main agricultural operations. Aerial photographs circa 1957 through 1970 suggest that past land use in the project area consisted of less land committed to irrigation farming (cotton). They also show that much of the land was fallow and consisted of moderately modified wetlands. Records from the widening of State Route 99 from a two-lane to a four-lane highway indicate the presence of numerous service stations and motels/cabins along the route that were demolished during construction. Land use prior to the 1940s was not evaluated since pre-World War II farming is not viewed as causing hazardous material concerns.

The Initial Site Assessment identified several properties that required further investigation. These included several sites with underground storage tanks and two dairy operations that may have adversely affected groundwater quality. Within the current right-of-way, the Initial Site Assessment identified three general concerns requiring additional investigation: underground storage tanks left intact following property demolition when the highway was widened; lead-contaminated soil on the dirt shoulders and median; and lead paint or asbestos associated with proposed demolition of six bridges along the current route. Aboveground fuel storage tanks were observed on a couple of the properties.

Complete site investigations have been completed for all but two properties. The owners of those two properties rescinded permission to work on their property, so only partial studies were completed. Preliminary Site Assessments would be required for these properties prior to construction, if they are part of the new right-of-way. Table 3.1 provides a complete list of the properties.

Table 3.1 Potential Hazardous Waste Sites

Potential Hazardous Waste Site	Alternative Location	Status
Pioneer Road Properties (APN 066-120-54, 066-120-55)	Both Arboleda Alternatives	No further hazardous waste concerns
7251 Plainsburg Road (APN 075-110-037)	All Plainsburg Alternatives	Further studies for hydrocarbons suggested
Borroso Brothers Dairy Tailwater Basin (APN 067-110-02)	All Plainsburg Alternatives	No further hazardous waste concern
Merced City Truck Stop (APN 075-110-017)	Plainsburg Alternative 1A Plainsburg Alternative 2	Hydrocarbons. Owner shut down studies before completed.
5525 East Worden Avenue (APN 066-130-037)	Both Arboleda Alternatives	No further hazardous waste concerns
7096 Plainsburg Road (APN 075-110-04)	All Plainsburg Alternatives	Owner shut down studies before completed
Double B Dairy (APN 066-130-38)	Arboleda Alternative 4	No further studies required
Caltrans Right-of-Way	All Alternatives	Studied for lead, underground storage tanks and asbestos. No further studies required.

Outside the Caltrans Right-of-Way

Pioneer Road Properties (APN 066-120-54, 066-120-55)

This property was reported to the Merced Environmental Health Department by local residents as having an underground storage tank. Neither historical nor contemporary use of the property as a service station could be confirmed, though the building architecture was suggestive of older service stations. Further investigation could not confirm the presence of underground storage tanks, nor confirm excavation for their removal. No soil or groundwater contamination was evident as a result of the investigations.

7251 Plainsburg Road (APN 075-110-037)

According to the VISTA Information System database, an underground storage tank is present on the property. The site visit determined that the older barn had also been used for herbicide and pesticide storage. Evidence consistent with the structural requirements for an underground storage tank was also found. No agency records confirming an underground storage tank were found, although the owners report two

underground storage tanks being removed in the 1980s. Documentation was not provided on the removals. Further investigation was considered necessary to complete the evaluation.

Investigation work was initiated in June 2002 with a geophysical investigation, to be followed by drilling. The initial geophysical survey consisted only of ground penetrating radar. Magnetometry (used to detect the presence of a metallic object) was done later, after drilling had been completed. Geophysical methods were unsuccessful in identifying the exact location of the reported underground storage tanks.

Drilling was conducted at the two locations described by the owners where underground storage tanks had allegedly been removed in the 1980s. Soil samples were collected in locations most likely to be adversely affected by pesticides, herbicides, or lead-based paint. Laboratory results were negative for any fuel hydrocarbons, but positive for a number of currently banned pesticides and for lead. Concentrations of the pesticides and of lead did not exceed regulatory limits for hazardous waste disposal, nor were they at levels likely to adversely affect human health.

Borroso Brothers Dairy Tailwater Basin (APN 067-110-02)

A field survey identified a water storage basin next to the state highway right-of-way. Interviews with the owner indicated that the basin served to hold tailwater (runoff water from field irrigation), which was then pumped into the dairy as flush water. Further investigation, as described below, was warranted to complete the evaluation.

Caltrans targeted the potential for these features to concentrate heavy metals and organic chemicals in the soil and function as a conduit into the groundwater. A soil and groundwater investigation was conducted in January and February 2001. Results of the investigation indicated there is no hazardous waste concern at this site.

Merced City Truck Stop (APN 075-110-17) [formerly the Diesel Country Truck Stop]

This property is a large truck stop facility. Old records indicate a service station has sat on this 1.4-hectare (3.5-acre) parcel since before 1943. The Merced County Division of Environmental Health had cited the property twice in the past. Both citation files are closed. Files consulted at the Division of Environmental Health indicated that a substantial release of gasoline hydrocarbons had occurred at the property, and source removal was performed (the underground storage tank was

either removed or appropriately decommissioned in place). No assessment of potential groundwater impact or soil remediation had been performed. Files also indicated considerable concentrations of diesel hydrocarbons had been reported next to the diesel underground storage tanks. No follow-up work had been performed.

Two of the Plainsburg alternatives (Alternatives 1A and 2) would acquire a substantial portion of this property. Therefore, further site investigation was warranted to complete the evaluation of the site. Subsurface investigations were begun in January 2001 and completed in May 2001. Two borings were conducted on the property, with only one being completed. The owner withdrew further permission to enter the property.

5525 East Worden Avenue (APN 066-130-037)

During a field survey, an adjacent property owner reported the parcel was the site of a former service station. Survey of the property suggested a former service station. However, there were no regulatory agency records confirming this assumption. Caltrans records suggest the older station was part of the highway demolition, but construction of newer facilities could not be confirmed. Further investigation was warranted to complete the evaluation.

A site investigation, consisting of a geophysical investigation followed by drilling, was conducted in January 2001. Geophysical investigations included remote sensing techniques used to detect subsurface irregularities. Although the geophysical investigation identified several magnetic irregularities, the investigation could neither confirm any potential underground storage locations on the property, nor any excavation pits where underground storage tanks may have been previously removed.

Boreholes were drilled to depths of 9 meters (30 feet) near the reported magnetic irregularities, but did not encounter groundwater. Soil contamination was noted in the boreholes, and weathered motor oil and diesel contamination was found in the soil at shallow depths of 1 to 3 meters (3 to 9 feet). Further investigation on the property indicated the current and previous tenants operated tractor-trailers, which were often stored on the property.

7096 Plainsburg Road (APN 075-110-04)

A VISTA Information System database search revealed a record for underground storage tanks removal at a Grissom Ranch matching the street address for the Anderson Clayton property (APN 075-110-04). No regulatory agency records have been found confirming this finding. Since each alternative would require a partial or

complete acquisition of this property, further investigation is warranted to complete the evaluation.

Investigation work begun in June 2002 included a geophysical investigation, followed by drilling. An electromagnetic survey identified a large magnetic irregularity on the property. When the owners were informed of this discovery, permission to enter the parcel was withdrawn. Further work would still be required, although the risk of encountering hazardous waste/materials is seen as moderate to slight, as it is likely the reported underground storage tanks have already been removed.

Double B Dairy (APN 066-130-38)

This dairy was started in the 1970s and may have been subject to review by the Merced Environmental Health Department, though no records pertaining to this property were found. The operation consisted of flush pens and a wastewater pond, both of which can have adverse effects on groundwater quality. Since some of the alternatives would require acquisition of the entire parcel, further evaluation of the property was necessary.

A site investigation was conducted on January 31, 2001 and February 1, 2001. Both surface and groundwater impacts were addressed. Four boreholes were drilled to depths between 16.5 and 21 meters (53 to 72 feet) below ground; five surface soil samples were collected and three surface water samples were collected. The results of the investigation indicated there are groundwater concerns. Concentrations of contaminants, such as arsenic, barium, cadmium, chromium, lead, and nickel, exceeded the primary maximum contaminant level, and nitrate exceeded federal standards for nitrogen in water. However, the Central Valley Regional Water Quality Control Board determined that no further action would be necessary at this parcel.

Inside the Caltrans Right-of-Way

Lead

Lead has been identified within the soils of the state highway system for a number of years and, in high exposures, can be a lethal neurotoxin (poison that works on the nervous system) for humans. The likeliest source is from combustion of the gasoline additive tetra-ethyl lead, which was banned in the mid-1980s. Other sources may include lead paint or naturally occurring lead from San Francisco Bay and Sacramento/San Joaquin Delta sediments used as fill material.

Two lead investigations were conducted: for aerial-deposited lead present within soils on the shoulder and median; and for lead residue from paint at six bridges in the project area. Neither investigation identified lead at levels likely to affect human health or to require disposal as a hazardous waste.

Asbestos in Bridges

Asbestos had often been used as a construction material in bridges. When asbestos becomes airborne in a dust-like form, it can produce long-term adverse impacts to human health. A survey for asbestos-containing materials was conducted in April 2002 and was negative.

Underground Storage Tanks within the Existing Right-of-Way

Old records on the widening of State Route 99 show at least four locations where underground storage tanks were used in the right-of-way during acquisition: at the intersection with Plainsburg Road; at the Athlone Road intersection before the road was rerouted; just south of the Lingard Road intersection; and at the McHenry Road intersection.

Two separate investigations were conducted to locate buried tanks. Electromagnetic induction, magnetometry, ground-penetrating radar and drilling were conducted at each location. A magnetic irregularity consistent with an underground storage tank was clearly identified at the Athlone location, but none of the soil or groundwater samples at any of the locations indicated that contamination had occurred.

Impacts

All of the southern Plainsburg alternatives would take property from 7096 Plainsburg (APN 075-110-04) and 5525 East Worden Road (APN 066-130-037). Both northern Arboleda alternatives would take property from 5525 East Worden Road (APN 066-130-037). The southern Plainsburg Alternatives 1A and 2 would also affect the Merced City Truck Stop (APN 075-110-17). These properties have the potential for hazardous waste.

Avoidance, Minimization and Mitigation Measures

If Caltrans requires partial or full acquisitions of parcels known to have or, through further investigations, found to have hazardous waste/materials on or within the parcel boundaries, the wastes/materials would have to be removed or cleaned up as appropriate.

7096 Plainsburg Road Property

The studies at this location were shut down by the owner. Full hazardous waste studies would be completed prior to construction. If hazardous material were identified, remediation would be required. Possible remediation would be removal of the underground storage tank.

Merced City Truck Stop

The Merced County Division of Environmental Health does not consider site conditions sufficiently adverse to require further clean up. But, current levels of soil hydrocarbon contamination could adversely affect groundwater in the future and could require clean up. The likely remediation would be bioremediation of soil, including air sparging. Bioremediation is the use of microorganisms, such as bacteria, to break down pollutants. Air sparging injects compressed air into saturated areas, adding oxygen to help break down contaminants. The costs could exceed $1 million and the work would require two to five years to complete.

Underground Storage Tanks within the Existing Right-of-Way

Of the four potential locations of underground storage tanks in the Caltrans right-of-way, limited investigations identified an underground fuel storage tank only at Athlone Road and State Route 99; it is likely that underground fuel storage tanks exist at the other three locations. Underground storage tanks present two environmental hazards—the potential for explosion when struck and hydrocarbon contamination of soil and groundwater. As the underground storage tanks do not appear to be leaking, removal can wait until construction. Costs for removal of all tanks should not exceed $100,000, and removal should require little time to address.

Lead

Sampling did not indicate levels that may adversely affect human health. However, to mitigate for the possibility of missing higher concentrations of lead at sites not sampled along the proposed project, the contractor, prior to any soil disturbance, would be required to develop and implement a lead compliance plan. Elements of the compliance plan would include a health and safety plan and dust control measures.

3.3 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. The laws set

standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for carbon monoxide, nitrogen dioxide, ozone, and particulate matter 10 microns in diameter or smaller.

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 not first found to conform to the Clean Air Act requirements. Conformity with the Clean Air Act takes place at two levels—the regional level and the project level. The proposed project must conform at both levels to be approved.

Regional-level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, Regional Transportation Plans are developed to include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether the implementation of those projects would result in a violation of the Clean Air Act. If no violations would occur, then the regional planning organization, such as Merced County Association of Governments, and the appropriate federal agencies, such as the Federal Highway Administration, make the determination the Regional Transportation Plan is in conformity with 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 Plans, then the proposed project is deemed to be in conformity at the regional level.

Conformity at the project level is also required—for carbon monoxide particulate matter less than 10 microns and particulate matter less than 2.5. If a region is meeting the standard for a given pollutant, then the region is said to be in “attainment” for that pollutant. If the region is not meeting the standard, then it is designated a “non-attainment” area for that pollutant. Areas previously designated as non-attainment areas but that have recently met the standard are called “maintenance” areas. If a project is located in a non-attainment or maintenance area for a given pollutant, then additional air quality analysis and reduction measures in regard to that pollutant are required. This is most frequently done for carbon monoxide and particulate matter that is 10 microns in diameter or smaller.

Affected Environment

The proposed project lies in the San Joaquin Valley Unified Air Basin, where air quality is regulated at the federal, state, and local levels. The San Joaquin Valley climate is classified as a subtropical dry summer or Mediterranean climate. Seasonal variation consists of mild winters and warm summers dominated by a persistent high-pressure system known as the Pacific High. This high-pressure system, combined with the confining effect of the mountains that surround the valley, keeps air from circulating through the region, making the valley one of the most polluted regions in the country. The high summer temperatures and abundant sunlight caused by the Pacific High transform volatile organic compounds and nitrogen oxides into ground-level ozone, commonly known as smog.

According to 40 Code of Federal Regulations Section 93.127, this project is not exempt from regional emissions analysis requirements. New alignments are subject to regional analysis under the Transportation Conformity Rule (40 Code of Federal Regulations Section 93.126). The San Joaquin Valley is in non-attainment for particulate matter of less than 10 microns, particulate matter of less than 2.5 microns, and ozone (see Table 3.2).

Table 3.2 Air Quality Status for Merced County

Criteria Pollutant	Federal Attainment Status	State Attainment Status
Ozone	Non-attainment/Serious	Non-attainment
Carbon monoxide	Attainment/Maintenance	Unclassified
Particulate matter (2.5 microns or less)	Non-Attainment	Non-Attainment
Particulate matter (10 microns or less)	Non-Attainment/Serious	Non-Attainment

Impacts

The proposed project is a capacity-increasing project, which is not exempt from conformity determination.

Regional Analysis

The 2004 Regional Transportation Plan for Merced County was found to conform by the Merced County Association of Governments on September 22, 2004 and the

Federal Highway Administration and Federal Transit Administration adopted the air quality conformity finding on August 19, 2004. The project is included in the Merced County Association of Governments' Regional Transportation Plan (pages 43,44, and 93). The project is also included in the Merced County Association of Governments' financially constrained March 8, 2004 Regional Transportation Improvement Program, which was found to conform by the Federal Highway Administration and Federal Transit Administration on October 4, 2004 (Appendix D, Page 34). The design concept and scope of the proposed project are consistent with the project description in the 2004 Regional Transportation Plan, the Preliminary Environmental Analysis Report, and the assumptions in the Merced County Association of Governments' regional emissions analysis.

Project-level Analysis

As a result of the analyses conducted, Caltrans identified the following air pollutants of particular concern at the project level: carbon monoxide and particulate matter less than 10 microns. The local effects of this project for concentrations of carbon monoxide, particulate matter less than 10 microns, and particulate matter less than 2.5 microns must be considered to see if a hot-spot analysis is required before determining if the project conforms to state and federal standards.

Carbon Monoxide Hot Spot Analysis

The project lies in an area that is in attainment/unclassified for carbon monoxide, and is, therefore, not subject to a maintenance plan, according to federal standards. Hot spot analysis is recommended for intersections with traffic signals that operate at level of service "D" through "F." Hot spot analysis was not conducted for this project because there are no intersections with traffic signals within the project limits.

The ambient carbon monoxide levels monitored at the Merced-2334 M Street stations, the closest stations with monitored carbon monoxide data, show no violations in the last three years; the highest concentration was 4.23 parts per million in November 20, 2000, which is below the state and federal standards. No further analysis is needed. Additionally, there are no intersections with traffic signals in the project area that operate at a level of service "D" or worse.

The proposed project would not result in any local carbon monoxide hot spots in these areas. None of the projected carbon monoxide concentrations, with or without the project changes, would exceed the state or federal standards.

Particulate Matter Hot Spot Analysis

The proposed project is in the San Joaquin Valley, which in non-attainment for Particulate Matter of less than 2.5 microns (PM 2.5) and Particulate Matter of less than 10 microns (PM 10). Thus a hot spot analysis was conducted for both PM 10 and PM 2.5

In Merced County, the monitoring station at 2334 M Street has recorded zero emission exceedances of the National Ambient Standard for PM 10 or PM 2.5 in the last three years. This station also recorded zero emission exceedances for the Nation Ambient Standards for 24-hour average PM 10. There is no data for 24-hour average PM 2.5 at this location, so data from the Modesto 14th Street Station was used. The data was compiled between 1/25/05 and 2/01/06. Statistics at this station show readings below the National Ambient Standard for 24-hour average PM 2.5. The readings did go up during winter months when the temperature drops and particle movement slows down, but never exceeded standards. The meteorology and climate at the Modesto Station and the project are similar. Therefore, similar behavior is expected at the project area and PM 2.5 and PM 10 will remain below the National Ambient Standard.

The Average Annual Daily Travel for the opening year of this project is 50,000 with 9,500 of those being trucks. This project does not exceed the threshold for either Average Annual Daily Travel (125,000) or number of trucks (10,000). The increase in trucks after the opening year will be offset by reduced idling time and reduced congestion.

This project will remove several intersections with level of service D, E and F and replace it with two interchanges with level of service A or B. This project would relive congestion and improve air quality. Thus Caltrans has determined that future new or worsened PM 2.5 or PM 10 violations of standards are not anticipated. (Hot Spot Conformity Assessment for the Merced-99/Arboleda and Plainsburg Project as a Project of Air Quality Concern, 2006.)

During construction, the project would generate air pollutants. Exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, most of pollutants would be windblown dust generated during excavation, grading, hauling and various other activities. The impacts of these activities would vary each day as construction

progresses. Dust and odors at some residences could cause occasional annoyance and complaint.

Avoidance, Minimization and Mitigation Measures

Caltrans circulated a public notice of Project Conformity Analysis for PM 2.5 between May 27th and June 27th in the Merced Sun-Star. No comments from the public were received. The PM 2.5 hot spot analysis was also circulated to the San Joaquin Valley Interagency Consultation Workgroup. Members of the San Joaquin Valley Interagency Consultation Workgroup concurred with the conclusions presented in the PM 2.5 and PM 10 hot-spot analysis.

Caltrans Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of Caltrans Standard Specifications, Section 7-1.0F "Air Pollution Control" and Section 10 "Dust Control" require the contractor to comply with the San Joaquin Valley Unified Air Pollution Control District's rules, ordinances, and regulations.

3.4 Noise

Regulatory Setting

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare of the public and to foster a healthy environment.

For highway transportation projects with Federal Highway Administration involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criterion for residences (67 decibels [dBA]) is lower than the criterion for commercial areas (72 dBA). Table 3.3 lists the noise abatement criteria.

Table 3.3 Noise Abatement Criteria Thresholds

Activity Category	Noise Abatement Criteria Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$	Description of Activities
A	57 exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands
E	52 interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Caltrans Traffic Noise Analysis Manual, 1998; A-weighted decibels are adjusted to approximate the way humans perceive sound; dBA Leq(h)=Noise levels for equivalent worst-hour case for an A-weighted scale.

In accordance with the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, October 1998*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12-dBA or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. “Approaching the noise abatement criteria” is defined as coming within 1 dBA of the noise abatement criteria.

If it is determined that 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 used for the project.

The Caltrans *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. 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, project-built noise 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. Feasibility of noise abatement is more 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.

Affected Environment

Caltrans completed a noise investigation for this project, which included identifying noise-sensitive receptors, such as residences, parks, churches, schools, libraries, and hospitals. Land uses within the project area are mostly agricultural, with isolated rural single-family residences. The current noise levels at receptors within the project area are 51 to 65 dBA.

Impacts

A noise study was completed in 2001. Six sites with 12 receptors were identified within the project limits (see Appendices G and H). The following locations were studied:

- 5533 Athlone Road (3 single-family residences)
- 2926 G Street (3 single-family residences)
- 5525 E. Worden Avenue (1 single-family residence)
- 467 Lingard Road (1 single-family residence)
- 4380 Mariposa Way (1 single-family residence)
- 3875 E. McHenry Road (3 single-family residences)

An updated traffic noise analysis was conducted in January 2005. An additional five sites with five receptors were evaluated:

- 3979 Arboleda Road
- 4085 Highway 99
- 541 Worden Avenue
- 7249 Plainsburg Road
- 6863 Plainsburg Road

Eleven sites with 17 receptors were evaluated. One of the locations identified in the 2001 study (467 Lingard Road) was dropped because it is on the west side of State Route 99 and the Santa Fe Railroad track. Because the new alignment would move the highway away from the receptor, the project would have no noise impact on that receptor. Another location—2926 G Street—has been removed and is being studied under its updated address at 3979 Arboleda Drive. It was also determined that the location has only one receptor instead of three. So, in all, nine sites with 13 locations were evaluated.

The Federal Highway Administration requires consideration of noise abatement if the predicted noise level approaches or exceeds the Noise Abatement Criteria (Table 3.3). For single-family residences, the requirement is 67 dBA. Currently, soundwalls are the only approved method of noise abatement. Whether a location meets the Noise Abatement Criteria and is considered for a soundwall depends on which alternative is selected.

Northern Arboleda Alternatives

The following sites are within the northern Arboleda section:

1) 5533 Athlone Road (3 single-family residences)
2) 3979 Arboleda Road (1 single-family residence)
3) 4085 Highway 99 (1 single-family residence)
4) 541 E. Worden Avenue (1 single-family residence)
5) 5525 E. Worden Avenue (1 single-family residence)
6) 4380 Mariposa Way (1 single-family residence)
7) 3875 E. McHenry Road (3 single-family residences)

For this section, there are two proposed alternatives—Alternatives 4 and 5. Alternative 4 would acquire locations 2, 3, 4 and 5. Alternative 5 would acquire none of these locations. Under Alternative 4, two locations (1 and 7) would meet the Noise Abatement Criteria. Under Alternative 5, five locations (1, 2, 3, 5, and 7) would meet the Noise Abatement Criteria. Both alternatives would have the same noise impacts for locations 1, 6 and 7.

In Appendix G, Table AG-1 shows the locations and their existing and predicted noise levels by alternative. At receptor locations where a noise level measurement was not conducted, the existing noise level was estimated based on the measured result of a nearby or similar site.

A soundwall must be both feasible and reasonable, based on Federal Highway Administration requirements, to be considered for inclusion in a project. A soundwall is feasible if it can achieve a 5-dBA noise reduction at a receptor. Alternative 5 has five locations (1, 2, 3, 5, and 7) and Alternative 4 has two locations (1 and 7) that meet the feasibility requirements (see Table 3.4).

Under the reasonability requirements, a soundwall must meet a cost/benefit analysis to be a prudent expenditure of public funds. For example, if $30,000 were allowed per receptor and a proposed soundwall would cover 10 receptors, the total allowed cost for the barrier would be $300,000. However, if construction costs, maintenance

costs, and other life cycle costs for the soundwall were found to total $400,000, then the sound barrier would not be considered reasonable because of the high cost and should not be constructed. Typically, a soundwall allowance is not cost effective for a single residence. According to Caltrans studies, two locations (2 and 3) under Alternative 5 would meet the reasonability requirements for a soundwall. None of the locations under Alternative 4 meet the reasonability requirements.

Construction noise would be intermittent and at various intensities depending upon the location and the type of construction activity. The noise levels would conform to the local noise level ordinance. Construction noise can be minimized through equipment noise control and administrative measures. Caltrans standard specifications provide guidance to the construction contractor for noise control: muffled construction equipment, temporary noise barriers, scheduled construction hours, and community notices.

Southern Plainsburg Alternatives

The following locations are within the southern Plainsburg section:

8) 7249 Plainsburg (1 single-family residence)
9) 6863 Plainsburg (1 single-family residence)

Four alternatives are proposed for this section. Both locations would meet the Noise Abatement Criteria under Alternatives 1A and 1B. However, Alternatives 2 and 3 would acquire the 6863 Plainsburg location and the noise levels at 7249 Plainsburg location would not be high enough to meet the Noise Abatement Criteria. Thus, no noise abatement would be considered for Alternatives 2 and 3. Both locations meet the feasibility requirements for Alternative 1A and 1B. However, neither of them meets the reasonability requirements. See Table 3.4.

Table 3.4 Summary of Noise Data by Alternative

Habitat Impacts	Plainsburg Alternative 1A	Plainsburg Alternative 1B	Plainsburg Alternative 2	Plainsburg Alternative 3	Arboleda Alternative 4	Arboleda Alternative 5
Receptors	2	2	1	1	5	11
Number of Receptors that Meet Noise Abatement Criteria	2	2	0	0	4	9
Number of Receptors that Meet Feasibility Criteria	2	2	0	0	2	9
Number of Receptors that Meet Reasonability Criteria	0	0	0	0	0	2

❖

Avoidance, Minimization and Abatement Measures

Two locations qualified for soundwalls:

- 3979 Arboleda Drive
- 4085 Highway 99

These locations would qualify for soundwalls only if Arboleda Alternative 5 is selected; these properties would be acquired under Arboleda Alternative 4.

3.5 Wetlands and Other Waters of the United States

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 United States Code 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. "Waters of the United States" include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the Environmental Protection Agency.

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

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

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The Central Valley Regional Water Quality Control Board also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

Affected Environment

The term “jurisdictional wetlands” refers to areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands generally include swamps, marshes, bogs and similar areas, natural drainage channels, and seasonal wetlands.

Jurisdictional “other waters of the United States” include intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds. The use, degradation, or destruction of those waters could affect interstate or foreign commerce.

The following locations were identified as potential wetlands in the project area:

- Chowchilla River (kilometer post 0.0 [post mile 0.0])
- Dutchman Creek (kilometer post 4.2 [post mile 2.6])
- Athlone Wetlands (southwest corner of Athlone Road and Vorhees Road)
- Deadman Creek (kilometer post 8.4 [post mile 5.2])

- Duck Slough Overflow South (just south of Duck Slough)
- Duck Slough (kilometer post 15.2 [post mile 9.43])

The following were determined to be non-jurisdictional wetlands:

- South Dutchman Creek Bridge (south of the Merced City Truck Stop parking lot, east of existing State Route 99)
- Russel Lateral Irrigation Canal (kilometer post 11.6 [post mile 7.3])
- Lingard Lateral Irrigation Canal (kilometer post 12.8 [post mile 8.0])
- Tract 5843 (APN 066-120-042)
- Tract 5843 (APN 066-120-042)
- Fairfield Lateral Irrigation Canal (kilometer post 14 [post mile 8.75])
- Duck Slough Overflow North (kilometer post 15.9 [post mile 9.86])

Wetland delineation determined that Chowchilla River and Athlone Wetland contained "jurisdictional wetlands," meaning they meet the criteria under the Clean Water Act and are under the jurisdiction of the U.S. Army Corps of Engineers. There is approximately 0.48 hectare (1.18 acres) of jurisdictional wetlands within the project area.

Chowchilla River, Dutchman Creek, Athlone Wetland, Deadman Creek and Duck Slough were determined to be waters of the United States. There are approximately 2.3 hectares (5.7 acres) of waters of the United States within the project area.

Approximately 2.4 hectares (6.0 acres) of land are classified as riparian habitat within the project area. The riparian habitat is not considered jurisdictional under definitions set by the U.S. Army Corps of Engineers, but is under the jurisdiction of the California Department of Fish and Game under the 1602 Streambed Alteration Agreement.

Impacts

The project would construct 17 new bridges over waterways. There are no permanent or temporary impacts to jurisdictional wetlands within the project area.

Permanent impacts to waters of the United States would occur only at Deadman Creek. Caltrans would realign the creek as part of the project, acquiring and removing approximately 0.06 hectare (0.15 acre). Temporary impacts to waters of the United States would occur at Dutchman Creek and Deadman Creek. The project would acquire 0.09 hectare (0.23 acre) from Dutchman Creek and 0.05 to 0.08 hectare (0.12 to 0.19 acre) from Deadman Creek for a total of 0.14 to 0.17 hectare (0.35 to 0.42 acre) of land from waters of the United States (see Table 3.5).

Impacts to habitat under Department of Fish Game jurisdiction would occur at Deadman Creek, Dutchman Creek, and Duck Slough. The project would also remove 0.57 hectare (0.23 acre) from Deadman Creek, 0.08 to 0.11 hectare (0.20 to 0.26 acre) from Dutchman Creek, and 0.16 hectare (0.41 acre) from Duck Slough for a total of 0.48 to 0.51 hectare (1.18 to 1.24 acres) of riparian habitat under the jurisdiction of the Department of Fish and Game (see Table 3.6).

There are no impacts at the Chowchilla River, South Dutchman Creek Bridge, Athlone Wetland, Russel Lateral Irrigation Canal, Lingard Lateral Irrigation Canal, Tract 5843, Fairfield Lateral Irrigation Canal, Duck Slough Overflow South, Duck or Slough Overflow North.

Table 3.5 Summary of Impacts to Waters of the United States

Alternative	Temporary Impacts to Dutchman Creek in Hectares (Acres)	Temporary Impacts to Deadman Creek in Hectares (Acres)	Permanent Impacts to Deadman Creek in Hectares (Acres)
Plainsburg 1A + Arboleda 4	0.10 (0.23)	0.05 (0.12)	0.06 (0.15)
Plainsburg 1B + Arboleda 4	0.10 (0.23)	0.05 (0.12)	0.06 (0.15)
Plainsburg 2 + Arboleda 4	0.10 (0.23)	0.06 (0.16)	0.06 (0.15)
Plainsburg 3 + Arboleda 4	0.10 (0.23)	0.08 (0.19)	0.06 (0.15)
Plainsburg 1A + Arboleda 5	0.10 (0.23)	0.05 (0.12)	0.06 (0.15)
Plainsburg 1B + Arboleda 5	0.10 (0.23)	0.05 (0.12)	0.06 (0.15)
Plainsburg 2 + Arboleda 4	0.10 (0.23)	0.06 (0.16)	0.06 (0.15)
Plainsburg 3 + Arboleda 4	0.10 (0.23)	0.08 (0.19)	0.06 (0.15)

Table 3.6 Summary of Impacts to Riparian Habitat

Alternative	Total Permanent Impacts in Hectares (Acres)	Permanent Impacts to Duck Slough in Hectares (Acres)	Permanent Impacts to Dutchman Creek in Hectares (Acres)	Permanent Impacts to Deadman Creek in Hectares (Acres)
Plainsburg 1A + Arboleda 4	0.48 (1.18)	0.16 (0.41)	0.08 (0.20)	0.23 (0.57)
Plainsburg 1B + Arboleda 4	0.48 (1.18)	0.16 (0.41)	0.09 (0.20)	0.23 (0.57)
Plainsburg 2 + Arboleda 4	0.50 (1.24)	0.16 (0.41)	0.11 (0.26)	0.23 (0.57)
Plainsburg 3 + Arboleda 4	0.49 (1.22)	0.16 (0.41)	0.10 (0.24)	0.23 (0.57)
Plainsburg 1A + Arboleda 4	0.48 (1.18)	0.16 (0.41)	0.08 (0.20)	0.23 (0.57)
Plainsburg 1B + Arboleda 4	0.48 (1.18)	0.16 (0.41)	0.08 (0.20)	0.23 (0.57)
Plainsburg 2 + Arboleda 4	0.50 (1.24)	0.16 (0.41)	0.08 (0.26)	0.23 (0.57)
Plainsburg 3 + Arboleda 4	0.49 (1.22)	0.16 (0.41)	008 (0.24)	0.23 (0.57)

Avoidance, Minimization and Mitigation Measures

The impacts to Deadman Creek's waters of the United States would be mitigated by its realignment. The realigned Deadman Creek would replace 0.06 hectare (0.15 acre) of low-quality habitat with 0.08 hectare (0.19 acre) of higher quality habitat. The positive improvements include a longer, wider channel and the establishment of native trees on the new channel bank to replace the non-native tree species.

In addition, coordination with the U.S. Army Corps of Engineers and the Regional Water Quality Control Board would be necessary to ensure that any actions involving waters of the United States follow appropriate guidelines. Furthermore, a section 1602 Streambed Alignment Agreement would be required from the California Department of Fish and Game for impacts to riparian areas.

3.6 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 upon which they depend.

Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National 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 permit. 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 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 California Department Fish and Game. For project requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, California Department of Fish and Game may also authorize impacts to California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Affected Environment

The habitat types identified within the proposed project area are ruderal and agricultural. Ruderal habitats include areas that have been greatly altered from their original native state by the removal of native vegetation, plowing, and subsequent agricultural and development activities.

Right-of-way areas maintained by Caltrans and the railroad are considered to be ruderal. These right-of-way areas are subject to landscape maintenance including vegetation mowing and spraying. Habitat value within these areas for sensitive plant species is limited. However, these areas do possess some foraging value for animal species because of the relatively greater numbers of small mammals and insects in these areas.

Much of the project area is cultivated agricultural land, subject to mechanical harvesting, pesticide application, regular watering, and burning. This results in poor habitat for wildlife species. However, agricultural fields serve as foraging areas for animal species, including some that are federal or state listed, including but not limited to, the San Joaquin kit fox, burrowing owl, Swainson's hawk, and mountain plover.

Several streams and irrigation canals flow through the project area. Agricultural activities or residential parcels encroach up to the edges of the waterways, resulting in banks that are channeled or retained by steep levees. All streams are used for the transport of irrigation water at flow levels predetermined by the local irrigation

districts. However, these vegetated streams serve as nesting habitat for birds, movement corridors for wildlife, and a source of limited cover and forage.

Impacts

According to sensitive species lists maintained by the California Department of Fish and Game, U.S. Fish and Wildlife Service, and California Native Plant Society, a total of 85 special-status species occur or demonstrate the potential to occur within a 10-mile radius of the proposed project area. The following species would be affected by this project:

Table 3.7 Special-Status Determination

Species	FHWA Determination of Effect	FHWA Determination of Effect
San Joaquin kit fox	Not Likely to Adversely Affect	Likely to Adversely Affect
Yuma myotis bat	Not Likely to Adversely Affect	Fish and Wildlife does not make determination on Species of Concern
Mountain plover	Not Likely to Adversely Affect	Not Likely to Adversely Affect
Swainson's hawk	Not Likely to Adversely Affect	Fish and Wildlife does not make determination on Species of Concern
Western burrowing owl	Not Likely to Adversely Affect	Fish and Wildlife does not make determination on Species of Concern
Western pond turtle	Not Likely to Adversely Affect	Fish and Wildlife does not make determination on Species of Concern
Valley elderberry longhorn beetle	No Effect	Not Likely to Adversely Affect

San Joaquin Kit Fox

The San Joaquin kit fox is listed as a federally endangered and state threatened species. The project area contains suitable foraging habitat for the San Joaquin kit fox. Project construction would permanently affect 162 hectares (400 acres), of which 110 hectares (273 acres) consist of various crops. However, denning habitat or other refuge-type areas are not widely available and, therefore, would not be substantially affected.

Sightings of kit foxes have been recorded to the east and west of the proposed project area, but no evidence exists to date that kit foxes travel across the valley floor. Large blocks of unplowed grassland habitat lie along Sandy Mush Road, west of the proposed project. These habitat blocks are some of the last remaining in this portion of the Central Valley floor. For this reason, the U.S. Fish and Wildlife Service has proposed establishing an east-west migration corridor for kit foxes along Sandy Mush Road in its Recovery Plan for Upland Species (USFWS 1998).

No kit fox mortality is expected to result from project construction. Mitigation for potential impacts to the kit fox is expected to improve the overall prospects for kit foxes (and other listed species) in the region.

Yuma Myotis Bat

The Yuma myotis bat, a federal species of concern, was seen under the following existing bridges that provide the bat with summertime day and night roosting habitat: Dutchman Creek, Duck Slough Overflow South, Duck Slough, and Duck Slough Overflow North. The northbound lanes of these bridges would be demolished as part of the project.

No bat mortality is expected to result from project construction. Mitigation for potential impacts to the bat is expected to improve the overall prospects for bats in the region.

Mountain Plover

The mountain plover is listed as a federal species of concern. The project area contains suitable foraging habitat for the mountain plover. Approximately 12.6 hectares (31 acres) of suitable foraging habitat (plowed fields) would be permanently affected by the project.

No mountain plover mortality is expected to result from project construction. Winter foraging habitat would be set aside in perpetuity as a result of mitigation for impacts to the San Joaquin kit fox.

Swainson's Hawk

The Swainson's hawk is listed as a state threatened species. Five Swainson's hawk nests were identified within the project area near Deadman Creek. Swainson's hawk pairs currently use three of the five nests; a red-tailed hawk pair has occupied one nest for the past two years, and one nest has been unoccupied by raptors for the past three years.

The project area contains suitable foraging habitat for the Swainson's hawk. Approximately 75.7 hectares (187 acres) of suitable foraging habitat would be permanently affected by the project. The project would remove one tree containing a Swainson's hawk nest. However, this nest has been unoccupied by hawks for the past three years.

No Swainson's hawk mortality is expected to result from project construction.

Western Burrowing Owl

Western burrowing owls, a federal species of concern, have been seen within one mile (north) of the project area. Burrowing owl pellets have also been seen on the levee banks of the Lingard Lateral Irrigation Canal. However, individual burrowing owls and owl burrows have not been seen in the project area.

No owl mortality is expected to result from project construction. Ground squirrel burrows are very common in all areas of the project area. These burrows can serve as habitat for burrowing owls. Because of the availability of suitable foraging habitat and ground squirrel burrows near streams and irrigation canals, it is assumed that burrowing owls can nest within the proposed project area.

Construction avoidance measures are expected to reduce the potential impacts to the species. In addition, burrowing owl foraging habitat would be set aside in perpetuity as a result of mitigation for impacts to the San Joaquin kit fox.

Western Pond Turtle

Western pond turtles, a federal species of concern, have been seen just north of the project area in Owens Creek and within the project area in Duck Slough. Project construction would involve temporary disturbance to Duck Slough in a localized area where basking sites and nesting sites for the turtle are not available. Individual turtles may wander into the construction zone when Duck Slough is carrying water during the warm months.

No western pond turtle mortality is expected to result from project construction. Avoidance measures implemented for potential impacts are expected to reduce potential impacts to the species.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle, federally listed as threatened, relies entirely on the elderberry shrub for food and reproduction. Five elderberry shrubs lie in the

project area: four at the Athlone Wetland and one on the railroad berm across from the California Highway Patrol truck weigh station. No beetle exit holes were observed in the shrubs at the Athlone Wetland. No access was available to survey the shrub on the railroad berm.

No impact to elderberry shrubs is expected to result from project construction. Avoidance measures during construction are expected to eliminate potential construction impacts.

During construction, best management practices would be followed. Equipment parking, project access, supply logistics, equipment maintenance, and other project-related activities would occur within designated staging areas in the project area that are pre-approved by a Caltrans biologist.

Avoidance, Minimization and Mitigation Measures

San Joaquin Kit Fox

Caltrans proposes the following mitigation options for potential project impacts to the San Joaquin kit fox:

- Pre-construction surveys prior to ground disturbance to search for kit fox dens in the project area. Project actions likely to result in incidental take (unintended harm) of kit foxes would stop immediately, and the U.S. Fish and Wildlife Service would be contacted immediately for further assistance.

- Construction of taller bridges over local streams and overflow areas that would serve as enhanced east-west movement corridors under State Route 99. Bridge crossings include Dutchman Creek, South Dutchman Creek, Deadman Creek, and Duck Slough. Bridged overflow areas include Duck Slough Overflow South and Duck Slough Overflow North (see Figure 3-1). The additional cost of the "kit fox-friendly" structures would add approximately $800,000 to the cost of the project.

- Construction of two culverts in two locations where the profile would allow. These culverts would be 2 meters (6 feet) high and 3.5 meters (10 feet) wide and would not carry water during average rains. The two interchanges, with standard 2.4-meter-wide (8-foot-wide) shoulders, would also be crossing points. The two culverts would have a combined cost of approximately $1 million.

- Creation of large, grassy basins along the proposed alignment that would facilitate access to the undercrossings and possible foraging habitat.

- Installation of right-of-way fences designed to guide kit foxes toward under-crossings. In this manner, vehicle strikes of kit fox would be minimized. Additional costs associated with the enhancement of right-of-way fencing could amount to approximately $180,000.

- To enhance crossing points for kit fox under the new alignment, buffer zones to preserve open space, conservation easements on five 40-acre buffers would be purchased around the culverts and interchanges. These buffer zones would cost approximately $300,000.

Swainson's Hawk

The conservation easements for San Joaquin kit fox would serve a dual purpose as mitigation for the Swainson's hawk.

Mountain Plover

The conservation easements for San Joaquin kit fox would serve a dual purpose as mitigation for the mountain plover.

Mitigation details are in accordance with the Biological Opinion issued by the U.S. Fish and Wildlife Service as a condition of the Section 7 formal consultation on the San Joaquin kit fox and mountain plover.

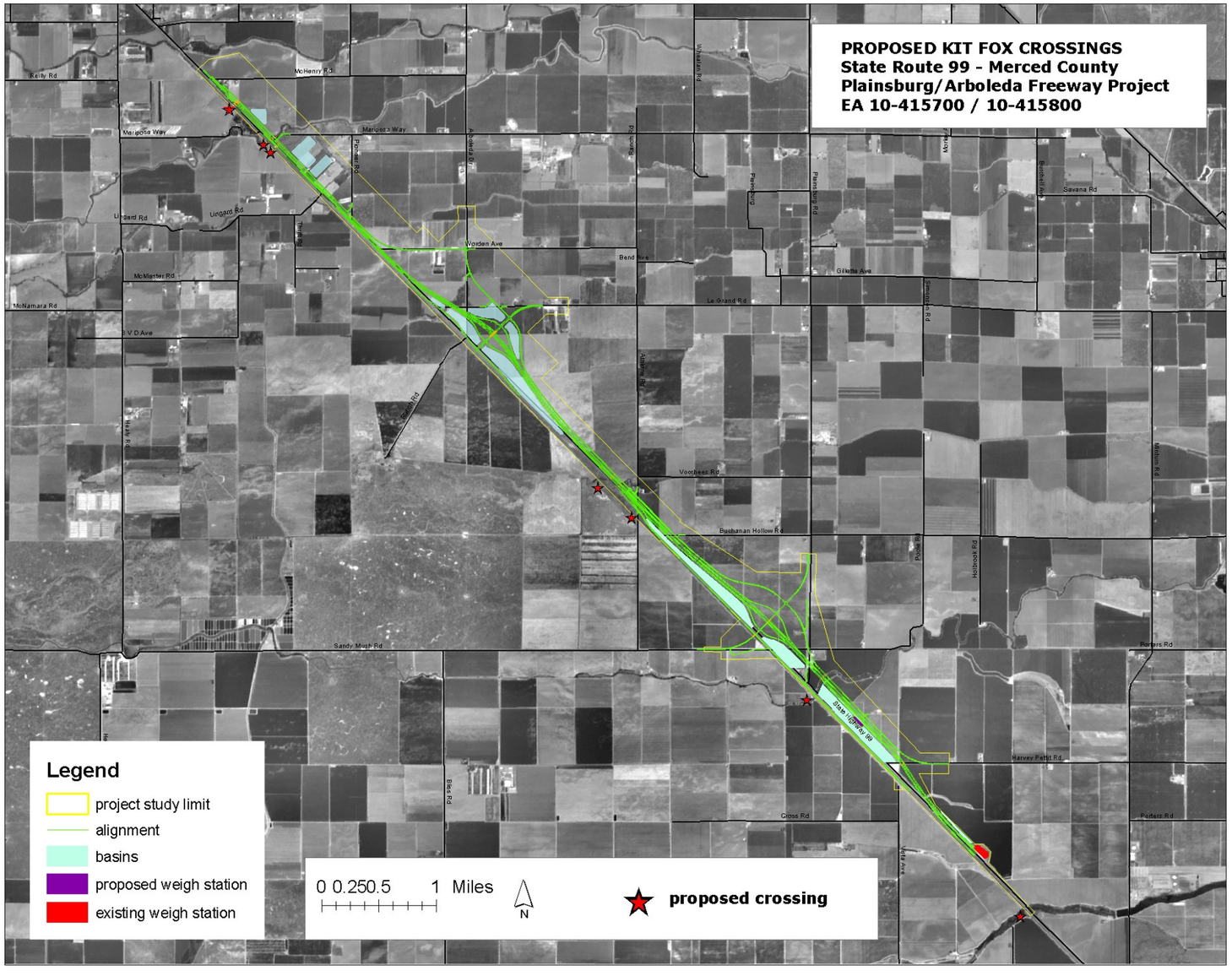

Figure 3-1 Map of Enhanced Movement Corridors for Kit Fox

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Yuma Myotis Bat

Caltrans proposes the following mitigation for potential project impacts to the Yuma myotis bat:

- Bridge construction should occur during the winter months when bats would not use the bridges.
- Prior to bridge demolition, a qualified biologist would confirm that no hibernating bats are present.
- If bridges are to be removed during warmer months when bats are present, the bats would be encouraged to leave the bridges through passive means (such as use of bright lights).
- Existing southbound State Route 99 bridges would remain standing and would continue to function as bat-roosting habitat.
- Construction of the new alignment and eastern frontage road would involve the construction of 13 new bridges to replace the four bridges to be removed under existing State Route 99. Bat-friendly habitat (bat boxes) may be incorporated into the structure of the new bridges to enhance their utility as bat habitat.

Western Burrowing Owl

Caltrans proposes the following mitigation for potential project impacts to the burrowing owl:

- Pre-construction surveys would be conducted to determine whether active burrowing owl burrows are present in the construction area.
- No disturbance would occur within 50 meters (160 feet) of occupied burrows during the non-breeding season (September 1 through January 31) or within 75 meters (250 feet) during the breeding season (February 1 through August 31), unless a qualified biologist approved by California Department of Fish and Game verifies that either: (1) birds have not begun egg-laying and incubation, or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- When destruction of occupied burrows is unavoidable, existing unsuitable burrows would be enhanced (enlarged or cleared of debris) or created (by installing artificial burrows) at a ratio of 1:1.

- If owls must be moved away from the disturbance area, passive relocation techniques (such as burrow exclusion), rather than trapping, would be used.
- Proposed compensation for the loss of San Joaquin kit fox foraging habitat could include lands suitable as foraging and nesting habitat for the burrowing owl.

Western Pond Turtle

Caltrans proposes the following mitigation for potential project impacts to the western pond turtle:

- If possible, construction in the vicinity of Duck Slough would occur during the winter months when water flow in Duck Slough is absent or at a minimum.
- If construction were to proceed during the warm months, it is unlikely that pond turtles would enter the construction zone because of the noise and human presence. However, if pond turtles were seen in the construction zone, they would be removed from the area by a qualified biologist.

Valley Elderberry Longhorn Beetle

Caltrans proposes the following mitigation for potential project impacts to the valley elderberry longhorn beetle: The five shrubs would be designated as an environmentally sensitive area and avoided. No construction activity or parking of equipment would occur within 6.5 meters (20 feet) of any shrub. A fence would mark the environmentally sensitive area.

3.7 Floodplains

Regulatory Setting

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

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values

- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project

The 100-year floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the 100-year floodplain."

Affected Environment

The project area lies in the eastern portion of Merced County in the San Joaquin Valley where the terrain is flat. Many of the creeks and rivers in the county do not have perennial flow and are dry from late spring through the fall. Stream channels are well entrenched and steep in the foothills, but have limited capacity on the valley floor. They are periodically choked with vegetation, causing channel capacities to overflow during major rains. Overflow from the channels generally spreads out as slow-moving, shallow flooding.

Land next to the project is mainly agricultural. The existing highway profile is one-half meter to one meter (1.5 feet to 3 feet) above ground. The Southern Pacific Railroad track runs parallel along the west side of the highway; it sits higher (elevation) than the highway. Runoff patterns are restricted, and ponding occurs behind the railroad track and roadway embankments.

Flood Insurance Rate Maps were used to identify portions of the proposed project that could be in an area subject to flooding. Flood Insurance Rate Maps designated two floodplain zones within the project area. The area from the Chowchilla River to Harvey Petitt Road is designated as Zone X, denoting an area outside the 500-year floodplain. The construction of dams upstream has reduced the flow in the Chowchilla River to below river capacity. The area from Harvey Petitt Road to McHenry Road is designated as Zone A, denoting an area in the 100-year floodplain, but the depth of the flooding has not been determined.

Numerous water bodies flow within the proposed project limits: from south to north, the Chowchilla River, South Dutchman Creek, Dutchman Creek, Deadman Creek, South Slough, Mariposa Creek, Duck Slough, and Snake Slough. The natural channel of South Dutchman Creek has been destroyed since upstream flood control dams were built. An opening along the highway is still needed to transfer runoff generated locally in the event of a big storm. Dutchman Creek does not have the capacity to

carry 100-year storm runoff. The U.S. Geological Survey National Water Data Storage and Retrieval System does not monitor South Dutchman Creek or Dutchman Creek.

Impacts

None of the project alternatives would change existing flow patterns. Water would still pond behind the Southern Pacific Railroad track and the existing roadway. The existing waterways would not be affected by the project. The proposed work does not affect the designated flood zones.

No mitigation is required. State Route 99 in the proposed project area would be elevated above the 100-year floodplain to allow emergency access and continued use of the roadway during a major storm.

3.8 Land Use, Planning, and Growth

Regulatory Setting

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

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

Affected Environment

Within the project area, State Route 99 lies on flat terrain in a rural area in eastern Merced County between the Madera/Merced county line and the city of Merced in the central San Joaquin Valley. The land use in the area is zoned agricultural-residential and agricultural.

This area, the geographic center of California, has relatively low relief, with an average elevation of approximately 76.2 meters (250 feet) above mean sea level. The climate in this portion of the valley is characterized by hot, dry summers and wet, mild winters.

State Route 99, a north-south highway bisecting the eastern half of Merced County, is an important access route connecting regional communities in the San Joaquin Valley. In addition to serving as a main commuter/interstate commerce link from southern to northern San Joaquin Valley areas, the roadway also serves as a touring route to historic points of interest.

Impacts

Land use in the project area would not change drastically, nor would the proposed project promote unnecessary growth. The project would not affect the railroad right-of-way, train traffic, or future train routes or flow. Local traffic patterns would be altered slightly. The project would maintain and ease the expected flow patterns of local traffic.

Although farmland in the proposed project area would be converted to highway, the proposed build alternatives are consistent with state and local government plans and policies on land use and development in the area.

3.9 Farmlands/Agricultural Lands

Regulatory Setting

The National Environmental Policy Act and the Farmland Protection Policy Act, United States Code 4201-4209, and its regulations, Title 7 Code of Federal Regulations Ch. VI Part 658) require federal agencies, such as the Federal Highway Administration, to coordinate with the Natural Resources Conservation Service if their activities may irreversibly convert farmland (directly and indirectly) to nonagricultural use. For purposes of the Farmland Protection Policy Act, farmland includes prime farmland, unique farmland, and land of statewide or local importance. The land does not have to be used for cropland currently.

The California Environmental Quality Act requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to

landowners through reduced property taxes to deter the early conversion of agricultural and open space lands to other uses.

Affected Environment

The project area is mainly farmland, consisting mostly of almond orchards, sweet potato and tomato row crops, and dairies. It had historically been known for ranches and dairies. Agriculture is the leading industry for Merced County, which has about 424,920 hectares (1,050,000 acres) of farmland in production. Several rural residences and some commercial properties are scattered throughout the project area.

Impacts

A Farmland Conversion Impact Rating score was developed for the proposed project based on eight combinations of the six alternatives being considered (the four alternatives for the southern Plainsburg section times the two alternatives for the northern Arboleda section) for this project, using the four alternatives for the south Plainsburg section and the two alternatives for the north Arboleda section (see Appendix E).

The Farmland Conservation Score is used to determine if a project will have a significant impact on farmland. The Natural Resources Conservation Service uses the score of 160 as the threshold for further consideration of farmland impacts. The Farmland Conversion Impact Rating score for three of the combinations of alternatives was equal to or higher than 160, requiring further consideration under the Farmland Protection Policy Act.

This project would acquire between 307 to 553 hectares (760 to 1,333 acres) of farmland (see Table 3.8).

Table 3.8 Farmland Conversion by Alternative

Plainsburg Alternative/ Arboleda Alternative	Land Converted in hectares (acres)	Prime & Unique Farmland in hectares (acres)	Percentage of Farmland in State	Farmland Conversion Impact Rating
1A/4	323.8 (800.1)	101.5 (250.8)	0.00003%	148
1B/4	345.7 (854.3)	95.8 (236.7)	0.00003%	148
2/4	**460.7 (1,138.3)**	**91.0 (224.9)**	**0.00004%**	**159**
3/4	**553.9 (1368.6)**	**108.2 (267.3)**	**0.00005%**	**161**
1A/5	307.8 (760.6)	96.1 (237.5)	0.00003%	147
1B/5	338.0 (835.2)	101.2 (250.0)	0.00003%	148

2/5	**444.8 (1099.2)**	**96.4 (238.2)**	**0.00004%**	**160**
3/5	**539.5 (1333.1)**	**113.6 (280.6)**	**0.00005%**	**163**

Source: Form NRCS-CPA-106 (Farmland Conversion Impact Rating for Corridor-Type Projects). This table reflects updated acreage numbers.

Additional land, other than that directly required, may need to be purchased for the project due to segmentation of parcels and/or loss of access. Upon completion of the realigned freeway, some of the land may become excess land that could then be resold to adjacent property owners.

The following are estimated acquisitions that would not be directly converted into the proposed freeway:

- Alternative 1A/4 – 28.5 hectares (70.4 acres)
- Alternative 1B/4 – 30.8 hectares (76.0 acres)
- Alternative 2/5 – 121 hectares (300.0 acres)
- Alternative 3/5 – 187 hectares (462.9 acres)
- Alternative 1A/5 – 28.5 hectares (70.4 acres)
- Alternative 1B/5 – 30.8 hectares (76.0 acres)
- Alternative 2/5 – 121 hectares (300.0 acres)
- Alternative 3/5 – 187 hectares (462.9 acres)

Seven properties in the northern Arboleda section are designated for protection under the Williamson Act (see Tables 3.9a and 3.9b). In addition, 24.4 to 95.7 hectares (60.4 to 236.0 acres) of farmland under Williamson Act Contract may be affected by the proposed project. Williamson Act owners have entered into a contract with the county agreeing to restrict use of the land to agriculture or open space and in return receive low property tax assessments. In Merced County, for a property to be eligible for the Williamson Act, it must consist of at least 4 hectares (10 acres) of farmland.

Arboleda Alternative 4 would acquire approximately 92.6 hectares (229 acres) of Williamson Act properties. This alternative also results in full acquisition of five Williamson Act properties. It would also acquire enough acres of one parcel (APN 066-130-25) that it would no longer be eligible for Williamson Act protection.

Arboleda Alternative 5 would acquire approximately 24.4 hectares (60.4 acres) of Williamson Act properties. Alternative 5 would fully acquire two Williamson Act

properties. However, none of the remaining properties would lose their Williamson Act protection status.

Plainsburg Alternatives 1A and 1B would not acquire any Williamson Act property. Alternative 2 would acquire 2.66 hectares (6.7 acres), and Alternative 3 would acquire 1.86 hectares (4.6 acres).

Table 3.9a Conversion of Williamson Act Properties—South Plainsburg Section

Parcel Number	Hectares (Acres) of Parcel	Total Property to be Acquired for Highway in hectares (acres)*			
		Alternative 1A	Alternative 1B	Alternative 2	Alternative 3
067-180-05	79.8 (197.1)	0.0 (0.0)	0.0 (0.0)	2.5 (6.3)	1.7 (4.2)
067-180-07	15.7 (38.9)	0.0(0.0)	0.0 (0.0)	0.16 (0.4)	0.16 (0.4)
Total	(236)	0.0 (0.0)	0.0 (0.0)	2.66 (6.7)	1.86 (4.6)

Table 3.9b Conversion of Williamson Act Properties—North Arboleda Section

Parcel Number	Hectares (Acres) of Parcel	Total Property to be Acquired for Highway in hectares (acres)		Percentage of Williamson Act Property to be Acquired for Highway	
		Alternative 4	Alternative 5	Alternative 4	Alternative 5
066-130-24	6.5 (16.0)	6.5 (16.0)	0.08 (0.2)	100%	1.3%
066-130-25	6.5 (16.0)	3.2 (7.9)	0.2 (0.4)	49.4%	2.5%
066-130-26	9.3 (23.0)	9.3 (23.0)	2.9 (7.2)	100%	31.3%
066-130-33	40.9 (101.0)	25.9 (64.0)	1.7 (4.3)	64%	4.3%
066-130-34	7.7 (19.0)	7.7 (19.0)	7.7 (19.0)	100%	100%
066-130-38	26.1 (64.0)	26.1 (64.0)	4.6 (11.3)	100%	18.0%
066-180-07	7.3 (18.0)	7.3 (18.0)	7.3 (18.0)	100%	100%
Total	104.7 (257.4)	92.9 (229.6)	24.4 (60.4)		
Project Area				89% *	23.4% *

** Percentage of Williamson Act property in the project area that may be acquired for the project*

Avoidance, Minimization and Mitigation Measures

Because the entire project is surrounded by farmland, the only alternative that would avoid loss of farmland would be the no-build alternative. The no-build alternative would not meet the purpose and need. Alternatives that widen State Route 99 without relocating the alignment east would reduce farmland acquisition, but are not feasible due to conflicts with the Southern Pacific railroad.

As part of the right-of-way process for purchasing land, Caltrans tries to negotiate parcel exchanges with neighboring farmers to reconfigure split farmland parcels for resale so that the parcels would continue to be farmed, therefore not contributing further to the segmentation and conversion of farmland.

As part of the requirements for biological mitigation, Caltrans would be acquiring conservation easements on 80.9 hectares (200 acres) of farmland. This would prevent development on these parcels.

3.10 Community Impacts (Social, Economic)

Regulatory Setting

Caltrans studied potential social and economic impacts to the residents and businesses along the proposed project area. Caltrans looked at concerns such as community cohesion, travel patterns and accessibility, schools, churches, emergency services, and identifiable groups that would be benefited or harmed by the proposed project.

Affected Environment

In 2000, the population of Merced County was 210,000, and the population of the city of Merced was 63,300. Merced County is projected to grow 2.7 percent a year over the next 20 years. The median family size was 3.7 individuals, and average earnings per job was $28,648 (in 2000).

The project area is mostly rural agricultural land, with farms and dairies along the existing alignment. One "roadside" business—the Merced City Truck Stop—depends on passing traffic for customers. One quarter of the county's population is employed in the field of agriculture. Local farms and agricultural businesses use State Route 99 to transport goods and livestock to other parts of the Central Valley and California.

Emergency vehicles such as police, fire and ambulance must contend with the flow of through-traffic on State Route 99 when attempting to cross the expressway at at-grade intersections.

Impacts

The build alternatives would change local traffic circulation by closing the at-grade intersections. Construction of the proposed interchanges across State Route 99 would make crossing the highway safer and could in turn provide improved community cohesion in the project vicinity. Use of the proposed interchanges would decrease response time for emergency vehicles as well as local school bus service. Access to and between properties affected by the project would be improved with the building of the frontage roads. The no-build alternative would not provide these changes and benefits.

The proposed project would be built in multiple stages, and a Traffic Management Plan would be necessary. During the construction phases of the project, every effort would be made to inform motorists of potential traffic delays. In addition, Caltrans could use the Construction Zone Enhanced Enforcement Program, which would place California Highway Patrol units near the beginning and end of the proposed project to

deter speeding and enforce safe use of the roadway within the posted construction zone limits. Some construction would be done at night to limit traffic disruptions and delays. Two detours are planned, but are expected to cause minimal impact.

3.11 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President Bill Clinton on February 11, 1994. This order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2005, this amount was $19,350 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. See Appendix C for a copy of the Caltrans Title VI policy statement.

Poverty data for specific communities was not available from the Department of Health and Human Services, therefore poverty data disclosed in this document reflects information obtained from the U.S. Census Bureau (2000 Census).

Affected Environment

The project area has a population of 189 based on 2000 Census data, which was collected for census blocks where right-of-way acquisition is anticipated. Minority populations were identified using 2000 Census data. Ethnicity information for the project area was available by individual blocks (12 blocks were identified in the project area). The following Census Tracts, Block Groups, and Blocks would be affected by this project:

- Census Tract 18.02, Block Group 1: Blocks 1053, 1054, 1056, and 1058.
- Census Tract 19.02, Block Group 2: Blocks 2033, 2063, 2064, 2066, 2067, 2068, 2069, and 2103

In the 2000 Census, seven categories of race/ethnicity were recognized within Merced County, the project area and throughout the individual blocks, as shown in Tables 3.10 and 3.11. Within the project area, the Hispanic population made up 25.4 percent of the population; Whites, 64.6 percent; and African-Americans, Asians, Native Americans, Native Hawaiians, and other races, less than 10 percent each.

The minority population of all but four blocks is statistically lower than the minority population of the project area (Tables 3.10 and 3.11):

- Census Tract 18.02, Block Group 1, Block 1053 shows a higher percentage of African-Americans compared to the project area. This block covers the area east of State Route 99 between Mariposa Way and McHenry Road.

- Census Tract 18.02, Block Group 1, Block 1055 shows a higher percentage of Native Americans compared to the project area. This block covers the area east of State Route 99 between Worden Avenue and Pioneer Road.

- Census Tract 19.02, Block Group 2: Block 2067 shows a higher percentage of Hispanics compared to the project area. This block covers the area east of State Route 99 between Plainsburg Road and Sandy Mush Road.

- Census Tract 19.02, Block Group 2: Block 2069 shows a higher percentage of Hispanics compared to the project area. This block covers the area east of State Route 99 from about La Branza Road to Dutchman Creek.

Table 3.10 2000 Census: Ethnic Profile

Ethnicity	Merced County	Project Area	Block 1053	Block 1054	Block 1055	Block 1056	Block 2033	Block 2063	Block 2064	Block 2066	Block 2067	Block 2069
Hispanic	95,466	48	5	17	0	7	9	0	0	0	7	8
% of Total	45%	25.4%	11.4%	**42.5%**	0.0%	38.9%	22.5%	0.0%	0.0%	0.0%	**46.7%**	88.9%
Non-Hispanic	115,088	141	39	23	7	11	31	4	8	4	8	1
% of Total	55%	74.6%	88.6%	56.5%	100%	61.1%	76.5%	100.0%	100%	100%	100%	11.1%
Total	210,554	189	44	40	7	18	40	4	8	4	15	9

Source: 2000 Census (U.S. Census Bureau)

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Table 3.11 2000 Census: Racial Profile of Non-Hispanic Population

Race	Merced County	Project Area	Block 1053	Block 1054	Block 1055	Block 1056	Block 2033	Block 2063	Block 2064	Block 2066	Block 2067	Block 2069
White	85,585	122	32	20	5	11	29	4	8	4	8	1
% of Total	74.4%	84.7%	82.1%	86.9%	71.4%	100.0%	93.5%	100.0%	100.0%	100.0%	100.0%	100%
Black	7,594	7	6	1	0	0	0	0	0	0	0	0
% of Total	6.6%	5.0%	**15.4%**	4.3%	0.0%	0%	0%	0.0%	0.0%	0.0%	0%	0.0%
American Indian	1,115	4	0	2	2	0	0	0	0	0	0	
% of Total	1%	2.8%	0%	8.7%	**28.6%**	0.0%	0%	0.0%	0.0%	0.0%	0%	0.0%
Asian	14,041	1	1	0	0	0	0	0	0	0	0	0
% of Total	12.2%	0.7%	2.6%	0.0%	0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0.0%
Native Hawaiian	281	0	0	0	0	0	0	0	0	0	0	0
% of Total	0.2%	0.0%	0%	0.0%	0%	0%	0%	0.0%	0.0%	0.0%	0%	0%
Other and Two or More Races	6,472	2	0	0	0	0	2	0	0	0	0	0
% of Total	5.6%	1.4%	0%	0.0%	0%	0%	**6.5%**	0.0%	0.0%	0.0%	0%	0.0%
Total Population	115,088	141	39	23	7	11	31	4	8	4	8	1

Source: 2000 Census (U.S. Census Bureau)

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Data from the 2000 Census was used to determine the percentage of families in the project area living with incomes above and below the poverty level. Table 3.12 shows that more families have incomes above rather than below the poverty level.

Table 3.12 Low-Income within the Project Area

Poverty Breakdown	Percentage in Project Area
Families Living Below the Poverty Line	25.1%
Families Living Above the Poverty Line	74.9%

Source: 2000 Census (U.S. Census Bureau)

Impacts

Environmental Justice

Caltrans identified beneficial and adverse impacts of the project. The following benefits would affect everyone in the project area:

- Improved safety and operation
- Increased capacity that would relieve congestion

Adverse effects of the project would include the following:

- Noise
- Residential relocations

Noise

Caltrans conducted a noise study analysis and determined that there would be an adverse noise impact for properties within identified minority communities. Table 3.13 shows existing and future noise levels for both the build and no-build alternatives for properties within minority blocks.

Table 3.13 Estimated Noise Levels for Properties Within Minority Blocks

Location	Existing Noise Level	Future Noise Levels — 2026						
		No-Build Alt	Alt 1A	Alt 1B	Alt 2	Alt 3	Alt 4	Alt 5
6863 Plainsburg Avenue	58 decibels	71 decibels	68 decibels	68 decibels	N/A	N/A	N/A	N/A
7249 Plainsburg Avenue	62 decibels	69 decibels	71 decibels	69 decibels	58 decibels	58 decibels	N/A	N/A
3875 McHenry Road (3 SFR)	64 decibels	67 decibels	N/A	N/A	N/A	N/A	71	71

SFR= Single-family residences

Thirteen properties were evaluated. Of those, nine met the requirement for soundwall consideration (see Appendix G). All the properties meeting Noise Abatement Criteria met feasibility requirements, but only two met the reasonability (cost-effective to build) requirements. See 3.4 Noise for more discussion.

Three to five residences in minority blocks within the project area meet the Noise Abatement Criteria. Nine to 11 residences within the project area would meet the Noise Abatement Criteria. The difference between the number of residences in minority blocks and the number of residences in the project area indicates that there is no statistical difference between the percentage of minority and non-minority properties that meet the Noise Abatement Criteria (see Table 3.14). Therefore, there is no disproportionate noise impact to a minority or low-income community.

Table 3.14 Comparison of Properties with Noise Impact

Breakdown of Properties in Project Area	Alternative 1A/4	Alternative 1B/4	Alternative 2/4	Alternative 2/4
Number of properties within the minority community that meet the criteria for soundwall consideration	5	5	3	3
Total number of properties in minority communities	112	112	112	112
Percentage	**4.5%**	**4.5%**	**2.7%**	**2.7%**
Number of properties within the project area that meet the criteria for soundwall consideration	6	6	4	4
Total number of residential properties in project area	189	189	189	189
Percentage	**5.3%**	**5.3%**	**2.1%**	**2.1%**

Breakdown of Properties in Project Area	Alternative 1A/5	Alternative 1B/5	Alternative 2/5	Alternative 2/5
Number of properties within the minority community that meet the criteria for soundwall consideration	5	5	3	3
Total number of properties in minority communities	112	112	112	112
Percentage	**4.5%**	**4.5%**	**2.7%**	**2.7%**
Number of properties within the project area that meet the criteria for soundwall consideration	11	11	9	9
Total number of residential properties in project area	189	189	189	189
Percentage	**5.8%**	**5.8%**	**4.8%**	**4.8%**

Relocation

Seven single-family residences would require relocation from minority blocks within the project area. Eighteen to 21 single-family residences would require relocation from the project area. A comparison of the difference between the minority blocks and the project area shows that there is no statistical difference between the percentage of properties that are being relocated (see Table 3.15). Therefore, there is no disproportionate noise impact to a minority or low-income community.

Table 3.15 Comparison of Properties with Relocation Impacts

Breakdown of Properties in Project Area	Alternative 1A/4	Alternative 1B/4	Alternative 2/4	Alternative 2/4
Number of single-family residences to be relocated within the minority community	7	7	7	7
Total number of properties in low-income communities	112	112	112	112
Percentage	**6.3%**	**6.3%**	**6.3%**	**6.3%**
Number of single-family residences to be relocated within the project area	20	20	21	21
Total number of residential properties in the project area	189	189	189	189
Percentage	**10.6%**	**10.6%**	**11.1%**	**11.1%**

Breakdown of Properties in Project Area	Alternative 1A/5	Alternative 1B/5	Alternative 2/5	Alternative 2/5
Number of single-family residences to be relocated within the low-income community	7	7	7	7
Total number of properties in minority communities	112	112	112	112
Percentage	**4.5%**	**4.5%**	**2.7%**	**2.7%**
Number of single-family residences to be relocated within the project area	18	18	19	19
Total number of residential properties in the project area	189	189	189	189
Percentage	**9.5%**	**9.5%**	**10.1%**	**10.1%**

Based on the above, none of the alternatives would cause disproportionately high and adverse effects on any minority or low-income populations as discussed in Executive Order 12898 regarding environmental justice.

3.12 Growth

Regulatory Environment

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

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

Affected Environment

The project area is mostly farmland, with some rural residences scattered throughout the area.

Impacts

This project is in compliance with the Merced County General Plan and the Merced County Association of Governments Regional Transportation Plan and would not encourage unplanned growth. Both plans show the project area zoned for agriculture and protected from development. The two interchanges proposed for the project would replace 15 at-grade intersections throughout the project area. These intersections are not being constructed to allow for development of the surrounding area but to accommodate the current traffic circulation and agricultural use of the area. Any residential, commercial or industrial development would be prevented by the Merced County General Plan.

3.13 Traffic and Transportation

Affected Environment

The Merced County Year 2000 General Plan recognizes the importance of automobile and truck transportation. The plan also recognizes that as the county

population grows, traffic will increase, making it important to improve and maintain the transportation system.

Impacts

All southern Plainsburg alternatives would shut down the following at-grade intersections: Vista Road, Harvey Petitt Road, Plainsburg Road, Sandy Mush Road, Buchanan Hollow Road, and Athlone Road. These intersections would be replaced with one above-grade interchange. The interchange would tie into Plainsburg Road on the east and Sandy Mush Road on the west. It would also create a new eastern frontage road, running from Harvey Petitt Road to Athlone Avenue. The southern Plainsburg alternatives would also convert the existing southbound lanes of State Route 99 into a western frontage road.

All the northern Arboleda alternatives would shut down the following at-grade intersections: Buchanan Hollow Road, Athlone Road, Ranch Road, Arboleda Drive, Le Grand Road, Worden Road, Pioneer Road, Mariposa Way, and McHenry Road. They would replace these at-grade intersections with a full above-grade interchange. The proposed interchange would tie into Le Grand Road if northern Arboleda Alternative 4 is selected. If northern Arboleda Alternative 5 is selected, the interchange would tie into Arboleda Drive. A new eastern frontage road would be constructed, and the existing southbound State Route 99 would be converted to a western frontage road.

This project would eliminate at-grade intersections that contribute to accidents. It would also reduce congestion, which would also reduce accidents.

Caltrans conducted a Traffic Study in 2003; it was updated in 2006. The build alternatives would achieve a level of service “C” on State Route 99 for the 20-year design period (2030). See Table 3.16. At this level of service, there would be few restrictions on speed and minimal delays. Level of service “C” is the recommended level of service for rural highways.

Table 3.16 Levels of Service

Locations	Level of Service			
	Without Project		With Project	
Segment of State Route 99:	**2006**	**2033**	**2006**	**2033**
State Route 99 from Chowchilla River to McHenry Road	C	F	B	C
State 99/Lingard Road	F	F	X	X
State Route 99/Worden Avenue Intersection	E	F	X	X
State Route 99/Arboleda Avenue/Ranch Road Intersection	F	F	X	X
State Route 99/Le Grand Intersection	E	F	X	X
State Route 99/Athlone Avenue Intersection	F	F	X	X
State Route 99/Pioneer Road Intersection	E	F	X	X
State Route 99/Mariposa Way Intersection	E	F	X	X
State Route 99/McHenry Road Intersection	E	F	X	X
State Route 99/Sandy Mush Road Intersection	F	F	X	X
State Route 99/Plainsburg Intersection	F	F	X	X
State Route 99/Harvey Petitt Road Interchange	F	F	X	X
State Route 99/Buchanan Hollow Road Intersection	F	F	X	X
State Route 99/Vista Road Intersection	F	F	X	X
State Route 99/Plainsburg Interchange	-	-	C	C
State Route 99/Arboleda Interchange	-	-	C	C

X = This intersection would be shut down and replaced by two interchanges.

Locations	Level of Service			
	Without Project		With Project	
Segment of Proposed Frontage Road:	**2006**	**2033**	**2000**	**2033**
Proposed Western Frontage Road/Athlone	-	-	A	A
Proposed Western Frontage Road/Sandy Mush	-	-	B	B
Proposed Western Frontage Road/Plainsburg	-	-	A	A
Proposed Eastern Frontage Road/Athlone	-	-	A	A
Proposed Eastern Frontage Road/Buchanan Hollow Road	-	-	A	A
Proposed Eastern Frontage Road /Plainsburg	-	-	B	B
Eastern Frontage Road	B	B	B	B
Western Frontage Road			B	B
Proposed Eastern Frontage Road/McHenry Road	-	-	A	A
Proposed Eastern Frontage Road / Mariposa Road	-	-	A	A
Proposed Eastern Frontage Road/Pioneer	-	-	A	A
Proposed Eastern Frontage Road/Worden	-	-	B	B
Proposed Eastern Frontage Road/Le Grand	-	-	B	B
Proposed Eastern Frontage Road/Voorhrees	-	-	A	A
Proposed Western Frontage Road/ Lingard Road	-	-	A	A
Proposed Western Frontage Road/Ranch Road	-	-	A	A
Proposed Western Frontage Road/Le Grand	-	-	A	A
Proposed Western Frontage Road/Athlone	-	-	A	A

Avoidance, Minimization and Mitigation Measures

The project would be constructed in two phases. The first phase would construct the local road detours, the new State Route 99 northbound and southbound lanes, the northbound weigh station, and the interchange overcrossing. Construction of the eastern frontage road, the interchange ramps and the transition to existing State Route 99 would be included in this phase.

The second phase would require that traffic be shifted to the newly constructed lanes. In addition, the existing southbound lanes would be converted into the western frontage road, and the old northbound State Route 99 would be removed. The second phase would also build the railroad overcrossing.

3.14 Relocation

A Relocation Impact Study and a Relocation Impact Memorandum were completed to provide Caltrans, local agencies, and the public with information about the effects of the proposed project on residential and non-residential occupants within the proposed project impact area. These documents addressed potential issues caused by the displacement of existing structures and their occupants. Additionally, the Relocation Impact Study identified all residential and non-residential units within the displacement area of each proposed alternative. The report included descriptions of structure characteristics, population characteristics, and type of occupants, along with descriptions and availability of residential and non-residential relocation units.

The assessment was based on field observations, interviews with real estate professionals, and secondary source information. Specific relocation requirements for a selected alternative would be included in the Final Relocation Impact Study. Interviews would be conducted with each affected property owner and tenant before acquisition proceedings would begin.

Regulatory Setting

The Caltrans Relocation Assistance Program is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the

benefit of the public as a whole (see Appendix F for a summary of the Relocation Assistance Program).

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code 2000d, et seq.). See Appendix C for a copy of the Caltrans Title VI policy statement.

Affected Environment

Most of the properties acquired for right-of-way for the proposed project would be rural agricultural land, dairies, and agricultural residences. These properties are designated primarily for agriculture and are zoned accordingly.

All relocation assistance would be provided with no discrimination as accorded by the Federal Uniform Relocation Assistance and Real Property Policies Act of 1970, as amended. Secondary housing resources available in the surrounding communities could be considered if agreeable to the tenants or landowners.

Impacts

It is Caltrans' policy that any person (individual, family, corporation, partnership, or association) who moves from real property or moves personal property from real property as a result of the acquisition of the real property, or is required to relocate as a result of a written notice from the California Department of Transportation from the real property required for a transportation project, is eligible for relocation assistance.

All displaced residents would be relocated within Merced County. The City of Merced and the surrounding area have adequate relocation resources available to accommodate all residents who are displaced as a result of the proposed project. According to Merced County Council of Governments figures, there is a 5 percent vacancy rate in this community. Based on that vacancy rate, there are sufficient single-family residences available for rent and/or for sale that are "equal to or better than" the displacement properties.

Plainsburg Alternatives

Table 3.17 shows the displacements for the Plainsburg alternatives. In Alternative 1A, two single-family homes and one business would be displaced. The business—a truck stop on the east side of State Route 99 (APN 075-110-17)—would be relocated. In Alternative 1B, this property would be avoided. Alternatives 2 and 3 would displace three single-family homes and a possible industrial property (APN 075-110-04),

formerly owned by the Anderson Clayton Corporation. A cotton gin on the property is not in operation at this time. Alternatives 2 and 3 would acquire the entire parcel, including the cotton gin and a single-family home. If Alternative 1A or 1B were chosen, the single-family home would be displaced, but the cotton gin would remain untouched.

Table 3.17 Summary of Displacements (Plainsburg Alternatives)

Alternative	Single-Family Homes	Residential Displacements (Residents)[1]	Non-Residential Displacements
Alternative 1A	2	7	1
Alternative 1B	2	7	1
Alternative 2	3	10	1
Alternative 3	3	10	1

[1] *Estimate of residents is based on average of 3.26 residents per unit (2000 Census). Source: U.S. Census Bureau. Residential displacees were not interviewed or contacted.*

Arboleda Alternatives

Table 3.18 shows the displacements for the Arboleda alternatives. Alternative 4 would relocate 18 single-family homes and one business property. The Double B Dairy on Worden Avenue (APN 066-130-38) would be a full acquisition/ displacement under Alternative 4. The displacement would include the equipment yard and equipment, fuel tanks, shop, milking facility, a new free stall barn, and a residence for the groundskeeper. Although this relocation would be costly, extensive and time consuming, adequate resources are available in Merced County to relocate the Double B Dairy.

Another business in Alternative 4 is Eastern Pacific Marketing Inc. (APN 067-100-40). With the current project design, the main building of the business, which is a large metal building with five roll-up bay doors, would be removed. However, the lot has ample space to move the building to another location. A mobile home on the property would not be relocated under the current project design. It would not have to be moved or removed from the property.

Alternative 5 would relocate 16 single-family homes and no business properties. As proposed in Alternative 5, Caltrans would acquire slivers of the Double B Dairy property. If this acquisition puts the Double B Dairy out of compliance with regulations in regard to land for hard waste, the lagoon or land for other dairy

operations, Caltrans could mitigate damages by exchanging land from a neighboring parcel (APN 066-130-26).

Alternatives 4 and 5 would displace portions of the property at 3895 McHenry Road (APN 066-110-12)—no full acquisition of the two single-family homes on the property, but about 15 animal pens with various animals would be relocated.

Table 3.18 Summary of Displacements (Arboleda Alternatives)

Alternative	Single-Family Homes	Residential Displacements (Residents)[1]	Non-Residential Displacements
Alternative 4	18	59	1
Alternative 5	16	53	0

[1] *Estimate of residents is based on average of 3.26 residents per unit (2000 Census). Source: U.S. Census Bureau. Residential displacees were not interviewed or contacted.*

Avoidance, Minimization and Mitigation Measures

All displacees would be contacted by a Relocation Agent, who would ensure that eligible displacees receive their full relocation benefits, including advisory assistance, and that all activities would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all displacees free of discrimination.

3.15 Emergency Services

The project area lies in the rural countryside. Merced County controls emergency services for the area. The proposed project would give emergency services, such as fire, police, and ambulance, better access to State Route 99 and the adjacent frontage roads and surrounding community. The interchanges would allow for safer crossing of the highway and more controlled access, and the increase from four to six lanes would ease congestion and speed up response times.

3.16 Visual/Aesthetics

Regulatory Settings

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 State Code 4331[b][2]). To further emphasize this point, the Federal Highway Administration in its implementation of 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" (CA Public Resources Code Section 21001[b]).

Affected Environment

The project area is in a rural area of southern Merced County in the central San Joaquin Valley. The project area contains mostly farmland and orchards with the occasional single-family home. The terrain of the area is flat with relatively low relief. Elevations are around 76.2 meters (250 feet) above sea level. The area contains about 10 oak trees and numerous oleanders that are considered visually appealing.

Impacts

Construction of the project would not result in any substantial change in the visual experience for motorists traveling this stretch of State Route 99. With the project, the new on-ramps and off-ramps would become prominent, and their side slopes would be visually conspicuous in the relatively flat setting.

Avoidance, Minimization and Mitigation Measures

Although there are no substantial impacts to visual resources within the project area, Caltrans recommends the following to minimize or avoid any minor visual concerns:

- Control erosion.
- Control storm water runoff.
- Avoid steep slopes.
- Add functional planting and irrigation within two years of construction completion.
- Install irrigation crossovers.
- Replace planting for any removal of highway planting.
- Mitigate for removal of any oak trees.

Because of the prominence of the on-ramps and off-ramps, functional planting would be necessary to offset visual impacts of the fill slopes when viewed from nearby areas. Functional planting and irrigation would be required on the on-ramps and off-ramps.

Current designs show no impacts to oak trees or oleanders. If there are changes and removal of either is necessary, replacement planting would be required.

3.17 Historical and Archaeological Resources

Regulatory Settings

The term "cultural resources" as used in this document refers to historic and archaeological resources. The federal laws dealing with historic and archaeological resources are explained below.

The National Historic Preservation Act, as amended, sets forth national policy and procedures regarding "historic properties"—districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of National Historic Preservation Act requires federal agencies to consider the effects of their undertakings on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800).

The Native American Graves Protection and Repatriation Act addresses the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American human remains and certain cultural items with which they are affiliated, and directs federal agencies and federally-assisted museums to identify and repatriate the cultural affiliation of Native American human remains and related cultural items in holdings or collections under their possession or control.

Cultural resources may also be protected by Section 4(f) of the U.S. Department of Transportation Act.

Under California law, cultural resources are protected by the California Environmental Quality Act, as well as Public Resources Code Section 5024.1, which established the California Register of Historic Places. Section 5024.5 requires state agencies to provide notice to, and to confer with, the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historic resources.

Affected Environment

Caltrans conducted an inventory of historical and archaeological resources in the project area. Four archaeological sites and 27 historic architectural properties were identified within the project's area of potential effects. Two of the archaeological sites and all 27 architectural properties were evaluated for historic significance and found ineligible for the National Register of Historic Places. The remaining two archaeological sites (CA-MER-381/H and CA-MER-383) were found to be eligible for the National Register of Historic Places.

The first site (CA-MER381/H) contains both historic and pre-historic components. The pre-historic component represents a continuous occupation between 7,000 years before present (BP) and 1,200 years BP. The site is characterized by an extensive deposit of stone and bone artifacts, numerous portable groundstone objects used for food preparation, and concentrations of small animal bones. The historic component of the site represents the remains of Athlone, a small commercial/railroad/farming town that survived several ups and downs from 1870-1950. In its heyday, Athlone contained a general store/gas station, a saloon, a teacher's college, an elementary school, and several railroad residences and cabins. The contributing elements of this site have research potential important to understanding regional history and pre-history.

The second site (CA-MER-383) is an extensive pre-historic habitation site characterized by numerous portable groundstone metates and mortars for preparing food, bone and stone artifacts, and Native American burials dating to 1,700 years BP. This site has the potential to significantly contribute to our understanding of regional pre-history.

In a letter dated January 31, 2003 (see Appendix D), the State Historic Preservation Officer concurred with the Federal Highway Administration's eligibility evaluation.

Impacts

Both sites are affected by both Arboleda alternatives. Construction activities such as demolition, grading, excavation, and relocation of creek channels proposed for the project's two build alternatives would affect two of the three contributing elements of site CA-MER-381/H by placing fill material on top of site. However, by placing fill on the site, Caltrans is protecting the site. The State Historic Preservation Officer and the Federal Highway Administration concurred with this assessment on February 17, 2006. Both build alternatives would avoid directly affecting the contributing element

of site CA-MER-383. The contributing portion of site CA-MER-383, while situated outside the area of direct impact, could be indirectly affected by building demolition, vehicle parking, or storage of equipment and supplies.

Avoidance, Minimization and Mitigation Measures

On February 17, 2006, the Federal Highway Administration and the State Office of Historic Preservation agreed to a Finding of No Adverse Effect.

The contributing portions of sites CA-MER-381/H and CA-MER-383 that would not be directly affected by construction activities would be designated as environmentally sensitive areas. A fence would be put around the environmentally sensitive areas, and the areas would be monitored by professionally qualified staff during project-related ground-disturbing activities.

It is Caltrans' policy to avoid cultural resources whenever possible. If buried cultural materials are encountered during construction, it is Caltrans' policy to stop work in the area until a qualified archaeologist can evaluate the nature and significance of the find.

3.18 Paleontological Resources

Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. Although there is no federal law that specifically protects natural or paleontological resources, there are a number of laws that have been interpreted to do so, the primary law being the Antiquities Act of 1906, which protects historic or pre-historic ruins or monuments and objects of antiquity. This act has been amended to specifically allow funding for paleontological mitigation.

Under California law, paleontological resources are protected by the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5.

Affected Environment

Geologic maps and literature searches show several stratigraphic units in the project area. Quaternary deposits occur throughout the area. The Riverbank Formation, Modesto Formation and younger Quaternary alluvium are exposed on the surface. The Turlock Lake Formation underlies the area and may be exposed upon excavation. All three formations have previously yielded vertebrate fossils in the region.

Impacts

All of the alternatives require excavation to a depth that could disturb buried paleontological resources.

Avoidance, Minimization and Mitigation Measures

Because of the possibility of encountering scientifically significant vertebrate specimens during deep excavation, paleontological monitoring is warranted under certain conditions. The project area would require monitoring in areas where the excavation is below the uppermost few feet of sediment. The proposed project includes excavation of storm water retention basins to a depth of approximately 4 meters (12 feet). Therefore, monitoring is advised for the basins from 2 meters (6.6 feet) below ground surface to maximum basin depth.

The contractor doing the monitoring would be required to develop an impact mitigation plan for paleontological resources that addresses, in detail, the procedures for collecting vertebrate fossils. This would include recording pertinent geographic and stratigraphic information, developing preservation methods for specimens, and making provisions for the remains to be placed in the collections of an appropriate repository and catalogued for future scientific study.

The mitigation plan would address the recovery of both macrofossils, which are large enough to be inspected directly, and microfossils, which must be inspected through a microscope. After monitoring, collection, and specimen processing, the contractor would generate a final report detailing the results of the mitigation plan.

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Chapter 4 Cumulative Impacts

4.1 Regulatory Environment

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

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

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

4.2 Resources

For this project, resources that warrant a cumulative impact analysis are farmland and habitat for special-status species.

Field crops are a primary use of agricultural land in the project area. In 2002, the Census of Agriculture reported 2,964 farms in Merced County, totaling just over one million acres. Major crops in Merced County are almonds, tomatoes, cotton and hay.

Habitat for special-status species in the project consists of agricultural fields and waters of the United States, including jurisdictional wetlands. More than 90 percent of the potential impact area is within areas characterized as agricultural land.

4.3 Traditional Method

The traditional method of cumulative impact analysis involves identification of resources, the study area, Caltrans projects, other projects, and impacts of Caltrans and other projects, followed by environmental analysis and development of mitigation concepts.

Study Area for Each Resource Addressed

Farmland

There are just over 404,690 hectares (1,000,000 acres) of farmland in Merced County, with approximately 116,150 hectares (287,000 acres) in Prime Farmland and 63,941 hectares (158,000 acres) in Farmland of Statewide Importance.

Wildlife Habitat

The biological study area for this project included 1,049 hectares (2,592 acres) surrounding the State Route 99 corridor from the Chowchilla River to McHenry Road.

Caltrans Projects

Several Caltrans projects fall within 24.1 kilometers (15 miles) of the project area. Most of the projects involve freeway construction, which would result in acquisition of farmland (see Table 4.1). None of these other projects had impacts to San Joaquin kit fox foraging habitat. The following Caltrans projects are planned or have been completed in or near the project area:

- Mission Avenue Interchange and Route 99 Conversion Project: This project would widen State Route 99 from a four-lane expressway to a six-lane freeway between McHenry Road and Childs Avenue. It would also construct a full interchange at Mission Avenue and a frontage road. This project is in construction.

- Atwater Freeway Project: This project would convert State Route 99 from a four-lane expressway to a six-lane freeway. It begins north of the Atwater overhead and ends south of Arena Way. This project is scheduled for construction in 2010.

- Livingston Freeway Project: This project would convert State Route 99 from a four-lane expressway to a six-lane freeway on an eight-lane right-of-way. The project runs from just south of Arena Way and ends just south of Hammet Avenue. This project is scheduled for construction in 2007.

- Merced County Campus Parkway Project: This project would construct a 7.2-kilometer (4.5-mile) limited access expressway on the east side of the City of Merced. The new expressway would run from the proposed Mission Avenue interchange to Yosemite Avenue, with five proposed intersections: at Mission Avenue, Gerard Avenue, Childs Avenue, Olive Avenue, and Yosemite Avenue. This project is scheduled for construction in 2009.

Table 4.1 Impacts of Caltrans Projects

Caltrans Project	Approx. Kit Fox Forage Habitat in hectares (acres)	Approx. Farmland in hectares (acres)
Mission Avenue Interchange	None	26.3 (65)
Atwater Freeway	None	28.9 (71.5)
Livingston Freeway	None	40.5 (100)
Campus Parkway	None	34.8 (86)
Approximate total in hectares (acres)	None	130.3 (322)

Other Developments

According to the Merced County Association of Governments, the county would need to develop approximately 6070 hectares (15,056 acres) of agricultural land by 2024 to accommodate anticipated growth. Within Merced County, several residential and commercial developments are in progress or planned for the near future. Residential developments may also include plans for public facilities such as schools, parks, and drainage basins. Commercial lots may also be included in residential developments.

Residential developments in progress or planned (see Table 4.2) include approximately 225 hectares (623 acres) for residences and approximately 486 hectares (1,200 acres) for recreational purposes. An additional 854 hectares (2,110 acres) have been planned for a residential/commercial development near University of California at Merced. Figure 4-1 shows local development projects.

Impacts from Other Projects

Proposed and recent developments, including residential, commercial, and public facilities, will result in or have resulted in a change in land use of approximately 1592 hectares (3,933 acres) to urban development (see Table 4.2). Caltrans repair and rehabilitation projects either have not required (projects already constructed) or would not require (projects planned) acquisition of farmland for right-of-way.

Table 4.2 Local Development in the Merced County

Map #	Development	Approx. Area in hectares (acres)	Jurisdiction	Proposed Land Use	Status
1	Riverside Motorsports Park	486 (1,200)	County	Recreation	Pending Approval
2	Atwater Ranch	227 (562)	City of Atwater	Residential	Pending approval
3	Dominion Annexation	25 (61)	City of Merced	Residential	Pending Approval
4	University Community Plan	854 (2,110)	County of Merced	Residential/ Commercial	Pending Approval
	Approx. Total	1592 (3,933)			

Sources: CEQAnet database (March 2004)

Impacts from Plainsburg/Arboleda Project

The build alternatives of the Plainsburg/Arboleda project would result in the direct conversion of farmland. Because agricultural land provides some foraging habitat for wildlife, including kit foxes, Swainson's hawks, mountain plovers and burrowing owls, there would be a corresponding loss of wildlife habitat (see Table 4.3).

Table 4.3 Impacts to Farmland Habitat

Habitat Impacts	Plainsburg Alternative 1A + Arboleda Alternative 4	Plainsburg Alternative 1B + Arboleda Alternative 4	Plainsburg Alternative 2 + Arboleda Alternative 4	Plainsburg Alternative 3 + Arboleda Alternative 4
Farmland loss	323.1 hectares (800.1 acres)	459.4 hectares (1,135.3 acres)	459.4 hectares (1,135.3 acres)	553.9 hectares (1,368.6 acres)
Foraging habitat loss (kit fox, Swainson's hawk, and burrowing owl)	323.1 hectares (800.1 acres)	459.4 hectares (1,135.3 acres)	459.4 hectares (1,135.3 acres)	553.9 hectares (1,368.6 acres)

Habitat Impacts	Plainsburg Alternative 1A + Arboleda Alternative 5	Plainsburg Alternative 1B + Arboleda Alternative 5	Plainsburg Alternative 2 + Arboleda Alternative 5	Plainsburg Alternative 3 + Arboleda Alternative 5
Farmland loss	307.8 hectares (760.6 acres)	345.2 hectares (835.2 acres)	444.8 hectares (1,099.2 acres)	539.5 hectares (1,333.1 acres)
Foraging abitat loss (kit fox, Swainson's hawk, and burrowing owl)	307.8 hectares (760.6 acres)	345.2 hectares (835.2 acres)	444.8 hectares (1,099.2 acres)	539.5 hectares (1,333.1 acres)

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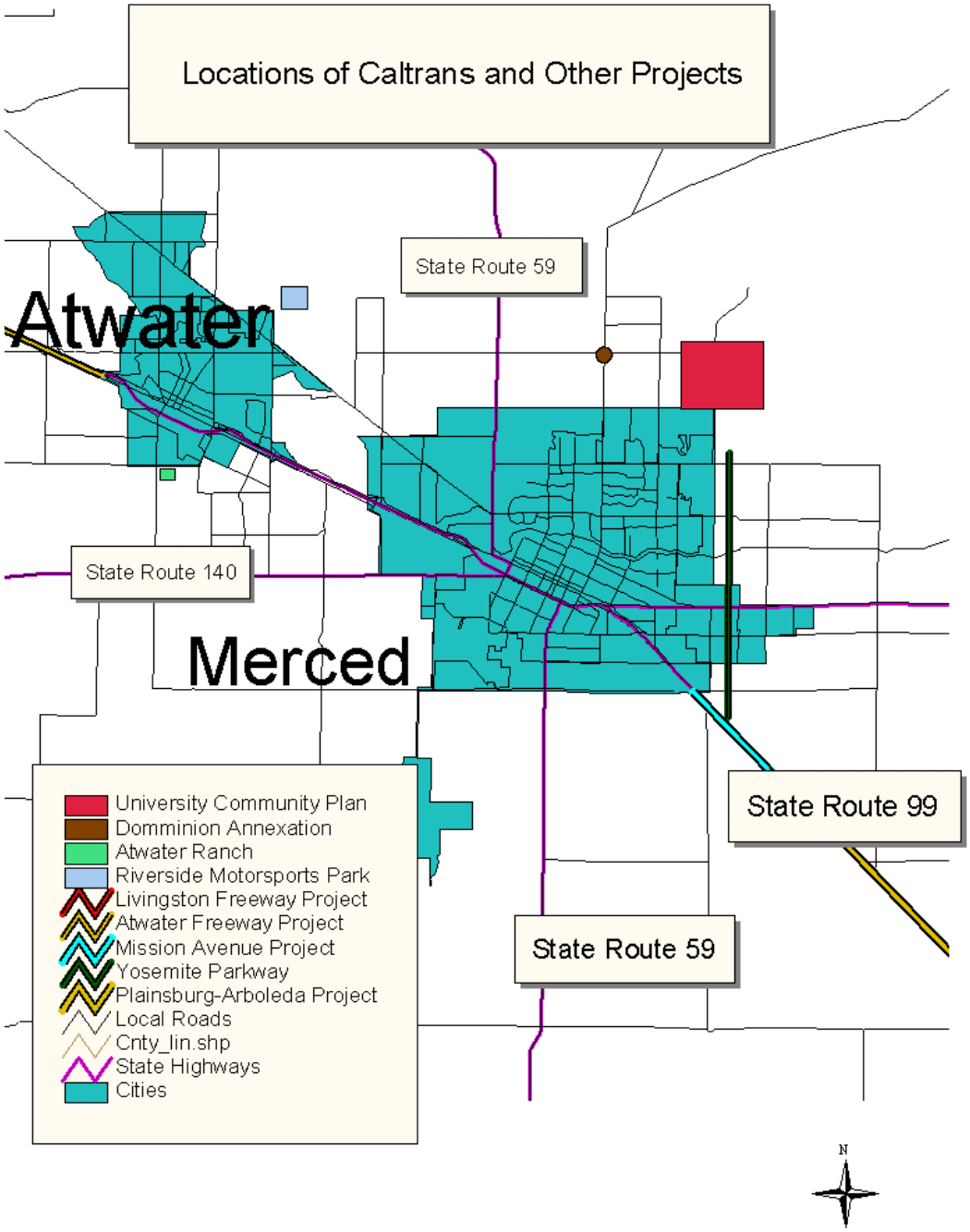

Figure 4-1 Map of Caltrans and Other Local Projects

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4.4 Urban Growth Method

Merced County is expected to double in population by 2030. To accommodate this growth, land conversion would be necessary to meet the need for new businesses, residences, industry, and transportation infrastructure. A growth model, which incorporated Geographic Information System mapping and city and county general plans, was used to determine where growth would likely occur. With the assistance of the model, the Merced County Association of Governments developed a Regional Transportation Plan that would reduce land conversion, while meeting the needs of the county's population.

An urban growth model developed by the University of California at Davis and maintained by the Merced County Association of Governments was used to quantify cumulative impacts of transportation projects in Merced County. The urban growth model projected the distribution of future growth and used Geographic Information System mapping of known resources to quantify impacts on each resource under consideration. The model covered all of Merced County. Major transportation projects (including the Plainsburg/Arboleda freeway project) and all other growth expected to occur in the county in the next 25 years were analyzed.

For the purpose of the cumulative impact analysis, the urban growth model focused on farmland and foraging habitat. Farmland is often considered as foraging area for animal species. For this project, the farmland to be converted also serves as potential habitat for threatened and endangered species (the San Joaquin kit fox, Swainson's hawk, mountain plover, and burrowing owl). The same analysis for farmland is true for the foraging habitat that the farmland provides.

County and city general plans, which are incorporated in the urban growth model, include measures to protect resources. For example, land use elements (sections) of the general plans include measures such as directing growth away from prime farmland and consolidating growth in cities as opposed to leapfrog or sprawling development patterns. The transportation elements of general plans identify future transportation projects that would support the land use elements. The Regional Transportation Plan is based in large part on the goals, policies, and projects identified in the county and city general plans. The urban growth model captures the interaction between these transportation and land use plans.

By using the urban growth model, the Merced County Association of Governments was able to develop a Regional Transportation Plan that would reinforce the benefits of county and city general plans and reduce impacts on resources.

Impacts

Table 4.4 shows that the Merced County Association of Governments Regional Transportation Plan, which includes the Plainsburg/Arboleda freeway project, would result in the conversion of 6078.4 hectares (15,020 acres) of farmland (or potential habitat) as compared to 6093.4 hectares (15,057 acres) of farmland if no plan were in place.

Table 4.4 Potential Farmland Conversion

Total County Farmland Area in Hectares (Acres)	Potential Impacts to Farmland with the Merced County Regional Transportation Plan (Countywide)		Potential Impacts to Farmland without the Merced County Regional Transportation Plan (Countywide)	
	Hectares (Acres) Converted	Percentage of County Converted	Countywide Conversion in Hectares (Acres)	Percentage of County Converted
474,372 (1,172,187)	6078.4 (15,020)	1.28%	6093.4 (15,057)	1.28%

Greater impacts would occur without the Regional Transportation Plan projects because the transportation infrastructure that is needed to support planned growth would not be provided. Congestion would increase in areas most desirable for growth. To escape congested areas, some developments would shift to areas where greater impacts could occur to resources. Table 4.4 demonstrates that one of the consequences of not providing planned transportation infrastructure, including for the Plainsburg/Arboleda freeway, would be increased farmland conversion.

Table 4.5 shows the amount of farmland conversion associated with the various combinations of alternatives for the project. Several of these combinations would result in additional reduction of farmland conversion. The growth model shows that the potential cumulative effect to farmland would range from 5870 hectares (14,506 acres) to 6078.4 hectares (15,020 acres), depending on which combination of alternatives is selected. All combinations of alternatives would result in fewer acres

of farmland being converted than not building Regional Transportation Plan projects (including this project).

Table 4.5 Cumulative Impacts for Project

Farmland Conversion by Alternative Combination								
Plainsburg 1A & Arboleda 4			Plainsburg 1B & Arboleda 4			Plainsburg 2 & Arboleda 4		
Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted	Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted	Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted
323.8 (800.1)	5848.6 (14,452)	1.23%	345.7 (854.3)	5870.4 (14,506)	1.24%	459.4 (1,135.3)	5984.2 (14,787)	1.26%

Farmland Conversion by Alternative Combination								
Plainsburg 3 & Arboleda 4			Plainsburg 1A & Arboleda 5			Plainsburg 1B & Arboleda 5		
Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted	Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted	Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted
553.8 (1,368.6)	6078.4 (15,020)	1.28%	307.8 (760.6)	5832.4 (14,412)	1.23%	338 (835.2)	5862.7 (14,487)	1.24%

Farmland Conversion by Alternative Combination					
Plainsburg 2 & Arboleda 5			Plainsburg 3 & Arboleda 5		
Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted	Direct Hectares (Acres) Converted	Hectares (Acres) Converted: Growth Model Plus Direct	Percent County Converted
444.8 (1,099.2)	5969.6 (14,751)	1.26%	279.6 (1,333.1)	6064.3 (14,985)	1.28%

4.5 Environmental Analysis and Mitigation Measures

Environmental analysis based on the traditional and urban growth model methods is included in this section.

Traditional Method

Cumulative impacts to farmland are not expected from the proposed project, other Caltrans projects and local development. Agriculture is the number one industry for the County of Merced, and planning documents consider the preservation of agriculture to be of primary importance. This freeway project conforms to the circulation element of the Merced County General Plan, which envisions the highway as a six-lane freeway. The project area is outside the urban growth boundary of the City of Merced and is not expected to encourage growth. It is also part of the Merced County Regional Transportation Plan, which was designed to minimize impacts to farmland.

Urban Growth Method

When cumulative impacts within Merced County are examined with the urban growth model, the cumulative impact on farmland is positive. This means that fewer hectares/acres of farmland would be converted as compared to the No-Build Alternative in the Regional Transportation Plan:

- 261 fewer hectares (645 acres) with Plainsburg Alternative 1A and Arboleda Alternative 5
- 245 fewer hectares (605 acres) with Plainsburg Alternative 1A and Arboleda Alternative 4
- 231 fewer hectares (570 acres) with Plainsburg Alternative 1B and Arboleda Alternative 5
- 228 fewer hectares (551 acres) with Plainsburg Alternative 1B and Arboleda Alternative 4
- 124 fewer hectares (306 acres) with Plainsburg Alternative 2 and Arboleda Alternative 5
- 109 fewer hectares (270 acres) with Plainsburg Alternative 2 and Arboleda Alternative 4
- 29.1 fewer hectares (72 acres) with Plainsburg Alternative 3 and Arboleda Alternative 5
- 15 fewer hectares (37 acres) with Plainsburg Alternative 3 and Arboleda Alternative 4

Because the Plainsburg/Arboleda freeway, as part of the Regional Transportation Plan, supports planned growth, it would contribute to a reduction of farmland conversion over the next 25 years.

An ad hoc advisory committee of local planners from Merced County and the cities of Merced, Atwater, and Los Banos reviewed these results and found them to be reasonable and consistent with the planners' experiences.

Chapter 5 California Environmental Quality Act Evaluation

5.1 Determining Significance Under CEQA

The proposed project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act and the National Environmental Policy Act. Caltrans is the lead agency under the California Environmental Quality Act. The Federal Highway Administration is the lead agency under the National Environmental Policy Act.

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

The California Environmental Quality Act, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an environmental impact report must be prepared. Each and every significant effect on the environment must be disclosed in the environmental impact report and mitigated if feasible. In addition, the California Environmental Quality Act Guidelines list a number of mandatory findings of significance, which also require the preparation of an environmental impact report.

There are no types of actions under the National Environmental Policy Act that parallel the finding of mandatory significance of the California Environmental Quality Act. This chapter discusses the effects of this project and California Environmental Quality Act significance (see also Appendix A, which contains the California Environmental Quality Act checklist).

According to Title 14 California Code of Regulations, Section 15382, "Significant effect on the environment means substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."

5.2 Discussion of Significant Impacts

Significant Environmental Effects of Proposed Project

The following impacts would have a significant effect on the environment:

- Increased noise
- Loss of farmland

For a full discussion of significant effects for the above issues, please see Chapter 3, Section 3.4 Noise and Section 3.9 Farmlands/Agricultural Lands.

Unavoidable Significant Effects

Farmland

The proposed project would contribute to a loss of farmland by acquiring 303 to 561 hectares (750 to 1,300 acres) of farmland. However, this is an unavoidable impact because the project area is surrounded by farmland. The project would be built on rural land that is primarily zoned for agricultural use. If the proposed project were constructed, farmland would be taken out of production for highway right-of-way use. From 91 to 114 hectares (224 to 281 acres) of farmland that would be converted to highway use are classified as Prime Farmland by the National Resources Conservation Service.

The amount of farmland converted would depend on the build alternative, if selected. Plainsburg Alternative 3/Arboleda Alternative 4 could have the greatest impact on farmland.

5.3 Mitigation of Measures for Significant Impacts Under CEQA

Agricultural Resources

Due to the rural nature of the area surrounding the project, it would not be possible to build the proposed project without affecting farmland. The only option that would avoid loss of farmland would be the No-Build Alternative. The No-Build Alternative would not meet the purpose and need of the project.

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Chapter 6 Summary of Public Involvement Process/Tribal Coordination

6.1 Public Information Meeting/Open House

Caltrans held a public information meeting/open house for the State Route 99 Plainsburg/Arboleda freeway project on Wednesday, May 16, 2001, from 4:00 p.m. to 7:00 p.m. at Plainsburg Elementary School at 3708 Plainsburg Road in Merced.

The purpose of the meeting was to provide the public and all interested parties with information regarding the status of the project and to gain public input on the project alternatives prior to Caltrans preparing the draft environmental document.

Caltrans announced the meeting by public notice advertisements published in *The Merced Sun-Star* on Wednesday, April 18, 2001, and in *The Modesto Bee* on Thursday, April 26, 2001 and Wednesday, May 9, 2001. Caltrans also sent letters of invitation to federal, state, and local officials, as well as to 75 local residences and small businesses located within a one-mile radius of the proposed project location.

Approximately 30 residents and interested parties (all from Merced County) attended the public information meeting/open house. Of those who attended, 10 individuals submitted written comments during the meeting. One comment card was later received by mail. In addition, a number of oral comments were given and recorded at the meeting. The comments received, both oral and written, focused on the following issues:

- Property acquisition and amount of right-of-way to be required
- Reduction in agricultural land being acquired
- Location of the interchanges
- Landscaping implementation
- Amount of access to State Route 99 that would be left for residents

A Public Information Meeting/Open House Summary Report was completed in June 2001. If you would like a copy of the report, please send a written request to David Farris at the California Department of Transportation, 2015 E. Shields Avenue, Suite 100, Fresno, CA 93726.

6.2 Public Hearing/Open House

Caltrans held a public hearing/open house for the State Route 99 Plainsburg/Arboleda freeway project on Thursday, June 12, 2003, from 4:00 p.m. to 7:00 p.m. at Plainsburg Elementary School at 3708 Plainsburg Road in Merced.

The purpose of the public hearing/open house was to facilitate communication between Caltrans and the public about the project. The hearing also allowed Caltrans the opportunity to present findings from the environmental studies. As required for a public hearing, a court reporter was available to record comments.

Caltrans announced the public hearing/open house by public notice advertisements published in *The Mariposa Tribune* on May 27, 2003 and June 3, 2003, in *El Sol* for the weeks of May 22-28, 2003 and June 5-11, 2003, and in *The Modesto Bee* on May 21, 2003 and June 4, 2003. Caltrans also sent letters of invitation to federal, state, and local officials as well as to local residences and small businesses located within a one-mile radius of the proposed project area. Approximately 20 residents and interested parties (all from Merced County) attended the public hearing/open house.

Of those who attended, 10 individuals submitted comments either orally to the court reporter or in writing on the comment cards provided at the meeting. The comments received, both oral and written, focused on the following issues:

- Two people had comments on other projects: the Mission Avenue Interchange project and the Campus Parkway project
- Four people expressed a preference for Arboleda Alternative 5
- One person preferred Plainsburg Alternative 1A
- One person preferred Plainsburg Alternative 1B
- Most comments were concerned about impacts to the person's property or business within the area

- One person questioned the need for and expressed concern regarding traffic on the frontage road

A summary report of the public hearing/open house is available. If you would like a copy of the report, please send a written request to David Farris at the California Department of Transportation, 2015 E. Shields Avenue, Suite 100, Fresno, CA 93726.

During the public comment period, it was determined that this project would have an adverse impact on farmland because of the number of acres that would have to be converted from farmland to other uses. Because of that impact, an Environmental Impact Report was then required for the project.

The Environmental Impact Report was circulated for public review from January 10, 2006 to February 24, 2006. Copies of the document were sent to the State Clearinghouse for distribution to various agencies. A public notice was published in *The Merced Sun-Star* to inform the public that the document was available. Property owners, residents, public agencies, and other interested parties were sent a letter notifying them of the availability of the document. Appendix I provides all the written comments received about the document during the public review period; a response from Caltrans to each comment is also included.

6.3 Tribal Consultation

A copy of the Historic Property Survey Report and supporting documentation were supplied to the Native American contacts listed below. The following individuals were also consulted extensively with regard to the extended Phase I/Phase II excavations at site CA-383:

- Ms. Lorrie Planas (Central Valley and Mountain Reinternment Association), 2736 E. Palo Alto, Clovis, CA 93611
- Mr. Sam Romero (Central Valley Indian Health), Excavation Monitor, 1268 Bennett Way, Sanger, CA 93657
- Mr. Jay Johnson (American Indian Council of Mariposa County), 5235 Allred Road, Mariposa, CA
- Mr. Bill Leonard (Chairman, American Indian Council of Mariposa County), P.O. Box 1200 Mariposa, CA 95338

No comments regarding cultural resources were received at the public information meeting/open house on May 16, 2001 at Plainsburg Elementary School in Merced.

Caltrans contacted Ms. Debbie Pilas-Treadway of the Native American Heritage Commission by fax and letter on December 22, 1999. In her reply dated December 28, 1999, Ms. Pilas-Treadway reported that a search of the Sacred Lands file was negative for the project area. She supplied the names of Lorrie Planas (Central Valley and Mountain Reinternment Association), Bill Leonard (American Indian Council of Mariposa County), and Jay Johnson (also American Indian Council of Mariposa County) as local tribal contacts for the project area.

The Native American Heritage Commission was also consulted before and during the Extended Phase I/Phase II excavations at site CA-383.

6.4 Consultation with U.S. Fish and Wildlife Service

February 6, 2006—The U.S. Fish and Wildlife Service issued the Biological Opinion.

February 27, 2002—The U.S. Fish and Wildlife Service faxed a map of the proposed expansion of the East Grassland Wildlife Management District west of State Route 99.

February 7, 2002—A Caltrans biologist and engineers participated in a Kit Fox Planning and Conservation Team meeting held at the U.S. Fish and Wildlife Service office in Sacramento. Also attending were representatives of the U.S. Fish and Wildlife Service, California Department of Fish and Game, Defenders of the Wildlife, Department of Water Resources, Ibis Environmental Incorporated, the Endangered Species Recovery Program, Lawrence Livermore National Laboratory, Department of Energy, and Wildlands Incorporated. Caltrans presented maps that illustrated a potential mitigation strategy that would enhance kit fox movement under the proposed freeway.

6.5 Consultation with California Department of Fish and Game

May 7, 2002—Via email, the California Department of Fish and Game noted the need for a 2081 permit for potential direct and indirect impacts to Swainson's hawk nest sites near Deadman Creek.

June 20, 2001—The California Department of Fish and Game and a Caltrans biologist took a field trip to the project area to determine the applicability of California Department of Fish and Game's Section 1601 Streambed Alteration Agreement. The California Department of Fish and Game representative stated that if the canals do not support aquatic life or riparian vegetation, or affect downstream fish and wildlife, they will not require a 1600 notification and agreement. However, the California Department of Fish and Game is concerned about the realignment of streams, vegetation removal and culvert design.

6.6 Consultation with Endangered Species Recovery Program

January 8, 2002—Caltrans met with representatives of the Endangered Species Recovery Program to discuss impacts to kit fox and mitigation alternatives. The Endangered Species Recovery Program representative stated that concerns regarding linkage would be an issue and that no decisions regarding changes in the project or mitigation be considered without developing a strategy with the other partners.

December 20, 2001—Caltrans met with the Endangered Species Recovery Program representative regarding project impacts for the San Joaquin kit fox.

6.7 Consultation with the U.S. Army Corps of Engineers

December 13, 2001—Caltrans met with the U.S. Army Corps of Engineers to present the project and gain input. Corps staff indicated that they wanted to receive a wetland delineation verification report in which: 1) project alternatives are thoroughly described and defended as most practicable, 2) an evaluation for all water bodies, including streams, canals, wetland areas, and agricultural parcels, is discussed, and 3) aerial photography is included.

6.8 Consultation with Natural Resources Conservation Service

February 15, 2005—The Natural Resources Conservation Service returned the Farmland Conversion Impact Rating Form.

November 18, 2004—The Farmland Conversion Impact Rating Form was sent to the Natural Resources Conservation Service.

November 29, 2001—The Natural Resources Conservation Service indicated that it would be the agency to issue a wetlands delineation verification for State Route 99.

October 23, 2001—Caltrans met with the Natural Resources Conservation Service to review project maps and aerial photography and to discuss potential wetland issues regarding jurisdiction. It was concluded that the Natural Resources Conservation Service did not anticipate any wetland issues on agricultural parcels with the exception of one parcel.

6.9 Consultation with Merced Irrigation District

June 11, 2001—Caltrans met with the Merced Irrigation District to discuss irrigation canal history, manual irrigation release parameters, and canal maintenance activities. According to the Merced Irrigation District, the canals within the project area were constructed in the 1920s or earlier. It is Merced Irrigation District's position that canals constructed and maintained by the Merced Irrigation District do not transport water directly to or from a U.S. Army Corps of Engineers-jurisdictional water and do not fall under the jurisdiction of the U.S. Army Corps of Engineers.

Chapter 7 List of Preparers

The following Caltrans Central Region Environmental staff prepared this Environmental Assessment/Environmental Impact Report:

Allam Alhabaly, Transportation Engineer. B.S., Industrial Engineering, California State University, Fresno; 2 years experience in environmental engineering with an emphasis on acoustics; 6 years environmental technical studies experience. Contribution: Completed technical studies for air quality, noise quality, and water quality; also reviewed the Environmental Assessment/Environmental Impact Report.

Gilberto Baca, Transportation Engineer P.E. B.S., Civil Engineering, California State University, Fresno; 6.5 years in roadway design. Contribution: Project Engineer.

Chris Brewer, Associate Environmental Planner (Architectural History). M.A. and B.A., Public Administration, California State University, Bakersfield; 20 years experience with Section 106, CEQA Compliance. Contribution: Completed Historic Architectural Survey Report for project.

Jason Castillo, Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; M.A., University of California at Irvine; 5.5 years in roadway/structures/bridge design. Contribution: Project Engineer.

David Farris, Associate Environmental Planner. B.S., Environmental Biology and Management, University of California at Davis; 5 years in environmental planning. Contribution: Prepared document and coordinated environmental process.

Chris Gardner, Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 6 years experience in roadway design. Contribution: Project Engineer.

Geoffrey Gray, Associate Environmental Planner. M.A. and B.A., Biology, California State University, Fresno; 3 years experience in biology for Caltrans. Contribution: Project Biologist.

Peter Hansen, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 4 years experience paleontology/geology. Contribution: Reviewed Paleontology Study.

Edward A. Hibbs, Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo. Licensed Landscape Architect and licensed Landscape Contractor; 28 years experience including more than 6 years with Caltrans. Contribution: Landscape Architect for project.

Sarah E. Johnston, Associate Environmental Planner. B.A., Anthropology, California State University, Sacramento; M.A., Public Administration, California State University, Fresno; 25 years archaeological field and lab work. Contribution: Principal Project Archaeologist.

Michael G. Robinson, Associate Environmental Planner. B.A., English, California State University, Northridge; M.A., Geography, California State University, Northridge; 5 years experience in hazardous waste. Contribution: Hazardous Waste Specialist.

Lance Brangham, Senior Environmental Planner. B.S., Biology, California State University, Fresno; 6 years resource planning experience. Contribution: Environmental Manager; Branch Chief, San Joaquin Valley Analysis Branch.

Gordon Watkins, Associate Right of Way Agent. B.S., Real Estate and Urban Land Economics, California State University, Fresno; 10 years experience in Urban Land Economics; 3 years as a Right-of-Way Agent for Caltrans. Contribution: Completed Draft Relocation Impact Statement, Draft Relocation Impact Memorandum.

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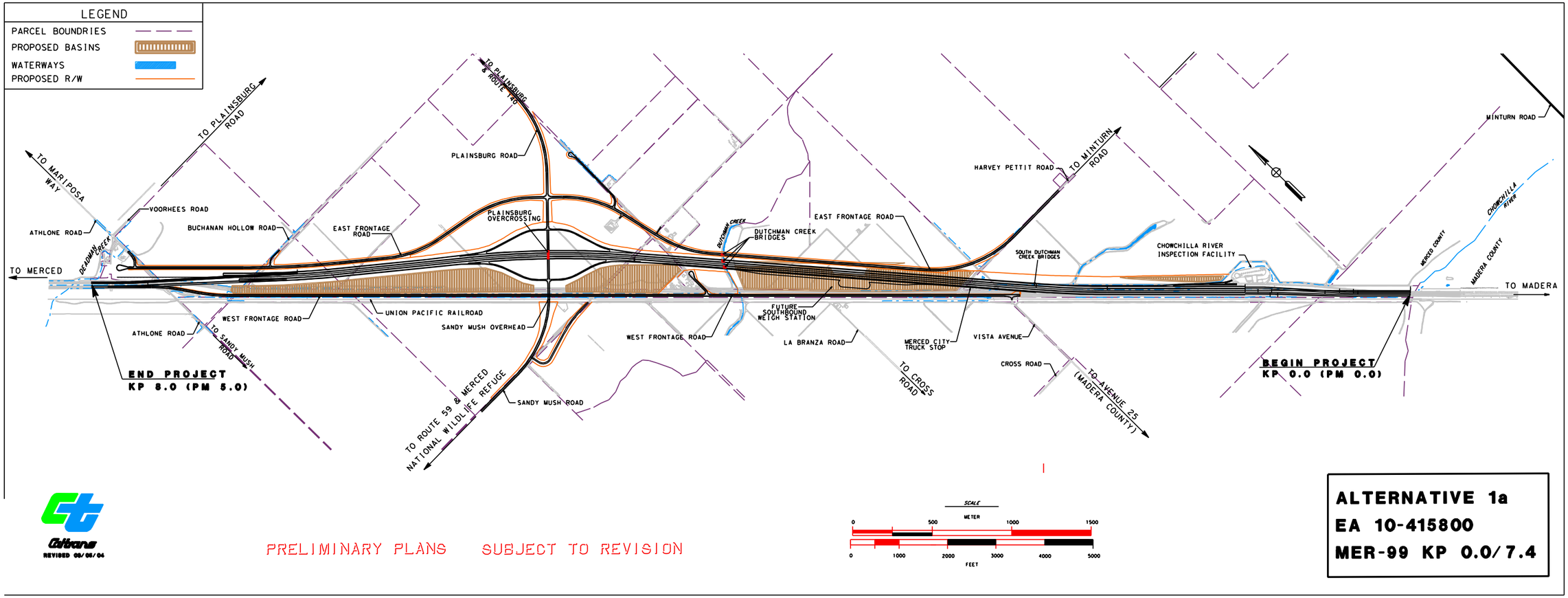

Figure 9-1 Map of South Plainsburg Alternative 1A

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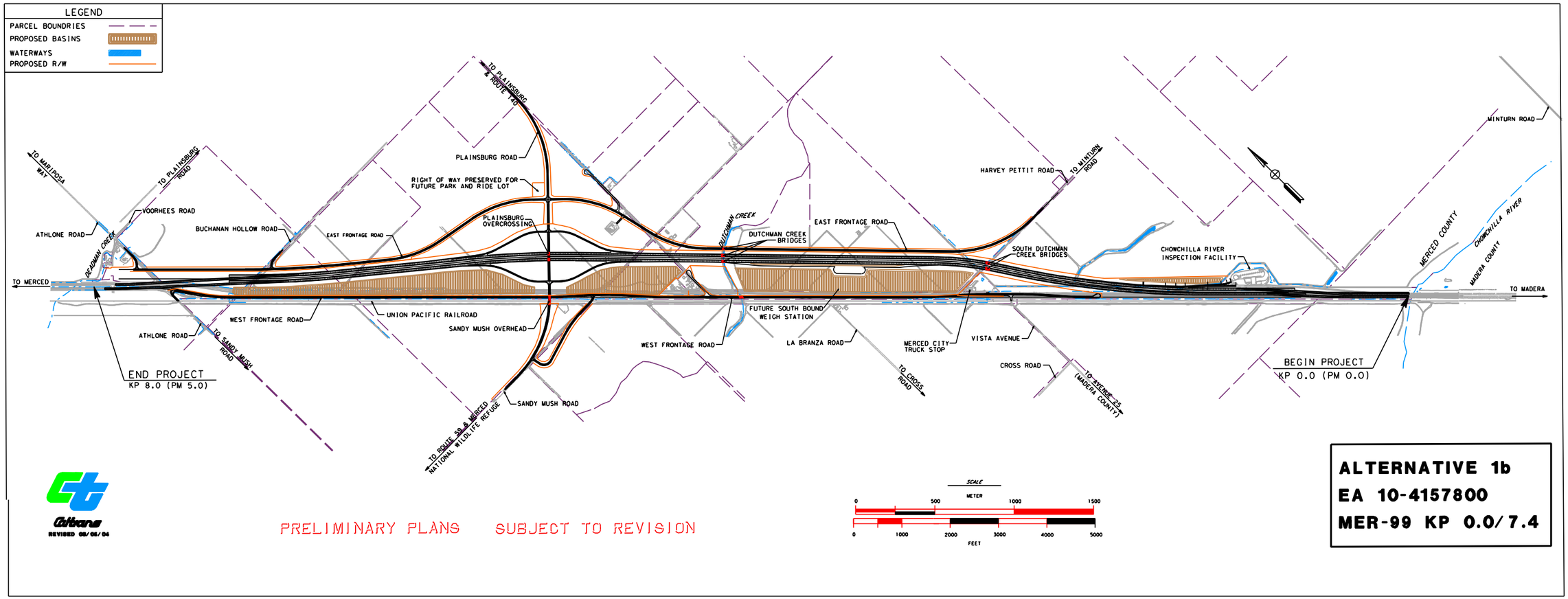

Figure 9-2 Map of South Plainsburg Alternative 1B

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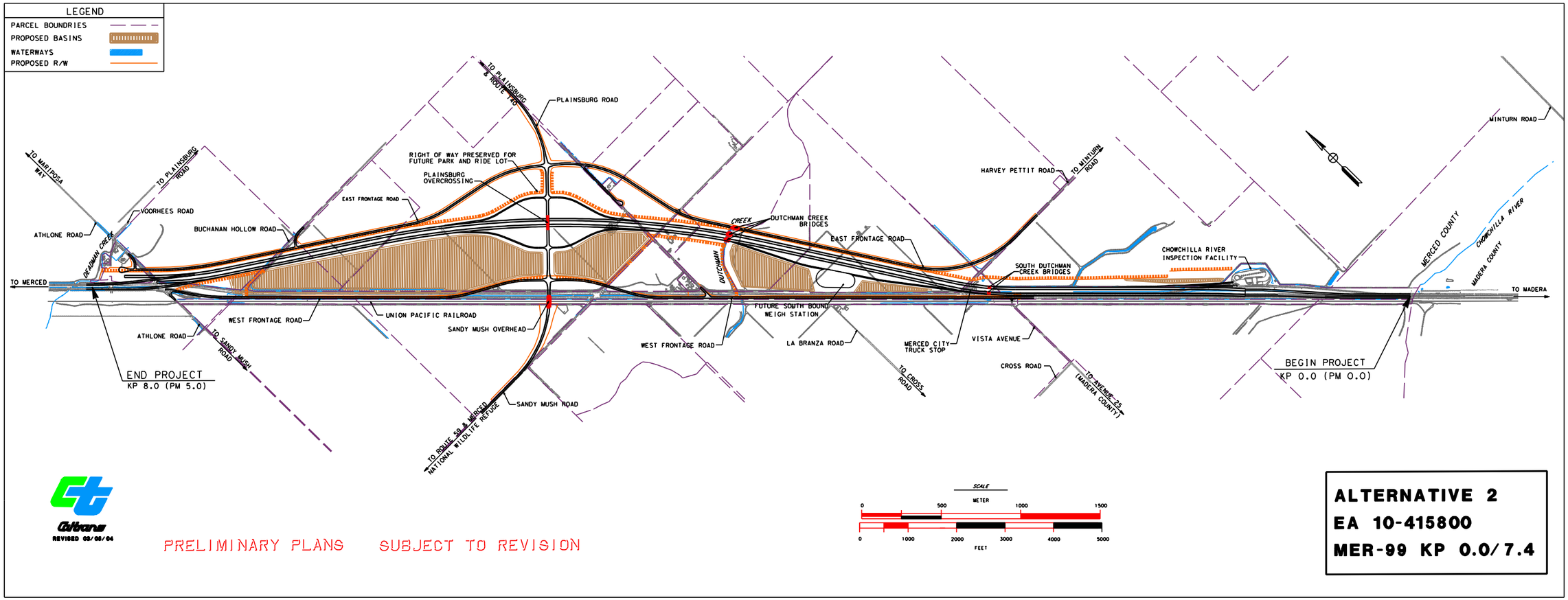

Figure 9-3 Map of South Plainsburg Alternative 2

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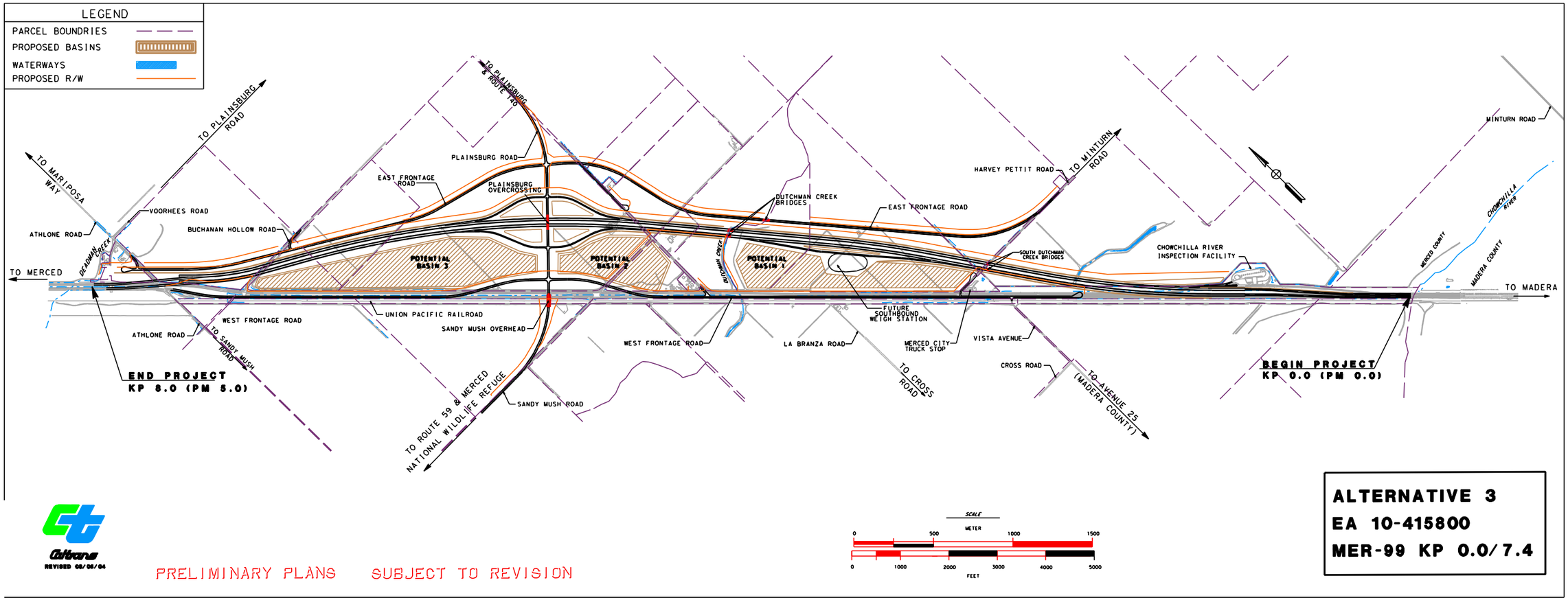

Figure 9-4 Map of South Plainsburg Alternative 3

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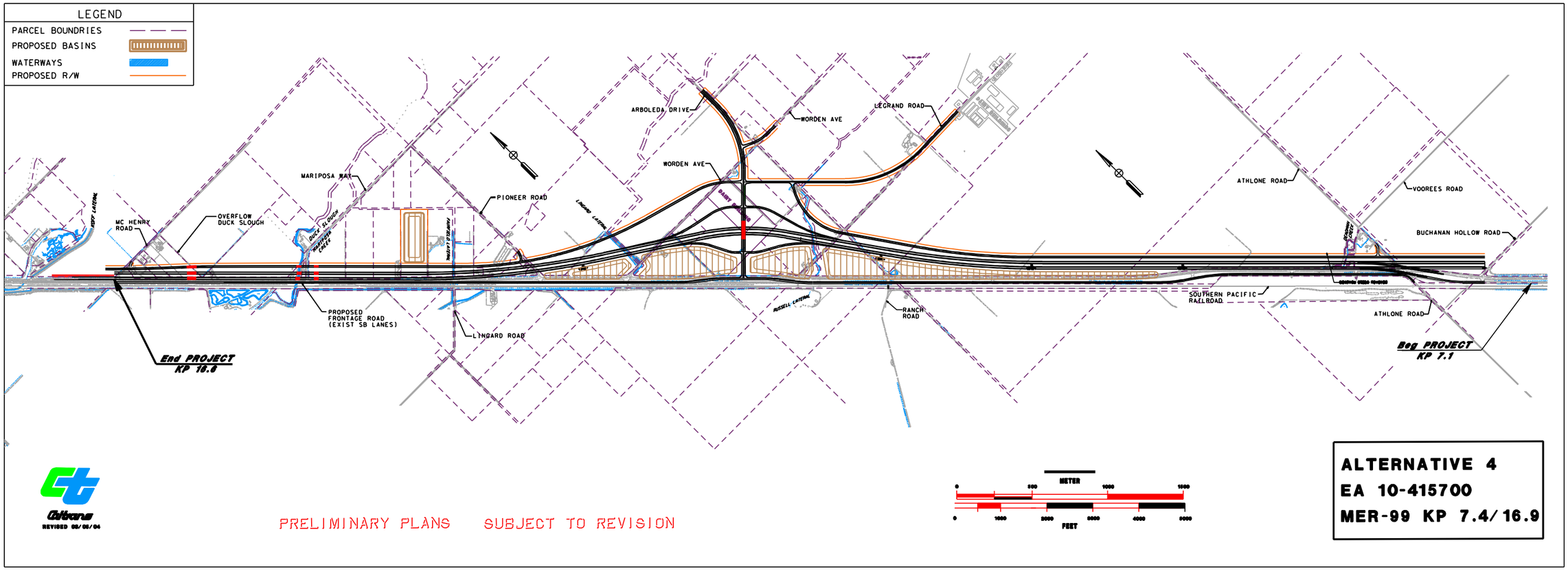

Figure 9-5 Map of North Arboleda Alternative 4

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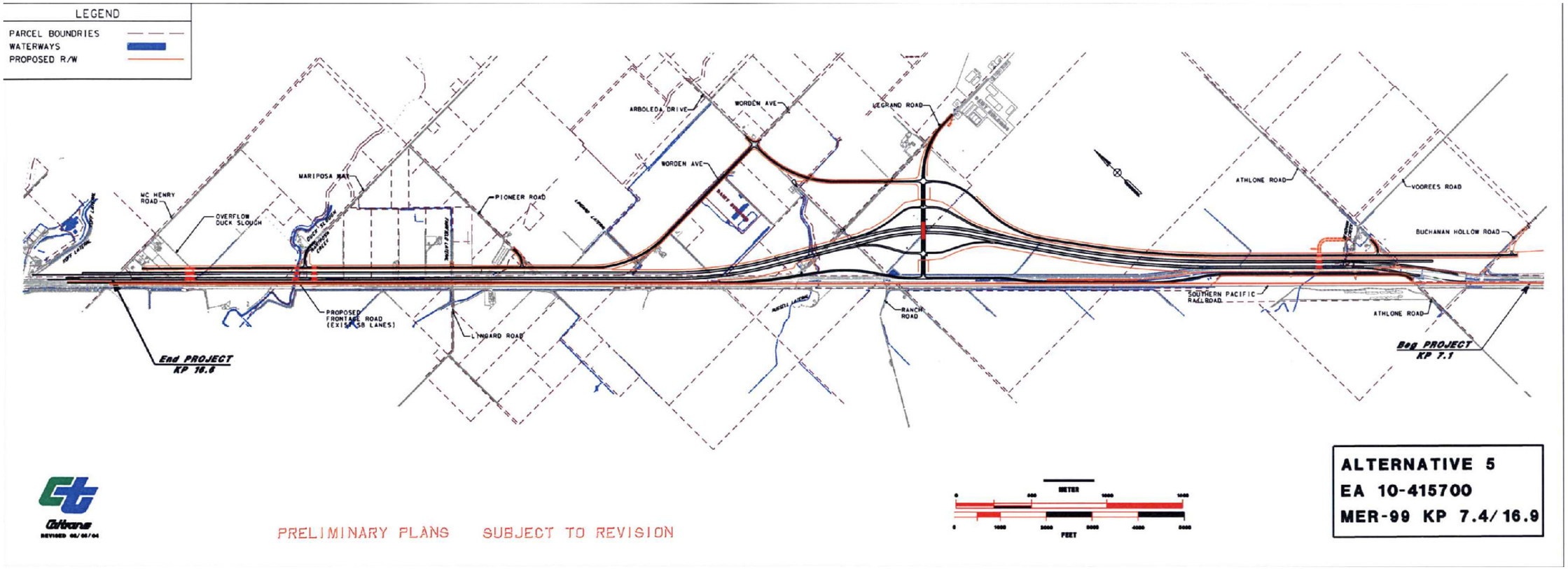

Figure 9-6 Map of North Arboleda Alternative 5

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Appendix A CEQA Checklist

CEQA Environmental Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The CEQA impact levels include potentially significant impact, less than significant impact with mitigation, less than significant impact, and no impact. Please refer to the following for detailed discussions regarding impacts:

CEQA:

- Guidance: Title 14, Chapter 3, California Code of Regulations, Sections 15000 et seq. (http://www.ceres.ca.gov/topic/env_law/ceqa/guidelines/)
- Statutes: Division 13, California Public Resource Code, Sections 21000-21178.1 (http://www.ceres.ca.gov/topic/env_law/ceqa/stat/)

CEQA requires that environmental documents determine significant or potentially significant impacts. In many cases, background studies performed in connection with the project indicate no impacts. A "no impact" reflects this determination.

The word "significant" and "significance" used throughout the checklist are related to CEQA, not NEPA, impacts (unless otherwise noted). CEQA requires that environmental documents determine significant or potentially significant impacts, NEPA does not. Addressing significant or potentially significant impacts in joint CEQA and NEPA environmental documents can be confusing, especially in those instances where the two laws and implementing regulations have different thresholds of significance. Under NEPA, the degree to which a resource is impacted is only used to determine which NEPA document is necessary. Once the federal agency has determined the magnitude of a project's impacts and the level of documentation required, it is the magnitude of the impact that is evaluated in the environmental document, not the degree of significance.

For the purpose of the impact discussion in this document, determination of significant or potentially significant impacts is made only in the context of CEQA.

	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?				X
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?				X
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?	X			
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	
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?				X
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?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				X
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)?				X
d) Expose sensitive receptors to substantial pollutant concentration?				X
e) Create objectionable odors affecting a substantial number of people?				X
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?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
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?			X	
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?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X

	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?				X
COMMUNITY RESOURCES – Would the project:				
a) Cause disruption of orderly planned development?				X
b) Be inconsistent with a Coastal Zone Management Plan?				X
c) Affect lifestyles or neighborhood character or stability?			X	
d) Physically divide an established community?				X
e) Affect minority, low-income, elderly, disabled, transit-dependent, or other specific interest group?			X	
f) Affect employment, industry, or commerce, or require the displacement of businesses or farms?			X	
g) Affect property values or the local tax base?				X
h) Affect any community facilities (including medical, educational, scientific, or religious institutions, ceremonial sites or sacred shrines?				X
i) Result in alterations to waterborne, rail, or air traffic?				X
j) Support large commercial or residential development?				X
k) Affect wild or scenic rivers or natural landmarks?				X
l) Result in substantial impacts associated with construction activities (e.g., noise, dust, temporary drainage, traffic detours, and temporary access, etc.)?			X	
CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?		X		
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:				X
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.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?				X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
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.				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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?				X
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?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
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?				X
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?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
HYDROLOGY AND WATER QUALITY - Would the project:				
a) Violate any water quality standards or waste discharge requirements?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
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 off-site?				X
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 off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X
f) Otherwise substantially degrade water quality?				X
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?				X
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X
LAND USE AND PLANNING - Would the project:				
a) 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?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
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?				X
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?				X
NOISE - Would the project:				
a) Cause 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?				X
b) Cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X
c) Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X		
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?				X
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?				X
POPULATION AND HOUSING - Would the project:				

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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)?	☐	☐	☐	X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X
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?	☐	☐	☐	X
Police protection?	☐	☐	☐	X
Schools?	☐	☐	☐	X
Parks?	☐	☐	☐	X
Other public facilities?	☐	☐	☐	X
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?	☐	☐	☐	X
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?	☐	☐	☐	X
TRANSPORTATION/TRAFFIC - Would the project:				

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Cause an increase in traffic, which 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)?				X
b) Exceed, either individually or cumulatively, a Level of Service standard established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incomplete uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X
UTILITY AND SERVICE SYSTEMS - Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
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?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
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?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

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

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Appendix B Minimization and Mitigation Summary

The conversion of farmland and increases in noise associated with the proposed project are considered significant impacts under the California Environmental Quality Act. No mitigation would be done for these impacts for the following reasons:

- The proposed project would be built primarily on farmland that surrounds the project area. Only the No-Build Alternative would avoid converting farmland for the project, but it would not meet the purpose and need of the project. Farmland conversion for this project is in the Merced County General Plan.

- The proposed project would be built in a rural area where sensitive noise receptors are few and scattered. Two locations—3979 Arboleda Drive and 4085 Highway 99—meet both the feasibility and reasonability criteria and qualify for soundwalls. Therefore, noise abatement measures are recommended. Noise abatement for the remaining locations was considered feasible, but not reasonable based on the results of a cost-benefit analysis.

Summary of Mitigation

Area	Impact	Mitigation
Biological Resources	Waters of the United States	Waters of the United States compensation, and construction monitoring. Use of best management practices during construction.
	Sensitive species habitat	Special-status species habitat compensation, pre-construction surveys, a pre-construction educational meeting, avoidance and minimization, and construction contract special provisions. Mitigation according to Biological Opinion issued by the U.S. Fish and Wildlife Service. (February 6, 2006)
Community Impacts	Displace residences and businesses	Relocation assistance and real property acquisition policies.
Cultural Resources	Cover two archaeological sites with fill dirt	Construction monitoring, environmentally sensitive area fencing.

Summary of Minimization and Monitoring

Area	Impact	Mitigation
Hydrology and Water Quality	Storm water runoff	Implement a Storm Water Pollution Prevention Plan during construction and a Storm Water Management Plan after construction.
Air Quality	PM_{10} emissions during construction	Implement Caltrans Standard Specifications that require the contractor to comply with the San Joaquin Valley Unified Air Pollution Control District's rules, ordinances, and regulations.
Visual Resources	Possible loss of large oak or large eucalyptus trees	Replacement planting.
Hazardous Waste	Two sites with potential hazardous waste material	Disposal of soil at a Class I landfill, clean-up site in accordance with Environmental Protection Agency regulations.

See Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures, for more detailed information on mitigation, minimization, and monitoring commitments.

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

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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.

WILL KEMPTON
Director

"Caltrans improves mobility across California"

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Appendix D State Historic Preservation Officer Letter of Concurrence

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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31 January 2003

In Reply Refer To
FHWA021021A

Gary N. Hamby
Division Administrator
California Division
Federal Highway Administration
980 Ninth Street, Suite 400
Sacramento, California 95814-2724

RE: HDA-CA, FILE NO. 10-MER-99 PM 0.0/10.6, DOCUMENT NO. P 42275 [SECTION 106 CONSULTATION ON THE UPGRADE OF A PORTION OF STATE ROUTE 99, MERCED COUNTY]

Dear Mr. Hamby,

This letter is a response to your request that I review the June 2002 *Historic Property Survey Report: Freeway Upgrade on State Route 99 between the Chowchilla River and McHenry Road in Southern Merced County* (HPSR). Your request and my comments here are made pursuant to 36 CFR Part 800, the regulations that implement Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended.

You request in your letter of 18 October 2002 that I concur that correspondence with Native American groups and local organizations is adequate, that the area of potential effects (APE) is adequately defined and identification efforts are satisfactory pursuant to 36 CFR §§ 800.1(a) to (b), that cultural resource studies conducted to date are adequate, that archaeological sites CA-Mer-381/H and CA-Mer-383 are eligible for inclusion in the National Register of Historic Places (National Register), that twenty historic architectural properties are not eligible for such inclusion, and that the proposed undertaking would affect historic properties pursuant to 36 CFR § 800.4(d)(2).

On the basis of my review of the HPSR, I concur that the FHWA's efforts to involve the public and to identify other consulting parties, pursuant to 36 CFR §§ 800.3(e) and (f), are adequate.

I concur that the FHWA's effort to determine and document the APE for the undertaking is adequate pursuant to 36 CFR § 800.4(a)(1) provided that the implementation of the undertaking will not disturb the natural ground in the APE below the present depth of the plowed agricultural zone. I understand the undertaking's APE to be the sum of the areas described as the "area considered for direct effects to all cultural resources in the APE" and the "portion of the

APE considered for indirect effects" in the *2. Area of Potential Effects* section of the HPSR and depicted as "Architectural History APE" and "Archaeological APE" on Maps 3a through 3d of the HPSR (*Merced 99 Freeway—Area of Potential Effects, EA 10-4157000/415800 MER-99 PM 0.0-10.6*).

I concur that the FHWA's effort to identify historic properties is adequate pursuant to 36 CFR § 800.4(b).

I acknowledge and agree that prior consensus determinations between the FHWA and the State Historic Preservation Officer on 29 February and 26 May 2000 found, respectively, CA-Mer-352H and CA-Mer-356 to be ineligible for inclusion in the National Register. I further acknowledge and agree with the FHWA's determinations in the 1986 California Historic Bridge Inventory that Dutchman Creek Bridge [California Department of Transportation (Caltrans) Bridge No. 39 0001L], Deadmans Creek Bridge (Caltrans Bridge No. 39 0002L), Duck Slough Bridge (Caltrans Bridge No. 39 0004), Duck Slough Overflow Bridge (Caltrans Bridge No. 39 0005), Mariposa Creek Bridge (Caltrans Bridge No. 39 0081), South Dutchman Creek Bridge (Caltrans Bridge No. 39 0108L), and South Dutchman Creek Bridge (Caltrans Bridge No. 39 0108R) are not eligible for inclusion in the National Register.

I concur with the FHWA's determinations that

8040 Highway 99, Plainsburg, CA
7560 Highway 99, Plainsburg, CA
7251 Plainsburg Road, LeGrand, CA
6744 Plainsburg Road, LeGrand, CA
5533 Athlone Road, LeGrand, CA
5535 Athlone Road, LeGrand, CA
6464 LeGrand Road, LeGrand, CA
5772 LeGrand Road, LeGrand, CA
5861 Worden Avenue, LeGrand, CA
5525 Worden Avenue, LeGrand, CA
3237 S Pioneer Road, LeGrand, CA
3134 Highway 99, Merced, CA
3311 S Pioneer Road, Merced, CA
3163 S Pioneer Road, Merced, CA
2978 Highway 99, Merced, CA
2530 Highway 99, Merced, CA
Southern Pacific Railroad R.O.W. segment in the APE
Dutchman Creek Bridge (Caltrans Bridge No. 39 0001R)
Deadmans Creek Bridge (Caltrans Bridge No. 39 0002R)
Athlone Road/Deadman Creek Bridge (Caltrans Bridge No. 39C0235)

are *not* eligible for inclusion in the National Register.

I concur with the FHWA's determinations that

CA-Mer-381/H **CA-Mer-383**

are eligible for inclusion in the National Register under Criterion D.

I concur finally with the FHWA's finding that the subject undertaking will affect historic properties pursuant to 36 CFR § 800.4(d)(2).

Please direct any questions or concerns that you may have to Project Review Unit archaeologist Mike McGuirt at 916.653.8920 or at mmcguirt@ohp.parks.ca.gov.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

WKM:mdm

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

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17 February 2006

In Reply Refer To
FHWA021021A

Gene K. Fong
Division Administrator
California Division
Federal Highway Administration
650 Capital Mall, Suite 4-100
Sacramento, California 95814

RE: REVISED FINDING OF EFFECT (FOE) FOR THE MERCED 99/PLAINSBURG-ARBOLEDA FREEWAY PROJECT [FURTHER SECTION 106 CONSULTATION ON THE **UPGRADE OF THE PORTION OF STATE ROUTE 99 FROM THE CHOWCHILLA RIVER TO MCHENRY ROAD**, MERCED COUNTY, CALIFORNIA]

Dear Mr. Fong,

This letter responds to the California Department of Transportation's (Caltrans) submissions, on behalf of the Federal Highway Administration (FHWA), of the October 2005 *Supplemental Historic Property Survey Report: Merced 99/Plainsburg-Arboleda Freeway Project* (Supplemental HPSR) and the November 2005 *Revised Finding of Effect: Merced 99/Plainsburg-Arboleda Freeway Project* (Revised FOE). My comments here on the submissions and on the subject undertaking as a whole continue our consultation under 36 CFR Part 800, the regulation that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended.

In Caltrans' letters of 16 November and 1 December 2005 and in a 14 February 2006 telephone conversation between Sarah Johnston, Caltrans District 6 Associate Environmental Planner, Archaeology and Mike McGuirt of my staff, Caltrans and the FHWA request that I concur that

1) loci 1, 2, and 3 contribute to the National Register of Historic Places (National Register) eligibility of archaeological site CA-MER-381/H and the balance of the property does not,
2) the prehistoric locus of CA-MER-383 contributes to the National Register eligibility of that property and the balance does not, and
3) the proposed undertaking will not adversely affect historic properties if the FHWA emplaces a layer of fill on loci 1 and 3 of CA-MER-381/H.

On the basis of my review of the June 2003 *Extended Phase I and Phase II Excavations at the Deadman Site (CA-MER-381/H, P-24-001676), Merced County, California* (Deadman Site Evaluation Report) and the June 2003 *Extended Phase I and Phase II Excavations at the Wilson Site (CA-MER-383, P-24-001686)*, which I received on 16 February 2006, I am now able to concur with the foregoing determinations (1 and 2 above) on the subject archaeological sites.

I am also willing to concur in the FHWA's finding, pursuant to 36 CFR § 800.5(b), that the implementation of the undertaking, as presently proposed, will not adversely affect historic properties if the FHWA is able to agree to the following revision to the agency's original condition to emplace a layer of fill on loci 1 and 3 of CA-MER-381/H:

> The FHWA shall ensure that a layer of fill is emplaced to completely cover the presently known extents of loci 1 and 3 of archaeological site CA-MER-381/H. The fill shall contain no organic or inorganic garbage or other debris. The fill layer shall be of a depth that ensures that the construction,

operation, and maintenance of the proposed roadway and its ancillary structures have no effect on the subject loci as "effect" is defined at 36 CFR § 800.16(i). The FHWA shall further ensure that any preparation of the present surface of the ground that is necessary to the emplacement of the fill layer shall not intrude beyond the present depth of the Ap horizon, the zone of disturbed deposits and artificial fill, that the FHWA describes in the Deadman Site Evaluation Report.

If the FHWA is able to agree to the above revision to its original condition, then please sign the signature block below to formally indicate such agreement, and, at your earliest convenience, return a signed copy of the block to me for my files.

Please direct any questions or concerns that you may have to Project Review Unit archaeologist Mike McGuirt at 916.653.8920 or at mmcguirt@ohp.parks.ca.gov.

Sincerely,

Stephen D. Mikesell for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Date 0 /15/06

Gene K. Fong, Division Administrator
California Division, Federal Highway Administration

MWD/mdm

cc: Sarah E. Gassner, Acting Chief, Central California Cultural Resources Branch—California Department of Transportation, Fresno, California

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Appendix E Farmland Conversion Impact Rating

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U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request
Name Of Project Plainsburg/Arboleda	Federal Agency Involved FHWA
Proposed Land Use Highway	County And State Merced, CA
PART II *(To be completed by NRCS)*	Date Request Received By NRCS Dec. 2, 2004

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☒	No ☐	Acres Irrigated 493,072 / Average Farm Size 311
Major Crop(s) Almond - Tomato - Sweet Potato	Farmable Land In Govt. Jurisdiction Acres: Data Not Available %		Amount Of Farmland As Defined In FPPA Acres: 544,425 %44.1
Name Of Land Evaluation System Used CA Storie Index	Name Of Local Site Assessment System none		Date Land Evaluation Returned By NRCS Feb. 14, 2005

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	729.7	778.3	838.3	905.7
B. Total Acres To Be Converted Indirectly	70.4	76.0	300.0	462.9
C. Total Acres In Site	800.1	854.3	1,138.3	1,368.6
PART IV *(To be completed by NRCS)* Land Evaluation Information (Total Acres)	(918.7)	(1004.7)	(1084.1)	(1181.4)
A. Total Acres Prime And Unique Farmland	250.8	236.7	224.9	267.3
B. Total Acres Statewide And Local Important Farmland	384.2	417.6	537.8	542.3
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	<1	<1	<1	<1
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	—	—	—	—
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0 49	0 49	0 44	0 46

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	15	15	15	15
2. Perimeter In Nonurban Use	10	10	10	10	10
3. Percent Of Site Being Farmed	20	20	20	20	20
4. Protection Provided By State And Local Government	20	20	20	20	20
5. Distance From Urban Builtup Area	-	-	-	-	-
6. Distance To Urban Support Services	-	-	-	-	-
7. Size Of Present Farm Unit Compared To Average	10	0	0	0	0
8. Creation Of Nonfarmable Farmland	25	9	9	25	25
9. Availability Of Farm Support Services	5	5	5	5	5
10. On-Farm Investments	20	20	20	20	20
11. Effects Of Conversion On Farm Support Services	10	0	0	0	0
12. Compatibility With Existing Agricultural Use	10	0	0	0	0
TOTAL SITE ASSESSMENT POINTS	160	99	99	115	115
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	49	49	44	46
Total Site Assessment *(From Part VI above or a local site assessment)*	160	99	99	115	115
TOTAL POINTS *(Total of above 2 lines)*	260	148	148	159	161

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side) Form AD-1006 (10-83)

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U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request
Name Of Project Plainsburg/Arboleda	Federal Agency Involved FHWA
Proposed Land Use Highway	County And State Merced, CA
PART II *(To be completed by NRCS)*	Date Request Received By NRCS Dec. 2, 2004

Does The Site Contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).* Yes ☒ No ☐ | Acres Irrigated 493,072 | Average Farm Size 311

Major Crop(s): Almond - Tomato - Sweet Potato | Farmable Land In Govt. Jurisdiction Acres: Data Not Available % | Amount Of Farmland As Defined in FPPA Acres: 544,425 %44.1

Name Of Land Evaluation System Used: California Storie Index | Name Of Local Site Assessment System: none | Date Land Evaluation Returned By NRCS: Feb. 14, 2005

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site E	Site F	Site G	Site H
A. Total Acres To Be Converted Directly	690.2	759.2	799.2	870.2
B. Total Acres To Be Converted Indirectly	70.4	76.0	300.0	462.9
C. Total Acres In Site	760.6	835.2	1,099.2	1,333.1
PART IV *(To be completed by NRCS)* Land Evaluation Information (Total Acres)	(971.3)	(952.1)	(1031.5)	(1296.8)
A. Total Acres Prime And Unique Farmland	237.5	250	238.2	280.6
B. Total Acres Statewide And Local Important Farmland	415.3	386.5	506.7	511.2
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	<1	<1	<1	<1
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	—	—	—	—
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0 48	0 49	0 45	0 47

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	15	15	15	15
2. Perimeter In Nonurban Use	10	10	10	10	10
3. Percent Of Site Being Farmed	20	20	20	20	20
4. Protection Provided By State And Local Government	20	20	20	20	20
5. Distance From Urban Builtup Area	—	—	—	—	—
6. Distance To Urban Support Services	—	—	—	—	—
7. Size Of Present Farm Unit Compared To Average	10	0	0	0	0
8. Creation Of Nonfarmable Farmland	25	9	9	25	25
9. Availability Of Farm Support Services	5	5	5	5	5
10. On-Farm Investments	20	20	20	20	20
11. Effects Of Conversion On Farm Support Services	10	0	0	0	0
12. Compatibility With Existing Agricultural Use	10	0	0	0	0
TOTAL SITE ASSESSMENT POINTS	160	99	99	115	115
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	48	49	45	47
Total Site Assessment *(From Part VI above or a local site assessment)*	160	99	99	115	115
TOTAL POINTS *(Total of above 2 lines)*	260	148	148	160	162

Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side) Form AD-1006 (10-83)

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Appendix F Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Relocation Assistance Advisory Services

The California Department of Transportation (Caltrans) will provide relocation advisory assistance to any person, business, farm, or non-profit organization displaced as a result of Caltrans' acquisition of real property for public use. Caltrans will assist residential displacees in obtaining comparable decent, safe, and sanitary replacement housing by providing current and continuing information on sales price and rental rates of available housing. Non-residential displacees will receive information on comparable properties for lease or purchase.

Residential replacement dwellings will be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, displacees will be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex, or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include supplying information concerning federal and state assisted housing programs, and any other known services being offered by public and private agencies in the area.

Residential Relocation Payments Program

The Relocation Payment program will assist eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for, or incidental to, purchasing or renting a replacement dwelling, and actual reasonable expenses incurred in moving to a new location within 80 kilometers (50 miles) of the displacee's property. Any actual moving costs in excess of 80 kilometers (50 miles) are the responsibility of the displacee. The Residential Relocation Program can be summarized as follows:

Moving Costs

Any displaced person who was "lawfully" in occupancy of the acquired property regardless of the length of occupancy in the property acquired will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable

costs involved in moving themselves and personal property up to a maximum of 80 kilometers (50 miles), a moving service authorization, or a fixed payment based on a fixed moving cost schedule that is determined by the number of furnished or unfurnished rooms of the displacement dwelling.

Purchase Supplement

In addition to moving and related expenses payments, fully eligible homeowners may be entitled to payments for increased costs of purchasing replacement housing. Homeowners who have owned and occupied their property for 180 days prior to the date of the first written offer to purchase the property, may qualify to receive a price differential payment equal to the difference between Caltrans' offer to purchase their property and the price of a comparable replacement dwelling, and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property.

An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. Also the interest differential must be based upon the "lesser of" either the loan on the displacement property or the loan on the replacement property. The maximum combination of these three supplemental payments that the owner-occupants can receive is $22,500. If the calculated total entitlement (without the moving payments) is in excess of $22,500, the displacee may qualify for the Last Resort Housing described below.

Rental Supplement

Tenants who have occupied the property to be acquired by Caltrans for 90 days or more and owner-occupants who have occupied the property 90 to 180 days prior to the date of the first written offer to purchase may qualify to receive a rental differential payment. This payment is made when Caltrans determines that the cost to rent a comparable and "decent, safe and sanitary" replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the eligible occupant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted below under the "Down Payment" section (see below). The maximum amount of payment to any tenant of 90 days or more and any owner-occupant of 90 to 179 days, in addition to moving expenses, will be $5,250. If

the calculated total entitlement for rental supplement exceeds $5,250, the displacee may qualify for the Last Resort Housing Program described below.

The rental supplement of $7,500 or less will be paid in a lump sum, unless the displacee requests that it be paid in installments. The displaced person must rent and occupy a "decent, safe, and sanitary" replacement dwelling within one year from the date Caltrans takes legal possession of the property, or from the date the displacee vacates Caltrans-acquired property, whichever is later.

Down Payment

Displacees eligible to receive a rental differential payment may elect to apply it to a down payment for the purchase of a comparable replacement dwelling. The down payment and incidental expenses cannot exceed the maximum payment of $5,250, unless the Last Resort Housing Program is indicated. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24.404) contain the policy and procedure for implementing the Last Resort Housing Program on federal-aid projects. In order to maintain uniformity in the program, Caltrans has also adopted these federal guidelines on non-federal-aid projects. Except for the amounts of payments and the methods in making them, last resort housing benefits are the same as those benefits for standard relocation as explained above. Last resort housing has been designed primarily to cover situations where available comparable replacement housing does not exist, or when their anticipated replacement housing payments, exceed the $2,520 and $22,500 limits of the standard relocation procedures. In certain exceptional situations, last resort housing may also be used for tenants of less than 90 days.

After the first written offer to acquire the property has been made, Caltrans will, within a reasonable length of time, personally contact the displacees to gather important information relating to:

- Preferences in area of relocation.
- Number of people to be displaced and the distribution of adults and children according to age and sex.
- Location of school and employment.

- Special arrangements to accommodate any handicapped member of the family.
- Financial ability to relocate into comparable replacement dwelling, which will house all members of the family decently.

The above explanation is general in nature and is not intended to be a complete explanation of relocation regulations. Any questions concerning relocation should be addressed to Caltrans. Any persons to be displaced will be assigned a relocation advisor who will work closely with each displacee to see that all payments and benefits are fully used, and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments.

Business and Farm Relocation Assistance Program

The Business and Farm Relocation Assistance Program provides aid in locating suitable replacement property for the displacee's farm or business, including, when requested, a current list of properties offered for sale or rent. In addition, certain types of payments are available to businesses, farms, and non-profit organizations. These payments may be summarized as follows:

- Reimbursement for the actual direct loss of tangible personal property incurred as a result of moving or discontinuing the business in an amount not greater than the reasonable cost of relocating the property.
- Reimbursement up to $1,000 of actual reasonable expenses in searching for a new business site.
- Reimbursement up to $10,000 of actual reasonable expenses related to the reestablishment of the business at the new location.
- Reimbursement of the actual reasonable cost of moving inventory, machinery, office equipment and similar business-related personal property, including dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting personal property.

Payment "in lieu" of moving expense is available to businesses that are expected to suffer a substantial loss of existing patronage as a result of the displacement, or if certain other requirements such as inability to find a suitable relocation site are met. This payment is an amount equal to the average annual net earnings for the last two taxable years prior to relocation. Such payment may not be less than $1,000 and not more than $20,000.

Additional Information

No relocation payment received will be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments will not be required to move unless at least one comparable "decent, safe and sanitary" replacement residence, open to all persons regardless of race, color, religion, sex or national origin, is available or has been made available to them by the state.

Any person, business, farm, or non-profit organization, which has been refused a relocation payment by Caltrans, or believes that the payments are inadequate, may appeal for a hearing before a hearing officer or Caltrans' Relocation Assistance Appeals Board. No legal assistance is required; however, the displacee may choose to obtain legal council at their expense. Information about the appeal procedure is available from Caltrans' Relocation Advisors.

The information above is not intended to be a complete statement of all of Caltrans' laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of Caltrans' relocation programs.

Important Notice

To avoid loss of possible benefits, no individual, family, business, farm or non-profit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at:

State of California
Department of Transportation, District # 6
855 M Street, Suite 200, Fresno CA 93726

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Appendix G Noise Tables

Table AG-1 Summary of Updated Traffic Noise Modeling Results

No.	Receptor Location	Activity Category & NAC	2001/2005 Existing Traffic Noise Levels	Predicted Noise Levels Modeled for Design Year of 2028 dBA-Leq(hr)						
				No-Build Alternative	Alternative IA	Alternative 1B	Alternative 2	Alternative 3	Alternative 4	Alternative 5
1	5533 Athlone Road (3SF*) [2001]	B67	65	68	N/A	N/A	N/A	N/A	71	71
2	3979 Arboleda Drive [2005]	B67	50	52	N/A	N/A	N/A	N/A	Right-of-Way Acquisition	67
3	4085 Highway 99 [2005]	B67	63	64	N/A	N/A	N/A	N/A	Right-of-Way Acquisition	74
4	541 E. Worden Avenue [2005]	B67	51	55	N/A	N/A	N/A	N/A	Right-of-Way Acquisition	51
5	5525 E. Ave. Worden (1SF) [2001]	B67	64	65	N/A	N/A	N/A	N/A	Right-of-Way Acquisition	67
6	4380 Mariposa Way (1SF) [2001]	B67	56	58	N/A	N/A	N/A	N/A	60	60
7	3875 E. McHenry Road (3SF) [2001]	B67	64	67	N/A	N/A	N/A	N/A	71	71
8	7249 Plainsburg Road [2005]	B67	62	69	71	69	58	58	N/A	N/A
9	6863 Plainsburg Road [2005]	B67	58	71	66	66	Acquired	Acquired	N/A	N/A

* Single-Family Residence

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Table AG-2 Summary of Traffic Noise Modeling Results (2001) Northern Arboleda Alternatives

No.	Receptor Site	Category & Criteria	Predicted Noise Level without Project (2028)	Predicted Noise Level with Project (2028)	Noise Levels (Leq) with Wall				Soundwall Recommendations Feasible/Reasonable
					6 ft	8 ft	10 ft	12 ft	
1	5533 Athlone Road	B/67	68	71		66.3			No
2	3979 Arboleda Drive	B/67	52	67			62		Yes
3	4085 Highway 99	B/67	64	74				69	Yes
5	5525 E. Worden Avenue	B/67	65	67			64		No
7	3875 E. McHenry Road	B/67	67	71			66		No

Table AG-3 Summary of Traffic Noise Modeling Results Southern Plainsburg Alternative 1A

No.	Receptor Site	Category & Criteria	Predicted Noise Level without Project (2028)	Predicted Noise Level with Project (2028)	Noise Levels (Leq) with Wall				Soundwall Recommendations Feasible/Reasonable
					6 ft	8 ft	10 ft	12 ft	
8	7249 Plainsburg	B/67	69	71				66	No
9	6863 Plainsburg	B/67	60	66			61		No

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Table AG-4 Summary of Traffic Noise Modeling Results Southern Plainsburg Alternative 1B

No.	Receptor Site	Category & Criteria	Predicted Noise Level without Project (2028)	Predicted Noise Level with Project (2028)	Noise Levels (Leq) with Wall				Soundwall Recommendations Feasible
					6 ft	8 ft	10 ft	12 ft	
8	7249 Plainsburg	B/67	69	69			64		No
9	6863 Plainsburg	B/67	60	66			61		No

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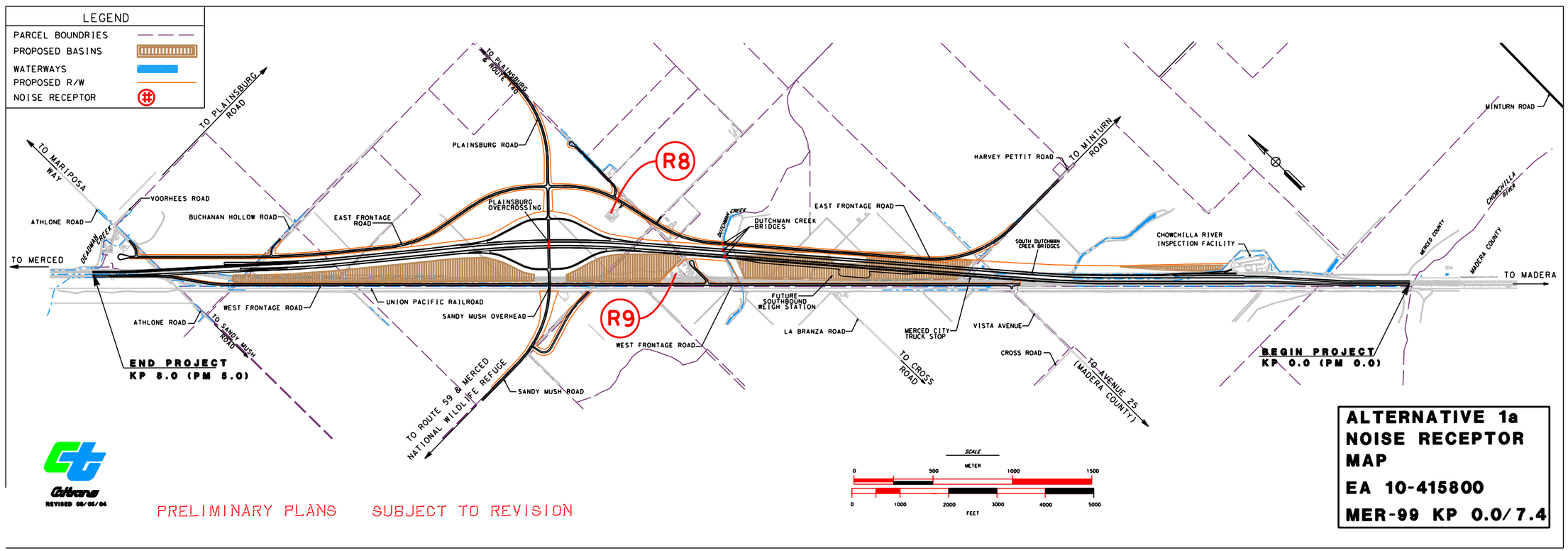

Figure AH-1 Noise Receptor Map of North Arboleda Alternative 1A

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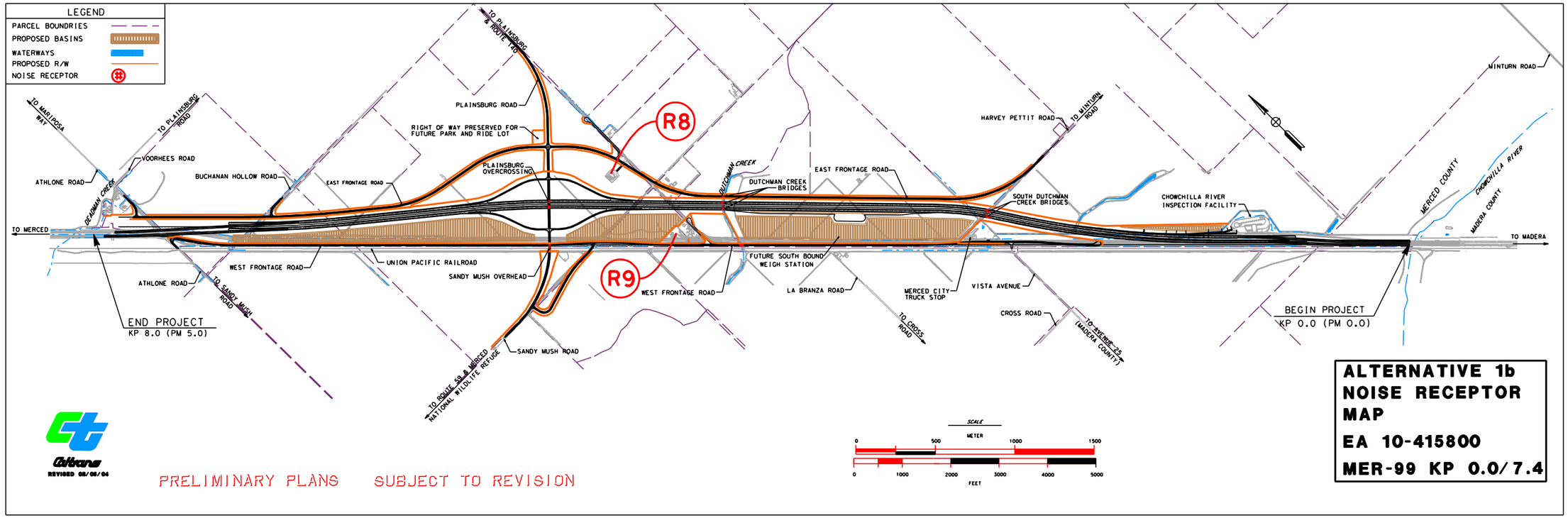

Figure AH-2 Noise Receptor Map of North Arboleda Alternative 1B

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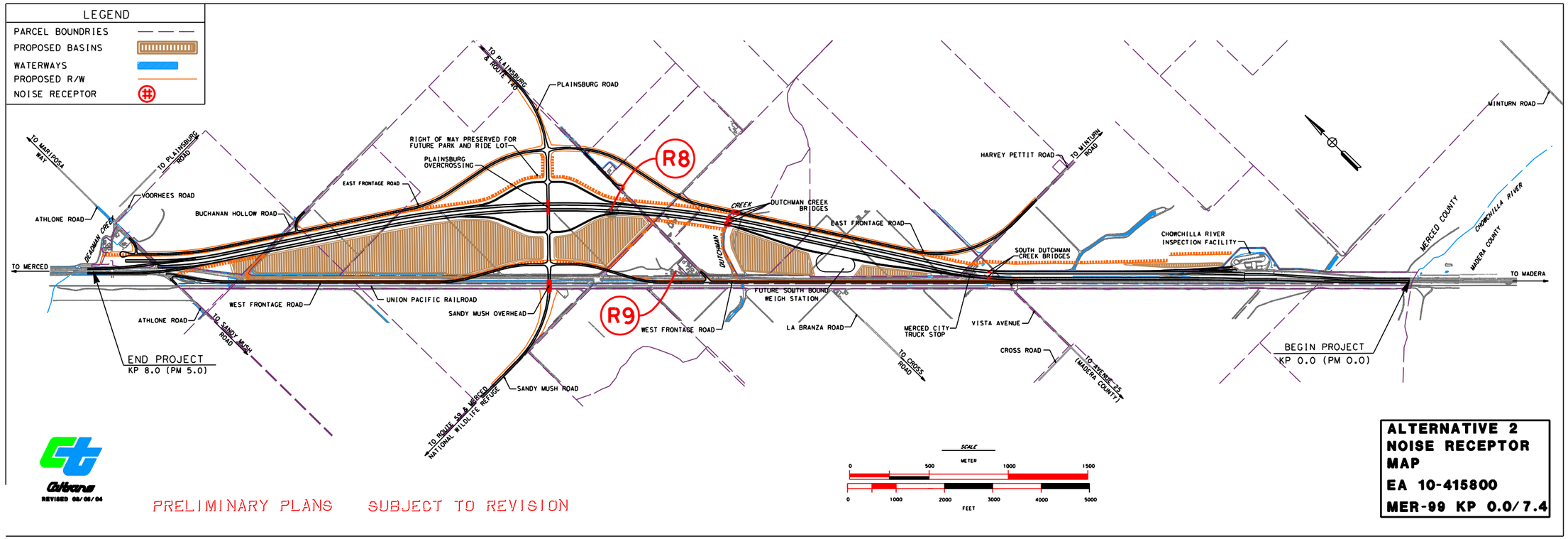

Figure AH-3 Noise Receptor Map of North Arboleda Alternative 2

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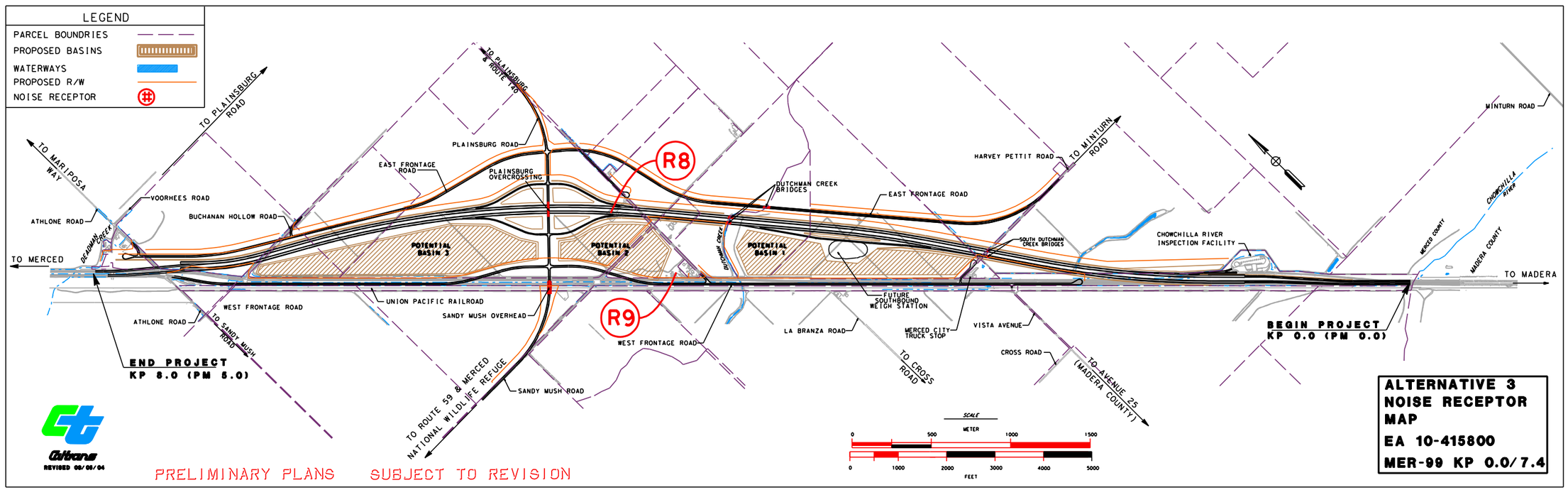

Figure AH-4 Noise Receptor Map of North Arboleda Alternative 3

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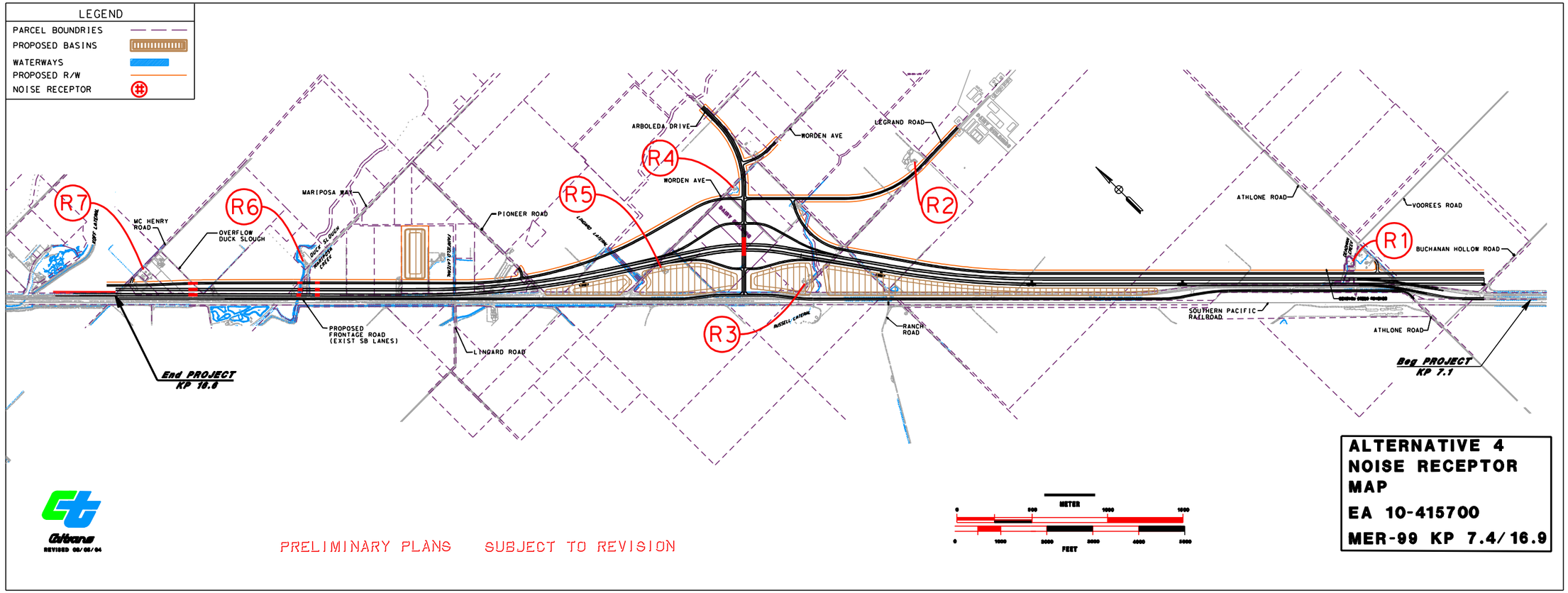

Figure AH-5 Noise Receptor Map of North Arboleda Alternative 4

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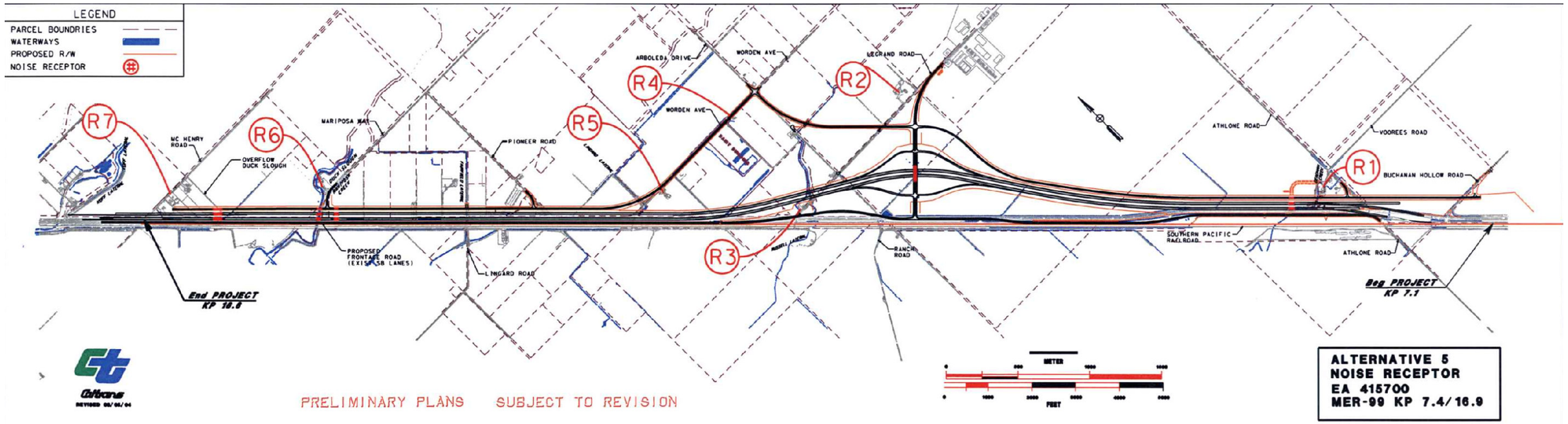

Figure AH-6 Noise Receptor Map of North Arboleda Alternative 5

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Appendix I Public Comments

Caltrans circulated an Environmental Assessment/Initial Study for the project in May 2003. During the public comment period, it was determined that this project would have an adverse impact on farmland because of the number of acres that would have to be converted from farmland to other uses. Because of that impact, an Environmental Impact Report was then required for the project.

An Environmental Impact Report was written and then circulated for public review from January 10, 2006 to February 24, 2006. Copies of the document were sent to the State Clearinghouse for distribution to various agencies. A public notice was published in *The Merced Sun-Star* to inform the public that the document was available. Property owners, residents, public agencies, and other interested parties were each sent a letter notifying them of the availability of the document. This appendix presents all the written comments received about the document during the public review period. A response from Caltrans to each comment is also included.

San Joaquin Valley Air Pollution Control District's Comments

02/24/2006 16:47 FAX 2306475 002/002

San Joaquin Valley
Air Pollution Control District

February 24, 2006

Reference No.: C20060062

David Farris
California Dept. of Transportation
2015 E. Shields, Suite 100
Fresno, CA 93726

Subject: Plainsburg/Arboleda Freeway Project

Dear Mr. Farris,

The San Joaquin Valley Unified Air Pollution Control District (District) has previously commented on this project and has no additional comments at this time.

Previous comments:
To: David Farris for Plainsburg Arboleda -- Notice of Preparation of a Draft Environmental Impact Report, Sent June 9, 2005, 2004, Reference #: C20050359.

District staff is available to meet with you and/or the applicant to further discuss the regulatory requirements that are associated with this project. If you have any questions or require further information, please call me at (559) 230-5800 or Mr. Dave Mitchell, Planning Manager, at (559) 230-5807 and provide the reference number at the top of this letter.

Sincerely,

Debbie Johnson
Air Quality Specialist
Central Region

DJ:cxt

San Joaquin Valley
Air Pollution Control District

June 9, 2005

Reference No.: C20050359

David Farris
California Dept. of Transportation
2015 E. Shields, Suite 100
Fresno, CA 93726

Subject: Plainsburg Arboleda – Notice of Preparation of a Draft Environmental Impact Report

Dear Mr. Farris,

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above and offers the following comments:

This project should be included in the current conforming FTIP. Additionally, the project must also be included in the RTP. The project will meet conformity requirements if the above items are satisfied. To obtain information regarding whether this project is included in the RTP, you may wish to contact the Merced County Association of Governments at (209) 723-3153.

Based on the information provided, the proposed project will be subject to the following District rules. The following items are rules that have been adopted by the District to reduce emissions throughout the San Joaquin Valley, and are required. This project may be subject to additional District Rules. To identify additional rules or regulations that apply to this project, or for further information, the California Department of Transportation is strongly encouraged to contact the District's Small Business Assistance Office at (559) 230-5888. Current District rules can be found at http://www.valleyair.org/rules/1ruleslist.htm.

Regulation VIII (Fugitive PM10 Prohibitions)- Regulation VIII (Rules 8011-8081) is a series of rules designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, etc. If a non-residential project is 5.0 or more acres in area, a Dust Control Plan must be submitted as specified in Section 6.3.1 of Rule 8021. If a non-residential site is 1.0 to less than 5.0 acres, an owner/operator must provide written notification to the District at least 48 hours prior to his/her intent to begin any earthmoving activities (see section 6.4.2). A compliance assistance bulletin has been enclosed for your review. A template of the District's Dust Control Plan is available at:
http://www.valleyair.org/busind/comply/PM10/forms/DCP-Form%20-%2010-14-2004.pdf

Rule 4102 (Nuisance) applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to District enforcement action.

Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). If asphalt paving will be used, then paving operations of this project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

The District encourages innovation in measures to reduce air quality impacts. There are a number of features that could be incorporated into the design/operation of this project to provide additional reductions of the overall level of emissions. (Note: Some of the measures may already exist as development standards. Any measure selected should be implemented to the fullest extent possible.) The suggestions listed below should not be considered all-inclusive and remain options that the agency with the land-use authority should consider:

- The District encourages the California Department of Transportation to take advantage of the District's Heavy-Duty Engine program to reduce project emissions. The Heavy Duty program provides incentives for the replacement of older diesel engines with new, cleaner, fuel-efficient diesel engines. The program also provides incentives for the re-power of older, heavy-duty trucks with cleaner diesel engines or alternative fuel engines. New alternative fuel heavy-duty trucks also qualify. For more information regarding this program contact the District at (559) 230-5858 or visit our website at: http://www.valleyair.org/transportation/heavydutyidx.htm.

- The California Department of Transportation should require that all diesel engines be shut off when not in use on the premises to reduce emissions from idling.

- Construction activity mitigation measures include:
  - Limit traffic speeds on unpaved roads to 15 mph
  - Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent
  - Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site
  - Install wind breaks at windward side(s) of construction areas
  - Suspend excavation and grading activity when winds exceed 20 mph
  - Limit area subject to excavation, grading, and other construction activity at any one time
  - Use catalyst equipped diesel construction equipment.
  - Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use
  - Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set)
  - Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways, and "Spare the Air Days" declared by the District.
  - Implement activity management (e.g. rescheduling activities to reduce short-term impacts)
  - During the smog season (May through October), lengthen the construction period to minimize the number of vehicles and equipment operating at the same time.
  - Construction equipment should have engines that are Tier II (if available as certified by the Air Resources Board). Engines built after 1998 are cleaner Tier II engines. Tier I and Tier II (2.5 gram) engines have a significantly less PM and NOx emissions compared to uncontrolled engines. To find engines certified by the Air Resources Board, see http://www.arb.ca.gov/msprog/offroad/cert/cert.php. This site lists engines

Response to San Joaquin Valley Air Pollution Control District's Comments:

Caltrans standard contract provisions cover the recommendations in this letter.

Public Utility Commission's Comments

STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

January 30, 2006

David Farris
California Dept. of Transportation
2015 E. Shields Ave., Ste. 100
Fresno, CA 93726

Dear Mr. Farris:

Re: SCH# 2003051094; 10-MER 99 KP 0.0/10.5 (PM 0.0/7.1)

As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the County be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way.

Safety factors to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings due to increase in traffic volumes and appropriate fencing to limit the access of trespassers onto the railroad right-of-way.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the County.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Utilities Engineer
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: Jim Smith, UP

Response to Public Utility Commission's Comments:

This project would improve rail safety by reducing congestion at the existing railroad crossings.

County of Merced's Comments

MERCED COUNTY

DEPARTMENT OF PUBLIC WORKS
Professional Services Division

Paul A. Fillebrown
Director

345 West 7th Street
Merced, CA 95340
(209) 385-7601
(209) 722-7690
www.co.merced.ca.us

Equal Opportunity Employer

February 8, 2006

David Farris
Associate Environmental Planner
Department of Transportation, District 6
2015 East Shields Avenue, Suite A-100
Fresno, CA 93726-5428

SUBJECT: PLAINSBURG/ARBOLEDA FREEWAY PROJECT

Dear Mr. Farris:

Thank you for the opportunity to review the Environmental Assessment/ Environmental Impact Report for the proposed Plainsburg/ Arboleda Freeway Project on State Route 99 in Merced, dated November 2005. Listed below are some things that we request to be better addressed; the primary emphasis being that County facilities must be designed to meet LOS "C" standards.

Traffic and Transportation, Section 3.13

1. Reference the Traffic Study that supports the Level of Service analysis of the various alternatives.

2. It should be noted that the Merced County General Plan establishes LOS "C" as the minimum acceptable peak period level of service for rural roadways. However, level of service should not be the only consideration when deciding what improvements are necessary to mitigate growth impacts. Intersection signalization should not be considered if no signal warrant is met.

3. Impacts
   a. A statement is made that the build alternatives will achieve a Level of Service (LOS) "C" for the 20-year design period (2030), and references Table 3.16. However, Table 3.16 does not include the LOS results of the local road segments or intersections analyzed in the Traffic Study.
   b. Table 3.16 appears to have omitted the intersection of SR 99/ Lingard Rd in its summary.
   c. Table 3.16 indicates that the two proposed interchanges will operate at LOS "C"; however, since each interchange is comprised of two intersections where the on-off ramps each connect to the local roadway, and of the local road segment between them, it is unclear how a composite level of service of the entire interchange can be derived.

d. The Traffic study indicates that two local road segments, Arboleda Drive (between the SR 99 NB on-off ramps and the East Frontage Road) and the East Frontage Road (between Arboleda Drive and LeGrand Road), will have a LOS "D" in 2030 with Alternative 4, which conflicts with the County General Plan goal.

Traffic Study

1. Specific intersection controls, channelization, and number of through lanes should be stated in the Study.
2. If any intersection is proposed for signalization, then signal warrants need to be analyzed.
3. Please provide us with a complete copy of the Traffic Study, including Level of Service computations.

If you have any questions, please do not hesitate to call us at (209) 385-7601.

Sincerely,

Stephen E. Lyon
Senior Engineering Associate

R:\WP\LETTERS\MULTILET\South Merced Freeway Project - SR 99 @ Arboleda Dr & Plainsburg Rd.doc

Response to County of Merced's Comments:

Traffic and Transportation, Section 3.13

1. The traffic discussion has been updated. See Chapter 3.13.

2. No traffic signals are planned for local roads in this project.

3a. Local road intersections have been added to Table 3.16.

3b. That intersection has been added to Table 3.16.

3c. The Level of Service on the most congested segment is the Level of Service for the intersection.

3d. Alternative 4 was not selected by the project team as the Recommended Alternative.

Traffic Study

1. The traffic study identifies these items in the mapping itself.

2. No traffic signals are proposed in this project.

3. A copy of the study will be sent after it is updated.

Kole Upton's Comment

05/26/1996 07:43 5596652438 PAGE 01

By FAX 2/24/06
243-8220

Kole Upton
P.O. Box 575
Chowchilla, Calif. 93610

Mr. David Harris
2015 East Shields Avenue, Suite 100
Fresno, CA. 93726

RE: Project - Hwy 99 - Merced/Madera County line to McHenry Road

Dear Mr. Harris:

Request a public hearing on the subject project to determine access to Hwy 99 from Vista Avenue and Harvey Pettit Road.

These are major routes for folks out of Chowchilla and asscoiated with the Highway Patrol inspection station.

Thank you.

Sincerely,

Kole Upton
(559) 805-8755

Response to Kole Upton's Comment:

Caltrans called Mr. Upton to discuss his concerns. He was informed that the project description includes frontage roads, which would provide access to all properties along the road to the proposed interchanges. After this conversation, Mr. Upton withdrew his request for a public hearing.

California Department of Fish and Game's Comments

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
San Joaquin Valley and Southern Sierra Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4014

February 21, 2006

Lance Brangham
Department of Transportation
San Joaquin Valley Analysis Branch
2015 East Shields Avenue, Suite100
Fresno, California 93726

Dear Mr. Brangham:

Environmental Assessment/Environmental Impact Report
Plainsburg/Arboleda Freeway Project 10-MER-99-KP 0.0/16.9 (PM 0.0/10.5)

This letter is in response to your Environmental Assessment/Environmental Impact Report (EA/EIR) regarding the Plainsburg/Arboleda Freeway 10-MER-99-KP 0.0/16.9 (Project). The proposed Project will widen the existing four-lane highway to a six-lane freeway. The Project will widen the road to the east of the current alignment, upgrade shoulders, and construct two new interchanges. Exact location of these interchanges would be slightly different depending upon which alternative is chosen for construction but would basically have the same relative location near Arboleda Drive to the north and Plainsburg Road to the south. The Department of Fish and Game (Department) appreciates the opportunity to comment on the Project at this time and offers the following.

DEPARTMENT JURISDICTION

Trustee Agency Authority: Pursuant to Fish and Game Code Section (FGC§) 1802, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As Trustee Agency for fish and wildlife resources, we are responsible for providing, as available, biological expertise to review and comment on environmental documents and impacts arising from project activities as those terms are used in the California Environmental Quality Act (CEQA). As a Trustee Agency for the fish and wildlife resources of this State, we believe that the following Project-related impacts could occur:

- "Take" (as defined in FGC§ 86) of the State-threatened Swainson's hawk (*Buteo swainsoni*).
- "Take" (as defined in Section 3 of the Federal Endangered Species Act of 1973) of the Federally-endangered and State-threatened San Joaquin kit fox (*Vulpes macrotis mutica*).

Responsible Agency Role: The Department will act as a Responsible Agency for this Project. The Department must actively participate in the Lead Agency's CEQA process, review the Lead Agency's CEQA document, and use that document when making a decision on the Project. The Department must rely on the Lead Agency's environmental document to prepare and issue its

Conserving California's Wildlife Since 1870

Lance Brangham
February 21, 2006
Page 2

own findings regarding the Project (CEQA Guidelines, Sections 15096 and 15381) when issuing a Stream Alteration Agreement or an Incidental Take Permit discussed below.

Stream Alteration Agreement: The Department has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect fish (including mollusks, crustaceans, invertebrates, and amphibians, including any part, spawn, or ova thereof) or wildlife resources. Pursuant to Fish and Game Code Section (FGC§) 1600 et seq., it is unlawful for any entity to substantially divert or obstruct the natural flow or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste or other material containing crumbled, flaked, or ground pavement where it may pass into any, river, stream or lake without first notifying the Department of that activity. The Department shall, when an existing fish or wildlife resource may be substantially adversely affected by that activity, notify California Department of Transportation (Caltrans) of the existence of that fish or wildlife resource and provide a description of provisions necessary to protect these resources. The Project will require Stream Alteration Notification for work that occurs at Dutchman and Deadman creeks. 1

California Endangered Species Act (CESA): The Department has regulatory authority with regard to the "take" of any State-listed threatened or endangered species and candidate species under the CESA. The Project has the potential to "take" Swainson's hawk. Many avoidance and mitigation measures are discussed in the EA/EIR which make "take" of an individual Swainson's hawk unlikely. If the approved alternative and final wildlife surveys determine that Swainson's hawk will be affected by this Project, the Department may need to issue an incidental "take" permit pursuant to FGC§ 2081. 2

Bird Protection: The Department has jurisdiction over any actions which may result in the disturbance or destruction of active nesting sites for a variety of bird species. Removal of active nests could be considered a violation of FGC§ 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), FGC§ 3503.5 (regarding take, possession or destruction of any birds-of-prey or their nests or eggs), and FGC§ 3513 (regarding unlawful take or possession of any migratory non-game bird). All Project-related activities should be designed so that they remain in compliance with these FGC§ Sections. 3

Water Pollution: Pursuant to FGC§ 5650, it is unlawful to deposit in, permit to pass into, or place where it can pass in the "Waters of the State" any of the following: (1) Any petroleum, acid, coal or oil tar, lampblack, aniline, asphalt, bitumen, or residuary product of petroleum, or carbonaceous material substance; (2) Any refuse, liquid or solid, from any refinery gas house, tannery, distillery, chemical work, mill, or factory of any kind; (3) Any sawdust, shavings, slabs, or edgings; (4) Any factory refuse, lime, or slag; (5) Any *Cocculus indicus*; (6) Any substance or material deleterious to fish, plant, or bird life. Construction completed in accordance with this Project should comply with this FGC§ Section.

Whenever it is determined by the Department that a continuing and chronic condition of pollution exists, the Department shall report that condition to the Regional Water Quality Control Board (Board), and shall cooperate with the Board in obtaining correction or abatement in accordance with any laws administered by the Board for the control of practices for sewage and industrial waste disposal pursuant to FGC§ 5651.

Lance Brangham
February 21, 2006
Page 3

POTENTIAL PROJECT IMPACTS

Cumulative and Growth-inducing Impacts: The Project may result in commercial and urban development occurring along SR 99 especially at the Arboleda Drive and Plainsburg Road diamond interchanges. Presently these locations are farmlands that provide foraging habitat for Swainson's hawk and marginal foraging habitat for the San Joaquin kit fox. Loss of this habitat must be minimized and mitigated. The Department supports the construction of Plainsburg Road Alternatives 1A and Arboleda Drive Alternative 5 because these alternatives take the least amount of farmland and associated wildlife habitat. 4

The Department recommends that mitigation for this Project include conservation easements on all Caltrans-owned lands ("excess parcels") adjacent to this Project and/or purchased with Project funds. Consultations between United States Fish and Wildlife Service (USFWS) and Caltrans have centered on this mitigation alternative and the Department agrees. This action would protect and enhance wildlife foraging areas and prevent the construction of commercial development of the Arboleda and Plainsburg interchanges. It would also enhance the wildlife benefits of the existing USFWS East Grassland Wildlife Management Area and help create an east-west migratory corridor in this part of the San Joaquin Valley. 5

Improvements and widening of SR 99 in the San Joaquin Valley has already begun and will continue to proceed in the future. Mitigation for environmental impacts along SR 99 is being determined on a project by project basis. The Department recommends that mitigation for SR 99 construction be developed in a programmatic manner that provides optimal benefits for the valley ecosystem and not just isolated areas. Caltrans should work in cooperation with the resources agencies to develop and protect wildlife and riparian corridors by implementing conservation easements on Caltrans-owned property and by creating wildlife friendly areas and crossings whenever possible. 6

Special Status Species: Preliminary surveys show that the Project could affect special-status species including the San Joaquin kit fox and the Swainson's hawk. Within the Project footprint there are several active Swainson's hawk nests which may be affected by the Project. If all avoidance and mitigation measures discussed in the EA/EIR are followed, "take" of an individual Swainson's hawk seems unlikely. However, impact to this species should be fully evaluated when Project specifics are defined. If after this evaluation a potential for "take" of this species exists, the Department recommends Caltrans obtain an incidental "take" permit pursuant to FGC§ 2081. 7

Impacts to Streams and Waterways: The Project will require Stream Alteration Notification for work that occurs at Dutchman and Deadman creeks, and any other waterway jurisdictional under FGC§ 1600 et seq. Mitigation for impacted riparian areas will be required that may include revegetation and exotic species (*Arundo*) control.

We thank you for your willingness to involve the Department in the early and continued development of this Project. We are pleased with the mitigation and avoidance measures included in this Project, especially the installation of "wildlife friendly" box culverts, under-crossings and bat habitat which provide benefit to wildlife. We encourage Caltrans to continue

Lance Brangham
February 21, 2006
Page 4

to include and improve these structural designs in their projects. If you have any questions or need more information regarding this matter, please contact Clarence Mayott at the above letterhead address or by telephone at (559) 243-4015, extension 225.

Sincerely,

for W. E. Loudermilk
Regional Manager

cc: Terry Marshall
Caltrans
Biology Branch
2015 East Shields Avenue, Suite 100
Fresno, California 93726

Susan Jones
United States Fish and
Wildlife Service
2800 Cottage Way, W-2605
Sacramento, California 95825

Response to California Department of Fish and Game's Comments:

1. Caltrans will obtain a Streambed Alteration Agreement before construction.

2. Caltrans conducted surveys for Swainson's hawk and determined no effect on Swainson's hawk.

3. Contract Special Provisions and Specifications would include provisions that protect Swainson's hawk and water quality.

4. Plainsburg Alternative 1B and Arboleda Alternative 5 were selected as the combined Recommended Alternative because they would avoid a potential hazardous waste site.

5. Caltrans plans to purchase conservation easements on approximately 200 acres of land at five locations near culverts and intersections. Also, the basins between proposed State Route 99 and the San Joaquin Railroad would be maintained by the U.S. Fish and Wildlife Service.

   Caltrans would provide several locations for kit fox crossings. Caltrans would construct two culverts in two locations. These culverts would be 2 meters (6 feet) high and 3.5 meters (10 feet) wide and would not carry water during average rains. The two interchanges with standard 2.4-meter-wide (8-foot-wide) shoulders would also provide a crossing point.

6. The 99 Business Plan proposes using pooled mitigation funds for all future State Route 99 projects. The plan is in the draft stage, but will be implemented on future projects.

7. Impacts to Swainson's hawk have been fully evaluated using the California Department of Fish and Game protocols. Caltrans would include Special Contract Provisions that are designed to protect Swainson's hawks and their nests.

Department of Conservation's Comments

Feb-28-2006 16:57 From-DIVISION OF LAND RESOURCE PROTECTION 19163273430 T-261 P 001/005 F-141

STATE OF CALIFORNIA, RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov

February 28, 2006

Mr. David Farris
California Department of Transportation
Central Sierra Environmental Analysis
2015 East Shields Avenue, Suite 100
Fresno, CA 93726

Subject: Plainsburg/Arboleda Freeway Project Draft Environmental Assessment/Environmental Impact Report (DEA/EIR) - SCH# 2003051094, Merced County

Dear Mr. Farris:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the DEA/EIR for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. The Department commented previously in June 2003 on a Negative Declaration/Finding of No Significance for the project. We offer the following comments and recommendations with respect to the project's impacts on agricultural land and resources.

Project Description

The proposed project is the expansion of a 10.5-mile portion of State Route 99 between the Merced/Madera County line and McHenry Road in Merced County. The project includes expansion from a four-lane expressway to a six-lane divided freeway with two interchanges. The underlying purpose is to increase safety, correct roadway deficiencies, accommodate increased traffic demands and provide route continuity. Four build alternatives apply to the southern Plainsburg section, and two build alternatives apply to the northern Arboleda section for a total of eight build alternatives. Current land use in the project area is rural residential and agricultural, including dairy farms, row crops and orchards.

Depending on alternatives chosen, the project will convert from 761 to 1,369 acres of farmland, including 225 to 281 acres of Prime and Unique Farmland and 60 to 230

acres enforceably restricted by Williamson Act contracts. An additional 70 to 463 acres of farmland may be required for indirect reasons. The Farmland Conversion Impact Rating (FCIR) is at or above the 160-point threshold for three of the build alternatives, indicating a significant impact. The project's cumulative impacts are not considered significant, however, because the project conforms to the Merced County General Plan, is outside the urban growth boundary of the City of Merced and will minimize farmland impacts as part of the Merced County Regional Transportation Plan.

Mitigation for agricultural impacts is not proposed because the only alternative that would avoid loss of farmland is the no build alternative, because Caltrans attempts to negotiate the reconfiguration of split farmland to continue farming and not contribute further to farmland conversion, and because easement programs for farmland mitigation do not exist in Merced County.

Project Impacts on Agricultural Land

The Department does not agree that the project's cumulative impacts are not significant. Proposed and recent development in the County would convert approximately 3,933 acres of farmland (Table 4.2, page 90). The Merced County Association of Governments Regional Transportation Plan, which includes the proposed project, would convert approximately 15,020 acres of farmland (Table 4.4, page 96). Although the amount of converted acreage may be less due to the planning involved, it appears that a significant amount of farmland conversion will nevertheless take place. If the direct conversion of agricultural land is determined to be significant, as is the case for this project, it would seem to logically follow that its contribution to the significant cumulative impacts of it and other projects in the County is considerable and cumulatively significant. 1

Mitigation Measures

The fact that the project cannot avoid converting farmland in order to construct one of the build alternatives is not a basis for failing to consider feasible mitigation. Caltrans may avoid further conversion of agricultural land by helping to reconfigure split parcels, and this may function as a mitigation measure if it were formulated in specific, objective and verifiable terms. However, this would not be sufficient to address the farmland conversion that will, in fact, take place. 2

Although the direct conversion of agricultural land and other agricultural impacts are often deemed to be unavoidable by an agency's CEQA analysis, mitigation measures must nevertheless be considered. The adoption of a Statement of Overriding Consideration under CEQA does not absolve the agency of the requirement to implement feasible mitigation that lessens a project's impacts. A principal purpose of an EIR is to present a discussion of mitigation measures in order to fully inform decision-

makers and the public about ways to lessen a project's impacts. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and, therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation. Rather, the criterion is feasible mitigation that lessens a project's impacts. Pursuant to CEQA Guideline 15370, mitigation includes measures that "avoid, minimize, rectify, reduce or eliminate, or compensate" for the impact. For example, mitigation includes *"Minimizing impacts by limiting the degree or magnitude of the action and its implementation (§15370(b))"* or *"Compensating for the impact by replacing or providing substitute resources or environments (§15370(e))."*

The Department encourages the purchase of agricultural conservation easements on land of at least equal quality and size as compensation for the direct loss of agricultural land. If a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved, we recommend an increased ratio. We highlight this measure because of its growing acceptance and use by lead agencies as mitigation under CEQA. It follows a rationale similar to that of wildlife habitat mitigation. The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. Agricultural conservation easements will protect a portion of those remaining resources and lessen project impacts in accordance with CEQA Guideline §15370.

Mitigation using agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of conservation easements or the donation of mitigation fees to a local, regional or statewide organization or agency, including land trusts and conservancies, whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance and the search for mitigation lands conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area.

The DEA/EIR states that there are no known conservation easement programs in Merced County for farmland mitigation at this time (page 64). However, the Division's California Farmland Conservancy Program (CFCP) has participated in three agricultural conservation easements in Merced County since 2000 involving The Nature Conservancy, the American Farmland Trust and, most recently, the Central Valley Farmland Trust. Clearly, the establishment of an easement in the County is feasible. If Caltrans is not able to make arrangements for easement mitigation through one of these or many other land trusts operating in California, the Department would be glad to help. The CFCP is also authorized to accept donations to its efforts. We recommend that the Final EA/EIR fully consider agricultural conservation easement mitigation for this project.

Williamson Act Lands

It appears that Caltrans intends to acquire Williamson Act land for this project. Pursuant to Government Code §51291(b), whenever it appears that Williamson Act land may be required, it must notify the Department and the local governing body. Specific findings must be made (§51292). Acquisition must be by eminent domain or in lieu of eminent domain in order to void the contract pursuant to §51295. Caltrans must consider the Department's comments prior to taking action on the acquisition. Notification must be submitted separately from the CEQA/NEPA process to Director Bridgett Luther at the address listed below. Please find enclosed Notification Provisions listing items of information to include in this notification. 3

Information about agricultural conservation easements and the Williamson Act is available on the Department's website or by contacting the Division at the address and phone number listed below. The Department's website address is:

http://www.conservation.ca.gov/dlrp/index.htm

Thank you for the opportunity to comment on this DEA/EIR. Pursuant to Public Resources Code §21092.5(a), the Department looks forward to receiving your response and a copy of the Final EA/EIR. If you have questions on our comments or require technical assistance or information on agricultural land conservation, please contact Bob Blanford at 801 K Street, MS 13-71, Sacramento, California 95814; or, phone (916) 327-2145.

Sincerely,

Dennis J. O'Bryan
Acting Assistant Director

Enclosure

cc: East Merced Resource Conservation District
2135 Wardrobe Ave. Ste. C
Merced, CA 95340

Response to Department of Conservation's Comments:

1. The Environmental Impact Report states that implementing the Regional Transportation Plan would affect less farmland than if the Regional Transportation Plan were not implemented. The Regional Transportation Plan has been developed in such a way as to minimize the impact of future growth. While the project individually would take a significant amount of farmland, it is part of a plan that would reduce farmland impacts countywide.

2. As required by the Biological Opinion, Caltrans will be purchasing conservation easements on 200 acres of land currently used as farmland. This project also improves the value of the farmland adjacent to the project because it will improve the growers' access to the highway. Currently, trucks taking goods to market must make a right turn directly onto the highway with little acceleration time.

3. Caltrans has sent notice to the Department of Conservation and Merced County in regards to Williamson Act properties.

Department of Water Resources' Comments

STATE OF CALIFORNIA -- THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

FEB 27 2006

David Farris
California Department of Transportation
2015 East Shields Avenue, Suite 100
Fresno, California 93726

10-MER 99 KP 0.0/10.5 (PM 0.0/7.1) Plainsburg Arboleda Freeway Project
State Clearinghouse (SCH) Number: 2003051094

Staff for the Department of Water Resources has reviewed the subject document and provides the following comments:

Portions of the proposed project may be located within a regulated stream over which The Reclamation Board has jurisdiction and exercises authority. If the project includes any "channel reconfiguration" that was not previously permitted, new plans must be submitted. Section 8710 of the California Water Code requires that a Board permit must be obtained prior to start of any work, including excavation and construction activities, within floodways, levees, and 10 feet landward of the landside levee toes. A list of streams regulated by the Board is contained in the California Code of Regulations, Title 23, Section 112. The application and Title 23 regulations can be found on the Reclamation Board's website at www.recbd.ca.gov.

Section 8(b)(2) of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any environmental documents if they are prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. Applications are reviewed for compliance with the California Environmental Quality Act.

Section 8(b)(4) of the Regulations states that additional information, such as geotechnical exploration, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys and other analyses may be required at any time prior to Board action on the application.

You may disregard this notice if your project is outside of the Board jurisdiction. For further information, please contact me at (916) 574-1249.

Sincerely,

Al Vargas

Al Vargas
Staff Environmental Scientist
Floodway Protection Section

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Response to Department of Water Resources' Comments:

Caltrans would obtain a permit before construction.

State Clearinghouse's Comments

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

February 27, 2006

David Farris
Department of Transportation, District 6
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

Subject: 10-MER 99 KP0.0/10.5 (PM 0.0/7.1) Plainsburg Arboleda Freeway Project
SCH#: 2003051094

Dear David Farris:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on February 24, 2006, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH#	**2003051094**
Project Title	10-MER 99 KP0.0/10.5 (PM 0.0/7.1) Plainsburg Arboleda Freeway Project
Lead Agency	Caltrans #6
Type	**EIR** Draft EIR
Description	Widen SR 99 from the Chowchilla River to McHenry Road in Merced County.

Lead Agency Contact

Name	David Farris		
Agency	Department of Transportation, District 6		
Phone	(559) 243-8305	***Fax***	
email			
Address	2015 E. Shields Avenue, Suite 100		
City	Fresno	***State*** CA	***Zip*** 93726

Project Location

County	Merced			
City	Merced			
Region				
Cross Streets	Arboleda Drive, Plainsburg Road			
Parcel No.				
Township		***Range***	***Section***	***Base***

Proximity to:

Highways	
Airports	
Railways	BNSF
Waterways	Chowchilla River
Schools	
Land Use	State Highway

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Growth Inducing; Landuse; Noise; Other Issues; Public Services; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Wildlife
Reviewing Agencies	Resources Agency; Regional Water Quality Control Bd., Region 5 (Fresno); Department of Parks and Recreation; Native American Heritage Commission; Public Utilities Commission; Reclamation Board; Office of Historic Preservation; Department of Fish and Game, Region 4; Department of Water Resources; Department of Conservation; California Highway Patrol; Air Resources Board, Transportation Projects; State Lands Commission

Date Received 01/11/2006 ***Start of Review*** 01/11/2006 ***End of Review*** 02/24/2006

Note: Blanks in data fields result from insufficient information provided by lead agency.

Response to State Clearinghouse's Comments:

The letter acknowledges that Caltrans has complied with the Clearinghouse review requirements. Also noted: no comments on the document were received.

Department of Conservation's Comments on the IS/EA March 2003

Jun-27-2003 04:07pm From-DIVISION OF LAND RESOURCE PROTECTION 19163273430 T-981 P.001/007 F-500

DEPARTMENT OF CONSERVATION
STATE OF CALIFORNIA

DIVISION OF
LAND RESOURCE
PROTECTION

801 K STREET
SACRAMENTO
CALIFORNIA
95814

PHONE
916/324-0850

FAX
916/327-3430

INTERNET
consrv.ca.gov

GRAY DAVIS
GOVERNOR

June 23, 2003

VIA FACSIMILE (559) 243-8215
Mr. Eric VonBerg, Chief
Central Sierra Environmental Analysis
California Department of Transportation
2015 East Shields Avenue, Suite 100
Fresno, CA 93726

Subject: Plainsburg/Arboleda Freeway Project Negative Declaration/Finding of No Significant Impact (ND/FONSI) - SCH# 2003051094, Merced County

Dear Mr. VonBerg:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the ND/FONSI for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. The Division has statewide expertise in evaluating agricultural land conversion significance, and is charged by the Legislature to monitor, evaluate and conserve agricultural land. We offer the following recommendations with respect to the project's impacts on agricultural land and resources.

Project Description

The proposed project is the expansion of a 10.5-mile portion of State Route 99 between the Merced/Madera County line and McHenry Road in Merced County. The project includes expansion from a four-lane expressway to a six-lane divided freeway with two interchanges. The underlying purpose is to increase safety, correct roadway deficiencies, accommodate increased traffic demands and provide route continuity. Six build alternatives are proposed. Current land use in the project area is rural residential and agricultural, including dairy farms, row crops and orchards.

The project will convert up to 2,080 acres of agricultural land directly or indirectly, including land enforceably restricted by Williamson Act contracts. The Environmental Assessment/Initial Study (EA/IS) has determined that impacts to agricultural resources are less than significant

because the Farmland Conversion Impact Rating (FCIR) is below the 160-point threshold for protection. The project's growth-inducement is not considered significant because the project is consistent with the General Plan. Cumulative impacts are not considered significant for the same reason and because development on some converted agricultural land will be prevented by habitat mitigation. The Department is concerned that the agricultural impacts have not been adequately identified and evaluated and that required notification of acquisition of Williamson Act land has not been submitted.

Agricultural Setting of the Project

The EA/IS should separately describe the agricultural land that will be converted directly and that which will be converted indirectly and explain the distinction between direct and indirect conversion. Each portion should be identified by soil and land use designation according to the Merced County Important Farmland Map. Each designation should be identified as to total acreage involved. This will provide greater public disclosure of the type of land that will be permanently lost to the project and enable a greater understanding of the FCIR and impact analysis. The Department considers the loss of Prime Farmland, Unique Farmland or Farmland of Statewide Importance to be a potentially significant impact. In addition, we recommend including the following items of information to characterize the agricultural land resource setting of the project. 1

- Current and past agricultural use of the project area. Include data on the types of crops grown, crop yields and farm gate sales values.
- To help describe the full agricultural resource value of the soils of the site, we recommend the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and State economies. State and federal agencies such as the UC Cooperative Extension Service and USDA are sources of economic multipliers.

Project Impacts on Agricultural Land

The Department has several concerns, explained below, about the EA/IS analysis of agricultural impacts and the ND/FONSI determination. Because we find that the project will indeed have significant environmental impacts to agricultural resources, use of an ND/FONSI is inadequate, and we recommend completion of a full Environmental Impact Report/Environmental Impact Statement (EIR/EIS). 2

The EA/IS has determined that project impacts on agricultural resources are not significant because the FCIR fell below the 160-point threshold. The Department has the following concerns about the FCIR:

- The EA/IS describes six build alternatives in addition to a no-build alternative. However, the FCIR appears to rate only five alternatives. In phone conversation, it was explained that this is because alternatives 1A and 1B involve the same agricultural impacts. Although they do appear very similar, there are differences, including basin development. A statement of clarification would be helpful. 3
- The EA/IS states that the FCIR fell below the significance threshold of 160. However, the two alternatives on page 112 rated 167 and 178. The EIR/EIS should explain this apparent discrepancy. 4
- The project involves four alternatives at the southern interchange that are mutually excusive of two alternatives at the northern interchange (page 19). However, the FCIR appears to rate each alternative separately rather than combining the southern and northern interchange alternatives to encompass the full length of the project route and the impacts of the entire project. The EIR/EIS should explain this apparent "piecemeal" evaluation of the project. 5
- The Land Evaluation scores of the FCIR range from 32 to 65 out of a possible 100. Given the amount of Prime, Unique and Statewide Important Farmland apparently involved (352-772 acres depending on the alternative listed and 830-1275 acres if the northern and southern interchange alternatives are combined), these scores appear too low. The EIR/EIS should explain the factors and process of arriving at the scores for this portion of the FCIR. 6
- Without explanation of the FCIR, it is difficult to understand how a project that appears to convert hundreds of acres and potentially over a thousand acres of important farmland would not be determined to have significant impacts. Hundreds of projects statewide, including Department of Transportation (CALTRANS) projects and projects in Merced County, have been found to have a significant impact to agricultural resources even with a lesser conversion acreage. It appears that the FCIR is a generic federal evaluation tool, unsuitable for use in California due to the unique nature of California's commodities, irrigation, soils and weather. According to NRCS, which administers the federal Farmland Protection Policy Act under which the FCIR falls, the FCIR is an "indicator", not a final determinant in whether a project has a significant impact under NEPA. That is precisely the reason that the CEQA Guidelines recommend use of the California Land Evaluation and Site Assessment (LESA) model to evaluate agricultural land impacts in the state. 2

The EA/IS states that the project is intended to meet the existing and projected traffic demand of local land use plans, and growth beyond what is currently planned for will not occur (page vi). In evaluating farmland conversion statewide, this certainly has not been the experience of the Department in recent years, and the CEQA/NEPA document should validate this claim with examples and statistical findings. The analysis should focus on whether the project will encourage or facilitate growth. CEQA requires that documents evaluate their impact on current conditions, not on what may occur in the future. Consistency with local land use plans is not the issue, but rather the project's impacts on agricultural resources as a result of encouraging or facilitating 7

growth, whether planned, unplanned or untimely. Urban development often occurs in the area surrounding freeway interchanges. This project includes development of two new and extensive interchanges. Impact analysis of growth-inducement should include an explanation as to why a build alternative would not encourage or facilitate growth compared to the no-build alternative. If it would encourage or facilitate growth, then a determination should be made as to its significance.

Chapter 4 (Cumulative Impacts) of the EA/IS states that the project's farmland conversion is fully mitigated and, therefore, cannot be considered to have a cumulative impact. It states that, nevertheless, a cumulative impact analysis was completed. Under the section on findings, it states that the project scored below the FCIR threshold, but some agricultural land would remain as fallow fields or ponding basins to function as mitigation for species habitat. Urban development would be prevented on this land. In addition, it states that the project is consistent with the Merced County General Plan and Caltrans Route Concept Report. Four other projects in the area are listed as having been evaluated for cumulative impacts of the subject project, followed by a statement that each would be subject to its own environmental review. 8

Chapter 4 does not appear to contain the referenced analysis. In any case, the Department considers the chapter an inadequate analysis of the project's cumulative impacts. Farmland converted to habitat use, even though the land may be protected from urban development, does not mitigate the loss of that farmland. The land remains converted to non-agricultural use. There is no connection, as required by CEQA, between the mitigation and the impact. Therefore, the project cannot be considered fully mitigated in order to determine it has no cumulative impacts. As discussed in similar comments above regarding growth-inducing impacts, consistency with a General Plan or Concept Report is not the issue. The CEQA/NEPA review must analyze the project's physical environmental effects, including cumulative impacts, apart from its adherence to a plan or concept. The General Plan or Concept Report does not provide this analysis and does not qualify as mitigation. Finally, the fact that the four other projects listed are subject to their own environmental review does not satisfy this project's cumulative impact analysis, which appears to be the suggestion. This project's agricultural impacts, even though they may be determined less than significant, must be analyzed in combination with the agricultural impacts of the other projects in order to determine the significance of the resulting cumulative impacts. In conclusion, this chapter does not appear to provide any cumulative impact analysis or any basis for determining the significance of the project's cumulative impacts.

This project has significant agricultural impacts. The EA/IS does not appear to adequately support that there are no significant agricultural impacts in order to justify a ND/FONSI. The conversion of agricultural land appears to involve hundreds of acres of important farmland, and the FCIR used to determine its significance appears to be in error or to require supporting explanation as well as being unsuited for a CEQA 2

evaluation. The analysis of growth-inducing and cumulative impacts appears inadequate or non-existent. The Department recommends completion of a full EIR/EIS for this project to adequately and clearly evaluate its agricultural impacts and consider appropriate mitigation. This evaluation should address the above-stated concerns and comments, in particular those concerning the FCIR.

We recommend that Caltrans utilize the California LESA model as a measure of impact significance rather than the FCIR. The LESA is a more comprehensive model, including the total amount of acreage converted, Williamson Act land and surrounding agricultural land. It was developed for projects in California and is recommended by CEQA. The model may also be used to rate the relative value of alternative project sites. The LESA model is available from the Division at the contact listed below. 8

Williamson Act Lands

The EA/IS states that the project will terminate lands under Williamson Act contracts, but does not identify those lands. The Department considers termination of a Williamson Act contract a potentially significant impact. In the interest of public disclosure, the CEQA/NEPA review should identify the location and acreage of lands under Williamson Act contract, Farmland Security Zone (FSZ) contract, or within an agricultural preserve in or adjacent to the project area. It should also identify whether these lands are prime or nonprime agricultural lands according to Government Code §51201(c). 9

If Caltrans intends to acquire Williamson Act land for this project, pursuant to Government Code §51291(b), whenever it appears that Williamson Act land may be required, it must notify the Department and the local governing body. Specific findings must be made (Government Code §51292). Acquisition must be by eminent domain or in lieu of eminent domain in order to void the contract pursuant to Government Code §51295. Caltrans must consider the Department's comments prior to taking action on the acquisition. We recommend discussion in the EIR/EIS of whether such action is envisioned by this project and how the acquisition will meet the required findings and requirements under eminent domain law. However, notification must be submitted separately from the CEQA/NEPA process to the Director at the address listed below. Please find enclosed Notification Provision listing items of information to include in this notification. 10

EA/IS section 3.10.2 (page 55) states the following: "Parcels that are covered by a Williamson Act contract will be allowed to maintain that contract even if the remaining parcel size is less than the required ten-acre minimum. Because the property will be used for a public project, contract holders would not be penalized for relinquishing portions of their Williamson Act properties." The Department is not aware of any such provision in Williamson Act statute. Government Code §51222 establishes 11

presumptive minimum parcel sizes of 10 acres for prime agricultural land and 40 acres for nonprime agricultural land. Government Code §51295 provides, in the case of public agency acquisition, that either party to the contract may petition for cancellation of the remaining portion of the contract pursuant to provisions commencing with Government Code §51280. The EIR/EIS should also provide explanation for the authority of the quoted allowance.

Mitigation Measures

12

As explained above, the conversion of agricultural lands for habitat mitigation cannot also be considered mitigation of land converted to non-agricultural uses. The Department encourages the purchase of agricultural conservation easements on land of at least equal quality and size as compensation for the direct loss of agricultural land. If a Williamson Act contract is terminated, or if growth inducing or cumulative agricultural impacts are involved, we recommend an increased ratio. We highlight this measure because of its growing acceptance and use by lead agencies as mitigation under CEQA. **Caltrans District 11, for example, has utilized agricultural conservation easement mitigation.** It follows a rationale similar to that of wildlife habitat mitigation. The loss of agricultural land represents a permanent reduction in the State's agricultural land resources. Agricultural conservation easements will protect a portion of those remaining resources and lessen project impacts in accordance with CEQA Guideline §15370.

Mitigation using agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of conservation easements or the donation of mitigation fees to a local, regional or statewide organization or agency, including land trusts and conservancies, whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance and the search for mitigation lands conducted regionally or statewide, and not limited strictly to lands within the project's surrounding area.

When presenting mitigation measures in the EIR/EIS, it is important to note that mitigation should be specific, measurable actions that allow monitoring to ensure their implementation and evaluation of success. A mitigation consisting only of a statement of intention or an unspecified future action may not be adequate pursuant to CEQA. Other forms of mitigation may also be appropriate, including investing in the commercial viability of the remaining agricultural land in the project area through a mitigation bank that invests in agricultural infrastructure, water supplies and marketing.

Jun-27-2003 04:10pm From-DIVISION OF LAND RESOURCE PROTECTION 19163273430 T-981 P.007/007 F-500

Information about agricultural conservation easements and the Williamson Act is available on the Department's website or by contacting the Division at the address and phone number listed below. The Department's website address is:

http://www.conservation.ca.gov/dlrp/index.htm

Thank you for the opportunity to comment on this ND/FONSI. Again, the Department, as the State agency with statutory responsibility for monitoring farmland conversion, finds that this project would have a significant environmental impact on agricultural lands and local land use through Williamson Act contracts and a significant cumulative impact on agricultural lands. It is our opinion that due to these significant impacts, an EIR/EIS is required for this project. The Department looks forward to receiving your response and any subsequent CEQA/NEPA document. If you have questions on our comments or require technical assistance or information on agricultural land conservation, please contact Bob Blanford at 801 K Street, MS 13-71, Sacramento, California 95814; or, phone (916) 327-2145.

Sincerely,

Erik Vink
Assistant Director

Enclosure

cc: East Merced Resource Conservation District
2135 Wardrobe Avenue, Suite C
Merced, CA 95340

Response to Department of Conservation's Comments to the IS/EA dated March 2003:

1. The indirect impacts apply only to parcels that are too small to be farmable after construction of the project. The land use designation is consistent throughout the project area regardless of type of impact or alternative. The evaluation of soil types is conducted by the Natural Resources Conservation Service as part of the Farmland Impact Conversion Impact Report. The document now identifies the impacts to Prime and Unique Farmland.

   Current and historic farmland uses have been identified.

2. Caltrans has determined that farmland impacts are significant under CEQA and have re-circulated an Environmental Impact Report. The Federal Highway Administration and Caltrans have determined that impacts do not meet the significance requirements under NEPA.

3. All six alternatives have been evaluated.

4. The Farmland Impact Report has been updated and the Farmland section updated accordingly. See Chapter 3, section 3.9.

5. The alternatives are now evaluated in combinations of the northern and southern alternatives.

6. The Natural Resources Conservation Service uses a land evaluation and site assessment to establish the farmland impact rating. These scores are the standard for evaluating farmland impacts for federally funded projects.

7. The growth section has been updated. See Chapter 3, section 3.12.

8. CEQA does not mandate the use of the LESA model, and the Federal Highway Administration requires the use of the Farmland Conservation Impact Report, thus Caltrans uses that for its projects. The Natural Resources Conservation Service uses its own evaluation system to determine a rating.

9. A discussion of the impacts to Williamson Act properties has been added to the Farmland section. See Chapter 3, section 3.9.

10. Caltrans has sent out this notification.

11. Caltrans has updated the Farmland Impact section to address this comment. See Chapter 3, section 3.9.

12. As part of the Biological Opinion, Caltrans will be purchasing conservation easements on 80.9 hectares (200 acres) of farmland.

State Clearinghouse's Comments on IS/EA dated March 2003

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse

Gray Davis
Governor

Tal Finney
Interim Director

June 30, 2003

Eric VonBerg
Department of Transportation, District 6
2015 E. Shields, Suite 100
Fresno, CA 93726

Subject: Plainsburg/Arboleda Freeway Project
SCH#: 2003051094

Dear Eric VonBerg:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on June 27, 2003, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
(916)445-0613 FAX(916)323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH#	2003051094
Project Title	Plainsburg/Arboleda Freeway Project
Lead Agency	Caltrans #6
Type	**Neg** Negative Declaration
Description	The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) is proposing to convert 16.9 kilometers(10.5 miles) of State Route 99 from the Madera/Merced County line to McHenry Road from a 4-lane expressway to a 6-lane freeway.

Lead Agency Contact

Name	Eric VonBerg		
Agency	Department of Transportation, District 6		
Phone	559-243-8250	*Fax*	
email			
Address	2015 E. Shields, Suite 100		
City	Fresno	*State* CA	*Zip* 93726

Project Location

County	Merced			
City	Merced			
Region				
Cross Streets	Madera/Merced County Line, McHenry Road			
Parcel No.				
Township		*Range*	*Section*	*Base*

Proximity to:

Highways	99
Airports	
Railways	Southern/Union Pacific
Waterways	Duck Slough, Dutchman Creek, Deadman Creek
Schools	
Land Use	Agriculture

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Noise; Population/Housing Balance; Public Services; Schools/Universities; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects
Reviewing Agencies	Resources Agency; Department of Conservation; Department of Fish and Game, Region 4; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Air Resources Board, Transportation Projects; Regional Water Quality Control Bd., Region 5 (Fresno); Native American Heritage Commission; Public Utilities Commission; State Lands Commission

Date Received 05/19/2003 *Start of Review* 05/19/2003 *End of Review* 06/27/2003

Note: Blanks in data fields result from insufficient information provided by lead agency.

Response to State Clearinghouse's Comments on IS/EA dated March 2003:

No response required.

The Reclamation Board's Comments on IS/EA dated March 2003

STATE OF CALIFORNIA -- THE RESOURCES AGENCY

GRAY DAVIS, *Governor*

THE RECLAMATION BOARD
1416 NINTH STREET, ROOM 1601
SACRAMENTO, CA 95814
(916) 653-5434 FAX: (916) 653-5805
Permits: (916) 653-5726 FAX: (916) 653-5805

May 30, 2003

Mr. Eric VonBerg
California Department of Transportation
2015 East Shields Avenue, Suite 100
Fresno, California 93726

Staff for The Department of Water Resources has reviewed State Clearinghouse Document 2003051094 "Plainsburg / Arboleda Freeway Project" and provides the following comments:

The project as proposed encroaches into Duck Slough, Deadman Creek and Mariposa Creek, regulated streams over which The Reclamation Board has jurisdiction. The California Code of Regulations, Title 23, Waters, Article 3, require that a Board permit be obtained before the start of any work including excavation and construction activities where The Reclamation Board exercises their authority.

Section 8(b)(2) of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any environmental documents if they are prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. Applications are reviewed for compliance with the California Environmental Quality Act.

Section 8(b)(4) of the Regulations states that additional information, such as geotechnical exploration, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys and other analyses may be required at any time prior to Board action on the application.

If you have any questions, please contact me at (916) 653-0402, or Samuel Brandon at (916) 653-6491.

Sincerely,

Sterling Sorenson
Water Resources Engineering Associate
Floodway Protection Section

cc: Richard Marshall, Chief
Flood Project Inspection Section
3310 El Camino Avenue, Room B-20
Sacramento CA 95821

Response to The Reclamation Board's Comments on IS/EA dated March 2003:

Caltrans would obtain a permit before construction.

Central Region Water Quality Control Board's Comments on IS/EA dated March 2003

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Fresno Branch Office
Internet Address: http://www.swrcb.ca.gov/~rwqcb5
1685 E Street, Fresno, California 93706-2020
Phone (559) 445-5116 • FAX (559) 445-5910

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RECEIVED
JUN 20 2003
STATE CLEARING HOUSE

17 June 2003

Eric VonBerg, Branch Chief-Central Region
Central Sierra Environmental Analysis
California Department of Transportation
District 6 Office
2015 East Shields, Suite 100
Fresno, CA 93726

COMMENTS ON ENVIRONMENTAL ASSESSMENT/INITIAL STUDY, PLAINSBURG/ ARBOLEDA FREEWAY PROJECT, DEPARTMENT OF TRANSPORTATION, MADERA AND MERCED COUNTIES, SCH NO. 2003051094

The subject Environmental Assessment/Initial Study was received on 20 May 2003. The Department of Transportation (Caltrans) proposes to widen a 10.5-mile segment, including bridges, of State Route 99 from a four-lane expressway to a six-lane divided freeway from the Chowchilla River in Madera County to McHenry Road in Merced County.

Construction associated with the project requires compliance with the National Pollutant Discharge Elimination System (NPDES) Permit For Storm Water Discharges From The State Of California, Department Of Transportation (Caltrans) Properties, Facilities, and Activities (Order No. 99-06-DWQ). Before construction begins, Caltrans must submit a Notification of Construction to this office, and a storm water pollution prevention plan must be prepared.

As the project will involve the discharge of dredged or fill material into navigable waters or wetlands (jurisdictional waters), Caltrans must obtain a permit(s) pursuant to Section 404 of the Clean Water Act from the US Army Corps of Engineers and 401 Water Quality Certification (Certification) from this office. The Regional Board will review the Water Quality Certification application to ensure the discharge will not violate water quality standards. If aspects of the project will result in a discharge of dredged or fill material into waters, including wetlands, that are determined by the Corps to be non-jurisdictional, Caltrans will not be required to obtain a 401 Water Quality Certification, but may be required to submit a report of waste discharge (ROWD) pursuant to California Water Code, Section 13260. The Regional Board will then either prescribe waste discharge requirements (WDRs) or issue a

Eric VonBerg
Branch Chief

- 2 -

17 June 2003

waiver of waste discharge requirements. If WDRs are adopted, they will incorporate measures to mitigate potentially significant impacts to water quality and potential public nuisances.

Thank you for the opportunity to comment on this Environmental Assessment/Initial Study. If you have any questions regarding our comments, please call me at (559) 445-6071.

BRIAN ERLANDSEN
Environmental Scientist

cc: State Clearinghouse

Response to Central Region Water Quality Control Board's Comments on IS/EA dated March 2003:

Caltrans would obtain permits before construction.

State Water Resources Control Board's Response to IS/EA dated March 2003

State Water Resources Control Board

Division of Water Rights
1001 I Street, 14th Floor • Sacramento, California 95814 • (916) 341-5300
Mailing Address: P.O. Box 2000 • Sacramento, California • 95812-2000
FAX (916) 341-5400 • Web Site Address: http://www.swrcb.ca.gov
Division of Water Rights: http://www.waterrights.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

MEMORANDUM

TO: California of Department of Transportation
c/o Eric Von Berg
2015 E. Shields, Suite 100
Fresno, CA 93726

FROM: Whalen Toy
Water Resources Control Engineer
Water Rights Processing

DATE: AUG 15 2003

SUBJECT: PLAINSBURG/ARBOLEDA FREEWAY PROJECT IN MERCED COUNTY

The Division of Water Rights (Division) has received the Notice or Completion and Environmental Document Transmittal (SCH 2003051094) regarding the subject matter. From our telephone conversation of July 30, 2003, it was understood that water will be required for the 10.5 miles of road work in widening Highway 99. The Department of Transportation cannot direct the contractors as to where the water will be obtained for the roadwork; therefore, the contractors alone are responsible for obtaining a water source. The contractors involved in the construction need to provide the Division with the basis of water right to the diversion of surface water used in the Plainsburg/Arboleda Freeway Project.

Please be advised that any diversion or threat of diversion of surface water, except under an existing water right or prior to obtaining an appropriation permit from the State Water Resources Control Board, is a violation of law and civil liability fines may be imposed. A listing of the contractors who were awarded contracts to the project is requested.

If you have questions regarding this matter, please telephone me at (916) 341-5408.

"The energy challenge facing California is real. Every California needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at http://www.swrcb.ca.gov".

APP-Mem-DFG (08-01)

Response State Water Resources Control Board's Response to IS/EA dated March 2003:

Comment noted.

Comments from Public Hearing June 12, 20003

Wes Bylsma Comment:

Comment Card

NAME: Wes Bylsma

ADDRESS: 3745 S. Arboleda CITY: Merced ZIP: 95340

REPRESENTING: Willie Bylsma / Double B Dairy

Do you wish to be added to the project mailing list? ☒ YES ☐ NO

Please drop comments in the Comment Box or

Mail to: **Caltrans, District 6**
Environmental Branch/Unit 173
Attn: Scott Shelley
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

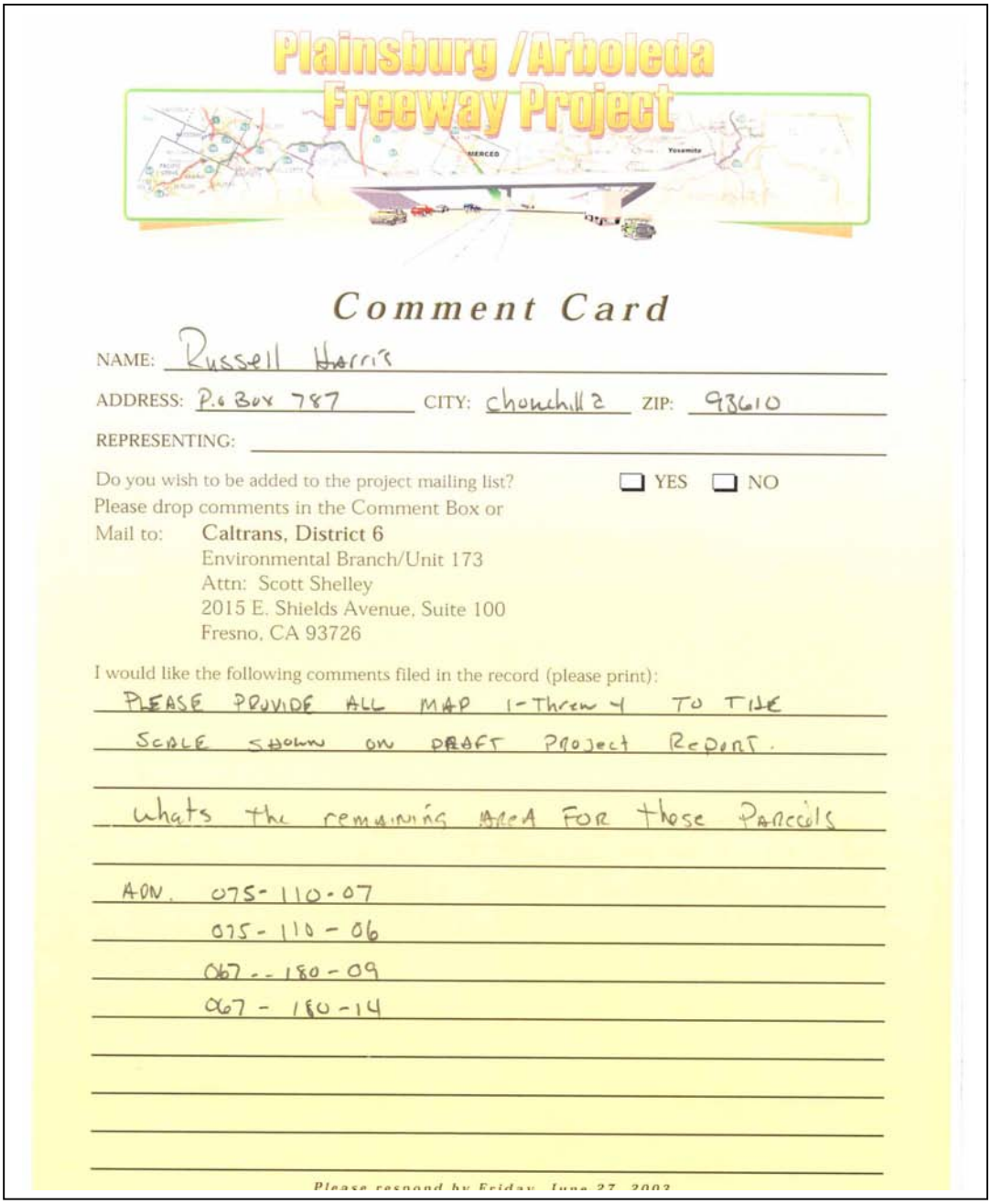
I would like the following comments filed in the record (please print):

I am strongly in favor of Alternative 5 of the LeGrand Interchange. With this alternative we will still be able to do business at this location. Alternative 4 would put us out of business. My only concern is loss of land taken by the project. This could effect our business by minimizing the size of our herd, with new regulations coming with number of cows/acre.

Please respond by Friday, June 27, 2003

Response to Wes Bylsma's Comment: Comment noted**.**

Russell Harris' Comments:



Plainsburg /Arboleda Freeway Project

Comment Card

NAME: Russell Harris

ADDRESS: P.o Box 787 CITY: chowchilla ZIP: 93610

REPRESENTING:

Do you wish to be added to the project mailing list? ☐ YES ☐ NO

Please drop comments in the Comment Box or

Mail to: Caltrans, District 6
Environmental Branch/Unit 173
Attn: Scott Shelley
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print):

PLEASE PROVIDE ALL MAP I-Threw Y TO THE SCALE SHOWN ON DRAFT PROJECT REPORT.

whats the remaining AREA FOR those Parcels

APN. 075-110-07
075-110-06
067--180-09
067-180-14

Please respond by Friday, June 27, 2003

Response to Russell Harris' Comments: The requested information was sent in August 2003.

Court Reporter's Transcript from Public Hearing on June 12, 2003

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PLAINSBURG/ARBOLEDA FREEWAY PROJECT

PUBLIC HEARING

3708 Plainsburg Road
Plainsburg, California

June 12, 2003
4:00 - 7:00 p.m

-o0o-

Reported by:
CHRISTINE OLJACE
CSR, RPR
License No. 11245

1320 EAST SHAW AVENUE, SUITE 168
FRESNO, CALIFORNIA 93710
(559) 224-5511 or 1-800-248-6611

Central Valley REPORTERS

1 PLAINSBURG, CALIFORNIA

2 June 12, 2003 3:57 p.m.

3 MR. SHELLEY: I would just like to announce

4 that the open house public hearing has officially begun.

5

6 STATEMENT OF ROBERT HUGHES

7 1620 Rose Avenue
Merced, California 95340

8

9 I would like to have the No. 5 interchange -- I

10 guess that is what you call it -- interchange map,

11 Alternative No. 5 highway. I would like it sent to me.

12 What I can say is that I am a trustee for the Wanda B.

13 Hughes Trust, which has property at the corner of Worden

14 and Arboleda Drive. The address is 3476 South Arboleda

15 Drive, and we would prefer that the Caltrans pick the

16 No. 5 alternative map because this way they won't have

17 to relocate my particular shop that is on that property

18 at 3476. Otherwise, if they took No. 4, it would cost

19 more money. And so anyway that was going to be my

20 comment on this.

21

22 STATEMENT OF MANUEL SALLES

23 3906 Healy Road
Merced, California, 95340

24

25 I would like to get a copy of the Mission

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2

Avenue project. Okay. You have a map over here, but it blends in with the rest of them, though.

STATEMENT OF ELIZABETH MILLER

2683 South Plainsburg Road
Merced, California, 95340

I would like to say that I think the UC Parkway should really definitely be put on hold until the court action decides whether they can build out there or not.

STATEMENT OF ROSEANNA SMALL

1249 Glacier Point Court
Merced, California 95340

Corner of Voorhees, Athlone, Buchanan Hollow and 99. My mailing address is 1249 Glacier Point Court, Merced, 95340. This is Mr. and Mrs. Vallelunga. Their address is 4888 South Athlone Road, Le Grand, 95333.

Well, one of the main comments I would like to make is that Plan 1a seems to be the least invasive. That would be the best for us. Of course, we don't like any of them, but that would be the best for us. We wish that there was no frontage road there. As far as we are concerned, they could do away with it. We would rather go around then. There is just too much traffic and we think with this in, there might be even more.

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3

We want to make sure that we are compensated fairly for the property. We don't think it's fair because we are going to be -- the whole land is going to be considered. We have 140 acres, and it is one parcel, and they are going to take like 25, 26 acres away. We think we should get paid just on what the value of 25 or 26 acres is, not on the whole 140 acres, because you can say acreage that is an orchard has a different value versus open land. The values are different.

STATEMENT OF GLORIA CORTEZ KEENE

1880 Cowgill Court
Merced, California, 95340

First of all, I had a chance to look at the Arboleda Drive Freeway Projects and was able to do some assessment on them. I found out that the preference that I would like to see would be the Alternative No. 5. First of all, it is actually about $10 million cheaper to operate. It has clean lines and it has less intrusion. I am hoping, now, that Alternative No. 5 is the Le Grand interchange, and without going back there to find this out, I hope I am right. I am thinking that the Le Grand intersection would leave the two dairies that we have intact and would not disturb the businesses. In fact, it gives them a better access to

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4

the freeway, so I am leaning towards Alternative No. 5.

On the Plainsburg one, Option 1b is actually the cleaner one. It leaves the Diesel Country Truck Stop intact. That is very important because they just recently got their permit to operate that business and they are renovating everything. They are tearing everything apart and making it look very, very nice, so I would hate to see the freeway take it over just as they were getting it going. It's much cleaner. 1b is the one that I prefer.

Alternative 2 actually affects more ag land and more businesses would be taken out and Alternative 3 would do even more than that, so for the Arboleda Drive, I am looking at Alternative No. 5 for the reasons I mentioned.

So I think I have it. I hope I am not confusing you. I just want to clarify that that while we are referring to the Arboleda Drive freeway project, that the best alternative is No. 5 for the reasons I stated. It does have a $10 million less cost. It has less intrusion to the dairies, keeps them intact and gives better access to the freeway. And that is it.

For the Plainsburg Road freeway, 1b is the best alternative.

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Fresno, California (559) 224-5511

5

1 COUNTY OF MERCED)
2 STATE OF CALIFORNIA)
3
4 I, Christine Oljace, a Certified Shorthand Reporter
5 licensed in the State of California, License No. 11245,
6 hereby certify that the foregoing statements were
7 reported by me and were thereafter transcribed with
8 Computer-Aided Transcription; that the foregoing is a
9 full, complete, and true record of said proceeding.
10 And I further certify that I am not of counsel or
11 attorney for either or any of the parties in the
12 foregoing proceeding and caption named or in any way
13 interested in the outcome of the cause in said caption.
14 The dismantling, unsealing, or unbinding of the
15 original transcript will render the reporter's
16 certificate null and void.
17 IN WITNESS WHEREOF, I have hereunto set my hand this
18 day: June 16, 2003.
19
20
21 Christine Oljace, CSR 11245, RPR
22
23
24
25

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8

Response to Comments Recorded in the Court Reporter's Transcript from the Public Hearing on June 12, 2003:

Response to Robert Hughes:

Maps were sent in August 2003. Thank you for comments.

Response to Manuel Salles:

Comment noted.

Response to Roseanna Small:

This project would cut off existing access to State Route 99. Caltrans is required to maintain that access. Caltrans would maintain this access by building a frontage road.

Response to Elizabeth Miller:

Comment noted.

Response to Gloria Cortez Keene:

Comment noted.

Appendix J Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
1-1-03-F-0224

FEB 6 2006

Mr. Gene K. Fong
Federal Highway Administration
U.S. Department of Transportation
650 Capitol Mall Room 4-100
Sacramento, California 95814

Subject: Biological and Conference Opinion on Plainsburg/Arboleda State Route 99 Project in Merced County, California

Dear Mr. Fong:

This is the U.S. Fish and Wildlife Service's (Service) biological and conference opinion on the Plainsburg/Arboleda State Route 99 Project in Merced County, California. Your June 12, 2003, request for formal consultation was received in this office on June13, 2003. At issue are the effects of this proposed project on the endangered San Joaquin kit fox (*Vulpes macrotis mutica*) (kit fox) and the candidate species mountain plover (*Charadrius montanus*). This biological and conference opinion was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act).

We have also considered relevant information about the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) that may be affected by the proposed project. Based on the avoidance and minimization measures proposed in the Biological Assessment and subsequent correspondence with the Service, we have determined that the proposed project is not likely to adversely affect the federally listed species VELB.

This biological opinion is based on: (1) *Biological Assessment Plainsburg/Arboleda Freeway Project State Route 99, Merced County, California Chowchilla River to McHenry Road* dated April 2003 (biological assessment), that was prepared by the California Department of Transportation (Caltrans); (2) a letter from the Service to the Federal Highway Administration (FHWA) dated July 11, 2003 requesting additional information; (3) a letter from the FHWA to the Service dated August 7, 2003, that was received by this Field Office on August 8, 2003;, (4) a letter from the Federal Highway Administration to the Service dated November 14, 2003, that was received in this office on November 18, 2003; (5) a telephone conversation between Shannon Holbrook of the Service and Geoff Gray of the Caltrans and (6) other information available to the Service.

TAKE PRIDE IN AMERICA

Consultation History

December 20, 2001. A meeting was held between FHWA, Caltrans and Brian Cypher of ESRP to discuss use of agricultural fields by kit fox and kit fox presence in the Merced area.

January 8, 2002. A meeting was held between FHWA, Caltrans and Dr. Patrick Kelly and Curt Uptain of ESRP to discuss goals of the recovery plan for the kit fox in the Merced region.

February 7, 2002. A Kit Fox Planning and Conservation Recovery Team (KFPACT) meeting was held which included FHWA, Caltrans, Karen Harvey of the Service and Brian Cypher of ESRP. This project was discussed.

June 3, 2002. A meeting was held between FHWA, Caltrans and Kim Forrest, Refuge Manager, San Luis National Wildlife Refuge Complex, Los Banos to discuss the kit fox corridor enhancement project.

August 1, 2002. A site visit was conducted with Karen Harvey and Susan Jones of the Service.

April 1, 2003. A KFPACT meeting was held between FHWA, Caltrans, Sheila Larson and Karen Harvey of the Service, Dr. Brian Cyper of ESRP and Steven Juarez of California Department of Fish and Game to discuss proposed project design and mitigation options.

June 12, 2003. The FHWA sent a letter to the Service requesting initiation of formal Section 7 consultation for the Plainsburg/Arboleda State Hwy 99 Project. The Service also received the *Biological Assessment Plainsburg/Arboleda Freeway Project State Route 99, Merced County, California Chowchilla River to McHenry Road.*

July 11, 2003. The Service sent a letter to the FHWA requesting additional information.

August 7, 2003. The FHWA sent a letter to the Service responding to the request for additional information.

September 17, 2003. An informal meeting was held in Fresno between the Service and Caltrans to discuss the project and compensation features.

October 9, 2003. Electronic mail was sent from Geoffrey Gray of Caltrans to Karen Harvey of the Service concerning VELB avoidance information.

November 18, 2003. The FHWA sent a letter to the Service requesting a response to their August 7, 2003 letter and issuance of a biological opinion.

October 14, 2005. Shannon Holbrook of the Service contacted Geoffrey Gray of Caltrans to discuss the project.

October 17, 2005. Electronic mail was sent from Geoffrey Gray of Caltrans to Shannon Holbrook of the Service providing an electronic copy of the Biological Assessment.

Description of the Proposed Action

FHWA, in cooperation with the Caltrans proposes to convert a 10.5 mile (16.9 km) section of State Route 99 (SR-99) between the Madera/Merced County line and McHenry Road from a four-lane expressway to a six-lane divided freeway (Figure 1). This would occur upon an acquired right-of-way area that can ultimately accommodate eight lanes with a median that ranges between 69-85 ft. (21-25.8 m). A 0.65 mile (1.04 km) median barrier is proposed in the transition zone near the Chowchilla River (Postmile (PM) 0.0 – 0.65 / Kilopost (KP) 0.0 – 1.04).

Current northbound SR-99 would be excavated down to original ground (OG) level, including the removal of all pavement, fill material, and northbound bridges. The proposed freeway would be realigned to the east in order to avoid crossing the Union Pacific railroad and to facilitate the construction of two full interchanges at Plainsburg Road/Sandy Mush Road (southern interchange - project EA 10-415800) and at Arboleda Drive/Le Grand Road (northern interchange - project EA 10-415700) (Appendix C, Caltrans 2003). In order to provide access to SR-99 via the interchanges, existing SR-99 southbound lanes would be resurfaced and designated as a western frontage road while a new frontage road would be constructed east of the proposed freeway.

The new freeway alignment would be constructed at a higher elevation than current SR-99 in order to provide increased protection against 100-year flood events. The required fill material to raise the alignment would be obtained through the excavation of basins within acquired right of way areas.

A preferred alternative has not been selected. Alternative alignment 1B PM 0.0 – 4.6 / KP 0.0 – 7.4) facilitates the southern interchange (EA 415800) while alternative alignment 2 (PM 4.3 – 10.5 / KP 6.9 – 16.9) provides access to the northern interchange (EA 415700) (Appendix C, of Caltrans 2003).

The purpose of the proposed project is to improve SR-99 in accordance with regional transportation plans. In addition, modernized freeway design would eliminate non-standard merge and diverge weaving areas, upgrade non-standard shoulder widths, and significantly improve safety and operating conditions in a region where dense fog is prevalent.

Total acreage studied within the project's potential impact area (PIA) is approximately 2,592 acres. However, project construction is expected to permanently modify approximately 712 acres, which includes the freeway alignment and shoulders, all Caltrans right of way including median, new frontage roads and shoulders, and basins.

According to the biological assessment, parcel utilization surveys conducted in 2001 showed that 97% of the project footprint is utilized for intensive agricultural production. Land use within this acreage as of 2001 includes alfalfa (35.5% / 253 acres), vineyards (29.1% / 207 acres), orchard crops (23.1% / 165 acres), row crops (9.4% / 67 ares), rural residences (1.6% / 12 acres), and ruderal areas (1.3% / 9 acres). Local farmers rotate crops on a regular basis, so these percentages represent

temporally limited data on regional land use. Most non-cultivated plants within the potential impact area are planted ornamentals serving as landscape enhancement on residential parcels or trees and shrubs planted on the periphery of some agricultural lands. Native vegetation is mainly restricted to the narrow banks of local channelized streams (utilized as irrigation canals) and one adjacent wetland.

Proposed Avoidance and Minimization Measures

According to the biological assessment, the Caltans will implement the following actions:

1. Preconstruction surveys would be conducted prior to ground disturbance to locate potential kit fox dens within the PIA.

2. San Joaquin kit fox special provisions would be included in the construction contract and implemented by the Caltrans subcontractor.

   A. Entrance into areas within the right of way not required for construction activities shall be restricted to the highway and associated paved or graded shoulders. Staging, parking, storage and other project related use areas shall be clearly marked on the ground.
   B. Project-related traffic shall observe a 32 kilometer per hour speed limit except on roads or highways open for public use.
   C. At the end of each working day, the Contractor shall take measures to prevent the entrapment of kit foxes in all excavated, steep-walled holes or trenches more than 0.6-(meter) deep. Such measures shall include covering excavations with plywood or providing dirt or plank escape ramps from the trenches.
   D. The Contractor shall inspect all pipes and culverts with a diameter greater than or equal to 100 mm before burying, capping, or other use. If a kit fox is discovered during this inspection, the pipe or culvert shall not be disturbed (other than to move it to a safe location if necessary) until after the fox has escaped.
   E. The Contractor shall immediately notify the Engineer if a dead, injured or entrapped kit fox is found. Work in the immediate area may be temporarily halted while the State's Biologist at the direction of the Engineer consults with the California Department of Fish and Game and the US Fish and Wildlife Service. Any entrapped kit fox shall be permitted to escape. The disposition of any carcasses or recovering animals shall be coordinated through the Engineer.
   F. If a kit fox den is discovered, all construction activity within a 46 m radius of the den will be halted while the State consults with the U.S. Fish and Wildlife Service and California Department of Fish and Game. An Environmental Sensitive Area will be established around the den and entry into the area will be restricted.
   G. The Contractor shall provide closed garbage containers where food-related trash is generated, and garbage shall be disposed of daily.
   H. Pets are prohibited on work site.

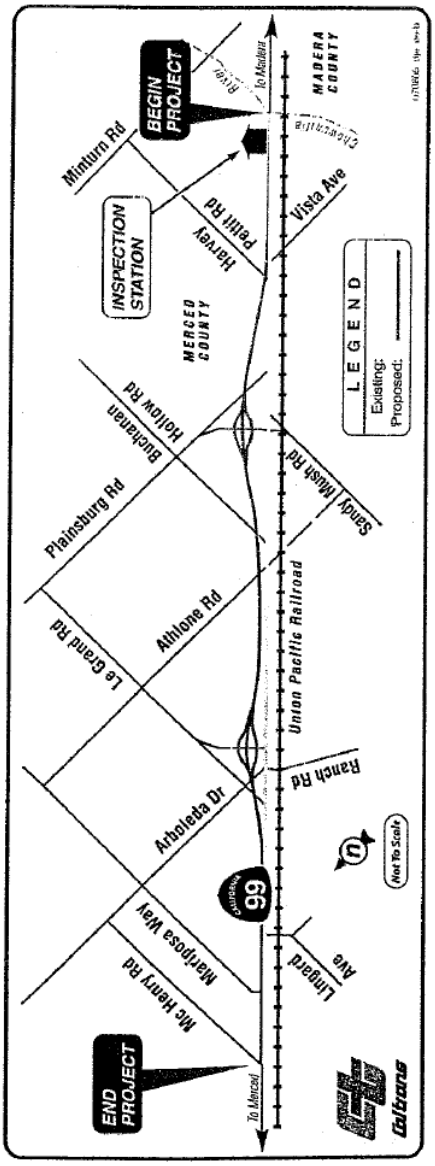

Figure 1-2 Project Location Map

3. Bridges would be constructed with increased vertical clearance over six local streams and overflow areas providing enhanced crossing potential at these locations for kit foxes (Appendix C, Caltrans 2003).

4. At bridge locations, the ROW fence would be designed to direct animals under the alignment by attaching the fence directly to bridge footings. To facilitate kit fox passage, open space within the Caltrans ROW near stream banks or overflow areas would be kept free of vegetation through use of gravel, concrete slurry, or other material. As there are no final designs proposed yet, Caltrans will obtain Service approval for the final design of the footings and fence.

5. Under the entire ROW fence, a suitable material would be buried and/or placed to discourage kit foxes and other canids from digging under the ROW fence and entering trafficked areas.

6. Two large box culverts would be constructed under the proposed alignment along the Sandy Mush Road kit fox corridor. These culverts would serve as additional crossing features specific to kit fox measuring approximately 6 feet high x 10 feet wide x 240 feet long (Appendix K, Caltrans 2003). The bottom of these culverts would be approximately 12 inches above OG and would not carry water during normal precipitation events. For each box culvert, four sections of corrugated metal pipe (CMP), 20 feet long and 10 inches in diameter, would be anchored at equal intervals on the culvert floors. The openings of both ends of all CMPs would be narrowed to a 4-6 inch diameter. Kit foxes would gain temporary refuge opportunity within the CMPs in the event they find themselves in a culvert with a larger predator.

7. Right of way fence gaps, 4-6 inches high and approximately 60 feet wide, would be provided at the bottom of the ROW fence in front of the culvert entrances (Appendix K, Caltrans 2003). A concrete slab, slurry, gravel, or other material, six feet wide, would be placed under the gaps to prevent vegetation growth from obscuring them and to prevent enlargement of the gaps via burrowing. Right of way areas between the ROW fence and the box culvert entrances would be kept vegetation free through use of similar materials.

8. Two overpasses would be constructed over the proposed alignment - one at Plainsburg Road and one at Arboleda Road (Appendix C of Caltrans 2003). Traffic volumes would be relatively low on these overpasses, and they would provide two additional locations kit foxes could utilize to cross SR-99.

9. Conservation easements would be pursued for five proposed buffer areas (40 acres each) on adjacent parcels in front of the entrances of the two box culverts and east of the proposed bridge at Deadman Creek (totaling approximately 200 acres) (Appendix C, Caltrans 2003). The easements would be obtained from willing sellers; any acreage required but not obtained via a willing seller would be procured off-site via conservation easements and/or purchases, the preferable location(s) of which would be consistent with the Sandy-Mush kit fox corridor as identified in the Service Recovery Plan for Upland Species of the San Joaquin Valley (Service 1998) (Recovery Plan). The use of condemnation to obtain easements would be pursued only in the case of demonstrated and defensible necessity. The proposed buffer areas are within the approved expansion boundary for the Grasslands Wildlife Management area, therefore, the

easement would be in the name of the Service (National Wildlife Refuge), who would be responsible for perpetual monitoring. Development within these parcels would be prevented, allowing the areas immediately adjacent to the crossings to remain open to kit fox passage in perpetuity. Union Pacific Railroad property, comprising 56 acres of open grassland, is located west of the proposed Deadman Creek Bridge (Appendix C, Caltans 2003). Development is not expected to occur on this parcel.

10. Large areas within the Caltrans ROW will be the source of fill material (Appendix C, Caltrans 2003). A total of 13 areas, totaling 265 acres, are under consideration for basin creation/subsequent use. These areas would not be intended for use as drainage basins and would not be expected to hold large amounts of water. However, in the larger basins, earthen check dams would be created in several locations to provide animals with elevated dry routes across the basins floors during rain events. The basins would also be seeded with native plants after fill material has been obtained.

11. Of the 13 areas under consideration in #10 above, up to six basins (#3, #6, #8, #9, #10, #11), totaling up to 201 acres, would be relinquished to the Service (Appendix C, Caltrans 2003). It is anticipated that these areas would provide substantial foraging habitat not only for kit fox but other species in the area such as the burrowing owl and Swainson's hawk. Furthermore, such ownership of these basin areas would prevent future urban development from blocking the Sandy Mush Road corridor adjacent to the new alignment. The remaining seven basins, totaling 64 acres, would be retained within the Caltrans ROW, allowing for the perpetual protection of this acreage along State Route 99 (SR 99) as well.

12. The project alignment footprint (excluding basins) would include approximately 437 acres of agricultural land (alfalfa 156 acres, vineyard 129 acres, orchard 87 acres, annual row crop 56 acres, and ruderal areas 9 ac.). The unsuitability of these lands as valuable kit fox denning and foraging habitat is described as follows:

    - Annual row crops are plowed frequently, flood irrigated, and treated with pesticides, herbicides, and fertilizers. The value of annual row crops as kit fox foraging and denning habitat is low to none;
    - Vineyards are flood irrigated and treated with pesticides, herbicides, and fertilizers. The vegetative understory is sterile. Very little to no foraging and denning opportunity exists for kit foxes;
    - Orchards are flood irrigated and treated with pesticides, herbicides, and fertilizers. The vegetative understory is relatively sterile. Orchards provide very little opportunity for foraging and denning for kit foxes. However, kit foxes are known to utilize orchards as cover and limited forage for short periods of time;
    - Alfalfa fields are flood irrigated and treated with pesticides, herbicides, and fertilizers. Although alfalfa fields are not plowed every year, they are subject to mechanical harvesting several times per growing season. Because rodents can be relatively abundant in alfalfa fields, kit foxes may utilize alfalfa for some foraging, but the value of these areas as cover and/or denning habitat is little to none. In addition, kit fox predators, namely coyotes, were

observed in proportionally greater numbers in alfalfa fields during two USFWS-protocol kit fox spotlighting surveys in the local region;

- Ruderal areas can provide some foraging and denning opportunity for kit foxes if disturbance is low and edge effect is minimal due to large parcel size. However, the ruderal areas within the potential impact area are very small and fragmented, located next to residential areas, or on road shoulders.

Following the above line of reasoning, Caltrans proposes to compensate for the removal of agricultural land, not because it qualifies as essential kit fox denning and foraging habitat, but in order to compensate for the role it serves as open space for recovery of potential kit fox east-west corridor movement as identified in the Service Recovery Plan for Upland Species. Caltrans proposes to relinquish up to 401 acres to the Service in the form of buffer easements (#9) and basin areas (#11) to enhance kit fox corridor movement.

13. An endowment would be established by Caltrans for the perpetual maintenance and monitoring of the basin acreage (201 acres). Regarding the five buffer areas (200 acres), an endowment is not anticipated should the easement allow for land use to remain in agriculture.

No kit fox mortality is expected to result from project construction. Kit fox crossing locations would include a project-wide total of six bridges, two culverts, and two overpasses. Right of way fences would help to prevent entry of kit foxes into trafficked areas and direct them toward safer crossing points. Up to 401 acres (200 buffer acres plus 201 basin acres) would be relinquished to the Service to maintain as foraging/denning/migration habitat and to prevent urbanization from blocking the Sandy Mush Road kit fox corridor.

Status of the Species

San Joaquin Kit Fox

The San Joaquin kit fox was listed as an endangered species on March 11, 1967 (Service 1967) and was listed by the State of California as a threatened species on June 27, 1971. *The Recovery Plan for Upland Species of the San Joaquin Valley, California* (Recovery Plan) includes this canine (Service 1998).

In the San Joaquin Valley before 1930, the range of the San Joaquin kit fox extended from southern Kern County north to Tracy, San Joaquin County, on the west side, and near La Grange, Stanislaus County, on the east side (Grinnell *et al.* 1937; Service 1998). Historically, this species occurred in several San Joaquin Valley native plant communities. In the southernmost portion of the range, these communities included Valley Sink Scrub, Valley Saltbush Scrub, Upper Sonoran Subshrub Scrub, and Annual Grassland. San Joaquin kit foxes also exhibit a capacity to utilize habitats that have been altered by man. The animals are present in many oil fields, grazed pasturelands, and "wind farms" (Cypher 2000). Kit foxes can inhabit the margins and fallow lands near irrigated row crops, orchards, and vineyards, and may forage occasionally in these agricultural areas (Service 1998). The San Joaquin kit fox seems to prefer more gentle terrain

and decreases in abundance as terrain ruggedness increases (Grinnell *et al.* 1937; Morrell 1972; Warrick and Cypher 1998).

The kit fox is often associated with open grasslands, which form large contiguous blocks within the eastern portions of the range of the animal. The listed canine also utilizes oak savanna and some types of agriculture (e.g. orchards and alfalfa), although the long-term suitability of these habitats is unknown (Jensen 1972; Service 1998). In eastern Merced County, the lands between the urban corridor along Highway 99 and the open grasslands to the east are a mixture of orchards and annual crops, mostly alfalfa. Orchards occur in large contiguous blocks in the northwest portions of the study area and at scattered locations in the southwest portions. Orchards sometimes support prey species if the grounds are not manicured; however, denning potential is typically low and kit foxes can be more susceptible to coyotes predation within the orchards (Orloff 2000). Alfalfa fields provide an excellent prey base (Woodbridge 1987; Young 1989), and berms adjacent to alfalfa fields sometimes provide good denning habitat (Orloff 2000). Kit foxes often den adjacent to, and forage within, agricultural areas (Bell 1994; Scott-Graham 1994). Although agricultural areas are not traditional kit fox habitat and are often highly fragmented, they can offer sufficient prey resources and denning potential to support small numbers of kit foxes.

Adult San Joaquin kit foxes are usually solitary during late summer and fall. In September and October, adult females begin to excavate and enlarge natal dens (Morrell 1972), and adult males join the females in October or November (Morrell 1972). Typically, pups are born between February and late March following a gestation period of 49 to 55 days (Egoscue 1962; Morrell 1972; Spiegel and Tom 1996; Service 1998). Mean litter sizes reported for San Joaquin kit foxes include 2.0 on the Carrizo Plain (White and Ralls 1993), 3.0 at Camp Roberts (Spencer *et al.* 1992), 3.7 in the Lokern area (Spiegel and Tom 1996), and 3.8 at the Naval Petroleum Reserve (Cypher *et al.* 2000). Pups appear above ground at about age 3-4 weeks, and are weaned at age 6-8 weeks. Reproductive rates, the proportion of females bearing young, of adult San Joaquin kit foxes vary annually with environmental conditions, particularly food availability. Annual rates range from 0-100%, and reported mean rates include 61% at the Naval Petroleum Reserve (Cypher *et al.* 2000), 64% in the Lokern area (Spiegel and Tom 1996), and 32% at Camp Roberts (Spencer *et al.* 1992). Although some yearling female kit foxes will produce young, most do not reproduce until age 2 years (Spencer et al. 1992; Spiegel and Tom 1996; Cypher *et al.* 2000). Some young of both sexes, but particularly females may delay dispersal, and may assist their parents in raising in the following year's litter of pups (Spiegel and Tom 1996). The young kit foxes begin to forage for themselves at about four to five months of age (Koopman *et al.* 2000; Morell 1972).

Although most young kit foxes disperse less than 5 miles (Scrivner *et al.* 1987a), dispersal distances of up to 76.3 miles have been documented for the San Joaquin kit fox (Scrivner *et al.* 1993; Service 1998). Dispersal can be through disturbed habitats, including agricultural fields, and across highways and aqueducts. The age at dispersal ranges from 4-32 months (Cypher 2000). Among juvenile kit foxes surviving to July 1 at the Naval Petroleum Reserve, 49% of the males dispersed from natal home ranges while 24% of the females dispersed (Koopman *et al.* 2000). Among dispersing kit foxes, 87% did so during their first year of age. Most, 65.2%, of

the dispersing juveniles at the Naval Petroleum Reserve died within 10 days of leaving their natal home den (Koopman *et al*. 2000). Some kit foxes delay dispersal and may inherit their natal home range.

Kit foxes are reputed to be poor diggers, and their dens are usually located in areas with loose-textured, friable soils (Morrell 1972; O'Farrell 1983). However, the depth and complexity of their dens suggest that they possess good digging abilities, and kit fox dens have been observed on a variety of soil types (Service 1998). Some studies have suggested that where hardpan layers predominate, kit foxes create their dens by enlarging the burrows of California ground squirrels (*Spermophilus beecheyi*) or badgers (*Taxidea taxus*)(Jensen 1972; Morrell 1972; Orloff *et al*. 1986). In parts of their range, particularly in the foothills, kit foxes often use ground squirrel burrows for dens (Orloff *et al*. 1986). Kit fox dens are commonly located on flat terrain or on the lower slopes of hills. About 77 percent of all kit fox dens are at or below midslope (O'Farrell 1983), with the average slope at den sites ranging from 0 to 22 degrees (California Department of Fish and Game 1980; O'Farrell 1983; Orloff *et al*. 986). Natal and pupping dens are generally found in flatter terrain. Common locations for dens include washes, drainages, and roadside berms. Kit foxes also commonly den in human-made structures such as culverts and pipes (O'Farrell 1983; Spiegel *et al*. 1996a).

Natal and pupping dens may include from two to 18 entrances and are usually larger than dens that are not used for reproduction (O'Farrell *et al*. 1980; O'Farrell and McCue 1981). Natal dens may be reused in subsequent years (Egoscue 1962). It has been speculated that natal dens are located in the same location as ancestral breeding sites (O'Farrell 1983). Active natal dens are generally 1.2 to 2 miles from the dens of other mated kit fox pairs (Egoscue 1962; O'Farrell and Gilbertson 1979). Natal and pupping dens usually can be identified by the presence of scat, prey remains, matted vegetation, and mounds of excavated soil (i.e. ramps) outside the dens (O'Farrell 1983). However, some active dens in areas outside the valley floor often do not show evidence of use (Orloff *et al*. 1986). During telemetry studies of kit foxes in the northern portion of their range, 70 percent of the dens that were known to be active showed no sign of use (e.g., tracks, scats, ramps, or prey remains)(Orloff *et al*. 1986). In another more recent study in the Coast Range, 79 percent of active kit fox dens lacked evidence of recent use other than signs of recent excavation (Jones and Stokes Associates 1997).

A kit fox can use more than 100 dens throughout its home range, although on average, an animal will use approximately 12 dens a year for shelter and escape cover (Cypher *et al*. 2001). Kit foxes typically use individual dens for only brief periods, often for only one day before moving to another den (Ralls *et al*. 1990). Possible reasons for changing dens include infestation by ectoparasites, local depletion of prey, or avoidance of coyotes (*Canis latrans*). Kit foxes tend to use dens that are located in the same general area, and clusters of dens can be surrounded by hundreds of hectares of similar habitat devoid of other dens (Egoscue 1962). In the southern San Joaquin Valley, kit foxes were found to use up to 39 dens within a denning range of 320 to 482 acres (Morrell 1972). An average den density of one den per 69 to 92 acres was reported by O'Farrell (1984) in the southern San Joaquin Valley.

Dens are used by kit foxes for temperature regulation, shelter from adverse environmental conditions, and escape from predators. Kit foxes excavate their own dens, use those constructed by other animals, and use human-made structures (culverts, abandoned pipelines, and banks in sumps or roadbeds). Kit foxes often change dens and may use many dens throughout the year; however, evidence that a den is being used by kit foxes may be absent. San Joaquin kit foxes have multiple dens within their home range and individual animals have been reported to use up to 70 different dens (Hall 1983). At the Naval Petroleum Reserve, individual kit foxes used an average of 11.8 dens per year (Koopman *et al.* 1998). Den switching by the San Joaquin kit fox may be a function of predator avoidance, local food availability, or external parasite infestations (e.g., fleas) in dens (Egoscue 1956).

The diet of the San Joaquin kit fox varies geographically, seasonally, and annually, based on temporal and spatial variation in abundance of potential prey. In the portion of their geographic range that includes Merced County, known prey species of the kit fox include white-footed mice (*Peromyscus* spp.), insects, California ground squirrels, kangaroo rats (*Dipodomys* spp.), San Joaquin antelope squirrels, black-tailed hares (*Lepus californicus*), and chukar (*Alectoris chukar*) (Jensen 1972, Archon 1992), listed in approximate proportion of occurrence in fecal samples. Kit foxes also prey on desert cottontails (*Sylvilagus audubonii*), ground-nesting birds, and pocket mice (*Perognathus* spp.).

The diets and habitats selected by coyotes and kit foxes living in the same areas are often quite similar. Hence, the potential for resource competition between these species may be quite high when prey resources are scarce such as during droughts, which are quite common in semi-arid, central California. Competition for resources between coyotes and kit foxes may result in kit fox mortalities. Coyote-related injuries accounted for 50-87 per cent of the mortalities of radio collared kit foxes at Camp Roberts, the Carrizo Plain Natural Area, the Lokern Natural Area, and the Naval Petroleum Reserves (Cypher and Scrivner 1992; Standley *et al.* 1992).
San Joaquin kit foxes are primarily nocturnal, although individuals are occasionally observed resting or playing (mostly pups) near their dens during the day (Grinnell *et al.* 1937). Kit foxes occupy home ranges that vary in size from 1.7 to 4.5 square miles (White and Ralls 1993). A mated pair of kit foxes and their current litter of pups usually occupy each home range. Other adults, usually offspring from previous litters, also may be present (Koopman *et al.* 2000), but individuals often move independently within their home range (Cypher 2000). Average distances traveled each night range from 5.8 to 9.1 miles and are greatest during the breeding season (Cypher 2000).

Kit foxes maintain core home range areas that are exclusive to mated pairs and their offspring (White and Ralls 1993, Spiegel 1996, White and Garrott 1997). This territorial spacing behavior eventually limits the number of foxes that can inhabit an area owing to shortages of available space and per capita prey. Hence, as habitat is fragmented or destroyed, the carrying capacity of an area is reduced and a larger proportion of the population is forced to disperse. Increased dispersal generally leads to lower survival rates and, in turn, decreased abundance because greater than 65 percent of dispersing juvenile foxes die within 10 days of leaving their natal range (Koopman *et al.* 2000).

Estimates of fox density vary greatly throughout its range, and have been reported as high as 1.3 animals per square mile in optimal habitats in good years (Service 1998). At the Elk Hills in Kern County, density estimates varied from 1.86 animals per square mile in the early 1980s to 0.03 animals per square mile in 1991 (Service 1998). Kit fox home ranges vary in size from approximately 1 to 12 square miles (Spiegel *et al.* 1996b; Service 1998). Knapp (1978) estimated that a home range in agricultural areas is approximately 1 square mile. Individual home ranges overlap considerably, at least outside the core activity areas (Morrell 1972; Spiegel *et al.* 1996b).

Mean annual survival rates reported for adult San Joaquin kit foxes include 0.44 at the Naval Petroleum Reserve (Cypher *et al.* 2000), 0.53 at Camp Roberts (Standley *et al.* 1992), 0.56 at the Lokern area (Spiegel and Disney 1996), and 0.60 on the Carrizo Plain (Ralls and White 1995). However, survival rates widely vary among years (Spiegel and Disney 1996; Cypher *et al.* 2000). Mean survival rates for juvenile San Joaquin kit foxes (<1 year old) are lower than rates for adults. Survival to age 1 year was 0.14 at the Naval Petroleum Reserve (Cypher *et al.* 2000), 0.20 at Camp Roberts (Standley *et al.* 1992), and 0.21 on the Carrizo Plain (Ralls and White 1995). For both adults and juveniles, survival rates of males and females are similar. San Joaquin kit foxes may live to ten years in captivity (McGrew 1979) and 8 years in the wild (Berry et al. 1987), but most kit foxes do not live past 2-3 years of age.

The status (i.e., distribution, abundance) of the kit fox has decreased since its listing in 1967. This trend is reasonably certain to continue into the foreseeable future unless measures to protect, sustain, and restore suitable habitats, and alleviate other threats to their survival and recovery, are implemented. Threats that are seriously affecting kit foxes are described in further detail in the following paragraphs.

Loss of Habitat

Less than 20 percent of the habitat within the historical range of the kit fox remained when the subspecies was listed as federally-endangered in 1967, and there has been a substantial net loss of habitat since that time. Historically, San Joaquin kit foxes occurred throughout California's Central Valley and adjacent foothills. Extensive land conversions in the Central Valley began as early as the mid-1800s with the Arkansas Reclamation Act. By the 1930's, the range of the kit fox had been reduced to the southern and western parts of the San Joaquin Valley (Grinnell *et al.* 1937). The primary factor contributing to this restricted distribution was the conversion of native habitat to irrigated cropland, industrial uses (e.g., hydrocarbon extraction), and urbanization (Laughrin 1970, Jensen 1972; Morrell 1972, 1975). Approximately one-half of the natural communities in the San Joaquin Valley were tilled or developed by 1958 (Service 1980).

This rate of loss accelerated following the completion of the Central Valley Project and the State Water Project, which diverted and imported new water supplies for irrigated agriculture (Service 1995a). Approximately 1.97 million acres of habitat, or about 66,000 acres per year, were converted in the San Joaquin region between 1950 and 1980 (California Department of Forestry and Fire Protection 1988). The counties specifically noted as having the highest wildland conversion rates included Kern, Tulare, Kings and Fresno, all of which are occupied by kit foxes.

From 1959 to 1969 alone, an estimated 34 percent of natural lands were lost within the then-known kit fox range (Laughrin 1970).

By 1979, only approximately 370,000 acres out of a total of approximately 8.5 million acres on the San Joaquin Valley floor remained as non-developed land (Williams 1985, Service 1980). Data from the CDFG (1985) and Service file information indicate that between 1977 and 1988, essential habitat for the blunt-nosed leopard lizard, a species that occupies habitat that is also suitable for kit foxes, declined by about 80 percent – from 311,680 acres to 63,060 acres, an average of about 22,000 acres per year (Biological Opinion for the Interim Water Contract Renewal, Ref. No. 1-1-00-F-0056, February 29, 2000). Virtually all of the documented loss of essential habitat was the result of conversion to irrigated agriculture.

During 1990 to 1996, a gross total of approximately 71,500 acres of habitat were converted to farmland in 30 counties (total area 23.1 million acres) within the Conservation Program Focus area of the Central Valley Project. This figure includes 42,520 acres of grazing land and 28,854 acres of "other" land, which is predominantly comprised of native habitat. During this same time period, approximately 101,700 acres were converted to urban land use within the Conservation Program Focus area (California Department of Conservation 1994, 1996, 1998). This figure includes 49,705 acres of farmland, 20,476 acres of grazing land, and 31,366 acres of "other" land, which is predominantly comprised of native habitat. Because these assessments included a substantial portion of the Central Valley and adjacent foothills, they provide the best scientific and commercial information currently available regarding the patterns and trends of land conversion within the kit fox's geographic range.

In summary, more than one million acres of suitable habitat for kit foxes have been converted to agricultural, municipal, or industrial uses since the listing of the kit fox. In contrast, less than 500,000 acres have been preserved or are subject to community-level conservation efforts designed, at least in part, to further the conservation of the kit fox (Service 1998).

Land conversions contribute to declines in kit fox abundance through direct and indirect mortalities, displacement, reduction of prey populations and denning sites, changes in the distribution and abundance of larger canids that compete with kit foxes for resources, and reductions in carrying capacity. Kit foxes may be buried in their dens during land conversion activities (C. Van Horn, Endangered Species Recovery Program, Bakersfield, personal communication to S. Jones, Fish and Wildlife Service, Sacramento, 2000), or permanently displaced from areas where structures are erected or the land is intensively irrigated (Jensen 1972, Morrell 1975). Furthermore, even moderate fragmentation or loss of habitat may significantly impact the abundance and distribution of kit foxes. Capture rates of kit foxes at the Naval Petroleum Reserve in Elk Hills were negatively associated with the extent of oil-field development after 1987 (Warrick and Cypher 1998). Likewise, the California Energy Commission found that the relative abundance of kit foxes was lower in oil-developed habitat than in nearby undeveloped habitat on the Lokern (Spiegel 1996). Researchers from both studies inferred that the most significant effect of oil development was the lowered carrying capacity for populations of both foxes and their prey species owing to the changes in habitat characteristics or the loss and fragmentation of habitat (Spiegel 1996, Warrick and Cypher 1998).

Dens are essential for the survival and reproduction of kit foxes that use them year-round for shelter and escape, and in the spring for rearing young. Hence, kit foxes generally have dozens of dens scattered throughout their territories. However, land conversion reduces the number of typical earthen dens available to kit foxes. For example, the average density of typical, earthen kit fox dens at the Naval Hills Petroleum Reserve was negatively correlated with the intensity of petroleum development (Zoellick *et al.* 1987), and almost 20 percent of the dens in developed areas were found to be in well casings, culverts, abandoned pipelines, oil well cellars, or in the banks of sumps or roads (Service 1983). These results are important because the California Energy Commission found that, even though kit foxes frequently used pipes and culverts as dens in oil-developed areas of western Kern County, only earthen dens were used to birth and wean pups (Spiegel 1996). Similarly, kit foxes in Bakersfield use atypical dens, but have only been found to rear pups in earthen dens (P. Kelly, Endangered Species Recovery Program, Fresno, personal communication to P. White, Fish and Wildlife Service, Sacramento, April 6, 2000). Hence, the fragmentation of habitat and destruction of earthen dens could adversely affect the reproductive success of kit foxes. Furthermore, the destruction of earthen dens may also affect kit fox survival by reducing the number and distribution of escape refuges from predators. Land conversions and associated human activities can lead to widespread changes in the availability and composition of mammalian prey for kit foxes. For example, oil field disturbances in western Kern County have resulted in shifts in the small mammal community from the primarily granivorous species that are the staple prey of kit foxes (Spiegel 1996), to species adapted to early successional stages and disturbed areas (e.g., California ground squirrels)(Spiegel 1996). Because more than 70 percent of the diets of kit foxes usually consist of abundant leporids (*Lepus*, *Sylvilagus*) and rodents (e. g., *Dipodomys* spp.), and kit foxes often continue to feed on their staple prey during ephemeral periods of prey scarcity, such changes in the availability and selection of foraging sites by kit foxes could influence their reproductive rates, which are strongly influenced by food supply and decrease during periods of prey scarcity (White and Garrott 1997, 1999).

Extensive habitat destruction and fragmentation have contributed to smaller, more-isolated populations of kit foxes. Small populations have a higher probability of extinction than larger populations because their low abundance renders them susceptible to stochastic (i.e., random) events such as high variability in age and sex ratios, and catastrophes such as floods, droughts, or disease epidemics (Lande 1988, Frankham and Ralls 1998, Saccheri *et al.* 1998). Similarly, isolated populations are more susceptible to extirpation by accidental or natural catastrophes because their recolonization has been hampered. These chance events can adversely affect small, isolated populations with devastating results. Extirpation can even occur when the members of a small population are healthy, because whether the population increases or decreases in size is less dependent on the age-specific probabilities of survival and reproduction than on raw chance (sampling probabilities). Owing to the probabilistic nature of extinction, many small populations will eventually lose out and go extinct when faced with these stochastic risks (Caughley and Gunn 1995).

Oil fields in the southern half of the San Joaquin Valley also continue to be an area of expansion and development activity. This expansion is reasonably certain to increase in the near future

owing to market-driven increases in the price of oil. The cumulative and long-term effects of oil extraction activities on kit fox populations are not fully known, but recent studies indicate that moderate- to high-density oil fields may contribute to a decrease in carrying capacity for kit foxes owing to habitat loss or changes in habitat characteristics (Spiegel 1996, Warrick and Cypher 1998). There are no limiting factors or regulations that are likely to retard the development of additional oil fields. Hence, it is reasonably certain that development will continue to destroy and fragment kit fox habitat into the foreseeable future.

Competitive Interactions with Other Canids

Several species prey upon San Joaquin kit foxes. Predators (such as coyotes, bobcats, non-native red foxes, badgers, and golden eagles [*Aquila chrysaetos*]) will kill kit foxes. Badgers, coyotes, and red foxes also may compete for den sites (Service 1998). The diets and habitats selected by coyotes and kit foxes living in the same areas are often quite similar (Cypher and Spencer 1998). Hence, the potential for resource competition between these species may be quite high when prey resources are scarce such as during droughts (which are quite common in semi-arid, central California). Land conversions and associated human activities have led to changes in the distribution and abundance of coyotes, which compete with kit foxes for resources.

Coyotes occur in most areas with abundant populations of kit foxes and, during the past few decades, coyote abundance has increased in many areas owing to a decrease in ranching operations, favorable landscape changes, and reduced control efforts (Orloff *et al.* 1986, Cypher and Scrivner 1992, White and Ralls 1993, White *et al.* 1995). Coyotes may attempt to lessen resource competition with kit foxes by killing them. Coyote-related injuries accounted for 50-87 percent of the mortalities of radio collared kit foxes at Camp Roberts, the Carrizo Plain Natural Area, the Lokern Natural Area, and the Naval Petroleum Reserves (Cypher and Scrivner 1992, Standley *et al.* 1992, Ralls and White 1995, Spiegel 1996). Coyote-related deaths of adult foxes appear to be largely additive (i.e., in addition to deaths caused by other mortality factors such as disease and starvation) rather than compensatory (i.e., tending to replace deaths due to other mortality factors; White and Garrott 1997). Hence, the survival rates of adult foxes decrease significantly as the proportion of mortalities caused by coyotes increase (Cypher and Spencer 1998, White and Garrott 1997), and increases in coyote abundance may contribute to significant declines in kit fox abundance (Cypher and Scrivner 1992, Ralls and White 1995, White *et al.* 1996). There is some evidence that the proportion of juvenile foxes killed by coyotes increases as fox density increases (White and Garrott 1999). This density-dependent relationship would provide a feedback mechanism that reduces the amplitude of kit fox population dynamics and keeps foxes at lower densities than they might otherwise attain. In other words, coyote-related mortalities may dampen or prevent fox population growth, and accentuate, hasten, or prolong population declines.

Land-use changes also contributed to the expansion of nonnative red foxes into areas inhabited by kit foxes. Historically, the geographic range of the red fox did not overlap with that of the San Joaquin kit fox. By the 1970's, however, introduced and escaped red foxes had established breeding populations in many areas inhabited by San Joaquin kit foxes (Lewis *et al.* 1993). The larger and more aggressive red foxes are known to kill kit foxes (Ralls and White 1995), and

could displace them, as has been observed in the arctic when red foxes expanded into the ranges of smaller arctic foxes (Hersteinsson and Macdonald 1982). The increased abundance and distribution of nonnative red foxes will also likely adversely affect the status of kit foxes because they are closer morphologically and taxonomically, and would likely have higher dietary overlap than coyotes; potentially resulting in more intense competition for resources. Two documented deaths of kit foxes due to red foxes have been reported (Ralls and White 1995), and red foxes appear to be displacing kit foxes in the northwestern part of their range (Lewis *et al.* 1993). At Camp Roberts, red foxes have usurped several dens that were used by kit foxes during previous years (California Army National Guard, Camp Roberts Environmental Office, unpubl. data). In fact, opportunistic observations of red foxes in the cantonment area of Camp Roberts have increased 5-fold since 1993, and no kit foxes have been sighted or captured in this area since October 1997. Also, a telemetry study of sympatric red foxes and kit foxes in the Lost Hills area has detected spatial segregation between these species, suggesting that kit foxes may avoid or be excluded from red fox-inhabited areas (P. Kelly, Endangered Species Recovery Program, Fresno, pers. comm. to P. White, Fish and Wildlife Service, Sacramento, April 6, 2000). Such avoidance would limit the resources available to local populations of kit foxes and possibly result in decreased fox abundance and distribution.

Disease

Wildlife diseases do not appear to be a primary mortality factor that consistently limits kit fox populations throughout their range (McCue and O'Farrell 1988, Standley and McCue 1992). However, central California has a high incidence of wildlife rabies cases (Schultz and Barrett 1991), and high seroprevalences of canine distemper virus and canine parvovirus indicate that kit fox populations have been exposed to these diseases (McCue and O'Farrell 1988; Standley and McCue 1992). Hence, disease outbreaks could potentially cause substantial mortality or contribute to reduced fertility in seropositive females, as was noted in closely-related swift foxes (*Vulpes velox*).

For example, there are some indications that rabies virus may have contributed to a catastrophic decrease in kit fox abundance at Camp Roberts, San Luis Obispo County, California, during the early 1990's. San Luis Obispo County had the highest incidence of wildlife rabies cases in California during 1989 to 1991, and striped skunks (*Mephitis mephitis*) were the primary vector (Barrett 1990, Schultz and Barrett 1991, Reilly and Mangiamele 1992). A rabid skunk was trapped at Camp Roberts during 1989 and two foxes were found dead due to rabies in 1990 (Standley *et al.* 1992). Captures of kit foxes during annual live trapping sessions at Camp Roberts decreased from 103 to 20 individuals during 1988 to 1991. Captures of kit foxes were positively correlated with captures of skunks during 1988 to 1997; suggesting that some factor(s) such as rabies virus was contributing to concurrent decreases in the abundances of these species. Also, captures of kit foxes at Camp Roberts were negatively correlated with the proportion of skunks that were rabid when trapped by County Public Health Department personnel two years previously. These data suggest that a rabies outbreak may have occurred in the skunk population and spread into the fox population. A similar time lag in disease transmission and subsequent population reductions was observed in Ontario, Canada, although in this instance the transmission was from red foxes to striped skunks (Macdonald and Voigt 1985).

Pesticides and Rodenticides

Pesticides and rodenticides pose a threat to kit foxes through direct or secondary poisoning. Kit foxes may be killed if they ingest rodenticide in a bait application, or if they eat a rodent that has consumed the bait. Even sublethal doses of rodenticides may lead to the death of these animals by impairing their ability to escape predators or find food. Pesticides and rodenticides may also indirectly affect the survival of kit foxes by reducing the abundances of their staple prey species.

For example, the California ground squirrel, which is the staple prey of kit foxes in the northern portion of their range, was thought to have been eliminated from Contra Costa County in 1975, after extensive rodent eradication programs. Field observations indicated that the long-term use of ground squirrel poisons in this county severely reduced kit fox abundance through secondary poisoning and the suppression of populations of its staple prey (Orloff *et al.* 1986).

Kit foxes occupying habitats adjacent to agricultural lands are also likely to come into contact with insecticides applied to crops owing to runoff or aerial drift. Kit foxes could be affected through direct contact with sprays and treated soils, or through consumption of contaminated prey. Data from the California Department of Pesticide Regulation indicate that acephate, aldicarb, azinphos methyl, bendiocarb, carbofuran, chlorpyrifos, endosulfan, s-fenvalerate, naled, parathion, permethrin, phorate, and trifluralin are used within one mile of kit fox habitat. A wide variety of crops (alfalfa, almonds, apples, apricots, asparagus, avocados, barley, beans, beets, bok choy, broccoli, cantaloupe, carrots, cauliflower, celery, cherries, chestnuts, chicory, Chinese cabbage, Chinese greens, Chinese radish, collards, corn, cotton, cucumbers, eggplants, endive, figs, garlic, grapefruit, grapes, hay, kale, kiwi fruit, kohlrabi, leeks, lemons, lettuce, melons, mustard, nectarines, oats, okra, olives, onions, oranges, parsley, parsnips, peaches, peanuts, pears, peas, pecans, peppers, persimmons, pimentos, pistachios, plums, pomegranates, potatoes, prunes, pumpkins, quinces, radishes, raspberries, rice, safflower, sorghum, spinach, squash, strawberries, sugar beets, sweet potatoes, Swiss chard, tomatoes, walnuts, watermelons, and wheat), as well as buildings, Christmas tree plantations, commercial/industrial areas, greenhouses, nurseries, landscape maintenance, ornamental turf, rangeland, rights of way, and uncultivated agricultural and non-agricultural land, occur in close proximity to San Joaquin kit fox habitat.

Efforts have been underway to reduce the risk of rodenticides to kit foxes (Service 1993). The Federal government began controlling the use of rodenticides in 1972 with a ban of Compound 1080 on Federal lands pursuant to Executive Order. Above-ground application of strychnine within the geographic ranges of listed species was prohibited in 1988. A July 28, 1992, biological opinion regarding the Animal Damage Control (now known as Wildlife Services) Program by the U.S. Department of Agriculture found that this program was likely to jeopardize the continued existence of the kit fox owing to the potential for rodent control activities to take the fox. As a result, several reasonable and prudent measures were implemented, including a ban on the use of M-44 devices, toxicants, and fumigants within the recognized occupied range of the kit fox. Also, the only chemical authorized for use by Wildlife Services within the occupied

range of the kit fox was zinc phosphide, a compound known to be minimally toxic to kit foxes (Service 1993).

Despite these efforts, the use of other pesticides and rodenticides still pose a significant threat to the kit fox, as evidenced by the death of 2 kit foxes at Camp Roberts in 1992 owing to secondary poisoning from chlorophacinone applied as a rodenticide, (Berry *et al.* 1992, Standley *et al.* 1992). Also, the livers of 3 foxes that were recovered in the City of Bakersfield during 1999 were found to contain detectable residues of the anticoagulant rodenticides chlorophacinone, brodifacoum, and bromadiolone (California Department of Fish and Game 1999).

To date, no specific research has been conducted on the effects of different pesticide or rodent control programs on the kit fox (Service 1998). This lack of information is problematic because Williams (in lit., 1989) documented widespread pesticide use in known kit fox and Fresno kangaroo rat habitat adjoining agricultural lands in Madera County. In a separate report, Williams (in lit., 1989) documented another case of pesticide use near Raisin City, Fresno County, where treated grain was placed within an active Fresno kangaroo rat precinct. Also, farmers have been allowed to place bait on Bureau of Reclamation property to maximize the potential for killing rodents before they entered adjoining fields (Biological Opinion for the Interim Water Contract Renewal, Ref. No. 1-1-00-F-0056, February 29, 2000).

A September 22, 1993, biological opinion issued by the Service to the Environmental Protection Agency (EPA) regarding the regulation of pesticide use (31 registered chemicals) through administration of the Federal Insecticide, Fungicide, and Rodenticide Act found that use of the following chemicals would likely jeopardize the continued existence of the kit fox: (1) aluminum and magnesium phosphide fumigants; (2) chlorophacinone anticoagulants; (3) diphacinone anticoagulants; (4) pival anticoagulants; (5) potassium nitrate and sodium nitrate gas cartridges; and (6) sodium cyanide capsules (Service 1993). Reasonable and prudent alternatives to avoid jeopardy included restricting the use of aluminum/magnesium phosphide, potassium/sodium nitrate within the geographic range of the kit fox to qualified individuals, and prohibiting the use of chlorophacinone, diphacinone, pival, and sodium cyanide within the geographic range of the kit fox, with certain exceptions (e.g., agricultural areas that are greater than 1 mile from any kit fox habitat)(Service 1999).

Endangered Species Act Section 9 Violations and Noncompliance with the Terms and Conditions of Existing Biological Opinions

The intentional or unintentional destruction of areas occupied by kit foxes is an issue of serious concern. Section 9 of the Act prohibits the "take" (e.g., harm, harass, pursue, injure, kill) of federally-listed wildlife species. "Harm" (i.e., "take") is further defined to include habitat modification or degradation that kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Congress established two provisions (under sections 7 and 10 of the Act) that allow for the "incidental take" of listed species of wildlife by Federal agencies, non-Federal government agencies, and private interests. Incidental take is defined as "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Such take requires a permit from the Secretary of the Interior that anticipates a specific

level of take for each listed species. If no permit is obtained for the incidental take of listed species, the individuals or entities responsible for these actions could be liable under the enforcement provisions of potential section 9 of the Act if any unauthorized take occurs.

Risk of Chance Extinction Owing to Small Population Size, Isolation, and High Natural Fluctuations in Abundance

Historically, kit foxes may have existed in a metapopulation structure of core and satellite populations, some of which periodically experienced local extinctions and recolonization (Service 1998). Today's populations exist in an environment drastically different from the historic one, however, and extensive habitat fragmentation will result in geographic isolation, smaller population sizes, and reduced genetic exchange among populations; all of which increase the vulnerability of kit fox populations to extirpation. Populations of kit foxes are extremely susceptible to the risks associated with small population size and isolation because they are characterized by marked instability in population density. For example, the relative abundance of kit foxes at the Naval Petroleum Reserves, California, decreased 10-fold during 1981 to 1983, increased 7-fold during 1991 to 1994, and then decreased 2-fold during 1995 (Cypher and Scrivner 1992, Cypher and Spencer 1998).

Many populations of kit fox are at risk of chance extinction owing to small population size and isolation. This risk has been prominently illustrated during recent, drastic declines in the populations of kit foxes at Camp Roberts and Fort Hunter Liggett. Captures of kit foxes during annual live trapping sessions at Camp Roberts decreased from 103 to 20 individuals during 1988 to 1991. This decrease continued through 1997 when only three kit foxes were captured (White *et al.* 2000). A similar decrease in kit fox abundance occurred at nearby Fort Hunter Liggett, and only 2 kit foxes have been observed on this installation since 1995 (L. Clark, Wildlife Biologist, Fort Hunter Liggett, pers. comm. to P. White, Service, Sacramento, February 15, 2000). It is unlikely that the current low abundances of kit foxes at Camp Roberts and Fort Hunter Liggett will increase substantially in the near future owing to the limited potential for recruitment. The chance of substantial immigration is low because the nearest core population on the Carrizo Plain is distant (greater than 16 miles) and separated from these installations by barriers to kit fox movement such as roads, developments, and irrigated agricultural areas. Also, there is a relatively high abundance of sympatric predators and competitors on these installations that contribute to low survival rates for kit foxes and, as a result, may limit population growth (White *et al.* 2000). Hence, these populations may be on the verge of extinction.

The destruction and fragmentation of habitat could also eventually lead to reduced genetic variation in populations of kit foxes that are small and geographically isolated. Historically, kit foxes likely existed in a metapopulation structure of core and satellite populations, some of which periodically experienced local extinctions and recolonization (Service 1998). Preliminary genetic assessments indicate that historic gene flow among populations was quite high, with effective dispersal rates of at least one to 4 dispersers per generation (M. Schwartz, University of Montana, Missoula, pers. comm. on March 23, 2000, to P. White, Service, Sacramento, California). This level of genetic dispersal should allow for local adaptation while preventing the loss of any rare alleles. Based on these results, it is likely that northern populations of kit foxes

were once panmictic (i.e., randomly mating in a genetic sense), or nearly so, with southern populations. In other words, there were no major barriers to dispersal among populations.

Current levels of gene flow also appear to be adequate, however, extensive habitat loss and fragmentation continues to form more or less geographically distinct populations of foxes, which could potentially reduce genetic exchange among them. An increase in inbreeding and the loss of genetic variation could increase the extinction risk for small, isolated populations of kit foxes by interacting with demography to reduce fecundity, juvenile survival, and lifespan (Lande 1988, Frankham and Ralls 1998, Saccheri *et al.* 1998).

An area of particular concern is Santa Nella in western Merced County where pending development plans threaten to eliminate the little suitable habitat that remains and provides a dispersal corridor for kit foxes between the northern and southern portions of their range. Preliminary estimates of expected heterozygosity from foxes in this area indicate that this population may already have reduced genetic variation.

Other populations that may be showing the initial signs of genetic isolation are the Lost Hills area and populations in the Salinas-Pajaro River watershed (i.e., Camp Roberts and Fort Hunter Liggett). Preliminary estimates of the mean number of alleles per locus from foxes in these populations indicate that allelic diversity is lower than expected. Although these results may, in part, be due to the small number of foxes sampled in these areas, they may also be indicative of an increase in the amount of inbreeding due to population subdivision (M. Schwartz, University of Montana, Missoula, pers. comm. on March 23, 2000, to P. J. White, Fish and Wildlife Service, Sacramento, California). Further sampling and analyses are necessary to adequately assess the effects of these potential genetic bottlenecks.

Arid ecosystems systems are characterized by unpredictable fluctuations in precipitation, which lead to high frequency, high amplitude fluctuations in the abundance of mammalian prey for kit foxes (Goldingay *et al.* 1997, White and Garrott 1999). Because the reproductive and neonatal survival rates of kit foxes are strongly depressed at low prey densities (White and Ralls 1993; White and Garrott 1997, 1999), periods of prey scarcity owing to drought or excessive rain events can contribute to population crashes and marked instability in the abundance and distribution of kit foxes (White and Garrott 1999). In other words, unpredictable, short-term fluctuations in precipitation and, in turn, prey abundance can generate frequent, rapid decreases in kit fox density that increase the extinction risk for small, isolated populations.

The primary goal of the recovery strategy for kit foxes identified in the Recovery Plan is to establish a complex of interconnected core and satellite populations throughout the species' range. The long-term viability of each of these core and satellite populations depends partly upon periodic dispersal and genetic flow between them. Therefore, kit fox movement corridors between these populations must be preserved and maintained. In the northern range, from the Ciervo Panoche in Fresno County northward, kit fox populations are small and isolated, and have exhibited significant decline. The core populations are the Ciervo Panoche area, the Carrizo Plain area, and the western Kern County population, as shown on Figure 10 (enclosed). Satellite populations are found in the urban Bakersfield area, Porterville/Lake Success area, Creighton

Ranch/Pixley Wildlife Refuge, Allensworth Ecological Reserve, Semitropic/Kern National Wildlife Refuge (NWR), Antelope Plain, eastern Kern grasslands, Pleasant Valley, western Madera County, Santa Nella, Kesterson NWR, and Contra Costa County. Major corridors connecting these population areas are on the east and west side of the San Joaquin Valley, around the bottom of the Valley, and cross-valley corridors in Kern, Fresno, and Merced counties.

In response to the drastic loss of habitat and steadily increasing fragmentation, California Department of Transportation and the Service convened a San Joaquin Kit Fox Conservation and Planning Team to address the rapid decline of kit fox habitat in the northern range, and increasing barriers to kit fox dispersal. Consisting of Federal, State, and local agencies, local land trusts, environmental groups, researchers, and other concerned individuals, the goal of this team was to coordinate agency actions that will recover the species, and troubleshoot threats to San Joaquin kit foxes as they emerge. Between the years 2001-2003, the team addressed connectivity issues at specific points along the west-side corridor north of the Ciervo Panoche core population.

There are recent records of the San Joaquin kit fox in the project area (California Department of Fish and Game 2004). The biological assessment contains data collected by California Department of Transportation biologists who observed San Joaquin kit fox(es) from July 2000 to May 2001 on nine separate occasions within in the project study area. The observations were made near the potential impact area of the project. Suitable foraging habitat for the San Joaquin kit fox in the form of ruderal and agricultural habitat is located within the action area. Given the recent sightings of the listed canine, biology and ecology of the animal, the presence of suitable habitat in the action area, and the fact that San Joaquin kit fox has been documented to move 9 miles or more in a single night, the Service believes that it is reasonable to assume that this species inhabits the action area.

Mountain Plover

The mountain plover was proposed for Federal listing as threatened on February 16, 1999 (64 **FR** 7587). The mountain plover is about 9 inches in length, and is slightly smaller than the killdeer, both of which are in the plover family (Charadriidae). The mountain plover is drab and brownish in winter, the season when it can be found in California's Central Valley. Breeding occurs in the summer in the western plains states. California lists the mountain plover as a Species of Special Concern.

The mountain plover is associated with shortgrass and shrub-steppe landscapes throughout its breeding and wintering range. Mountain plovers evolved on grasslands populated by large numbers of grazing animals such as the bison, pronghorn, and elk, and inhabited by burrowing animals such as kangaroo rats, badgers, and prairie dogs (Knopf 1996a). These herbivores dominated both the wintering and breeding areas, and their grazing, wallowing, and burrowing activities created and maintained a mosaic of vegetated and bare areas to which the mountain plover became adapted (Dobkin 1994, Knopf 1996a). Unlike most plovers, mountain plovers are rarely found near water. Habitat in its wintering grounds includes open fields, heavily denuded areas, and other open areas. Mountain plovers forage for insects and can be seen running rapidly

along the ground and suddenly stopping. Although cultivated land is used by plovers, Knopf and Rupert (1995) found that plovers showed a preference for alkali flats, burned grasslands, and grazed annual grasslands to cultivated sites. Mountain plovers spend about five months in wintering habitat, and begin leaving winter habitat about mid-march (Knopf and Rupert 1995, 1996).

In California, mountain plovers are use habitat that is also commonly used by the federally listed giant kangaroo rat and blunt-nosed leopard lizard. Mountain plovers also occur on cultivated lands and so farms. However, research in the San Joaquin, California has determined that while mountain plovers are commonly seen on agricultural lands, they actually prefer the remaining natural landscapes to the agricultural lands.

Historical and current distribution: Mountain plovers spend the summer in the Great Plains, and migrate across the Rocky Mountains in both spring and fall. Historically, mountain plovers have been observed wintering in California, Arizona, Texas, Nevada, the coastal islands of San Clemete Island, Santa Rosa Island and the Farallon Islands (Strecker 1912, Swarth 1914, Alcorn 1946, Jurek 1973, Garrett and Dunn 1981, Jorenson and Ferguson 1984). In Mexico, wintering mountain plovers have been spotted in Baja California, Chihuahua, Coahilla, Sonora, Nuevo Leon, and San Luis Potosi (Russell and Lamm 1978).

Winter range of the mountain plover is primarily in the Sacramento, San Joaquin, and Imperial valleys of California and approximately 90 percent of mountain plovers are frequently reported from two areas – the Central Valley west of Highway 99 and south of Sacramento, and the Imperial Valley of southern California. Throughout these areas, sightings occur on agricultural fields and noncultivated sites; noncultivated sites are preferred habitat (Knopf and Rupert 1995). 0Within the Central Valley, flocks of up to 1,100 birds have been seen recently in Tulare County (Knopf and Rupert 1995). The Carrizo Plain Natural Area in San Luis Obispo County also is recognized as an important wintering site, with wintering birds reliably reported from the west side of the Carrizo Plain Natural Area since 1971 (S. Fitton, in litt., 1992). The Sacramento Valley portion of the Central Valley also provides wintering habitat for flocks of mountain plovers within Solano and Yolo Counties. During the 1998 census, 230 and 187 mountain plovers were observed within each of these counties, respectively (Hunting and Fitton, in press). Wintering populations of plovers in California have been declining (Garrett and Dunn 1981, Andrews and Righter 1992).

Reasons for decline: Breeding Bird Surveys from 1966-1987 show a 61 percent range wide decline in mountain plover populations. Conversions of grassland habitat, agricultural practices (including heavy pesticide use), livestock management practices, and the decline of native herbivores are factors that have likely contributed to the decline of mountain plover populations. In particular, pesticides are applied to mountain plover wintering areas while plovers are present (Knopf 1996b). Secondary effects of pesticides on breeding behavior and reproductive success may also be contributing to the population decline. Shorebird and mountain plover habitat contamination in the San Joaquin valley and the Grasslands Ecological Area has occurred from agricultural drain water used to flood wetlands and resulted in biological accumulation of

selenium sufficient to harm reproduction of shorebirds and other wildlife (Ohlendorf et al. 1987).

Mountain plovers are attracted to sites that are heavily disturbed by grazing and burning. Consequently, mountain plovers are found on sites that are heavily grazed, have been burned to manipulate the vegetative structure and composition, or that have been cultivated in the spring. The most recent data show that the type of implement used for tillage and the timing of tillage are important factors in mountain plover survival on cultivated lands.

Environmental Baseline: Most of the California wintering mountain plovers, principally in the San Joaquin Valley, an area experiencing high rates of human population growth. Today, the mountain plover is considered endangered in Canada, a species of special interest or concern in Montana and Oklahoma, extirpated in North Dakota and South Dakota, on the watch list in Kansas, threatened in Nebraska, and proposed as threatened in California. The U. S. Fish and Wildlife Service is considering listing the mountain plover as endangered or threatened throughout its range. Current population trends estimate mountain plover numbers to be less that 10,000, and the population has declined by at least 50 percent since 1966, according to 30 years of Breeding Bird Survey data, which is the highest rate of decline of any other grassland bird.

On wintering grounds in California, as many as 10,000 mountain plovers were repeatedly counted in the San Joaquin Valley during the 1960's (J. Engler, U.S. Fish and Wildlife Service, in litt., 1992). The 1998 California Bird Census found a total of 2,179 mountain plovers in 10 California counties, including Imperial, Kings, Los Angeles, Monterey, Riverside, San Benito, San Luis Obispo, San Bernardino, Solano, and Yolo Counties (Hunting and Fitton, 1999). Plovers are believed also to winter in portions of Kern County.

Effects of the Proposed Action

San Joaquin kit fox

Limited-value foraging habitat for the San Joaquin kit fox exists within the potential impact area. However, denning habitat or other refugia is not widely available. San Joaquin kit foxes have recently been sighted to the east and west of the PIA, but no evidence exists to date that shows kit foxes are migrating across the valley floor. Large, unplowed grassland habitat blocks are located along Sandy Mush Road west of the proposed project. (Appendix B) These habitat blocks are some of the last remaining in this portion of the Central Valley. For this reason, the USFWS has proposed to recover a kit fox east-west migration corridor identified as a Level 2 recovery priority in the USFWS Recovery Plan for Upland Species (USFWS 1998). Through parcel acquisition and easement agreements with local farmers USFWS plans to provide the kit fox with a patchwork of safe haven parcels that would allow populations on each side of the valley to merge. The proposed Plainsburg/Arboleda Freeway Project would potentially restrict kit fox migration across the valley floor unless appropriate mitigation measures are implemented.

The San Joaquin kit fox will be adversely affected by the construction of the roadway and associated structures on 700 acres of its foraging, denning, and travel corridor habitat. San Joaquin kit foxes inhabiting the project area and surrounding vicinity (for purposes of this

biological opinion the surrounding vicinity is described as 1000 feet outside and adjacent to the project footprint) are likely to be subject to indirect effects including temporary harassment from noise associated with project activities and human presence, and a reduction in natural food sources as a result of habitat disturbance.

The likelihood of direct mortality to San Joaquin kit foxes from either crushing or entombment in dens is low because of avoidance measures included in the project description. San Joaquin kit foxes may be adversely affected by vehicle strikes, and harassment from noise and vibration. The listed canine also may be adversely affected by construction activities temporarily blocking travel corridors in grassland and agricultural areas, or by evening construction activities disturbing night time foraging, falling into trenches or pits, being shot, being buried after becoming trapped in pipes, injured or killed by pet cats or dogs owned by construction related personnel, poisoned by rodenticides, and injured or killed by predators attracted to construction-related food or trash at the site.

The range-wide habitat loss, fragmentation, and degradation from multiple factors are the primary threat to the survival and recovery of the San Joaquin kit fox (U.S. Fish and Wildlife Service 1998). Approximately 95% of native habitat for the kit fox in the San Joaquin Valley has been destroyed by agricultural, industrial, and urban development (Service 1998). Loss of natural lands continues to occur, further reducing its habitat.

The amount of habitat loss directly attributable to roads has not been calculated. Estimates of the area occupied by roads under the jurisdiction of California Department of Transportation include 3,669 acres for Kern County, 591 acres for Kings County, 1,065 acres for Merced County, and 2,019 acres for Fresno County (Cypher 2000). These estimates are based on a standard lane width of 11.8 feet. Though not all areas included in this estimate are kit fox habitat, the estimates may nonetheless under represent the effects of roads as these totals do not include road shoulders, medians, or associated developments (e.g., interchanges, signs, drain facilities, weigh stations); nor do they include the area occupied by county and city roads. Furthermore, the above totals do not reflect the arrangement or density of San Joaquin Valley roads or the traffic volume on these roads.

The importance of road density to the ecological effects on species is indicated by research coordinated at the national level. The National Academy of Science (NAS) has formed a committee to review the scientific findings pertaining to road density. The NAS committee is focusing on hard-surfaced roads and will assess data and ecological indicators needed to measure effects, including cumulative effects. The NAS committee will produce a conceptual framework for the development of a rapid assessment methodology that transportation and regulatory agencies can use to assess and measure the ecological impact of road density (NAS 2003). The project is being sponsored by the Federal Highways Administration.

Although the effects of road density are unstudied relative to the San Joaquin kit fox, road density appears to adversely affect other diminishing species, for example wolves (*Canus lupis*) and mountain lions (*Felis concolor*). According to Forman *et al.* (2003), wolves in Minnesota, Wisconsin, and Michigan and mountain lions in Utah appear to thrive only where road density is

less than 1.0 mile/square mile. In an examination of radio-collared wolves in Wisconsin, a total of 60% of human-induced mortality occurred at road densities above 1.0 mile/square mile (Wydeven *et al.* 2001). In areas where road density is high, San Joaquin kit fox are likely to be adversely affected by several factors including direct mortality due to vehicle strikes, alteration of behavior patterns due to road and road zone avoidance, road barrier effects which reduce reproductive potential due to the inaccessibility of mates, prey, and shelter. Additionally roads are documented as serving as conduits for invasion by non-native plants and animals as well as the means by which contaminants and toxins are introduced to habitat.

Habitat Fragmentation

The area or diameter of patches enclosed within a network, referred to by Forman *et al.* (2003) as mesh size, is inversely related to road density. As road density increases, mesh size decreases. As the landscape becomes more fragmented, the fragments become progressively smaller (Forman *et al.* 2003). Patches within dense road networks are constrained in terms of ecosystem functioning and are thus degraded. As patches become progressively smaller, they become unsuitable to support the San Joaquin kit fox and its prey.

If a habitat fragment is too small to support a home range, animals may abandon it. Abandonment increases the probability that the animals will be extirpated from each patch. Estimates of home range size for the San Joaquin kit fox vary from 1.7 square miles to 4.5 square miles (White and Ralls 1993). Typically, a mated pair will share a home range. As mesh size becomes smaller, the patches themselves can function as barriers with habitat degraded to the point that it offers little in the way of foraging grounds or refuge from predators. These remnant patches interrupt dispersal corridors and reduce genetic exchange and mating opportunities.

Road density and mesh size are directly related to the total surface area occupied by roads in a given region. On a local scale, the surface area of a road may be the major contributor to adverse effects to San Joaquin kit foxes depending on lane width and kit fox occupation of or dispersal through adjacent habitat.

Direct Mortality

San Joaquin kit fox mortality and injury occurs when the animals attempt to cross roads and are hit by cars, trucks, or motorcycles. The majority of strikes likely occur at night when the animals are most active. Such strikes are usually fatal for an animal the size of a kit fox. If vehicle strikes are sufficiently frequent in a given locality, they could result in reduced kit fox abundance. The death of kit foxes during the December through March breeding season could result in reduced reproductive success. Death of females during gestation or prior to pup weaning could result in the loss of an entire litter of young, and therefore, reduced recruitment of new individuals into the population.

The local and range-wide effects of vehicle strikes on San Joaquin kit foxes have not been adequately assessed. Vehicle strikes appear to occur most frequently where roads transverse areas where kit foxes are abundant. However, the linear quantity of roads in a given area may not

be directly related to the number of vehicle strikes in a given area. The type of road (e.g., number of lanes) traffic volume, and average speed of vehicles likely all influence the number of vehicle strikes for which San Joaquin kit foxes are as risk. The number of strikes likely increases with road size, traffic volume, and average speed (Clevenger and Waltho 1999). Another factor influencing the number of vehicles striking San Joaquin kit foxes, but for which little data is available, is the frequency with which the animals cross roads and are therefore at risk. The proportion of successful road crossings by these animals likely declines with increasing road size, traffic volume and density, and vehicle speeds. The proportion of San Joaquin kit foxes successfully crossing roads may increase in areas where they obtain more experience crossing roads, such as in and near urban areas.

Occurrences of vehicle strikes involving San Joaquin kit foxes have been well documented, and such strikes occur throughout the range of the species. Sources of kit fox mortality were examined during the period 1980-1995 at the Naval Petroleum Reserves in California in western Kern County (Cypher *et al.* 2000). During this period, 341 adult San Joaquin kit foxes were monitored using radio telemetry, and 225 of these animals were recovered dead. Of these, 20, or 9% were struck and killed by vehicles. During this same period, 184 juvenile (<1 year old) kit foxes were monitored. Of these, 142 were recovered dead and 11 or 8%were killed by vehicles. For both adults and juveniles, vehicle strikes accounted for less than 10% of all San Joaquin kit fox deaths in most years. However, in some years, vehicles accounted for about 20% of deaths. Predators, primarily coyotes and bobcats, were the primary source of mortality at the Naval Petroleum Reserves. In addition, 70 kit foxes, both radio collared and non-collared, were found dead on roads in and around the Naval Petroleum Reserves during the period 1980-1991 (Scrivner *et al.* 1993). Of these, 34 were hit by vehicles on the approximately 1,600 km (990 miles) of roads at the Reserve, and 36 were struck on the approximately 80 km (50 miles) of State and County roads (e.g., State Route 119, Elk Hills Road), where traffic volumes and average vehicle speeds were higher than those on the Reserve.

In other areas of western Kern County, 49 kit foxes were radio-collared in the highly developed Midway-Sunset oil field, and 54 kit foxes were radio-collared in the Lokern Natural Area, a nearby undeveloped area, during the period 1989-1993 (Spiegel and Disney 1996). Of these animals, 60 were recovered dead; 1 (2%) was killed by a vehicle, and it was found in an undeveloped area along the access road adjacent to the California Aqueduct. Though six non-collared kit foxes were killed by vehicles on the access road, predators, primarily coyotes, bobcats, and feral dogs were responsible for most deaths in this study. Forty-one San Joaquin kit foxes were radio-collared and monitored during 1989-1991 on the Carrizo Plain National Monument in eastern San Luis Obispo County (Ralls and White 1995). Twenty-two were found dead; 1 (5%) was attributed to a vehicle strike. At the Camp Roberts National Guard Training Facility in Monterey and San Luis Obispo counties, 94 San Joaquin kit foxes were radio-collared during the period 1988-1992 (Standley *et al.* 1992). Forty-nine were found dead of which two were attributed to vehicle strikes. In western Merced County, 28 San Joaquin kit foxes were radio-collared during the period 1985-1987 (Briden *et al.* 1992). Seventeen were found dead and two (12%) of these deaths were attributed to vehicles.

According to Morrell (1970), "The automobile is by far the major cause of reported San Joaquin kit fox deaths - 128 of 152 deaths reported were caused by automobiles." Morrell acknowledged that the numbers were based on non-radio-collared kit foxes and therefore were biased because road-killed foxes are conspicuous and easily observed compared to animals dying from other causes. Though predators such as coyotes, bobcats, non-native red foxes, and domestic dogs likely constitute a higher source of mortality than vehicle strikes (Service 1998; Cypher 2000), predation as a source of mortality is likely dependent upon local conditions. Where abundance of predators has also been reduced due to road density and loss of habitat, vehicle strikes may present a significant threat to kit fox survival and recovery.

Based on a study of another kit fox subspecies, Egoscue (1962) reported that eight tagged foxes (*Vulpes macrotis nevadensis*) in Utah were killed by vehicles, and five of these were pups. Pups appeared to be more vulnerable to vehicle strikes. Many of the foxes killed were residents that were using dens located near roads. O'Neal *et al.* (1987) examined 23 dead kit foxes in western Utah in 1983. None were killed by vehicles, possibly due to the remoteness of the study site.

The swift fox (*Vulpes velox*) is closely related to the San Joaquin kit fox, and is listed as endangered in Canada. They show numerous ecological similarities with the San Joaquin kit fox. Hines (1980) reported that roads were a major source of swift fox mortality in Nebraska. In Alberta, where the swift fox was extirpated and recently reintroduced, vehicles were responsible for five of 89 (6%) of the foxes found dead (Carbyn *et al.* 1994). Pups appeared to be especially vulnerable, particularly if the natal dens were located near roads (Carbyn 1998). In western Kansas, 41 adults and 24 juvenile swift foxes were radio collared and monitored during 1996-97 on two study sites (Sovada *et al.* 1998). Among the adults, 18 were found dead, but none were killed by vehicles. Among the juveniles, 14 were found dead and four (29%) of these had been struck by vehicles. All seven of the juveniles killed by vehicles were found on the same study site. This study site had 90% more roads compared to the other study site where no foxes were killed by vehicles (78 mi vs. 41 mi). At a remote site in Colorado with few roads and restricted public access, swift foxes were rarely struck by vehicles (Covell 1992; Kitchen *et al.* 1999).

Vehicle-related mortality has significantly affected other listed or rare species. Vehicles caused 49% of the mortality documented among endangered Florida panthers (*Felis concolor coryi*) (Maehr *et al.* 1991). With a remaining population of 20-30 animals, the loss of any to vehicles likely constitutes a significant population effect. Similarly, Tubak in 1999 estimated at least 15% of the remaining 250-300 key deer (*Odocileus virginianus clavium*) are killed annually by vehicles, and this mortality is considered to be a limiting factor for this endangered species (Service 1985). Mortality from vehicles was the primary source of mortality for endangered ocelots (*Felis pardalis*) in Texas (Tubak 1999), and also contributed to the failure of a lynx (*Lynx lynx*) reintroduction project in New York (Aubrey *et al.* 1999). Rudolph *et al.* (1999) estimated that road-associated mortality may have depressed populations of Louisiana pine snakes (*Pituophis ruthveni*) and timber rattlesnakes (*Crotalus horridus*) by over 50% in eastern Texas, and this mortality may be a primary factor in local extirpations of timber rattlesnakes (Rudolph *et al.* 1998). Mortality from vehicles also is contributing to the reduction in the status of the prairie garter snake (*Thamnophis radix radix*) in Ohio (Dalrymple and Reichenbach 1984), and was a limiting factor in the recovery of the endangered American crocodile (*Crocodylus acutus*) in

Florida (Kushland 1998). In Florida, threatened Florida scrub-jays (*Aphelocoma coerulescens*) suffered higher mortality in territories near roads, as well as reduced productivity due to vehicle strikes of both breeding adults and young (Mumme *et al.* 1999).

Barrier Effects

Roads constitute barriers to San Joaquin kit fox movements, dispersal, and gene flow. Movements and dispersal corridors are critical to kit fox population dynamics, particularly because the animals currently persist as metapopulations with multiple disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition during years when San Joaquin kit fox abundance is high, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects.

Roads have been documented to act as barriers to a number of species. Bobcats in Wisconsin readily crossed dirt roads, but were reluctant to cross paved roads (Lovallo and Anderson 1996). Lynx also exhibit a reluctance to cross roads (Barnum 1999) as do mountain lions (Van Dyke *et al.* 1986). In a study in North Carolina, the number of road crossings by black bears (*Ursus americanus*) was inversely related to traffic volume, and bears almost never crossed an interstate highway (Brody and Pelton 1989). Endangered Sonoran pronghorn (*Antilocarpa americana*) in Mexico are reluctant to cross a 2-lane highway, and the planned expansion of the road could further restrict movements (Castillo-Sanchez 1999). Many rodents are reluctant to cross roads (Oxley *et al.* 1974). Forman *et al.* (2003) suggests that road crossings are as much about individual behavior as they are about habitat requirements and reports that a four-lane divided highway in Canada served as a complete barrier to adult female grizzly bears (*Ursus arctos*) and a partial filter-barrier for adult male grizzlies.

Roads were found to be significant barriers to gene flow among common frogs (*Rana temporaria*) in Germany and this has resulted in genetic differentiation among populations separated by roads (Reh and Seitz 1990). Similarly, significant genetic subdivision was detected in bank vole (*Clethrionomys glarelous*) populations separated by a 164 foot wide highway in Germany (Gerlach and Musolf 2000). In California, local extinctions of mountain lions have occurred when roads and other developments fragmented habitat in small patches and blocked movement corridors thereby isolating the patches and preventing recolonization (Beier 1993).

Traffic Volume

Traffic volume influences the permeability (the likelihood of crossings) of roads and the probability for mortality due to vehicle strikes. Factors such as the width of the road, the presence of a median with or without Jersey or "K" rail concrete barriers, the velocity of the traffic, the physical nature of the approach and shoulder of the road, and the behavior of the animals attempting to cross determine probabilities for mortality. Clevenger *et al.* (2003) studying roads in Canada found that a low volume road (1,068 to 3,231 vehicles per day) resulted

in higher mortalities of small vertebrate fauna than high volume roads (14,000 to 35,000 vehicles per day). These and other results indicate that the disturbance generated from roads with high traffic volume may deter animal movements onto or across the roadway. Multi-lane roads with high traffic volume may produce the greatest barrier effect to the San Joaquin kit fox.

Knapp (1978) monitored movements of radio-collared San Joaquin kit foxes in the vicinity of Interstate 5, a divided four-lane freeway in Kern County. Many of the foxes used areas within three km (two miles) of the highway, and most exhibited movement and home range patterns that paralleled the highway, but did not cross it. Only on two occasions were animals located on the opposite side of the highway from their primary area of use.

Noise Harassment

Disturbance from the construction of minor transportation projects and from roads and road networks could induce stress in the San Joaquin kit fox which may affect physiological parameters or behavior. The resulting effects could include increased energetic requirements, decreased reproductive output, decreased immunological functions, altered space use patterns, displacement, or possibly death. Observations from a variety of sources and situations suggest that San Joaquin kit foxes may not be significantly affected by disturbance, even when the source is prolonged or continuous (Cypher 2000). However, individual animals may be more affected than others, and it is unknown whether different types of disturbance may result in reduced local abundance.

One type of disturbance that may adversely affect San Joaquin kit foxes is an increase in the ambient noise level. Minor transportation projects may result in an increase in the ambient noise level during and after project construction. Harassment from long-term noise may cause kit foxes to eventually vacate the project site and adjacent areas. Projects that have the effect of enhancing traffic flow or increasing traffic volume have the potential to result in higher associated noise levels. When traffic volume increases up to 1,000 vehicles per day, noise rises to over 50 decibels (dBA). As the speed of traffic flow increases, noise levels increase. Noise levels also increase as a result of increased truck usage. Traffic flow that includes medium to heavy trucks (i.e., six or more tires on two axles to three or more axles) noticeably increases the noise level. A heavy truck passing produces approximately 10 dBA more noise than a passing automobile (Forman *et al*. 2003). Traffic noise likely contributes to San Joaquin kit fox behaviors with regard to road avoidance and decisions as to when and where to attempt road crossings.

No specific research on the physiological effects of noise on San Joaquin kit foxes has been conducted, but a "safe, short-term level" for humans has been determined to be 75 decibels by the National Institutes of Health (NIH)(NIH 1990, Burglund and Lindvall 1995). The mechanisms leading to permanent hearing damage are the same for all mammals (NIH 1990). However, the enlarged pinna and reduced tragi of kit foxes indicate that their hearing is more acute than that of humans (Jameson and Peeters 1988). However, variation in response to intense noise has been found to vary, in humans, by as much as 30 to 50 dBA between individuals (NIH 1990). Similar variation has been found in animal studies as well (NIH 1990).

Also, younger animals have been shown to be more susceptible to noise-induced hearing loss (NIH 1990). The ability to habituate to noise appears to vary widely between species (U.S. National Park Service 1990). Typical construction machinery produces noise in the range of 75 dBA (arc-welder) to 85 dBA (bulldozer) (Burglund and Lindvall 1995).

Long-term noise levels of 85 dBA are recognized to cause permanent hearing damage in humans (NIH 1990). Noise at the 85 dBA level has been correlated with hypertension in Rhesus monkeys (*Macaca fasicularis*)(Cornman 2001). Increased reproductive failure in laboratory mice (*Mus musculus*) was found to occur after a level of 82-85 dBA for one week (Cornman 2001). However, measurable loss of hearing was found to occur in chinchillas (*Chinchilla laniger*) at a sustained level of 70 dBA (Peters 1965). Hearing loss from motorcycle traffic has been documented for the kangaroo rat (*Dipodomys* species) (Bondello and Brattstrom 1979) and desert kangaroo rats (*Dipodomys deserti*) showed a significant reduction in reaction distance to the sidewinder (*Crotalus cerastes*) after exposure to 95 dBA (Cornman 2001). Other desert mammals appear to sustain the same impacts from noise (Bondello and Brattstrom 1979). Aircraft noise has produced accelerated heart-rates in pronghorn (*Antilocapra americana*), bighorn sheep (*Ovis canadensis*), and elk (*Cervus elaphus*) (MacArthur 1976; Workman *et al.* 1992; all in U.S. National Park Service 1994).

Hearing loss is correlated with distance from the source of the noise. At a level of 110 dBA, guinea pigs (*Cavia porcellus*) suffered long-term hearing loss at distances of 25 and 50 meters, temporary loss at a distance of 100 meters, and no measurable loss at 1,500 meters (Gonzales *et al.* 1970). Over clear (i.e. unobstructed) land as in San Joaquin fox habitat, sound diminishes slightly more quickly at 6 dBA per doubling of distance:

$$\text{(noise at)}\ D = D_1 - 19.93\ [\log (D/D_{\text{land}})],$$

(Komanoff & Shaw 2000). The effects of cumulative noise (α) are computed as the sum of the log of each component, multiplied by a magnitude of 10:

$$\alpha = 10\ [\Sigma\ (\log A + \log B + \log C \ldots\ldots)],$$

where A, B, C, etc. are individual components of the total ambient noise. Thus, the total synergistic impact from noise will be greater than the sum of the individual components (Komanoff & Shaw 2000).

Contaminants

The presence of roads in an area could result in the introduction of chemical contaminants to the site. Contaminants could be introduced in several ways. Substances used in road building materials or to recondition roads can leach out or wash off roads adjacent to habitat. Vehicle exhaust emissions can include hazardous substances which may concentrate in soils along roads. Heavy metals such as lead, aluminum, iron, cadmium, copper, manganese, titanium, nickel, zinc, and boron are all emitted in vehicle exhaust (Trombulak and Frissell 2000). Concentrations of

organic pollutants (i.e. dioxins, polychlorinated biphenyls) are higher in soils along roads (Benfenati *et al.* 1992). Ozone levels are higher in the air near roads (Trombulak and Frissell 2000). Vehicles may leak hazardous substances such as motor oil and antifreeze. Although the quantity leaked by a given vehicle may be minute, these substances can accumulate on roads and may be washed into the adjacent environment by runoff during rain storms. An immense variety of substances, including fertilizers, pesticides, and herbicides from vehicles traveling through agricultural zones, could be introduced during accidental spills of materials. Such spills can result from small containers falling off passing vehicles, or from accidents resulting in whole loads being spilled. Large spills may be partially or completely mitigated by clean-up efforts, depending on the substance.

San Joaquin kit foxes using areas adjacent to roads could be exposed to any contaminants that are present at the site. Exposure pathways include inhalation, dermal contact, direct ingestion, ingestion of contaminated soil or plants, or consumption of contaminated prey. Exposure to contaminants may cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. Carcinogenic substances may cause genetic damage resulting in sterility, reduced productivity, or reduced fitness among progeny. Contaminants also may have the same effect on kit fox prey species. This could result in reduced prey abundance and diminished local carrying capacity for the kit fox.

Little information is available on the effects of contaminants on the San Joaquin kit fox. The effects may be difficult to detect. Morbidity or mortality likely would occur after the animals had left the contaminated site, and more subtle effects such as genetic damage could only be detected through intensive study and monitoring. However, effects have been detected on some occasions. At the Naval Petroleum Reserve, three kit foxes are known to have been killed by drowning in spills of crude oil (Cypher *et al.* 2000). Spiegel and Disney (1996) reported that a kit fox was found covered with crude oil at the Midway-Sunset oil field, and this individual died despite treatment. Other animals, some of which were prey species for the kit fox, were found drowned in crude oil at the Naval Petroleum Reserve (Scrivner *et al.* 1993). Such spills potentially can cause local reductions in the abundance of kit foxes and their prey.

Invasive Species

Construction of roads can facilitate the invasion and establishment by species not native to the area. Disturbance and alteration of habitat adjacent to roads may create favorable conditions for non-native plants and animals. Non-native plants can spread along roadsides and then into adjacent habitat (Gelbard and Harrison 2003). Non-native animals may use modified habitats adjacent to road to disperse into kit fox habitat. These exotic animals could compete with kit foxes for resources such as food or dens, or directly injure or kill kit foxes. Non-native plants and animals may reduce habitat quality for kit foxes or their prey, and reduce the productivity or the local carrying capacity for the kit fox. Introductions of non-native species could cause kit foxes to alter behavioral patterns by avoiding or abandoning areas near roads (Cypher 2000).

Disturbed areas adjacent to roads provide favorable habitat conditions for a number of non-native plant species. Some of these taxa are aggressively invasive and they can alter natural

communities and potentially affect habitat quality. A problematic species within the range of the San Joaquin kit fox is yellow star thistle (*Centaurea solstitialis*). Dense stands of this plant can form along roadsides and then spread into adjacent habitat. This plant displaces native vegetation, competes with native plants for resources, does not appear to be used by kit fox prey, exhibits dense growth, and may be difficult for kit foxes to move through due its large size (up to 3.3 feet tall), and numerous sharp spines (Cypher 2000). Other species that may disperse along roads and invade adjacent habitat include mustards (*Brassica* spp.) and Russian thistle (*Salsola tragus*)(Tellman 1997).

Disturbed soils and reduced competition from native plants are some of the conditions that facilitate invasion along roads by non-native plant species. Nitrogen from vehicle exhaust is deposited in habitats adjacent to roads, and the resulting enhanced nitrogen levels appear to promote growth of non-native species, particularly non-native grasses (Weiss 1999). These grasses, such as red brome (*Bromus madritensis rubens*) create dense ground cover in the San Joaquin Valley, and this dense cover appears to reduce habitat quality for various small mammal species, such as kangaroo rats, which are an important prey for kit foxes (Goldingay *et al.* 1997, Cypher 2000).

Roads may serve as travel corridors for non-native red foxes. Red foxes can kill San Joaquin kit foxes (Ralls and White 1995, Service 1998), and likely compete with kit foxes for food and dens. Red foxes are considered a threat to the swift fox in Canada (Carbyn 1989). Red foxes are infrequently observed in large blocks of undisturbed habitat within the range of the San Joaquin kit fox, possibly due to the absence of permanent water or the presence of coyotes which prey upon red foxes. Along roads, water availability may be higher due to pooling of precipitation runoff or human development, and coyotes may be less abundant due to the presence of humans. Roads may facilitate movements of red foxes and increase access to kit fox habitat. Non-native red foxes and feral cats (*Felis catus*) are reported to use roads as movement corridors in Australia (Bennett 1991).

Road Effect Zone

Adverse effects to wildlife populations from roads may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this biological opinion (e.g. vehicle-related mortality, habitat degradation, invasive exotic species, etc.). Forman and Deblinger (2000) described the effect as the "road effect" zone. Along a 4-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 ft to either side of the road for an average total zone width of approximately 1970 feet. However, in places they detected an effect > 0.6 miles from the road. Rudolph *et al.* (1999) detected reduced snake abundance up to 2,790 feet from roads in Texas. They estimated snake abundance out to 2,790 feet, so the effect may have been greater. Extrapolating to a landscape sale, they concluded the effect of roads on snake populations in Texas likely was significant, given that approximately 79% of the land area of Texas is within 1,640 feet of a road.

Effects within the road zone can be subtle. Van der Zande *et al.* (1980) reported that lapwings (*Vanellus vanellus*) and black-tailed godwits (*Limosa limosa*) feeding at 1,575-6,560 feet from

roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep (*Ovis canadensis*) increases near roads (MacArthur *et al.* 1979). Trombulak and Frissell (2000) described another type of road zone effect. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both soil and plants were detected at ≥660 feet of roads. The road effect zone apparently varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the effect zone along primary roads at 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The road effect zone and the San Joaquin kit fox have not been adequately investigated; however, it is possible it exists given the effects of roads on the animal.

Mountain Plover

Limited-value foraging habitat for the mountain plover exists within the potential impact area. No mountain plovers were observed during biological surveys, therefore, no mountain plover mortality is expected to result from project construction. Approximately 67 acres of suitable winter foraging habitat (annual row crops) would be permanently affected by proposed construction activities. Compensation for the San Joaquin kit fox would include land suitable as winter foraging habitat for the mountain plover.

The mountain plover will be adversely affected by the construction of the roadway and associated structures on 67 acres of its foraging habitat. Mountain plover utilizing the habitat as winter foraging areas within the project area and surrounding vicinity are likely to be subject to indirect effects including temporary harassment from noise associated with project activities and human presence, and a reduction in natural food sources as a result of habitat disturbance.

The likelihood of direct mortality to mountain plover from crushing is low because of avoidance measures included in the project description. Mountain plover may be adversely affected by vehicle strikes, and harassment from noise and vibration. This candidate species also may be adversely affected by construction activities in grassland and agricultural areas, or being injured or killed by pet cats or dogs owned by construction related personnel, poisoned by pesticides, and injured or killed by predators attracted to construction-related food or trash at the site.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Numerous non-Federal activities continue to eliminate habitat for the San Joaquin kit fox in the action area. Loss and degradation of habitat affecting both animals and plants with or without Service authorization continues as a result of: urbanization; oil and gas development on private lands; road and utility right-of-way management; flood control and water banking projects that

may not be funded, permitted, or constructed by a Federal agency; overgrazing by livestock; and continuing agricultural expansion including the building of new dairies and stockyards. Listed and proposed animal species are also affected by poisoning, shooting, increased predation associated with human development, ground squirrel reduction efforts, mosquito control, and reduction of food sources. Unauthorized take may be occurring, and the Service continues to request re-initiation of projects when project descriptions have changed markedly since the original biological opinion were issued, and Service Law Enforcement continues to investigate potential violations of the Act.

Existing habitat is so fragmented in the San Joaquin Valley that extirpation of certain remaining populations of San Joaquin kit fox appears likely, due to chance fluctuation of small populations, unusual climatic events, the loss of genetic fitness commonly associated with very small populations, and other factors discussed previously. The cumulative effects of these threats pose a significant impediment to the survival and recovery of these species.

San Joaquin kit fox. Several unpermitted projects are likely to sever the north-south kit fox corridor at Patterson on the west side of Stanislaus County in the next year, effectively cutting off kit fox in the Contra Costa/Alameda satellite population north of Patterson from satellite and core populations south of Patterson. The expansion of the urban areas north of Highway 145 in Madera County, north of the City of Fresno, and to the east of the City of Porterville threatens the north-south kit fox corridor on the east side of the valley. Growth around the City of Merced that is induced by the selection of a new University of California campus in that city is threatening to cut off kit fox that inhabit the valley edge north of the City of Merced. Expanding development in the Santa Nella area also threatens the north-south corridor on the west side, although the Service has had initial discussions with some landowners concerning a regional HCP for the area.

The following list provides the names or descriptors of projects in Merced County for which the Service has received limited information. The project descriptions when initially provided to the Service, lacked a Federal nexus and were therefore not considered Federal projects that would be subject to a section 7 consultation under the Act. Some of these projects may eventually become Federal projects whereas others may be abandoned for reasons unknown to the Service. The list therefore provides an example of the projects that are representative of development throughout Merced County. The size of such projects and the habitat loss consequential to each is often unknown; however, some of the projects listed are known to range in size from less than 25 acres to more than 100 acres. If habitat conservation plans were in place in this county or around growing urban areas such as Merced, they would provide a locally-designed mechanism for complying with the Act and for project proponents to make targeted and effective contributions to the survival and recovery of listed species.

Merced County

Surface mining
Dairy, new
Subdivisions, major and minor
New orchards

As the human population of central California increases, and land continues to be converted to municipal and industrial uses, the amount and quality of habitat suitable for the species considered in this biological opinion will decrease. Between 1970 and 2000, California's total population increased by approximately 71% while the Central Valley's population increased 200%. Of the Sacramento and San Joaquin Valleys within the Central Valley, the San Joaquin Valley had the greater population growth (California Department of Finance (CDF) 2002). Among counties in the San Joaquin Valley, Tulare experienced the least increase percentage in population at 226% from 1940 to 1995, while Stanislaus experienced the greatest increase at 453% during the same period. Also during the period 1940 to 1995, the increase in population for Fresno was 322%; for Kern and Madera: 356% each, for Kings: 227%, for Merced: 322% (CDF 2002). (Information for the valley portions of Mariposa and Tuolumne was unavailable). During the period 1988 to 1998, 82,756 acres in the San Joaquin Valley were converted to urban and built-up land uses (California Department of Conservation 2000). Although not each of the converted acres can be considered habitat, this trend indicates that habitat loss continues to threaten the survival and recovery of listed species.

The cumulative effects of all the future State, Tribal, local, and private actions that are reasonably certain to occur in the action area will continue to have a deleterious effect on the reproduction, numbers, and distribution of the species considered herein. The adverse cumulative effects described in this section serve to magnify the adverse effects of the proposed action and diminish any beneficial effects.

Conclusion

Listed species:
After reviewing the current status of the San Joaquin kit fox, the environmental baseline for the action area, the effects of the proposed Plainsburg/Arboleda State Route 99 Project, and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the San Joaquin kit fox. No critical habitat has been designated or proposed for this species; therefore, none will be affected.

Proposed species:
After reviewing the current status of the mountain plover, the environmental baseline for the action area, the effects of the proposed Plainsburg/Arboleda State Route 99 Project, and the cumulative effects, it is the Service's conference opinion that the project, as proposed, is not likely to jeopardize the continued existence of the mountain plover. No critical habitat has been designated or proposed for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to

engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Federal Highway Administration has a continuing duty to regulate the activity covered by this incidental take statement. If the Federal Highway Administration (1) fails to require the California Department of Transportation to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

Incidental take of the San Joaquin kit fox and mountain plover is anticipated to occur as a result of the proposed project. However, incidental take will be difficult to detect or quantify for the following reasons: 1) The San Joaquin kit fox lives for a portion of its life in dens or burrows, it has a wide ranging territory, is primarily active at night, is often is extremely shy in its behavior around humans, and losses of this animal may be difficult to quantify due to seasonal fluctuations in its numbers; and 2) due to the secretive nature of the mountain plover, losses may be masked by seasonal fluctuations in numbers or other causes, and the species occurs in habitat that makes them difficult to detect. For these reasons, the Service is quantifying take incidental to the proposed action as the number of acres of habitat that will become unsuitable for the San Joaquin kit fox and the mountain plover as a result of the action. Loss of habitat is a reasonable surrogate for expressing the amount or extent of take because it accurately reflects the biological effects to this species. Therefore, the Service estimates that all San Joaquin kit foxes inhabiting 700 acres and all mountain plover inhabitation 67 acres will be subject to take in the form of harm and harassment as a result of the proposed action.

Effect of Take

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the San Joaquin kit fox or the mountain plover. Critical habitat for this species has not been designated or proposed; therefore none will be affected.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the effects of the Plainsburg/Arboleda State Route 99 Project on the San Joaquin kit fox and the mountain plover.

1. The California Department of Transportation shall implement conservation measures for the San Joaquin kit fox and the mountain plover to minimize (1) the effects of the loss of habitat that will occur as a result of the project; (2) the potential for harassment, harm, injury, and mortality to the San Joaquin kit fox and mountain plover; and (3) the potential for inadvertent capture or inadvertent capture or entrapment of this listed wildlife species during construction activities.

2. The California Department of Transportation shall ensure their compliance with this biological opinion.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Federal Highway Administration shall ensure the California Department of Transportation complies with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. The following Terms and Conditions implement Reasonable and Prudent Measure one (1):

   A. The California Department of Transportation shall minimize the potential for harm or harassment of the San Joaquin kit fox and mountain plover resulting from the project related activities by implementation of the conservation measures as described in the biological assessment and the *Project Description* of this biological opinion.

   B. The California Department of Transportation shall include Special Provisions that include the avoidance and minimization measures of this biological opinion in the solicitation for bid information. The California Department of Transportation will educate and inform contractors involved in the project as to the requirements of the biological opinion.

   C. Prior to initiation of any site preparation/construction activities, the California Department of Transportation biologist or Service-approved biologist will conduct an education and training session for all construction personnel. All available individuals who will be involved in the site preparation or construction will be present, including the project representative(s) responsible for reporting take to the Service and the California Department of Fish and Game. Training sessions will be repeated for all new employees before they are allowed to access the project site. Sign up sheets identifying attendees and the contractor/company they represent will

be provided to the Service with the post-construction compliance report. At a minimum, the training will include a description of the natural history of the San Joaquin kit fox and its habitat and the mountain plover and its habitat. Training will include the general measures that are being implemented to conserve these species as they relate to the project, the penalties for non-compliance, and the boundaries (work area) within which the project must be accomplished. To ensure that employees and contractors understand their roles and responsibilities, training may have to be conducted in languages other than English.

D. The resident engineer or their designee shall be responsible for implementing these conservation measures and shall be the point of contact for each project.

E. If borrow material is going to be used for the Plainsburg/Arboleda State Route 99 Project, the California Department of Transportation shall follow the procedures outlined below:

1. California Department of Transportation shall require as part of the construction contract that all contractors comply with the Act in the performance of the work necessary for project completion performed inside and outside the project right-of-way.

2. California Department of Transportation shall require documentation from the contractor that aggregate, fill, or borrow material provided for each project, if different than the 13 areas addressed in this consultation, was obtained in compliance with the Act. Evidence of compliance with the Act shall be demonstrated by providing the Resident Engineer (RE) any one of the following:

   a. a letter from the Service stating use of the borrow pit area will not result in the incidental take of listed species;
   b. an incidental take permit for contractor-related activities issued by the Service pursuant to section 10(a)(1)(B) of the Act;
   c. a biological opinion or a letter concurring with a "not likely to adversely affect" determination issued by the Service to the Federal agency having jurisdiction over contractor-related activities;
   d. a letter from the Service concurring with the "no effect" determination for contractor-related activities; or
   e. Contractor submittal of information to the California Department of Transportation Resident Engineer indicating compliance with the State Mining and Reclamation Act (SMARA) and provide the County land use permits and CEQA clearance.
   f. If a borrow site that is in compliance with the Act is not available, the California Department of Transportation will either:

      i. identify/select a site that the Service has concurred with the "no effect" determination, or;

ii. request reinitiation of formal consultation on the action considered herein based on new information.

F. The California Department of Transportation biologist shall have oversight over implementation of all the measures described in the *Terms and Conditions* of this biological opinion, and he/she shall have the authority to stop project activities, through communication with the California Department of Transportation Resident Engineer, if any of the requirements associated with these measures are not being fulfilled. If the biologist/construction liaison has requested a stop work order due to take of any of the listed species, the Service and Fish and Game will be notified within one (1) day via email or telephone.

G. Prior to any ground disturbance, pre-construction surveys shall be conducted for the San Joaquin kit fox. These surveys will consist of walking surveys of the project limits and adjacent areas accessible to the public to determine presence of this species (i.e., kit fox dens and related sign).

H. Project employees shall be directed to exercise caution when commuting within the habitat of the San Joaquin kit fox. A 20-mile per hour speed limit will be strongly encouraged on unpaved roads within the habitat of this species. Cross-country travel by vehicles will be prohibited, unless authorized by the Service. Project employees shall be provided with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

I. A litter control program shall be instituted at each project site. All workers shall ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers shall be removed from the project area at the end of each working day.

J. No canine or feline pets or firearms (except for Federal, State, or local law enforcement officers and security personnel) shall be permitted on construction sites to avoid harassment or killing or injuring of listed species.

K. Maintenance and construction excavations greater than 2 feet deep either shall be covered, filled in at the end of each working day, or have earthen escape ramps no greater than 200 feet apart provided to prevent entrapment of the San Joaquin kit fox.

L. All construction activity shall be confined within the project site, which may include temporary access roads, haul roads, and staging areas specifically designated and marked for these purposes. At no time shall equipment or personnel be allowed to adversely affect habitat areas outside the project site without authorization from the Service.

M. The project construction area shall be delineated with high visibility temporary fencing at least five (5) feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment onto any sensitive areas during project work activities. Such fencing shall be inspected and maintained daily until completion of the project. The fencing will be removed only when all construction equipment is removed from the site.

N. Only Service-approved workers holding valid permits issued pursuant to section 10(a)(1)(A) of the Act are allowed to trap or capture the San Joaquin kit fox. Any relocation plan will be approved by the Service prior to release of any kit foxes.

O. All grindings and asphaltic-concrete waste shall be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any culvert, wash, pond, vernal pool, or stream crossing

P. Because dusk and dawn are often the times when the San Joaquin kit fox is most actively foraging, all construction activities will cease one half hour before sunset and will not begin prior to one half hour before sunrise. Except when necessary for driver or pedestrian safety, lighting of a project site by artificial lighting during night time hours is prohibited.

Q. Use of rodenticides and herbicides at the project site shall be utilized in such a manner to prevent primary or secondary poisoning of the San Joaquin kit fox, and the depletion of prey populations on which its depends. All uses of such compounds hall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Pesticide Regulation, and other appropriate State and Federal regulations, as well as additional project-related restrictions deemed necessary by the Service or the California Department of Fish and Game.

R. The following actions shall be taken to minimize the effect on denning San Joaquin kit foxes:

1. Determine the presence of kit fox dens (natural or in pipes and culverts).

   a. Pre-construction surveys within the project area shall be conducted no more than 30 calendar days prior to the start of construction in accordance with the most current protocols approved by the Service and the California Department of Fish and Game.

   b. Surveys for dens shall be conducted by qualified biologists with demonstrated experience in identifying San Joaquin kit fox dens.

2. Protect all San Joaquin kit fox dens to the maximum extent practicable as determined by the on-site biologist.

3. Identify type of den (natal or non-natal) and its status (occupied or unoccupied) based on the current Service guidance (Service 1999). Identify and execute appropriate action(s) regarding notification, buffers, excavation and fill, or seal-off:

a. Occupied natal den: if an occupied natal den is visible or encountered within the project limits, or other accessible land, or on publicly accessible land within1000 feet of the project construction area, the project will be constructed between August 1 and November 30 and the Service shall be contacted immediately, before any project action occurs.

b. A buffer or exclusion zone shall be established to protect the physical den and surrounding habitat of unoccupied natal dens and all non-natal dens that can be avoided:

i. unoccupied natal dens shall be surrounded with a 200 foot buffer and the Service will be contacted. Occupied and unoccupied non-natal dens shall be surrounded with a 100 foot buffer.

ii When occupied dens have been found on or near the project site, ground disturbing activities shall be restricted during the period December 1 to July 31.

iii During this period, project activities within 0.3 mi of occupied natal dens are prohibited. Buffer zones shall be delineated with a temporary fence or other suitable barrier that does not prevent disbursal of the fox. Alternately, the project construction area can be delineated with temporary fence, flagging, or other barrier.

S. Pipes or culverts with a diameter greater than 4 inches shall be capped or taped closed when it is ascertained that no San Joaquin kit fox is present. Any kit fox found in a pipe or culvert shall be allowed to escape unimpeded.

T. If a natural den cannot be avoided and must be destroyed, the following guidelines shall be followed:

1. Prior to the destruction of any den, the den shall be monitored for at least 3 consecutive days to determine its current status. Activity at the den shall be monitored by placing tracking medium at the entrance and by standard spotlighting detection techniques. If no kit fox activity is observed during this period, the den shall be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den shall be monitored for at least 5 consecutive days from the time of observation to allow any resident animal to move to another den during its normal activities. Use of

the den can be discouraged during this period by partially plugging the entrance(s) with soil in such a manner that any resident animal can escape easily. Destruction of the den may begin when, in the judgment of a Service or Service-approved biologist, the animal has moved to a different den. The biologist shall be trained and familiar with kit fox biology. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may be excavated when, in the judgment of the Service-approved biologist, it is temporarily vacant, for example during the animal's normal foraging activities.

2. All dens shall be excavated by hand, by or under the supervision of, a Service-approved biologist.

3. The den shall be fully excavated and then filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If, at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den shall be resumed. Destruction of the den may be resumed, when in the judgment of the Service-approved biologist, the animal has escaped from the partially destroyed den.

4. Non-natal dens may be excavated at any time of the year. Natal dens shall be excavated only between August 15 and November 1.

5. Within ten (10) working days of the completion of earthmoving, California Department of Transportation will replace all excavated kit fox dens with artificial dens on a 2:1 basis. The location and design of the artificial dens will be approved by the Service prior to installation

U. Restoration and revegetation work associated with temporary effects shall be done using California endemic plant material from on-site or local sources (i.e., local ecotype). Plant materials from non-local sources shall be allowed only with written authorization from the Service. To the maximum extent practical (i.e., presence of natural lands), topsoil shall be removed, cached, and returned to the site according to successful restoration protocols. Loss of soil from run-off or erosion shall be prevented with straw bales, straw wattles, or similar means provided they do not entangle, block escape or dispersal routes of the San Joaquin kit fox.

V. As described in biological assessment and the *Project Description* of this biological opinion, transfer of surplus lands to a conservatory agency shall be completed by the California Department of Transportation for 201 acres of habitat for the San Joaquin kit fox and mountain plover. The California Department of Transportation shall obtain the written approval of the Service of the agency that will receive the surplus lands.

W. If conservation easements are used by the California Department of Transportation, they shall include, but not be limited to, provisions and responsibilities of the project proponent and the land trust organization approved by the Service for the protection of all habitats set aside including any future transfers of the easements or fee interest that may be anticipated. The easements shall specify the purposes for which it is established (*i.e.*, measures to minimize effects to the San Joaquin kit fox associated with the Plainsburg/Arboleda State Route 99 project). The California Department of Transportation shall provide the Service with a true copy of the recorded conservation easements within thirty (30) calendar days of its recordation. The conservation easements shall be held by a third party approved by the Service. The conservation easement shall include a list of prohibited activities that are inconsistent with the maintenance of the preserve for the listed species including, but not limited to:

1. leveling, grading, landscaping, cultivation, or any other alterations of existing topography for any purposes, including the exploration for, or development of, mineral resources;
2. placement of any new structures on the preserve, including buildings and billboards;
3. discharge, dumping, burning, or storing of rubbish, garbage, grass clippings, dredge material, household chemicals, or any other wastes or fill materials within the preserve;
4. building of any roads or trails within the preserve areas;
5. killing, removal, alteration, or replacement of any existing native vegetation except in Service-approved prescribed burning situations, or as otherwise authorized in writing by the Service;
6. activities that may alter the hydrology of the preserve and the associated watersheds, including but not limited to: excessive pumping of groundwater, manipulation or blockage of natural drainages, inappropriate water application or placement of storm water drains, etc. unless authorized in writing by the Service;
7. incompatible fire protection activities;
8. use of pesticides, herbicides, or rodenticides on the preserve or within the watershed that can contaminate the preserve except as authorized in writing by the Service; and
9. introduction of any exotic species or species not native to the area, including aquatic species, except as approved by the Service.

X. In the event the California Department of Transportation seeks to obtain a conservation easement in lieu of fee title acquisitions for the purposes of satisfying the requirements of the terms and conditions of this biological opinion, the California Department of Transportation shall provide the language of the proposed conservation easements to the Service for prior review and approval. The conservation easements shall include language establishing a right of entry by the Service to determine compliance with the terms and conditions of this biological opinion and the terms of the conservation easements, as well as identifying the

Service as a third party beneficiary with the standing to take whatever legal action is necessary to enforce the terms of this conservation easement. Should the California Department of Transportation make fee title acquisition of lands to satisfy the terms and conditions of this biological opinion, the California Department of Transportation shall encumber such lands with restrictive covenants that provide the same rights to the Service as will be established under the conservation easement described above. Such restrictive covenants shall be provided to the Service for prior review and approval before they are recorded against the conservation lands.

Y. If the California Department of Transportation plans to acquire fee title or a conservation easement for lands that are not in a Service-approved conservation bank, then at least sixty (60) calendar days prior to the date of initial ground breaking at the proposed Plainsburg/Arboleda State Route 99 project, the California Department of Transportation shall endow a Service-approved fund for monitoring and perpetual management and maintenance of the 201 acres for the San Joaquin kit fox. The principal in the endowment must generate sufficient revenue to fully cover the costs of ongoing operations and management actions as described in the Service-approved management plan and this biological opinion, without the need to make use of the principal to adequately fund such expenditures. Specific actions funded by the endowment shall be addressed in the Service-approved management plan. The California Department of Transportation shall utilize an appropriate third party who has been approved by the Service to determine what amount of money is necessary for an endowment fund to adequately finance the monitoring and perpetual management and maintenance of the preserve for the San Joaquin kit fox. The California Department of Transportation shall empower the Service to access and expend such funds to implement Service-approved remedial measures in the event the responsible preserve managers fail to adequately implement the Service-approved management plan. The final determination of success or failure of the management plan shall be made solely by the Service. Prior to the date of initial groundbreaking at the Plainsburg/Arboleda State Route 99 project, the California Department of Transportation shall provide the Service with documentation that: (1) funds for the perpetual management and maintenance of the 201 acres for the San Joaquin kit fox have been transferred to the appropriate third party approved by the Service; (2) the third party has accepted the funds and considers them adequate; and (3) that these funds have been deposited in an account (*i.e.*, endowment) that will provide adequate financing for the monitoring and perpetual management and maintenance of the 201 acres for the San Joaquin kit fox.

Z. If the Refuge Division of the Service becomes the responsible manager of the compensation lands, the endowment amount shall be approved by them.

2. The following Terms and Conditions implement Reasonable and Prudent Measure two (2):

A. If requested, before, during, or upon completion of ground breaking and construction activities, the California Department of Transportation shall allow

access by Service and/or California Department of Fish and Game personnel to the project site to inspect project effects to the San Joaquin kit fox and its habitat.

B. The California Department of Transportation shall comply with the *Reporting Requirements* of this biological opinion.

Reporting Requirements

1. Before construction starts on a project, the Service shall be provided with the final documents, including but not limited to, recorded conservation easements, PAR analyses, management plans, or proof of purchase of credits. Please see draft guidance from the Service, *Draft Selected Review Criteria for Conservation Banks and Section 7 Off Site Compensation* dated August 4, 2004, or Service guidance that supercedes this document.

2. A post-construction report detailing compliance with the project design criteria described under the *Description of the Proposed Action* section of this biological opinion shall be provided to the Service within 30 calendar days of completion of the project.

3. The California Department of Transportation shall notify the Service via electronic mail and telephone within one (1) working day of the death or injury to a San Joaquin kit fox and/or other listed species that occurs due to project related activities or is observed at the project site. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and photographs of the specific animal. In the case of an injured animal, the animal shall be cared for by a licensed veterinarian or other qualified person. In the case of a dead animal, the individual animal should be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen. The Service contacts are Chief of the Endangered Species Division (Central Valley) at 916/414-6600, and Scott Heard, Resident Agent-in-Charge of the Service's Law Enforcement Division at 916/414-6660. The California Department of Fish and Game contact is Mr. Ron Schlorff at 916/654-4262.

4. Any contractor or employee who, during routine operations and maintenance activities inadvertently kills or injures a State listed wildlife species shall immediately report the incident to her or his supervisor or representative. The supervisor or representative must contact the California Department of Fish and Game immediately in the case of a dead or injured State listed wildlife species. The California Department of Fish and Game contact for immediate assistance is State Dispatch at (916) 445-0045.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and

threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has developed the following conservation recommendations based, in part, on the Recovery Plan (Service 1998).

1. Sightings of any sensitive animal species should be reported to the California Natural Diversity Database of the California Department of Fish and Game. A copy of the reporting form and a topographic map clearly marked with the location the animals were observed also should be provided to the Service.
2. Locate, map, and protect existing populations of the San Joaquin kit fox (Recovery Plan Tasks 2.2.17 and 2.2.24).
3. Protect and create additional habitat for the San Joaquin kit fox in key portions of its range (Recovery Plan Tasks 2.1.19 and 5.1.5).
4. Gather additional data on population responses to environmental variation at representative sites in the San Joaquin kit fox's geographic range (Recovery Plan Tasks 3.2.21 and 3.2.22).
5. Determine appropriate habitat management and compatible land uses for the San Joaquin kit fox (Recovery Plan Task 4.5.7).

In order for the Service to be kept informed of conservation actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, we request notification of the implementation of any of the conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation and conference on the Plainsburg/Arboleda State Route 99 Project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the mountain plover is listed or critical habitat is designated. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

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You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the mountain plover is listed or critical habitat is designated. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the mountain plover or designation of critical habitat and any subsequent adoption of this conference opinion, the Federal agency shall request reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this conference opinion; (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this conference opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the mountain plover or its habitat has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the mountain plover or its habitat may occur between the listing of the species and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

If you have any questions concerning this biological opinion on the Plainsburg/Arboleda State Route 99 Project, please contact Susan Jones at the letterhead address or at telephone 916/414-6630.

Sincerely,

Peter A. Cross

for Ken Sanchez
Acting Field Supervisor

cc:
Geoffrey Gray, California Department of Transportation, Fresno, California
Clarence Mayott, California Department of Fish and Game, Fresno, California

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List of Technical Studies that are Bound Separately

Draft Relocation Statement (December 2001)

Air Quality Report (November 2001)

Noise Study Report (May 2005)

Water Quality Report (October 2001)

Natural Environment Study (March 2003)

Location Hydraulic Study (June 2000)

Historical Property Survey Report (June 2002)

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

Hazardous Waste Reports

- Initial Site Assessment (January 2002)
- Preliminary Site Investigation (Geophysical Survey) (March 2001)

Scenic Resource Evaluation (June 2000)

Initial Paleontology Study (October 2001)

Geotechnical Study (January 2004)

STATEMENT OF OVERRIDING CONSIDERATIONS

CALIFORNIA DEPARTMENT OF TRANSPORTATION STATEMENT OF OVERRIDING CONSIDERATIONS FOR WIDENING STATE ROUTE 99 FROM FOUR-LANE EXPRESSWAY TO SIX-LANE FREEWAY

The following information is presented to comply with Section 15093 of the State CEQA Guidelines, and Section 1509.6 of the Department of Transportation and California Transportation Commission Environmental Regulations. Reference is made to the Final Environmental Impact Report (FEIR) for the project, which is the basic source for the information.

The following impacts have been identified as significant and not fully mitigable:

- 342 hectares (835.2 acres of farmland of which 101.2 hectares (250 acres) would be acquired.
- One receptor would experience a 15-decibel increase in noise.

Project Needs and Benefits

Overriding considerations that support approval of this recommended project are as follows:

The proposed project would increase safety for the traveling public, correct roadway deficiencies, accommodate increased traffic demands (both present and future), and provide route continuity. By increasing State Route 99 from four lanes to six and limiting access to two new interchanges, this section of State Route 99 would see a decrease in congestion, a reduced number of accidents involving cross-median traffic and at-grade intersections, improved compatibility of truck and car traffic, and improved efficiency for emergency vehicles.

The route connects major population centers in the San Joaquin Valley to the rest of the state and is an integral part of the urban road network, carrying high volumes of regional and local traffic. Route continuity would be consistent with local, regional, and state plans, and would maintain local and regional land uses.

Project Alternatives

The project is divided into two sections: the southern Plainsburg section and the northern Arboleda section. The southern Plainsburg section runs from the Chowchilla River to Buchanan Hollow Road (kilometer posts 0.0 to 7.4 [post miles 0.0 to 4.6]) and consists of four build alternatives and one no-build alternative. The northern Arboleda section runs from Buchanan Hollow Road to McHenry Road (kilometer posts 7.4 to 16.9 [post miles 4.6/10.5]) and consists of two build alternatives and a no-build alternative.

This project would select one alternative for each section. The selection of an alternative for one section does not limit which alternative can be selected for the other section. This means the construction of one alternative in the southern Plainsburg section would not affect the selection of another alternative for the northern Arboleda section, or vice versa.

All build alternatives would widen the existing four-lane highway to a six-lane freeway. This project would realign the road to the east of the current alignment, upgrade shoulders, and construct two new interchanges. Each build alternative would place the interchanges in slightly different locations along the alignment.

A no-build alternative would keep the road as it is and would not improve safety or relieve existing and future congestion in the project area. All project alternatives are explained in detail in Chapter 2.

Conclusions

The project would upgrade the current expressway to freeway system, improving access from near by agricultural properties, and reduce cross median accidents.

Plainsburg Alternative 1B and Arboleda Alternative 5 have been selected together as the Recommended Alternative because these build alternatives meet the purpose and need of the project. These build alternatives also minimized farmland impacts, while avoiding a potential hazardous waste contamination site.

The no-build alternative offer no relief from congestion on State Route 99, or its intersections and is incompatible with the transportation objectives of the State of California and Merced County. All alternatives have similar noise impacts.

The reduction of traffic congestion, improved traffic flow and circulation of State Route 99, and overall improvement to traffic safety provided by the project, outweighs the unavoidable impacts identified in the findings.

Environmental Commitments Record for EA 10-41570_

ARBOLEDA DR FWY
MER-99-4.6 / 10.5
Current Project Phase: PS&E/RW

Last updated 5/25/2010
EP: David Farris 559-243-8405
CL: Matthew Palmer 559-243-8232
RE:

Permits

Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed Name	Date	Comments
1600	California Dept of Fish & Game	8/5/09	11/9/09				
401	Regional Water Quality Control Board	8/5/09	8/28/09				
ST2081	California Dept of Fish & Game						
404	US Army Corp of Engineers	8/5/09					
404 Verification		5/21/03	8/7/03				
BO			2/9/06				

Right of Way Purchasing

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
Biology							
Purchase 400 Credits of Kit fox habitat	BO		Biologist and Right-of-Way	Mitigation and Monitoring Proposal is Being Negotated with the San Joaquin River Conservancy			

Pre-Construction

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
Paleontology							
Paleontological Mitigation Plan and Awareness Training	Env Doc		Paleontology Coordinator	Task Order (232 funds)			
Water Quality							
Incorporate Best Management Practices	Env Doc	SSP	Design/Water Quality	Place Best Management Provisions into the SSPs	David Farris		

Construction

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date

Environmental Commitments Record for EA 10-41570_

ARBOLEDA DR FWY
MER-99-4.6 / 10.5
Current Project Phase: PS&E/RW

Last updated 5/25/2010
EP: David Farris 559-243-8405
CL: Matthew Palmer 559-243-8232
RE:

Air Quality

Construction Contractor Will Prepare a Dust Control Plan and get an Indirect Source Review. Plus Follow all San Joaquin Valley Air Pollution Control District rules and requlations	Env Doc	SSP	Air Quality Specialist/ Resident Engineer	The Requirements Have Been Placed in the Specifications Plans and Provisions of the Contract/Resident Engineer Will Ensure Compliance		

Biology

Endangered Species - Avoidance of Occupied Burrows if Located	BO	SSP	Biology	Provisions Added to SSP		
Endangered Species - Existing Unsuitable Burrows Would Be Enhanced if Occuptied Burrows are Destroyed	BO	SSP	Biology	Provisions added to Standard Plan		
Endangered Species - Passive Relocation Would Be Used if Owls Must Be Moved	BO	SSP	Biologist	Provisions Added to Standard Plans- Pre-Construction Surveys		
Endangered Species - Passive Removal of Bats Prior to Bridge Removal	BO	NSSP	Biology	Provisions Added to Standard Plans		
Endangered Species - Western Pond Turtles Would Be Removed by Qualified Blologist if they Were Located in Construction Zone	BO	NSSP	Biologist	Provisions Added to Standard Plans		
Endangered Species- Bat Boxes in New Bridges	1600 Agreement	SSP	Biology	Added to Plans		
Preconstruction Surveys	Env Doc	n/a	Biology	Caltran Will Conduct Pre-Construction Survyes. Biologist will be invited to Pre-Construction Meeting		Kit Fox, Burrowing Owl

Cultural Resources

Cultural Resources - Archaeological Monitor	Env Doc		Archaeologist	SSP for Archaeological Monitoring Areas/Cultural Will Manage Monitor		Pre-construction meeting needed 2 weeks prior to start of construction. Invite Caltrans Cultural Specialist
ESA Fencing Around Culturally Sensitive Areas	Env Doc	SSP	Cultural/Resident Engineer	ESA Provision Added to SSP/RE and Contract Cultural Monitor Will Oversee ESA Fencing		
Potential for Unknown Burials	Env Doc		archaeologist	Provision Related to Discovery of Human Remains Added to Provisions/ If remains discovered Coroners Office Would Be		

Environmental Commitments Record for EA 10-41570_

ARBOLEDA DR FWY
MER-99-4.6 / 10.5
Current Project Phase: PS&E/RW

Last updated 5/25/2010
EP: David Farris 559-243-8405
CL: Matthew Palmer 559-243-8232
RE:

				Contacted/Followed by Most Likely Decadent		
Hazardous Waste						
Hazardous Waste - Lead Compliance Plan Would Be Required	Env Doc	SSP	Resident Engineer	Provisions Adds to SSPs/RE Will Ensure That This Provisions Get Implemented if Necessary	David Farris	
Hazardous Waste - Unknown Underground Tanks May Occur Within Catlrans Right-Of-Way	Env Doc	n/a	Resident Engineer	If Located Would Be Removed		
Other						
10 Days Prior t Construction Notify Central Valley Flood Protection Board	Env Doc		Generalist	Prior to Construction Send Letter to Central Valley Flood Protection Board Reqarding Document		
Paleontology						
Paleontological monitoring and salvage during construction and Paleontological Mitigation Report	Env Doc	NSSP	Paleontology Coordinator and RE	Monitoring and Salvage during construction		

Post-Construction

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
Paleontology							
Paleontological Stewardship Summary	Env Doc		Paleontology Coordinator	Confirm mitigation completed and report received.			

NOTICE OF DETERMINATION

TO: Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044

FROM: California Department of Transportation
1120 "N" Street
Sacramento, CA 95814

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code

Plainsburg/Arboleda Project

Project Title:

20003051094	Caltrans	Lance Brangham 559-243-8170
State Clearinghouse Number	Lead Agency	Contact Person

Merced County State Route 99 from the Chowchilla River to McHenry Road

Project Location (include County)

Project Description:
Widen and realign State Route 99 from a four-lane expressway to a six-lane freeway. Construct two interchanges

This is to advise that the California Department of Transportation has approved the above described project on (date)_____ and has made the following determinations regarding the above described project:

1. The project [√ will ☐ will not] have a significant effect on the environment.
2. √ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☐ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [√ were ☐ were not] made a condition of the approval of the project
4. A Statement of Overriding Considerations [√ was ☐ was not] adopted for this project.
5. Findings [√ were ☐ were not] made pursuant to the provisions of CEQA.

The √ certified EIR or ☐ adopted ND with comments and responses and record of the project approval is available to the general public at:

2015 E Shields Ave., Suite 100, Fresno, CA 93726

	07/05/06	Branch Chief
Signature (California Department of Transportation)	Date	Title

Date received for filing at OPR:

RECEIVED
JUL 05 2006
STATE CLEARING HOUSE