

Morning Drive/State Route 178 Interchange Project

On State Route 178 from 0.65 mile west of Morning Drive
to 1.2 miles east of Morning Drive

KERN COUNTY, CALIFORNIA

06-KER-178 (PM R6.9/T9.2)

EA 06-0C9400

Project ID 06-0000-0041

SCH#: 2010071050

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



Prepared by the
State of California Department of Transportation

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



September 2011

General Information about This Document

What's in this document?

This document contains a Final Environmental Impact Report and Environmental Assessment with Finding of No Significant Impact, which examines the potential environmental impacts of a proposed project on State Route 178 in Kern County, California. The Draft Environmental Impact Report/Environmental Assessment was circulated for public review from September 1, 2010 to October 15, 2010. Comment letters were received on the draft document. The comments received and the responses to the circulated document are shown in the Comments and Responses section of this document (Appendix G), which has been added. Throughout this document, a line in the right margin indicates where changes have been made since the draft document was circulated. No lines appear for small typographical corrections.

What happens next?

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

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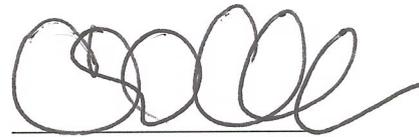
Construct new interchange on State Route 178, from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive in the City of Bakersfield, California

**FINAL ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL ASSESSMENT
WITH FINDING OF NO SIGNIFICANT IMPACT**

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

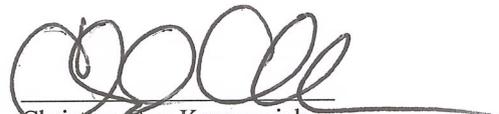
THE STATE OF CALIFORNIA
Department of Transportation

9/6/2011
Date of Approval



Christine Cox-Kovacevich
Chief, Central Region
Environmental
CEQA Lead Agency

9/6/2011
Date of Approval



Christine Cox-Kovacevich
Chief, Central Region
Environmental
NEPA Lead Agency

**California Department of Transportation
Finding of No Significant Impact
for the
Morning Drive/State Route 178 Interchange Project**

The California Department of Transportation (Caltrans) has determined that Alternative 1 Design Option B would have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Impact Report/Environmental Assessment and incorporated technical reports, which have been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Environmental Impact Report/Environmental Assessment and incorporated technical reports.

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

Date 9/6/2011


Christine Cox-Kovacevich
Chief, Central Region
Environmental

Summary

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

Overview of Project Area

Through the project area, State Route 178 is a mostly two-lane highway that widens out to four lanes at some intersections to provide space for vehicles to turn. The highway connects rural and developing areas east of the city to downtown Bakersfield.

Morning Drive is a two-lane roadway that extends north from State Route 178, providing access to nearby residential areas. Morning Drive is stop-sign-controlled at the "T" intersection with State Route 178.

Purpose and Need

The purpose of the project is the following:

- Relieve traffic congestion and reduce traffic delay along State Route 178.
- Provide efficient access between State Route 178 and Morning Drive and accommodate planned growth in adjacent developing areas.
- Accommodate the planned extension of Morning Drive south of the proposed interchange.
- Support federal, state, regional, and local plans and policies that identify the need for improving State Route 178.

Current and predicted future growth in the Bakersfield region and surrounding developing areas has created the need to relieve traffic congestion and improve circulation in the area. At the Morning Drive/State Route 178 intersection, existing and forecasted traffic levels show the need for additional capacity and better circulation.

The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed into law on August 10, 2005, earmarked federal funding for local projects in the Bakersfield area. SAFETEA-LU Section 1302, National Corridor Infrastructure Improvement Program, identified federal funding for design, planning, and construction of State Route 178 in Bakersfield.

Proposed Action

Caltrans, in cooperation with the City of Bakersfield, proposes to build a new interchange on State Route 178 from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive with the following features:

- State Route 178 would be built as a four-lane freeway from the newly built Fairfax Road/State Route 178 interchange about 0.65 mile west of Morning Drive to 1.2 miles east of the existing Morning Drive/State Route 178 intersection.
- Auxiliary lanes would be built on both eastbound and westbound State Route 178 between the new Morning Drive interchange and the Fairfax Drive interchange to the west.
- Morning Drive would be realigned and widened to a six-lane divided roadway from 0.3 mile south of State Route 178 north to Auburn Street, and widened to a four-lane roadway from Auburn Street north to Panorama Drive.
- Morning Drive would cross over State Route 178 with a new overcrossing structure including three northbound and three southbound lanes, bike lanes and a median to allow for dual left-turn lanes.
- The project would include improvements that comply with the Americans with Disabilities Act (ADA).
- The project includes bicycle lanes and sidewalks along both sides of Morning Drive through the project area and bicycle detection loops at intersections controlled by traffic signals.
- Soundwalls would be built along the north side of State Route 178 where feasible.
- Landscaping similar to that of adjacent projects such as the Fairfax Road Interchange Project and the existing landscaping along Morning Drive would be added.
- Retaining walls would be built at several locations along the interchange on- and off-ramps.
- Three basins would be built to retain runoff of water from the project.

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

Alternative 1 Partial Cloverleaf Interchange and Roadway Improvements

Alternative 1 would have six ramps as follows: slip on-ramps in both the northwest and southeast corners, spread diamond off-ramps in both the northeast and southwest corners, and loop on-ramps in both the northeast and southwest corners. The off-ramp intersections would have traffic signals. Alternative 1 would require acquisition of 50 acres and temporary construction easements on 2 acres.

Alternative 1 Design Options

Alternative 1 includes two possible design options for the interchange on-ramp loops. Design Option A includes standard on-ramp loops that align at a skewed angle from Morning Drive.

Design Option B includes on-ramp loops that align at right angles with Morning Drive.

Alternative 2 Spread Diamond Interchange and Roadway Improvements

Alternative 2 would have four ramps as follows: spread diamond on-ramps in the northwest and southeast corners and spread diamond off-ramps in both the northeast and southwest corners. The ramp intersections would have traffic signals. Alternative 2 would require acquisition of 56 acres, and temporary construction easements on 2 acres.

Preferred Alternative

Alternative 1 (Design Option B) has been selected as the preferred alternative. This alternative has been identified as the preferred alternative because it provides the best design for pedestrian and bicycle facilities and safety and incorporates the suggestions of members of the public who commented on the need for bicycle facilities.

Joint California Environmental Quality Act/National Environmental Policy Act Document

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 California Environmental Quality Act. In addition, the Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility per 23 U.S. Code 327.

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

Policy Act. Because the National Environmental Policy Act is concerned with the significance of the project as a whole, it is quite often the case that a lower level document is prepared for the National Environmental Policy Act. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment.

Caltrans released the draft environmental impact report/environmental assessment on September 1, 2010 for public and agency review and comment. The review period ended October 15, 2010. A public hearing was held on September 15, 2010 at Highland High School in the city of Bakersfield to provide information on the project and provide an opportunity for input on the draft environmental impact report/environmental assessment.

Caltrans has issued Findings and a Statement of Overriding Considerations under the California Environmental Quality Act. Caltrans has also issued a Finding of No Significant Impact under the National Environmental Policy Act.

Project Impacts

The table below summarizes the results of the environmental studies, displaying the potential impacts for each alternative.

Summary of Major Potential Impacts from Alternatives

Potential Impact		Alternative 1	Alternative 2	No-Build Alternative
Land Use	Consistency with the City of Bakersfield General Plan	Yes	Yes	No
	Consistency with the Kern County General Plan	Yes	Yes	No
Utilities/Emergency Services		No interruption of services to utility customers is expected. No interruption of emergency services anticipated.	No interruption of services to utility customers is expected. No interruption of emergency services anticipated.	No impact
Traffic and Transportation/Pedestrian and Bicycle Facilities		The project would improve conditions for vehicles, pedestrians, and bicycles	The project would improve conditions for vehicles, pedestrians, and bicycles	No impact
Visual/Aesthetics		The proposed interchange would create a new highly visible feature within the State Route 178 corridor.	The proposed interchange would create a new highly visible feature within the State Route 178 corridor.	No impact
Water Quality and Storm Water Runoff		Storm water would be retained onsite in three drainage/retention basins	Storm water would be retained onsite in three drainage/retention basins	No impact
Paleontology		Highly sensitive for fossil resources in Kern River Formation and Quarternary Older Alluvium.	Highly sensitive for fossil resources in Kern River Formation and Quarternary Older Alluvium.	No impact
Hazardous Waste/Materials		There are no identified facilities next to or within the project area and planned right-of-way acquisition areas that require further evaluation for potential hazardous waste impacts.	There are no identified facilities next to or within the project area and planned right-of-way acquisition areas that require further evaluation for potential hazardous waste impacts.	No impact
Air Quality		No permanent impacts	No permanent impacts	No impact

Summary

Potential Impact	Alternative 1	Alternative 2	No-Build Alternative
Noise and Vibration	Increased noise levels require consideration of noise abatement. The Increased noise levels require consideration of noise abatement. The cost of noise abatement at two of four locations exceeds the total cost allocation and is considered unreasonable.	Increased noise levels require consideration of noise abatement. The Increased noise levels require consideration of noise abatement. The cost of noise abatement at two of four locations exceeds the total cost allocation and is considered unreasonable.	No impact
Plant Species	Vasek's clarkia and round-leaved filaree	Vasek's clarkia and round-leaved filaree	No impact
Animal Species	American badger, San Joaquin pocket mouse, Tulare grasshopper mouse, and raptors and other migratory birds	American badger, San Joaquin pocket mouse, Tulare grasshopper mouse, and raptors and other migratory birds	No impact
Threatened and Endangered Species	Bakersfield cactus, Bakersfield smallscale, blunt-nosed leopard lizard, San Joaquin adobe sunburst and San Joaquin kit fox	Bakersfield cactus, Bakersfield smallscale, blunt-nosed leopard lizard, San Joaquin adobe sunburst and San Joaquin kit fox	No impact
Construction	Temporary impacts	Temporary impacts	No impact
Cumulative Impacts	No impact	No impact	No impact

Coordination with Other Agencies

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

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Section 7 consultation for threatened and endangered species.	A Biological Assessment evaluating the project's potential effects to federally listed Threatened and Endangered species was submitted to the U.S. Fish and Wildlife Service on November 12, 2010. A Biological Opinion was issued on August 18, 2011.
California Department of Fish and Game	Section 2080.1. Consistency Determination for Threatened and Endangered Species.	Pending completion of the project specifications and estimates phase of the process. Anticipate completion before 2012.
Federal Highway Administration	Project-level Conformity Determination for Federal Air Quality Standards	Air Conformity Determination was submitted by Caltrans to the Federal Highway Administration for Interagency Consultation on December 6, 2010. The Federal Highway Administration issued its Project-level Conformity Determination on January 19, 2011.
San Joaquin Valley Air Pollution Control District	Air Impact Assessment	Obtained prior to the start of construction.

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
NEPA	National Environmental Policy Act
PM	post mile
PM ₁₀	fine particulate matter 10 microns or less in diameter
PM _{2.5}	very fine particulate matter less than 2.5 microns in diameter
SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users

Chapter 1. Proposed Project

1.1. Introduction

Caltrans, as assigned by the Federal Highway Administration, in cooperation with the City of Bakersfield, proposes to build a new interchange along State Route 178 from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive in Bakersfield, California. The project is in northeast Bakersfield, in central Kern County. The project vicinity is shown in Figure 1-1 Project Vicinity Map, and the project location is shown in Figure 1-2 Project Location Map.

State Route 178 stretches from State Route 99 through the southern Sierra Nevada to State Route 14 southwest of Ridgecrest. Through the project area, State Route 178 is a mostly two-lane highway that widens out to four lanes at some intersections to provide space for vehicles to turn. The highway connects rural and developing areas east of the city to downtown Bakersfield.

Morning Drive is a two-lane roadway that extends north from State Route 178, providing access to nearby residential areas. Morning Drive is stop-sign-controlled at the “T” intersection with State Route 178.

The proposed project is included in the California Federal Statewide Transportation Improvement Program. It is also included in the Kern Council of Governments 2011 Regional Transportation Plan and the Kern Council of Governments 2011 Federal Transportation Improvement Program (Project Identification Number KER050106).

1.2. Purpose and Need

1.2.1. Purpose

The purpose of the proposed Morning Drive/State Route 178 Interchange Project is to increase traffic capacity and enhance mobility for future traffic demand in the area. The project would help to achieve the following objectives:

- Relieve traffic congestion and reduce traffic delay along State Route 178.
- Provide efficient access between State Route 178 and Morning Drive and accommodate planned growth in adjacent developing areas.
- Accommodate the planned extension of Morning Drive south of the proposed interchange.

- Support federal, state, regional, and local plans and policies that identify the need for improving State Route 178.

1.2.2. Need

Current and predicted future growth in Bakersfield and surrounding developing areas has created the need to relieve traffic congestion and improve circulation in the area. At the Morning Drive/State Route 178 intersection, existing and forecasted traffic levels show the need for additional capacity and better circulation. The following discussion summarizes the need for the project based on existing and anticipated future system deficiencies in the project area.

1.2.2.1 Relieve Traffic Congestion and Reduce Traffic Delay

According to the California Department of Finance, Kern County's population is predicted to grow from 839,587 in 2010 to 1,352,627 by 2030. The city of Bakersfield, with a 2010 population of 338,952, is by far the largest population center in the county.

Due to the area's rapid growth and the extension of Morning Drive from State Route 178 south to connect with the segment north of Niles Street/Kern Canyon Road, traffic levels are expected to increase substantially from what they are today. As a result, by 2035 traffic levels are expected to reach six times today's levels along State Route 178, and eight times today's levels along Morning Drive. Studies indicate that without the proposed project, anticipated growth in traffic would result in level of service F during morning and evening peak traffic hours throughout the project area by 2035.

Level of service is a description of the quality of roadway operation, ranging from level of service A (indicating free-flow traffic conditions with little or no delay) to level of service F (representing over-saturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). According to the Metropolitan Bakersfield General Plan, the City of Bakersfield strives to maintain a level of service C on its roadways. Caltrans District 6 strives to maintain a level of service C or better on all state facilities within the district. Figure 1-3 gives an illustration of traffic level of service for freeways.

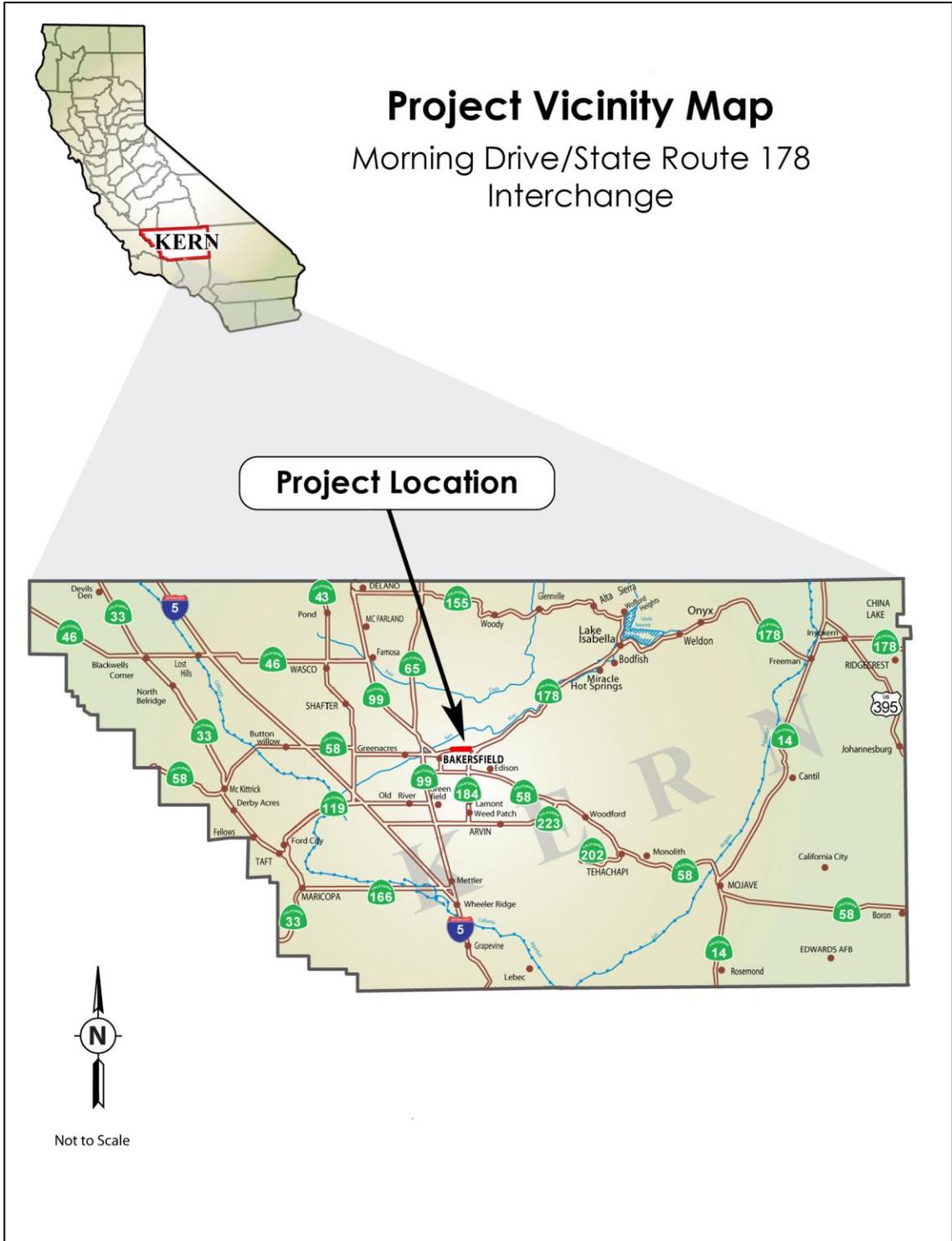


Figure 1-1 Project Vicinity Map

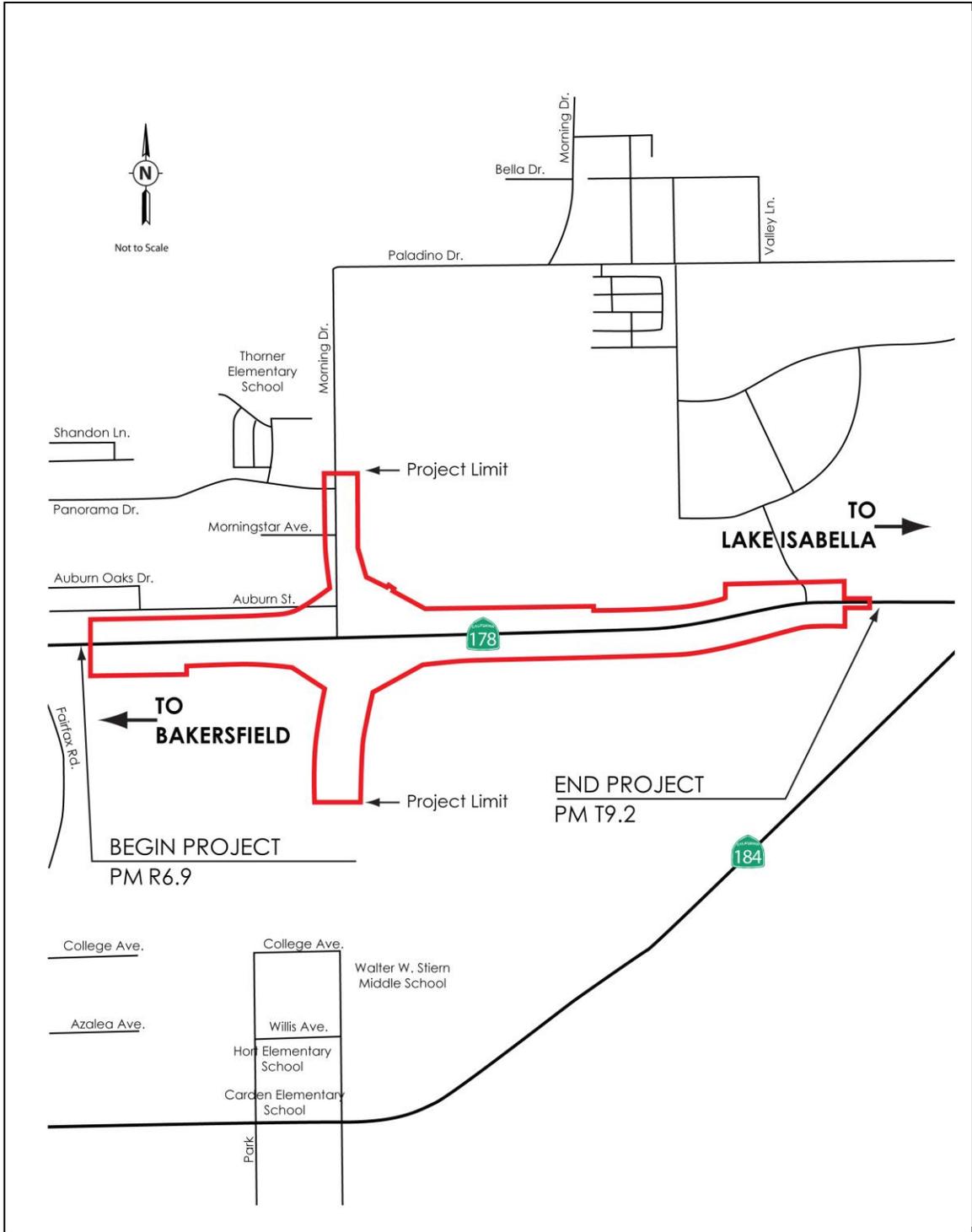


Figure 1-2 Project Location Map

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 Traffic Levels of Service for Freeways

Table 1.1 summarizes existing and forecasted average daily traffic counts predicted for the project area in 2007 (existing conditions), 2015 (opening year of the project), and 2035 (design year of the project). Overall, forecasts for 2035 are higher than those for 2015.

Table 1.1 Existing and Forecast Average Daily Traffic Summary

Location	2007	2015	2035
State Route 178 from Canteria Drive to Morning Drive	11,880	38,020	76,310
State Route 178 from Morning Drive to Fairfax Road	11,786	57,750	101,190
Morning Drive from Auburn Street to State Route 178	1,988	17,470	42,890
Morning Drive South of State Route 178		26,680	34,590
Eastbound Off-ramp		11,290	14,890
Eastbound On-ramp		1,980	1,590
Westbound Off-ramp		2,010	1,940
Westbound On-ramp		12,430	13,730

Source: Traffic Operations Report, August 2009.

Table 1.2 summarizes forecasted freeway mainline levels of service predicted for the project area in the opening year of the project and in the design year of the project. Under the No-Build Alternative, the mainline segments would operate unacceptably at level of service E or worse during both morning and evening peak traffic hours by 2015.

Table 1.2 Freeway Mainline Levels of Service – Opening (2015) and Design (2035) Years

Location	Period	Build Year (2015)		Design Year (2035)	
		Volumes	Level of Service Without Project	Volumes	Level of Service Without Project
State Route 178 eastbound between Fairfax Road and Morning Drive	Morning	1,320	E	2,750	F
	Evening	2,490	E	5,180	F
State Route 178 westbound between Fairfax Road and Morning Drive	Morning	2,430	E	4,920	E
	Evening	1,840	E	4,020	F
State Route 178 eastbound between Morning Drive and Vineland Drive	Morning	810	F	1,900	F
	Evening	1,800	E	3,910	F
State Route 178 between Morning Drive and Vineland Drive	Morning	1,620	E	3,660	F
	Evening	1,110	E	3,160	F

Source: Traffic Operations Report, May 2010.

Notes: Bold font indicates unacceptable intersection operations based on the level of service C standard.

Six intersections were evaluated in addition to the mainline freeway (see Tables 2.7 and 2.8). In the opening year of the project (2015), two of these intersections would operate at level of service F. In the design year (2035), two intersections would operate at a level of service F, while an additional intersection would operate at level of service E.

1.2.2.2 Accommodate Planned Growth and Provide Efficient Access

According to the California Department of Finance, Kern County's population is predicted to grow substantially by 2030. Bakersfield, with a 2010 population of 338,952, is the largest population center in the county.

The City of Bakersfield has approved several large residential and commercial projects along and near State Route 178, including in the areas directly next to the existing Morning Drive/State Route 178 intersection. In the northwest corner of the interchange, the existing church and educational complex propose to expand. In the northeast corner, grading for future development has occurred, and several additional residential developments are planned north of State Route 178 on both sides of Morning Drive. In the southwest corner of the interchange, two large commercial developments—a medical office building and the other designated for general commercial tenants—are planned, along with two residential developments. Several

residential developments are also planned southeast of the interchange of Morning Drive with State Route 178. Residents and tenants of these developments, plus those living using other future developments in Bakersfield, would likely use the proposed Morning Drive interchange.

According to growth and traffic modeling used to predict the number of jobs and houses resulting from build-out of the area through 2035, the area northwest of the proposed Morning Drive/State Route 178 interchange (State Route 178 to Panorama Drive and between Fairfax Road and Morning Drive) is predicted to see 2,214 jobs added with no increases in housing (beyond what is currently under construction). In the southwest area (State Route 178 to Highland Knolls Drive and between Fairfax Road and Morning Drive), employment is expected to increase by 79 jobs and housing is predicted to increase by 381 units. The northeast area (State Route 178 to Panorama Drive and between Morning Drive and Vineland Road) is predicted to support 462 additional jobs while the number of housing units would increase by 1,056. Finally, in the southeast area (State Route 178 to Highland Knolls Drive and between Morning Drive and Vineland Road), housing is predicted to increase by 602, with no increases in employment. The expansion of employment centers and housing will increase future trips on both State Route 178 and Morning Drive.

1.2.2.3 Accommodate Planned Extension of Morning Drive

The proposed project would accommodate the planned extension of Morning Drive south of the proposed interchange. The portion of Morning Drive within the project limits is designated in the Metropolitan Bakersfield General Plan as a six-lane arterial roadway with a Class II bike lane.

1.2.2.4 Support Legislation, Plans and Policies

The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed into law on August 10, 2005, earmarked federal funding for local projects in the Bakersfield area. SAFETEA-LU Section 1302, National Corridor Infrastructure Improvement Program, identified federal funding for design, planning, and construction of State Route 178 in Bakersfield.

1.3. Project Description

The proposed action consists of building a new interchange on State Route 178 from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive. The project would make improvements to both State Route 178 and Morning Drive and provide pedestrian and bicycle facilities and drainage improvements. Project design features

are described in Section 1.4 below. The proposed action and the design alternatives were developed to meet the intended need while avoiding or minimizing environmental impacts. Morning Drive is a two-lane roadway that extends north from State Route 178, providing access to nearby residential areas. Morning Drive is stop-sign-controlled at the “T” intersection with State Route 178. The purpose of the proposed Morning Drive/State Route 178 Interchange Project is to increase traffic capacity and enhance mobility for future traffic demand in the area.

1.4. Alternatives

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

1.4.1 Build Alternatives

1.4.1.1 Common Design Features of the Build Alternatives

Two build alternatives are being considered for the proposed interchange:

Alternative 1 includes highway widening plus a partial cloverleaf interchange, and Alternative 2 includes highway widening plus a spread-diamond interchange. Both alternatives have similar features, including the following elements:

- State Route 178 would be built as a four-lane freeway from the newly built Fairfax Road/State Route 178 interchange located about 0.65 mile west of Morning Drive, to 1.2 miles east of the existing Morning Drive/State Route 178 intersection. Then 1.2 miles east of the existing Morning Drive/State Route 178 intersection, the four-lane freeway would transition to a four-lane highway, and then become a two-lane highway near the Canteria Drive/State Route 178 intersection. (A highway allows access directly from local roads and driveways, while a freeway requires the driver to enter at an interchange.)
- Auxiliary lanes would be built on both eastbound and westbound State Route 178 between the new Morning Drive interchange and the Fairfax Drive interchange to the west.
- Morning Drive would be realigned and widened to a six-lane divided roadway from 0.3 mile south of State Route 178 north to Auburn Street, and widened to a four-lane roadway from Auburn Street north to Panorama Drive.
- Morning Drive would cross over State Route 178 with a new overcrossing structure including three northbound and three southbound lanes, bike lanes and a median to allow for dual left-turn lanes.

- Improvements would include installing Americans with Disabilities Act-compliant ramps at corners and may include auditory alerts on pedestrian crossing signals.
- The project includes bicycle lanes and sidewalks along both sides of Morning Drive through the project area and bicycle detection loops at intersections controlled by traffic signals.
- Soundwalls would be built along the north side of State Route 178 where feasible.
- Landscaping similar to that of adjacent projects such as the Fairfax Road Interchange Project and the existing landscaping along Morning Drive would be added.
- Retaining walls would be built at several spots along the interchange on- and off-ramps.
- Three basins would be built to retain runoff of water from the project (see Figures 1-4, 1-5 and 1-6).

1.4.1.2 Unique Features of the Build Alternatives

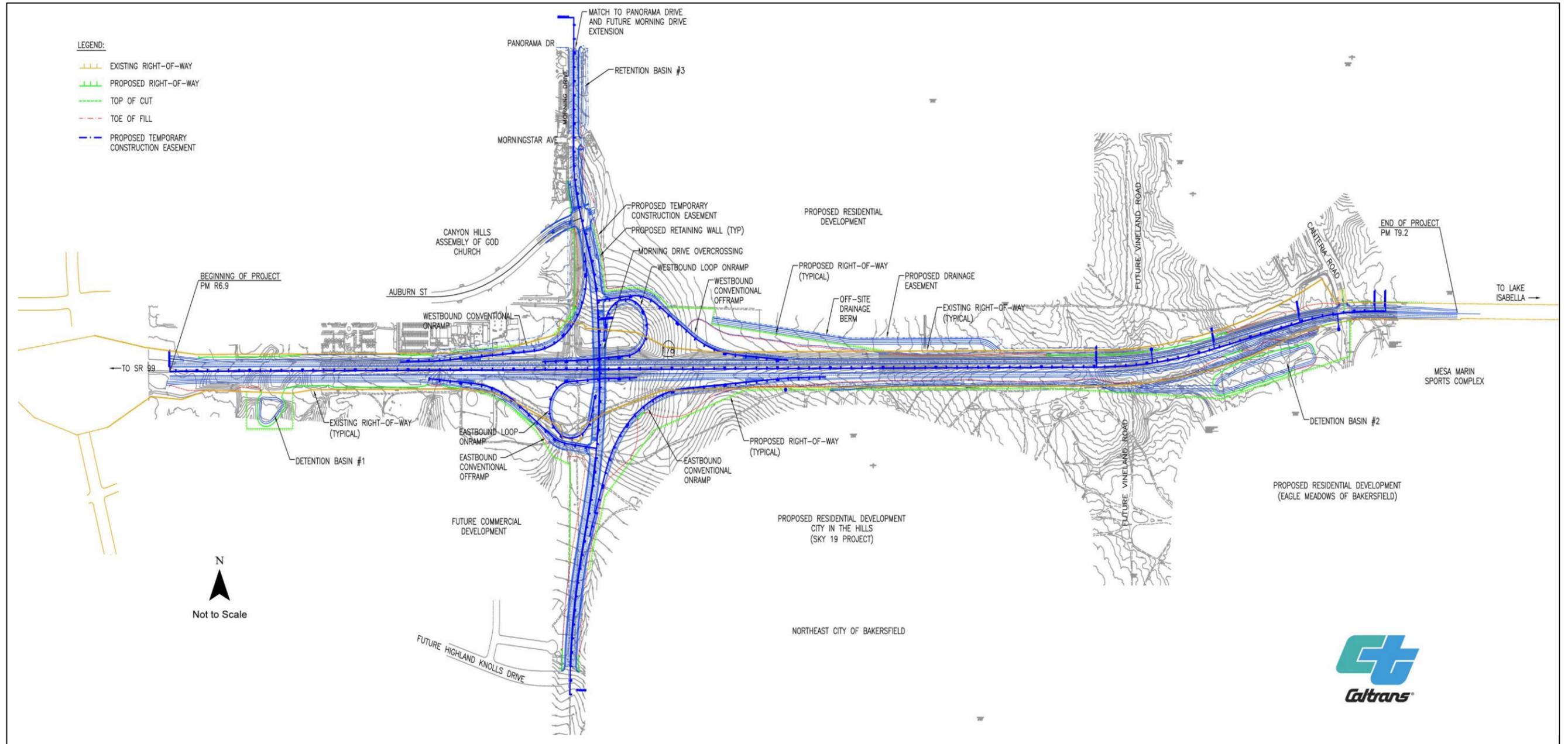
Alternative 1 - Partial Cloverleaf Interchange and Roadway Improvements

Alternative 1 would have six ramps as follows: slip on-ramps in both the northwest and southeast corners, spread diamond off-ramps in both the northeast and southwest corners, and loop on-ramps in both the northeast and southwest corners. The off-ramp intersections would have traffic signals.

Alternative 1 Design Options

Alternative 1 includes two design options for the interchange on-ramp loops. Design Option A (see Figure 1-4) includes standard on-ramp loops that align at a skewed angle from Morning Drive. Alternative 1 Design Option A would require acquisition of 41.1 acres and temporary construction easements on 2 acres.

Design Option B (see Figure 1-5) includes on-ramp loops that align at right angles with Morning Drive. Alternative 1 Design Option B would require acquisition of 40.1 acres and temporary construction easements on 2 acres.



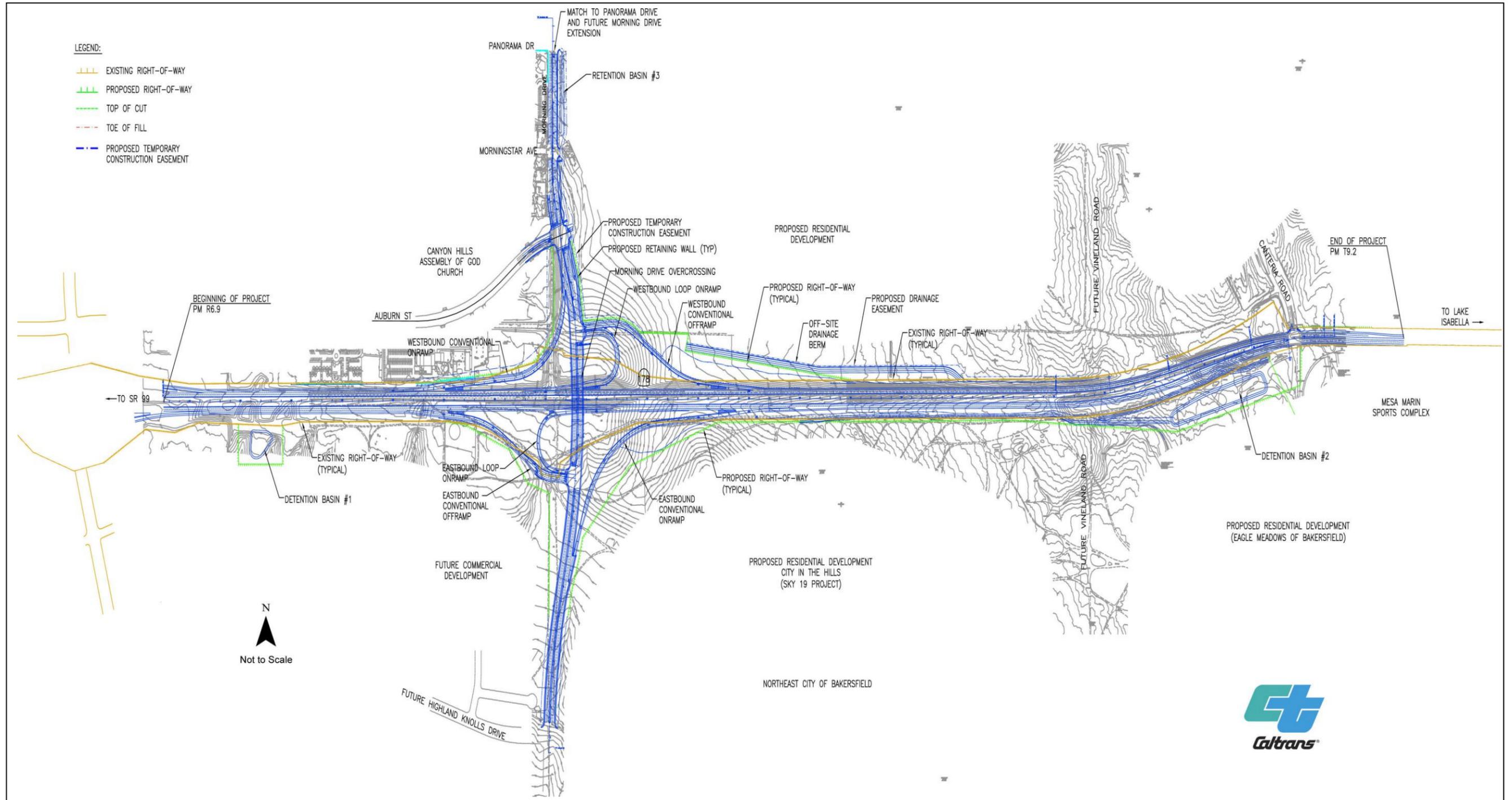


Figure 1-5 Alternative 1 - Design Option B Project Layout Map

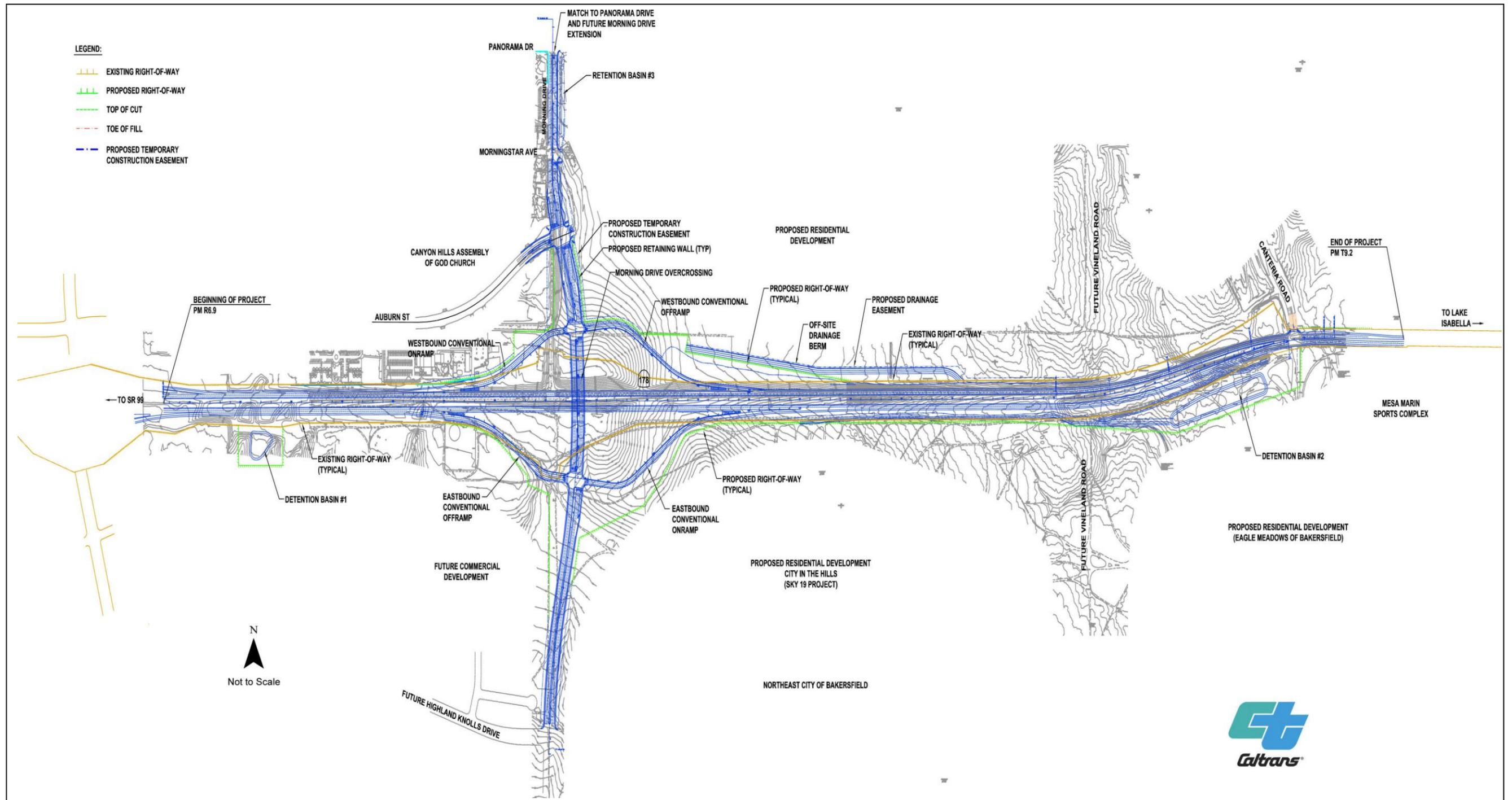


Figure 1-6 Alternative 2 - Project Layout Map

Alternative 2 Spread-Diamond Interchange and Roadway Improvements

Alternative 2 would have four ramps as follows: spread-diamond on-ramps in the northwest and southeast corners and spread-diamond off-ramps in both the northeast and southwest corners. The ramp intersections would have traffic signals. Alternative 2 would require acquisition of 45.5 acres and temporary construction easements on 2 acres.

1.4.2 No-Build Alternative

The purpose of describing and analyzing a No-Build Alternative is to allow decision-makers to compare the impacts of approving the project with the impacts of not approving the proposed project. The No-Build Alternative will be discussed throughout this document for each subject area. Under the No-Build Alternative, the Morning Drive/State Route 178 interchange would not be built and State Route 178 would remain a two-lane highway with passing lanes through most of the project area. The Morning Drive/State Route 178 intersection would remain a “T” intersection; however, the intersection would have traffic signals added to it.

The No-Build Alternative would cause long delays, poor traffic operations for State Route 178, and potential for a greater number of vehicle collisions at the intersection. The No-Build Alternative would not accommodate the anticipated travel needs of planned developments south of State Route 178 in the project area. This would result in poor circulation in and around the project area. The No-Build Alternative is also not consistent with local, regional, and system planning.

1.4.3 Comparison of Alternatives

The criteria for evaluating a project alternative includes whether:

- an alternative meets the project purpose and need
- the alternative provides current and future improved traffic operations
- the alternative requires acquisition of the least amount of right-of-way necessary
- the alternative avoids substantial environmental effects
- the alternative’s cost would be prohibitively expensive

The above criteria helped to guide Caltrans in selecting an alternative. All three build alternatives (Alternative 1 Design Option A, Alternative 1 Design Option B, and Alternative 2) have been weighed against the guiding principles as well as the identified purpose and need of the project. Now that the public circulation period is over and all comments have been considered, Caltrans has selected a preferred

alternative and made the final determination of the project’s effect on the environment.

In accordance with the California Environmental Quality Act, Caltrans certifies that the project complies with the act and prepared findings for all significant impacts identified. A Statement of Overriding Considerations has been adopted for significant and unavoidable noise impacts.

Caltrans has filed a Notice of Determination with the State Clearinghouse to identify whether the project will have significant impacts, whether mitigation measures were included as conditions of project approval, whether findings were made, and whether a Statement of Overriding Considerations was adopted.

Similarly, now that Caltrans, as assigned by the Federal Highway Administration, has determined the National Environmental Policy Act action does not significantly affect the environment, Caltrans has issued a Finding of No Significant Impact in accordance with the National Environmental Policy Act.

Table 1.3 compares the project alternatives considering the above criteria.

Table 1.3 Comparison of Alternatives

Criteria		Alternative 1 Design Option A	Alternative 1 Design Option B	Alternative 2	No-Build Alternative
Meets the project purpose and need		Yes	Yes	Yes	No
Provides a functional and safe roadway design		Yes	Yes	Yes	No
Provides current and future improved traffic operations		Yes	Yes	Yes	No
Requires acquisition of the least amount of right-of-way necessary from adjacent property owners	Number of Parcels	26	26	21	0
	Number of Acres	41.1	40.1	45.5	0
Avoids substantial environmental effects		No	No	No	Yes
Cost would be prohibitively expensive		\$53.4 million	\$52.5 million	\$54.5 million	\$0

1.4.4 Environmentally Superior Alternative

The California Environmental Quality Act requires the identification of the “Environmentally Superior Alternative,” the alternative with the fewest adverse environmental impacts. The No-Action Alternative is not to be considered as the Environmentally Superior Alternative for purposes of this discussion.

Alternative 1 Design Option A, Alternative 1 Design Option B, and Alternative 2 do not differ substantially in their effects on the environment. Alternative 1 Design Option B is the Environmentally Superior Alternative because it requires acquisition of the fewest acres of right-of-way and is estimated to cost less than Alternative 1 Design Option A and Alternative 2.

1.4.5 Preferred Alternative

Based on environmental impacts and after consideration of public review comments, Caltrans has selected Alternative 1 Design Option B as the preferred alternative.

All three build alternatives (Alternative 1 Design Option A, Alternative 1 Design Option B, and Alternative 2) meet the goals of the project as defined in the need and purpose:

- Relieve traffic congestion and reduce traffic delay along State Route 178
- Provide efficient access between State Route 178 and Morning Drive and accommodate planned growth in adjacent developing areas
- Accommodate the planned extension of Morning drive south of the proposed interchange
- Support federal, regional and local plans and policies that identify the need to improve State Route 178

Based on the results of the traffic operations analysis, Alternative 2 does not perform as well as both Alternative 1 options. In addition, Alternative 2 requires more right-of-way and is more expensive to build than both Alternative 1 options.

Alternative 1 Design Option B has been identified as the preferred alternative because it provides the best design for pedestrian and bicycle facilities and safety and incorporates the suggestions of members of the public who commented on the need for bicycle facilities.

1.4.6 Alternatives Considered but Eliminated from Further Discussion

The Transportation Systems Management and Transportation Demand Management alternatives have been eliminated from further discussion in this document. Neither of these alternatives would provide acceptable traffic levels of service or meet the project purposes of relieving traffic congestion and delay, accommodating planned growth and providing efficient access to new development, and providing planned expansion of Morning Drive and State Route 178. However, components of these alternatives have been incorporated into each build alternative.

1.5. Permits and Approvals Needed

Table 1.4 shows the permits, reviews, and approvals that would be required for project construction.

Table 1.4 Permits, Reviews, and Approvals Required for Project Construction

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Section 7 Consultation for federally listed Threatened and Endangered Species	A Biological Assessment evaluating the project's potential effects to federally listed Threatened and Endangered species has been prepared and was submitted to the U.S. Fish and Wildlife Service on November 12, 2010. A Biological Opinion was issued on August 18, 2011.
California Department of Fish and Game	Section 2080.1 Agreement for state-listed Threatened and Endangered Species	Consultation under Section 2080.1 was initiated in the fall of 2010.
Federal Highway Administration	Project-level Conformity Determination for Federal Air Quality Standards	Air Conformity Determination was submitted by Caltrans to the Federal Highway Administration for Interagency Consultation on December 6, 2010. The Federal Highway Administration issued its Project-level Conformity Determination on January 19, 2011.
San Joaquin Valley Air Pollution Control District	Air Impact Assessment	Obtained prior to the start of construction.

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

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

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

- **Coastal Zone** – The project area is not within the coastal zone.
- **Wild and Scenic Rivers** – No wild and scenic rivers are located in the project area.
- **Parks and Recreational Facilities** – There are no anticipated impacts to parks or recreational facilities next to the project area. (Community Impact Assessment, April 2010)
- **Farmlands/Timberlands** – There are no farmlands or timberlands in the project area. (Community Impact Assessment, April 2010)
- **Community Impacts** – The proposed project would not affect community cohesion in the project vicinity. It would not physically divide an established neighborhood or community, or significantly change vehicle or pedestrian access and movement to community facilities. No adverse impacts to the community are anticipated as a result of this project. (Community Impact Assessment, April 2010)
- **Environmental Justice** – No disproportionate numbers of elderly, disabled, or minority residents have been identified in the proposed project area. Neither of the proposed project alternatives would relocate or disproportionately impact these segments of the population. (Community Impact Assessment, April 2010)
- **Cultural Resources** – A Historic Property Survey Report regarding cultural resources was completed in April 2010. No archaeological or historic

architectural resources were observed during the survey. It has been determined that no historic resources or historic properties exist within the area of potential effects of State Route 178 at the Morning Drive Interchange Project. The project would not have an adverse effect on any cultural resources.

- **Hydrology and Floodplain** – The project is not located within a flood zone. (Hydrology, Water Quality, and Storm Water Run-off Assessment, April 2010)
- **Groundwater Quality** – The depth to groundwater below the project area is significant (more than 100 feet below the surface), and several geologic barriers to groundwater exist between the ground surface and groundwater below the project area. (Initial Site Assessment, February 2009)
- **Geology/Soils/Seismic/Topography** – The project is not located within a known fault zone. (Metropolitan Bakersfield General Plan, December 11, 2002 and Morning Drive District Preliminary Geotechnical Report, December 2009)
- **Natural Communities** – The Natural Environmental Study completed in April 2010 determined that no natural communities of concern would be affected as a result of the proposed project.
- **Wetlands and Other Waters** – As documented in the Natural Environment Study, the proposed project would avoid all state and federal jurisdictional waters during construction of the roadway improvements (Natural Environment Study, April 2010).
- **Energy** – Caltrans incorporates energy efficiency, conservation, and climate change measures into transportation planning, project development, design, operations, and maintenance of transportation facilities, fleets, buildings, and equipment to minimize use of fuel supplies and energy sources and reduce greenhouse gas emissions (see section 3.2.6 Climate Change Under the California Environmental Quality Act). When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

2.1 Human Environment

2.1.1 Land Use

2.1.1.1 Existing and Future Land Use

A Community Impact Assessment (August 2010) was prepared to provide information on social, economic, and land use effects of the project.

Affected Environment

The project is in northeastern Bakersfield in Kern County. Much of the land in this area is vacant. Existing development is for the most part clustered in the northwest corner of the proposed project area and includes churches, a school, a senior living community, and both high- and low-density residential housing. A city-owned softball field is currently being renovated in the southeast quadrant.

Most of the existing vacant land is planned for development in the near future. There are several active (but not recorded) tract applications adjacent to the project study area in all four quadrants of the project that totals 921 acres in proposed development, mostly in single-family residences.

Figure 2-1 shows land uses in and around the project area.

Within the Metropolitan Bakersfield General Plan planning period (2030), northeast Bakersfield is anticipated to see significant growth. The Metropolitan Bakersfield General Plan estimates that predicted population increases in the Bakersfield area will result in the need for about 37,000 housing units. Infrastructure necessary for urbanization (sewer, water supply, utilities) is anticipated to be completed early in the planning period.

Environmental Consequences

Permanent Impacts

Acquisition of 41 acres for Alternative 1 (either option) and 45 acres for Alternative 2 would be required to provide sufficient room for the realignment of Morning Drive, construction of the State Route 178 roadway, and the ramps, side slopes, and drainage catchment areas. The lands proposed for right-of-way acquisitions for each alternative would come from several undeveloped parcels next to the current roadways that are zoned for residential or commercial use. No changes to general land uses designated in the Metropolitan Bakersfield General Plan are proposed at this time.

Temporary Impacts

About 2 acres of temporary easements would be needed to construct either build alternative. No temporary residential or business relocations would be required during construction.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required.

2.1.1.2 Consistency with Federal, State, Regional and Local Plans

Affected Environment

SAFETEA-LU

The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) is a funding and authorization bill that governs United States federal surface transportation spending. It was signed into law on August 10, 2005 and is managed by the Federal Highway Administration. Section 1302 of SAFETEA-LU identified \$100 million for design, planning, and building State Route 178 in Bakersfield.

Regional Transportation Plan and Regional Transportation Improvement Program

The Regional Transportation Plan is a long-term (20-year) plan for the Kern County transportation network that includes all types of travel and freight movement. The Regional Transportation Plan establishes that the projects proposed in the plan meet federal air quality conformity requirements.

The Regional Transportation Improvement Plan includes the projects that the local agencies in Kern County want to implement in the next four years. A project must be included in both plans to be funded.

Metropolitan Bakersfield General Plan

The Metropolitan Bakersfield General Plan, prepared by the City of Bakersfield and County of Kern, was adopted by the Bakersfield City Council on December 11, 2002, and became effective on February 26, 2003 under Resolution Number 222-02. It incorporates information and findings generated during the 2001 General Plan Update Process. The planning horizon used in the Metropolitan Bakersfield General Plan is year 2020.

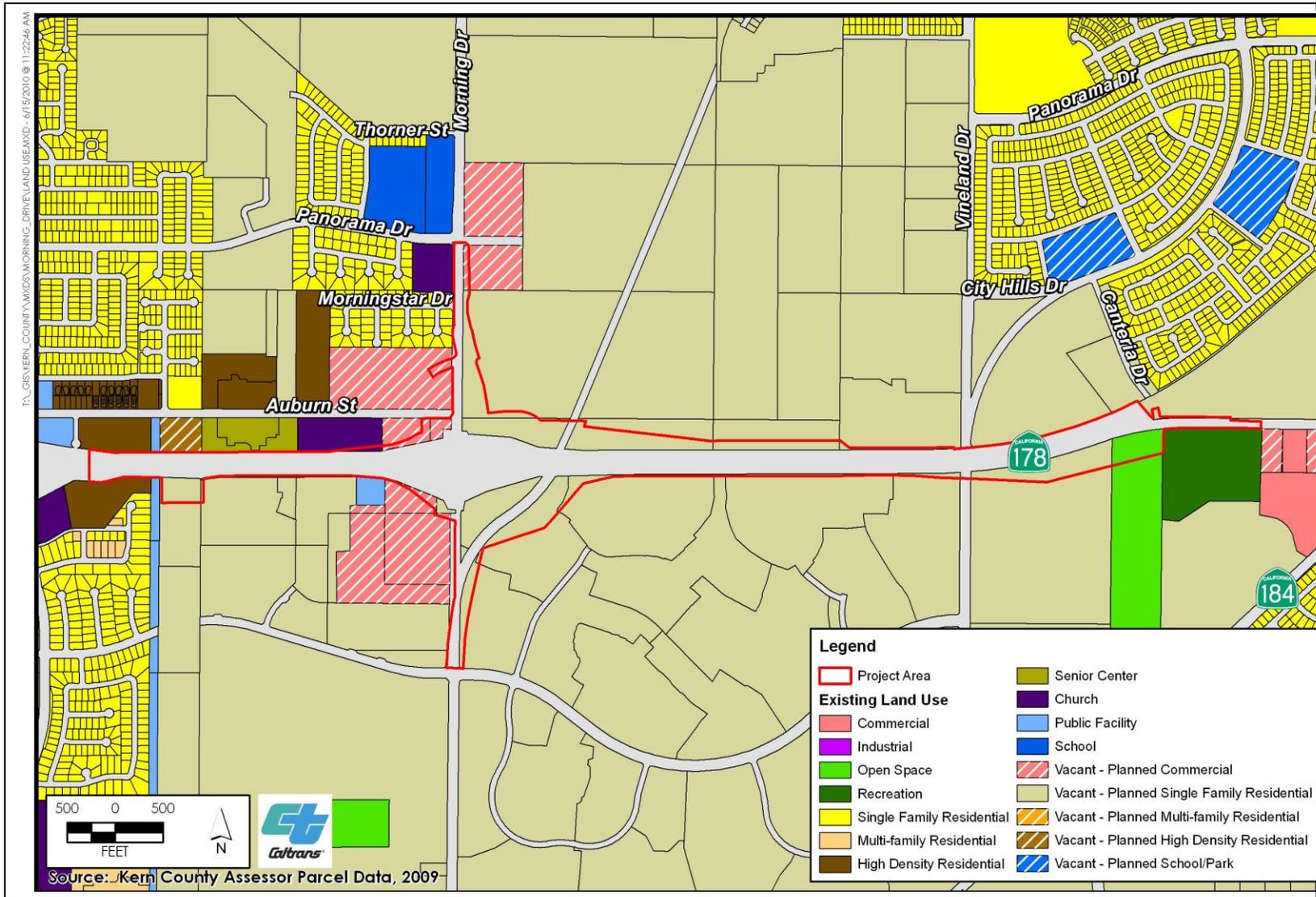


Figure 2-1 Land Use Map

Specific Parks and Trails Plan for Northeast Bakersfield

The Specific Parks and Trails Plan Map for Northeast Bakersfield (approved October 22, 2003 and last revised September 9, 2009) includes a master plan for a bicycle circulation system in this area of the city.

Environmental Consequences

The proposed project is cited in several local and regional planning documents and is consistent with the goals, policies, and land use designations of those documents.

Regional Transportation Plan and Regional Transportation Improvement Program

The proposed project is fully funded and is included in the Kern Council of Governments 2011 Kern County Regional Transportation Plan. The project is also included in the Kern Council of Governments 2011 Federal Transportation Improvement Program, page 24 (July 15, 2010). This portion of State Route 178 is designated as a principal arterial and a regionally significant system in the Regional Transportation Plan, and a state highway terminal-access route for large trucks in the Surface Transportation Assistance Act.

Metropolitan Bakersfield General Plan

This document designates State Route 178 as a freeway within the project limits. In this plan, the portion of Morning Drive within the project limits is designated as a six-lane arterial roadway with a Class II bike lane. Morning Drive is designated as a north-south connection from the Alfred Harrell Highway in the northern portion of the city limits to State Route 58.

Specific Parks and Trails Plan for Northeast Bakersfield

The Specific Parks and Trails Plan Map for Northeast Bakersfield shows a future Class II bike lane on Morning Drive through the proposed project area and beyond, from College Street to the south to Paladino Drive to the north. The project's Class II bike lane on Morning Drive is consistent with that trails plan.

Avoidance, Minimization, and Mitigation Measures

No mitigation is required.

2.1.2 Growth

Regulatory Setting

The Council on Environmental Quality regulations, which established the steps necessary to comply with the National Environmental Policy Act of 1969, requires evaluation of the potential environmental consequences of all proposed federal

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

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

Affected Environment

Caltrans prepared a Community Impact Assessment to provide information on the effects of the project on growth.

Current Urban Development Patterns in the Project Area

The project area consists of developed residential and commercial land surrounded by areas of undeveloped land. Several parcels in the vicinity of the proposed project are undergoing urban development (mainly residential). Most of the land area adjacent to and within 0.70 mile of the project site has current active tract maps for urban development. The development and parcel layout adjacent to the project has been designed with the expectation of future roadway widening of Morning Drive and State Route 178 as well as the future extension of Morning Drive south of State Route 178.

Future Growth Potential in the Project Area

The City of Bakersfield and Kern Council of Governments project the population of the Metropolitan Bakersfield General Plan area will be 504,600 in 2010, and 542,800 by 2020. The Thomas Roads Improvement Program Growth Inducement Analysis projects that the population of the city of Bakersfield could reach 578,829 residents by 2035, and identifies that residential development east of the project site along the State Route 178 corridor is expected to make up about 39 percent (30,510) of the total population anticipated by 2035 for the Metropolitan Bakersfield General Plan area.

Environmental Consequences

Growth-Related Effects of the Build Alternatives

Extent of Urban Development Anticipated to be Accommodated by the Build Alternatives

Approximately 1,097 acres containing 3,069 residential lots (mostly single-family residential units) as well as planned commercial parcels within 0.70 mile of the project site would be accommodated by the build alternatives (see Table 2.1). Three large, planned commercial parcels are also close to the project site (two parcels north of the State Route 178 and one parcel south of State Route 178).

The Canyons residential development, approved by the City, is not included in Table 2.1. The Canyons development includes 1,214 single-family residential units on 889 acres about 2 miles north of the proposed project (Approved General Plan Amendment/Zoning Code 03-0337/Tract 6299-tract not yet approved).

The total extent of growth and development that would be accommodated by the build alternatives would consist of 1,986 acres, with 4,283 residential lots and three commercial parcels.

**Table 2.1 Proposed Development and Land Use
in Project Area by Quadrant**

File #	Proposed Development	Proposed Uses	Status
Northwest Quadrant			
T6191R	Residential	281 lots on 84 acres	Active Tentative Tract Map with no recorded phases
T6539	Residential	194 lots on 72 acres	Active Tentative Tract Map with no recorded phases
T7126	Residential	Unknown Number of Condo units on 1 lot on 0.33 acre	Active Tentative Tract Map with no recorded phases
Northeast Quadrant			
T7141R	Residential	140 lots on 50 acres	Pending Tract Map with no recorded phases
T6383	Residential	95 lots on 29 acres	Active Tentative Tract Map with no recorded phases
T6852	Residential	90 lots on 20 acres	Active Tentative Tract Map with no recorded phases
T6696	Residential	139 single-family lots on 42 acres + 7 acres Zoned R2 (single or multi-family)	Active Tentative Tract Map with no recorded phases
T6515	Residential	240 lots on 61 acres	Active Tentative Tract Map with no recorded phases
Southeast Quadrant			
T6603	Residential	305 lots on 76 acres	Active Tentative Tract Map with no recorded phases
T6606	Residential – City in the Hills Sky 19 Project	406 lots on 112 acres	Active Tentative Tract Map with no recorded phases
T6605	Residential – City in the Hills Sky 19 Project	252 lots on 49 acres	Active Tentative Tract Map with no recorded phases
T6352R	Residential – Eagle Meadows of Bakersfield	463 lots on 156 acres	Active Tentative Tract Map with no recorded phases
Southwest Quadrant			
T6422	Residential	69 lots on 26 acres	Active Tentative Tract Map with no recorded phases
T6423	Residential	48 lots on 25 acres	Active Tentative Tract Map with no recorded phases
T6499	Residential	47 lots on 20 acres	Active Tentative Tract Map with no recorded phases
T6567	Residential	298 lots on 105 acres	Active Tentative Tract Map with no recorded phases
T7189	Residential	Unknown number of units on 1 lot on 7 acres	Pending action

Information in Table 2.1 was obtained from the City of Bakersfield's website on December 23, 2010 at http://www.bakersfieldcity.us/cityservices/devsrv/development_maps/pdfs_maps/active_tent_tract.pdf

Changes to Accessibility

The build alternatives would improve accessibility to existing, approved, and future planned development in all directions from the project area. Development north of State Route 178 has been proceeding without improvement to the Morning Drive/State Route 178 intersection, and the rate of growth is not expected to be substantially increased with the implementation of the build alternatives.

Growth Pressures

Because the project would occur in northeast Bakersfield, an area planned for extensive residential expansion and population growth through year 2035, the project would increase accessibility between homes and jobs, and would accommodate the planned rate of growth in the area. The proposed project is not expected to substantially influence the overall amount or type of regional growth. Growth in metropolitan Bakersfield is expected to follow the trend of the Central Valley's population growth, which is fueled by high birthrates and the migration of people from other parts of the state.

Growth-Related Effects of the No-Build Alternative

Anticipated Growth Conditions under the No-Build Alternative

As identified above under "Affected Environment," several parcels near the proposed project are currently undergoing urban development (mostly residential). Overall growth in the project area and region is expected to occur even without the improvement of the Morning Drive/State Route 178 intersection.

While growth would continue to occur in the project area and region under the No-Build Alternative, there are two development projects in the project area that were approved with mitigation measures/conditions of approval requiring improvements to Morning Drive and State Route 178: Sky 19 and The Canyons. Development of these projects under the No-Build Alternative would be delayed until the required improvements were made. Thus, it is assumed that development in the project area under the No-Build Alternative would consist of 704 acres and 2,106 residential lots as compared to 1,986 acres and 4,283 residential lots under the build alternatives (development of the three commercial parcels would remain the same under the No-Build Alternative). The No-Build Alternative would also not facilitate the extension of Morning Drive south of State Route 178, likely limiting or delaying growth south of State Route 178.

These conditions under the No-Build Alternative would likely result in the displacement of anticipated growth in the project area and/or would slow the rate of

growth in the project area and increase the rate of growth in other areas of the metropolitan Bakersfield area.

Growth-Related Effects to Resources of Concern of the Project

Urban development in the project area (1,986 acres, 4,283 residential lots and three commercial parcels) has already been approved through the Metropolitan Bakersfield General Plan as well as through the City of Bakersfield approval of several subdivision tract maps, with development already occurring in advance of the project. The project would accommodate the planned rate of urban growth south of State Route 178 through improved access from the extension of Morning Drive. This planned rate of growth is not expected to result in any effects on resources of concern associated with the build alternatives that is not already expected to occur from the planned growth in the project area.

Growth-Related Effects to Resources of Concern of the No-Build Alternative

Growth-related effects to resources of concern under the No-Build Alternative are generally similar to the build alternatives, as some continued growth and development in the project area is anticipated to occur. However, there would be some variation in the effects to resources of concern based on impacts associated with changing the pace of growth and/or resulting in the displacement of growth to other areas of the metropolitan Bakersfield area. Potential growth displacement may result in land use changes to general plan and zoning designations; conversion of agricultural lands to urban uses; new or worsened traffic operation and safety issues on other roadway facilities in the region; alteration of the character of other portions of the metropolitan Bakersfield area; traffic noise impacts to other portions of the metropolitan Bakersfield area; and impacts to areas with more sensitive biological resources than the project area.

Avoidance, Minimization, and Mitigation Measures

The project is not expected to result in land use changes (i.e., changes in approved development and land use patterns established by the City) in the project area. Therefore, no avoidance, minimization, or mitigation measures are proposed to address the project's contribution to land use changes as a result of growth resulting from the project.

Impacts to resources of concern due to planned growth have been addressed and mitigation applied under environmental and project review by the City for its General Plan and individual projects. Therefore, no avoidance, minimization, or

mitigation measures related to changes in the rate of growth resulting from the project are proposed.

2.1.3 Relocations

Regulatory Setting

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

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

Affected Environment

Caltrans prepared a Draft Relocation Impact Report (June 21, 2010) for the project. The Final Relocation Impact Report was completed on November 22, 2010.

The proposed project is in northeast Bakersfield on the edge of rural and suburban development. Existing land uses in the project area consist of rural, commercial and residential. The existing commercial and residential uses are in the northwest quadrant of the project area. Parcels range from less than an acre to about 75 acres.

Environmental Consequences

Right-of-way acquisitions would be necessary to accommodate the proposed project improvements including the new interchange, cut-and-fill slopes, drainage improvements and the realignment of Morning Drive.

Table 2.2 compares the right-of-way requirements of each build alternative under consideration. Caltrans would acquire strips of land on both sides of State Route 178. For Alternative 1, Caltrans would acquire right-of-way from as many as 26 parcels. For Alternative 2, Caltrans would acquire right-of-way from as many as 21 parcels. Alternative 1 requires two full acquisitions; Alternative 2 requires full acquisition of three parcels. The amount of right-of-way required for the project ranges from about 41.1 acres for Alternative 1 to about 45.5 acres for Alternative 2.

Table 2.2 Right-of-Way Requirements

Description	Alternative 1 Design Option A		Alternative 1 Design Option B		Alternative 2	
	Number of Parcels	Number of Acres	Number of Parcels	Number of Acres	Number of Parcels	Number of Acres
Partial Acquisition	24	34.1	24	33.1	18	37.0
Full Acquisition	2	7.0	2	7.0	3	8.5
Total	26	41.1	26	40.1	21	45.5

Source: Department of Transportation Community Impact Assessment, June 2010.

The project would not affect residential, commercial, farm or industrial improvements that would require relocation assistance program services or payments. No existing structures would be affected by the project. The only subdivision affected by the project has been set back by dedication of right-of-way to the City of Bakersfield for the widening of Morning Drive. Damages may be required to be paid to the Canyon Hills Assembly of God Church, but there would be no impact to any buildings or parking facilities on the church property. All of the parcels that would be fully acquired are vacant.

Avoidance, Minimization, and/or Mitigation Measures

The Relocation Impact Statement concluded that no relocation resources would be required for this project.

2.1.4 Utilities/Emergency Services

Affected Environment

Utilities

Several companies, a public utility district and the City of Bakersfield have facilities within the project area. Pacific Gas and Electric Company operates utility poles and aerial service lines as well as a gas line within the project area. American Telephone and Telegraph operates aerial telephone and copper cable communication lines in the project area. Bright House Networks operates aerial cable television lines.

Underground utilities in the project area include a 30-inch natural gas transmission line operated by Mojave/El Paso Pipeline Company, water lines and an aboveground water storage tank owned by the East Niles Community Services District, and water, sewer and drainage lines operated by the City of Bakersfield.

Emergency Services

Emergency services for the project area are provided by the City of Bakersfield police and fire departments, and the California Highway Patrol on State Route 178.

No emergency service facilities are located within one-half mile of the proposed project. The closest fire station is at Niles Street and Fairfax Road, about 2 miles southwest of the proposed project. The closest hospital is Kern Medical Center on Mount Vernon Avenue, about 3.5 miles southwest of the proposed project. The closest police station is on Panorama Drive near Bakersfield College, about 3 miles northwest of the proposed project. Hall Ambulance Service, Inc. serves the project area, with the nearest ambulance response location near the intersection of Columbus Street and Mt. Vernon Avenue, about 1.5 miles west of the project area.

State Route 178 is a major east-west highway into Bakersfield from rural and suburban areas to the east. State Route 178 is used by ambulance, fire fighting, and police service vehicles as access to and through the area.

A medical center is planned on a parcel next to the southwest corner of the proposed project interchange, although it is not believed that the medical center would provide emergency care.

Environmental Consequences

Utilities

Construction of this project would require utility facilities to be relocated within the project limits. A detailed study would be done during final design of this project.

Coordination efforts have been ongoing with Pacific Gas and Electric Company, American Telephone and Telegraph, Bright House Networks, and El Paso/Mohave Pipeline. Potential utility service relocations within the proposed project's environmental study limits are being coordinated between the utility service providers and the City of Bakersfield and Kern County Public Works departments. Because this coordination would prevent service disruptions, no adverse temporary, permanent, indirect, or cumulative effects to utilities from either proposed build alternative are expected.

Emergency Services

Both proposed build alternatives could temporarily interfere with emergency vehicle response times in the area due to temporary lane closures. Once the proposed project is completed, emergency response times would improve throughout the project area as traffic conditions improve. Future emergency response times would be influenced by future increased development and traffic in the project area. Completion of either proposed build alternative could accelerate other planned development that requires additional emergency services in the area. Neither proposed build alternative is expected to have any cumulatively considerable impacts on emergency services.

Avoidance, Minimization, and/or Mitigation Measures

Utilities

All aboveground and underground utility relocations would involve coordination between the utility service providers mentioned above and the City of Bakersfield and Kern County public works departments. Utility relocations would minimize negative impacts to existing or planned development. Coordination with utility providers would occur to avoid disruption of utility services during relocation.

Emergency Services

Caltrans would prepare a Traffic Management Plan to maintain access to local residential, commercial, and public facilities during construction. The City would prepare and submit its Traffic Management Plan to Caltrans before approval of final design.

Caltrans would coordinate with local emergency service agencies to prepare an Emergency Access Plan to be implemented during project construction to maintain adequate emergency response times through the area.

2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

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

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

Affected Environment

A Traffic Operations Report (August 21, 2009) and Revised Traffic Operational Analysis (May 2010) were prepared for the project and present the results of existing

and projected future traffic operations of the proposed project. The Traffic Operations Report evaluated six intersections:

- State Route 178/Morning Drive
- Auburn Street/Morning Drive
- Morningstar Avenue/Morning Drive
- Panorama Drive/Morning Drive
- Eagle Ridge Street/Morning Drive
- State Route 178/Canterria Drive

The main roadways near the proposed project are State Route 178, Morning Drive, and Canterria Drive. Each roadway is described below.

- State Route 178 is a mainly two-lane, east-west highway widening to four lanes at Morning Drive intersection to provide space for vehicles to turn. The highway connects rural and developing areas east of the city to downtown Bakersfield. Based on the Metropolitan Bakersfield General Plan Circulation Element, plans provide for State Route 178 to be widened and upgraded to a freeway in the future. State Route 178 has two eastbound lanes and two westbound lanes at its intersection with Morning Drive. However, State Route 178 narrows to one lane to the east and west within a half mile of Morning Drive. State Route 178 has an average daily traffic count of about 12,000 vehicles in the study area and has a posted speed limit of 55 miles per hour (Fehr and Peers, 2009).
- Morning Drive is a two-lane road that extends north from State Route 178. Morning Drive provides access to existing residential areas north of State Route 178. Morning Drive is controlled by a stop sign at its intersection with State Route 178. North of State Route 178, Morning Drive has an average daily traffic count of about 2,000 vehicles (Fehr and Peers, 2009).
- Canterria Drive is a two-lane minor road extending north from State Route 178 to the City in the Hills residential development. Canterria Drive has a traffic signal at its intersection with State Route 178. The intersection south of State Route 178 is a driveway, which will be used to access future developments south of State Route 178.

Traffic congestion is ranked using a grading system that describes the quality of road facility operation. The grading system ranges from level of service A (free-flow traffic conditions with little or no delay) to level of service F (over-saturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). According to the Metropolitan Bakersfield General Plan, the City of

Bakersfield strives to maintain a level of service C on its facilities. Caltrans strives to maintain a level of service C or better on all state facilities.

As shown in Table 2.3, the segments of State Route 178 next to the Morning Drive and State Route 178 intersection are currently operating at an acceptable level of service of C or better. An exception is the westbound Canteria Drive to Morning Drive segment that operates at level of service D during the morning peak traffic hour.

Table 2.3 Existing State Route 178 Segment Levels of Service

State Route 178 Segment	Peak Hour	Level of Service
Eastbound		
Fairfax Road to Morning Drive	Morning Evening	B C
Morning Drive to Canteria Drive	Morning Evening	B C
Westbound		
Canteria Drive to Morning Drive	Morning Evening	D C
Morning Drive to Fairfax Road	Morning Evening	C B

Source: Traffic Operations Report, August 2009.

Except for the intersection of Morning Drive/State Route 178, all of the study intersections operate acceptably under both City of Bakersfield and Caltrans standards at level of service A or level of service B. The worst-case movement at Morning Drive/State Route 178 is the southbound left turn, which operates at level of service D (see Table 2.4).

Table 2.4 Existing Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	Control Delay ¹ (Seconds)	Level of Service
State Route 178/Morning Drive	Side-street stop	Morning Evening	31.1 southbound and left turn (3.1) 29.4 southbound and left turn (2.4)	D (A) D (A)
Auburn Street/Morning Drive	Side-street stop	Morning Evening	11.7 eastbound and left turn (2.3) 10.7 eastbound and left turn (3.6)	B (A) B (A)
Morningstar Avenue/Morning Drive	Side-street stop	Morning Evening	9.6 eastbound (2.3) 9.8 eastbound (2.1)	A (A) A (A)
Panorama Drive/Morning Drive	All-way stop	Morning Evening	7.7 7.6	A A
Eagle Ridge Street/Morning Drive	Side-street stop	Morning Evening	9.2 eastbound (2.4) 8.8 eastbound (4.2)	A (A) A (A)
State Route 178/Canteria Drive	Signal	Morning Evening	10.4 7.4	B A

Source: Traffic Operations Report, August 2009.

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

Traffic Accidents

Table 2.5 shows the most recent accident data based on the Caltrans Transportation Systems Network Traffic Accident Surveillance and Analysis System from January 2007 to December 2009.

Table 2.5 Accident Summary

Location	Number of Accidents			Accident Rate (accidents per million vehicle miles)		
	Total	Fatal	Fatal + Injury	Fatal	Fatal + Injury	Total
State Route 178 between Fairfax and Canteria Road	29	0	21	0.000	0.58	0.81
Similar State Facilities Average	-	-	-	0.008	0.31	0.76

Source: Caltrans Transportation Systems Network Traffic Accident Surveillance and Analysis System, April 2011.

The 29 accidents shown in the table were reported on State Route 178 between January 2007 and December 2009. Of the 29 accidents, 21 resulted in injuries; 12 were rear-end-type accidents; four were hit-object-type accidents; eight were broadsides; two were sideswipes; and one was a head-on accident. The rest were “other” types of accidents or not stated. Table 2.5 also shows accident rates for State Route 178 compared to state average rates. The actual accident rates per million miles traveled are slightly higher than the state average. About 60 percent of the accidents on State Route 178 occurred on the eastbound side of the highway.

Traffic Forecasts

Due to rapid growth in the Bakersfield area, and the extension of Morning Drive from State Route 178 south to connect north of Niles Street/Kern Canyon Road, traffic levels are expected to grow substantially from existing conditions. As a result, forecasted traffic levels are expected to reach six to eight times the existing levels by 2035 along State Route 178 and Morning Drive, respectively. Predicted traffic data indicates that without the proposed project, anticipated growth in traffic numbers would result in level of service F during morning and evening peak traffic hours throughout the project area by 2035.

Table 2.6 shows the existing and forecasted average daily traffic counts predicted for the project area in 2007 (existing conditions), 2015 (opening year of the project), and 2035 (design year of the project). Overall, the forecasts for 2035 are higher than the

2015 forecasts, except for the daily volumes for the eastbound State Route 178 on-ramp and the westbound State Route 178 off-ramp at the Morning Drive/State Route 178 interchange. The decrease on these ramps is due to the construction of the new Vineland Drive/State Route 178 interchange, which will be east of Morning Drive. The Vineland Drive/State Route 178 interchange was not included in the 2015 model. Therefore, the Morning Drive/State Route 178 interchange serves as a main access point to State Route 178 for vehicles traveling to and from the area east of Morning Drive. The model for 2035 includes the Vineland Drive interchange, and vehicles shift to the Vineland Drive interchange from Morning Drive.

Table 2.6 Existing and Forecast Average Daily Traffic Summary

Location	Daily Traffic Volumes		
	2007	2015	2035
State Route 178 from Canteria Drive to Morning Drive	11,880	38,020	76,310
State Route 178 from Morning Drive to Fairfax Road	11,786	57,750	101,190
Morning Drive from Auburn Street to State Route 178	1,988	17,470	42,890
Morning Drive South of State Route 178		26,680	34,590
Eastbound Off-ramp		11,290	14,890
Eastbound On-ramp		1,980	1,590
Westbound Off-ramp		2,010	1,940
Westbound On-ramp		12,430	13,730

Source: Traffic Operations Report, August 2009.

Intersection Levels of Service

Table 2.7 shows the intersection levels of service predicted for the project area in 2015 (opening year of the project). According to level of service standards for the City of Bakersfield and Caltrans, one of the six intersections is expected to operate at an unacceptable service level under the No-Build Alternative. The intersection of Morning Drive/State Route 178 (which would be controlled with a traffic signal) would operate at level of service F with an average delay of 257.6 seconds during the morning peak hour and an average delay of 308.9 seconds during the evening peak-hour without the project.

Table 2.7 Opening Year (2015) Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	No-Build Alternative ²		Alternative 1 Option A		Alternative 1 Option B		Alternative 2	
			Delay ¹	Level of Service	Delay ¹	Level of Service	Delay ¹	Level of Service	Delay ¹	Level of Service
1a. State Route 178 Eastbound Ramps/ Morning Drive	Signal	Morning	257.6 308.9	F F	16.6	B	16.6	B	21.7	C
		Evening			17.9	B	18.0	B	23.1	C
1b. State Route 178 Westbound Ramps/ Morning Drive	Signal	Morning			5.5	A	10.3	B	16.1	B
		Evening			3.2	A	9.4	A	19.3	B
2. Morning Drive/ Auburn Street	Signal	Morning	22.6	C	21.3	C	21.3	C	22.9	C
		Evening	26.5	C	29.3	C	29.3	C	30.2	C
3. Morning Drive/ Morningstar Avenue	Side-street stop	Morning	11.9 EBR (1.4)	B (A)	11.7 EBR (1.4)	B (A)	11.7 EBR (1.4)	B (A)	11.7 EBR (1.4)	B (A)
			Evening	11.3 EBR (1.0)	B (A)	11.1 EBR (1.0)	B (A)	11.1 EBR (1.0)	B (A)	11.1 EBR (1.0)
		Morning	11.8 EBR (1.1)	B (A)	11.8 EBR (1.1)	B (A)	11.8 EBR (1.1)	B (A)	11.8 EBR (1.1)	B (A)
			Evening	12.3 EBR (2.4)	B (A)	12.3 EBR (2.4)	B (A)	12.3 EBR (2.4)	B (A)	12.3 EBR (2.4)
5. Morning Drive/ Eagle Ridge Street	Side-street stop	Morning	11.3 EBR (0.9)	B (A)	11.3 EBR (0.9)	B (A)	11.3 EBR (0.9)	B (A)	11.3 EBR (0.9)	B (A)
			Evening	10.4 EBR (0.7)	B (A)	10.4 EBR (0.7)	B (A)	10.4 EBR (0.7)	B (A)	10.4 EBR (0.7)
		Morning	11.2	B	11.2	B	11.2	B	11.2	B
			Evening	6.6	A	6.6	A	6.6	A	6.6

Notes:

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

(EBR = eastbound right-turn)

² Under the No-Build scenario, Morning Drive will be two lanes in each direction and State Route 178/Morning Drive will be an at-grade signalized intersection.

Bold font indicates unacceptable intersection operations based on the level of service C standard.

Source: Revised Traffic Operational Analysis, May 2010.

The proposed project is expected to provide the greatest benefit at the Morning Drive/State Route 178 intersection where traffic operations at the ramp intersections would be improved to level of service B or better with Alternative 1 (Option A or B) and level of service C or better with Alternative 2 interchange improvements.

Table 2.8 shows the intersection levels of service predicted for the project area in 2035 (design year of the project). Without the project’s proposed improvements, levels of service would decline to unacceptable levels at many of the intersections in the project area.

Table 2.8 Design Year (2035) Intersection Levels of Service

Intersection	Traffic Control	Peak Hour	No-Build Alternative ²		Alternative 1 Option A		Alternative 1 Option B		Alternative 2	
			Delay ¹	Level of Service	Delay ¹	Level of Service	Delay ¹	Level of Service	Delay ¹	Level of Service
State Route 178 Eastbound Ramps/ Morning Drive	Signal	Morning Evening	1,033.7 1,171.7	F F	14.0 18.3	B B	14.0 18.3	B B	19.2 23.4	B C
State Route 178 Westbound Ramps/ Morning Drive	Signal	Morning Evening			3.4 2.4	A A	18.3 2.8	B A	11.8 7.3	B A
Morning Drive/ Auburn Street	Signal	Morning Evening	64.8 33.0	E C	22.2 22.2	C C	22.2 22.0	C C	25.1 22.7	C C
Morning Drive/ Morningstar Avenue	Side-Street Stop	Morning Evening	12.2 EBR (0.5) 10.8 EBR (0.4)	B (A) B (A)	11.7 EBR (0.5) 10.5 EBR (0.4)	B (A) B (A)	11.7 EBR (0.5) 10.6 EBR (0.4)	B (A) B (A)	11.9 EBR (0.5) 10.6 EBR (0.4)	B (A) B (A)
Morning Drive/ Panorama Drive	Signal	Morning Evening	38.6 38.3	D D	35.6 37.9	D D	36.3 39.2	D D	39.5 39.3	D D
Morning Drive/ Eagle Ridge Street	Side-Street Stop	Morning Evening	18.5 EBR (0.4) 17.0 EBR (0.4)	C (A) C (A)	18.5 EBR (0.4) 17.0 EBR (0.4)	C (A) C (A)	18.5 EBR (0.4) 17.0 EBR (0.4)	C (A) C (A)	18.5 EBR (0.4) 17.0 EBR (0.4)	C (A) C (A)
State Route 178/ Canteria Drive	Signal	Morning Evening	By 2035, this intersection would be replaced by the State Route 178/Vineland Drive interchange.							

Notes:

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

² Under the No-Build scenario, Morning Drive will be two lanes in each direction and State Route 178/Morning Drive will be an at-grade intersection with signals.

Bold font indicates unacceptable intersection operations based on the level of service C standard.

Source: Revised Traffic Operational Analysis, May 2010.

According to level of service standards for the City of Bakersfield and Caltrans, three of the five study intersections are projected to operate at unacceptable levels during one or both peak hours by 2035 under the No-Build Alternative:

- State Route 178/Morning Drive. This intersection has a traffic signal and would operate at level of service F with an average delay of 1,033.7 seconds during the morning peak hour and an average delay of 1,171.7 seconds during the evening peak hour.
- Morning Drive/Auburn Street. This intersection has a traffic signal and would operate at level of service E with an average delay of 64.8 seconds during the morning peak-hour. During the evening peak-hour, the intersection is projected to operate at level of service C.
- Morning Drive/Panorama Drive. This intersection has a traffic signal and would operate at level of service D with an average delay of 38.6 seconds during the morning peak-hour and average delay of 38.3 seconds during the evening peak-hour.

With-Project Conditions

Based on level of service standards for the City of Bakersfield and Caltrans, five of the six study intersections are projected to operate at acceptable levels during both peak hours under Alternative 1 (Option A or B) and Alternative 2. The intersection of Morning Drive/Panorama Drive (which has a traffic signal) would continue to operate at level of service D conditions during both morning and evening peak hour conditions under Alternative 1 (Option A or B) and Alternative 2.

Under Alternative 1 or 2, traffic operations at the Morning Drive/Auburn Street and Morning Drive/Panorama Street intersections are expected to improve to level of service C during morning peak hour conditions.

While both Alternatives 1 and 2 provide acceptable operations, Alternative 1 provides design features that improve operations in comparison to Alternative 2. These design features include:

- Turning from northbound Morning Drive to westbound State Route 178 is an uncontrolled movement; in other words, it has no traffic signals or stop signs to control traffic, for Alternative 1, Option A and Option B. Both Options A and B involve a right turn instead of a left turn at a traffic signal as proposed under Alternative 2. The uncontrolled right turn offered by Alternative 1, Option A or Option B, offers freer traffic flow than Alternative 2 does.

- Turning from southbound Morning Drive to eastbound State Route 178 is an uncontrolled right turn for Alternative 1, Option A and Option B. Both Option A and B enter the eastbound loop on-ramp with a right turn instead of a traffic signal-controlled left turn as proposed for Alternative 2. The uncontrolled right turn offered by Alternative 1, Option A or Option B, offers freer traffic flow than Alternative 2.
- Direct slip ramps with no stop sign or traffic signal control from Morning Drive to State Route 178 in the northwest and southeast corners.

Freeway Mainline Levels of Service

Table 2.9 shows the forecasted freeway mainline levels of service predicted for the project area in 2015 (opening year of the project). The mainline is assumed to be a divided four-lane highway (one travel lane with one passing lane in each direction) under no-build conditions and a four-lane freeway under both build conditions.

Table 2.9 Opening Year (2015) Freeway Mainline Levels of Service

Freeway Segment	Peak Hour	Volume	No-Build Alternative ¹ Level of Service	Both Build Alternatives ² Level of Service
State Route 178 EB between Fairfax Road and Morning Drive	Morning	1,320	E	B
	Evening	2,490	E	C
State Route 178 WB between Fairfax Road and Morning Drive	Morning	2,430	E	C
	Evening	1,840	E	B
State Route 178 EB between Morning Drive and Vineland Drive	Morning	810	F	A
	Evening	1,800	E	B
State Route 178 WB between Morning Drive and Vineland Drive	Morning	1,620	E	B
	Evening	1,110	E	A

Source: Revised Traffic Operational Analysis, May 2010.

Notes:

¹ State Route 178 is assumed to remain a two-lane expressway with passing lanes through most of the project limits under 2015 no project conditions

² State Route 178 will be a four-lane divided freeway under 2015 build conditions.

Bold font indicates unacceptable intersection operations based on the level of service C standard.

Under the No-Build Alternative, all mainline segments are estimated to operate at unacceptable levels of service during both morning and evening peak traffic hours. Under both build alternatives, all mainline segments are estimated to operate at level of service C or better during both morning and evening peak traffic hours. State Route 178 is projected to operate at improved service levels under the build alternatives since the Morning Drive/State Route 178 intersection would be grade-separated with the proposed project and allows for improved freeway operations as

opposed to having a traffic signal at Morning Drive/State Route 178 under the No-Build Alternative.

Table 2.10 shows the State Route 178 levels of service predicted for the project area in 2035. Overall, State Route 178 would operate at better service levels under both build alternatives, since Morning Drive would cross over State Route 178 instead of having a traffic signal on State Route 178 under the No-Build Alternative.

Table 2.10 Design Year (2035) Freeway Mainline Levels of Service

Freeway Segment	Peak Hour	Volume	No-Build Alternative ¹ Level of Service	Both Build Alternatives ² Level of Service
State Route 178 EB between Fairfax Road and Morning Drive	Morning	2,750	F	B
	Evening	5,180	F	D
State Route 178 WB between Fairfax Road and Morning Drive	Morning	4,920	E	D
	Evening	4,020	F	C
State Route 178 EB between Morning Drive and Vineland Drive	Morning	1,900	F	A
	Evening	3,910	F	C
State Route 178 WB between Morning Drive and Vineland Drive	Morning	3,660	F	C
	Evening	3,160	F	B

Source: Revised Traffic Operational Analysis, May 2010.

Notes:

¹ State Route 178 is assumed to remain a two-lane expressway with passing lanes through most of the project limits under 2035 no project conditions.

² State Route 178 would be a six-lane divided freeway under 2035 build conditions.

Bold font indicates unacceptable intersection operations based on the level of service C standard.

Under the No-Build Alternative, all State Route 178 segments are estimated to operate at unacceptable levels of service during both morning and evening peak traffic hours. Under both build alternatives, all but two State Route 178 segments would operate at acceptable level of service C or better during both the morning and evening peak traffic hours. Exceptions to this would be eastbound State Route 178 between Fairfax Road and Morning Drive, which would have a level of service D during the evening peak traffic hour, and westbound State Route 178 between Morning Drive and Fairfax Road, which would have a level of service D during the morning peak traffic hour.

Summary Evaluation of Project Alternatives

Compared to the No-Build Alternative, the number of intersections operating at unacceptable service levels is reduced from all to none under both build alternatives for the opening year (2015). Similarly, in the design year (2035), the number of

intersections operating at unacceptable levels of service is reduced from four to two under both build alternatives compared to the No-Build Alternative. Under future conditions (2015 and 2035), the project provides the greatest benefit at the Morning Drive/State Route 178 intersection.

State Route 178 would be widened to four lanes by 2015 and to six lanes by 2035. Based on the projected freeway volumes, all freeway segments are projected to operate at acceptable levels of service under the build alternatives in 2015, while by 2035, the westbound segment between the Fairfax Road and Morning Drive interchanges would deteriorate to unacceptable levels of service during both the morning peak traffic hour, and the eastbound segment between the Fairfax Road and Morning Drive interchanges would operate at unacceptable levels of service during the evening peak traffic hour. To improve the freeway operations, it is recommended that an auxiliary lane be provided in both directions of the freeway segment between the Fairfax Road and Morning Drive interchanges.

The 2035 forecasts were developed based on the regional model, independent of the prospect of adding auxiliary lanes. In fact, the 2035 traffic forecasts would be the same without auxiliary lanes. However, the auxiliary lanes are proposed to improve traffic operations and are required based on Caltrans design standards based on the distance between the Fairfax Road and Morning Drive ramps. The addition of the auxiliary lanes would improve the freeway operations to acceptable service levels.

Overall, either build alternative meets the project goals to:

- Relieve traffic congestion thereby improving traffic flow along State Route 178.
- Provide efficient access between State Route 178 and Morning Drive from adjacent developing areas.
- Accommodate the planned extension of Morning Drive south of the proposed interchange.
- Accommodate the planned ultimate width (six lanes) of State Route 178.
- Support federal, state, regional, and local plans and policies that identify the need for improving State Route 178.

Bicycle and Pedestrian Facilities

The portion of Morning Drive through the project area is designated as a Class II bicycle lane in the Metropolitan Bakersfield Bikeway Master Plan. The only bicycle or pedestrian facility along Morning Drive is a sidewalk built as part of a residential

development between Panorama Drive and just south of Morningstar Avenue in the northwest corner of the project area.

Americans with Disabilities Act Facilities

Except for wheelchair-accessible curb ramps in the sidewalks at the corners of Morningstar Drive/Morning Drive and Panorama Drive/Morning Drive, no Americans with Disabilities Act facilities are located within the project area.

Environmental Consequences

Traffic and Transportation

The project is expected to have a beneficial impact on long-term transportation operations in the area by relieving future congestion and improving safety along State Route 178. The project would also provide efficient and safe access from Morning Drive to adjacent developing areas, and accommodate planned growth in the area. Therefore, measures to minimize harm are not required.

Construction activities for the project would temporarily increase traffic on area roadways. Heavy trucks delivering equipment and materials, including fill dirt, would make up the greatest volume of construction-related traffic. Other major contributors include workers and inspectors coming to and leaving the site, and the daily use of heavy earth-moving and other construction equipment. Some of the construction vehicles and equipment would be stored on the site, while other construction vehicles would make daily trips to the project site. The types and number of vehicles and equipment would vary depending on the phase of the project. Heavy trucks importing fill dirt would likely create most of the construction-related traffic.

Traffic Accidents

The proposed project is expected to reduce traffic congestion by grade-separating Morning Drive from State Route 178 and by providing ramps and auxiliary lanes for traffic entering and leaving the roadway. These improvements would improve traffic operations and reduce the chance for traffic conflicts, potentially reducing traffic accidents.

Bicycle and Pedestrian Facilities

The proposed project provides continuous bicycle and pedestrian facilities along both sides of Morning Drive. Under both build alternatives, a Class II bicycle lane would be built along Morning Drive on both sides of the roadway. Bicycle detection equipment would be installed at intersections with traffic signals to trigger traffic

signal changes for bicyclists, allowing the cyclists to move safely through the intersection.

Americans with Disabilities Act Facilities

The proposed project would build facilities meeting the requirements of the Americans with Disabilities Act. Improvements would include installation of Americans with Disabilities Act-compliant ramps at curb returns and may include sound alerts on pedestrian crossing signals.

Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures would be used to reduce traffic impacts resulting from construction activities:

- A Transportation Management Plan would be prepared and submitted to Caltrans and the City of Bakersfield for review and approval before starting construction work. This plan would include such elements as public information/public awareness, the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turn restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, and designated parking and staging areas for workers and equipment.
- A Construction Zone Enhanced Enforcement Program may be appropriate during portions of this project. The program involves the presence at all times of the California Highway Patrol in construction zones to remind motorists to slow down and use caution when traveling through work areas. The Caltrans Construction Division would be consulted to decide if the program is warranted for this project.

2.1.6 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act of 1969 as amended establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 U.S. Code 4331[b][2]). To further emphasize this point, the Federal Highway Administration in its implementation of the National Environmental Policy Act (23 U.S. Code 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

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

Affected Environment

A Visual Impact Assessment (April 2010) was prepared to assess the proposed project’s potential effects to visual quality and aesthetics in the area.

The visual setting of the northeastern Bakersfield area includes open sections of the valley floor with foothills scattered throughout, urban areas, agricultural lands, a river and drainage swales, and grasslands. On clear days, the Sierra Nevada mountain range can be seen to the east.

Views in the project area include the State Route 178 corridor and scattered views of the mountains beyond (east-facing view); residences and a church in the west; open space under conversion to residential land uses to the north; and open space/grazing land to the south. Views from State Route 178 to areas north and south of the highway are limited by hills on each side of the highway. Additionally, east-facing views of the southern Sierra Nevada are limited by low foothills in the western portions of the project area; however, views from the eastern portions of the project area are mostly unbroken on clear days.

An interchange was recently built at nearby Fairfax Road and State Route 178. Improvements proposed for State Route 178 as part of the project would tie-in to improvements at the Fairfax Road interchange. The Morning Drive/State Route 178 interchange is included in the Metropolitan Bakersfield Freeway Beautification Plan, and its aesthetic treatments would be consistent with that plan’s requirements.

Environmental Consequences

Temporary Construction Impacts

During the construction phase of the project, on-site storage of construction materials and debris, movement of soil, and other construction activities would be visible to people in the area. These activities would be visible from all viewpoints, though, to varying degrees, depending on the phase of construction.

Some nighttime work requiring night lighting may be necessary to complete work within the State Route 178 right-of-way, which could create “spillover” lighting, which is artificial lighting that spills over onto adjacent properties. Spillover lighting

from the interchange could interrupt the sleep of nearby residents or cause other nuisances to them or even disturb drivers passing by these construction activities.

Interchange Structure

The proposed overcrossing would begin just north of State Route 178 and would span the highway, intersecting the Morning Drive roadway extension at ground level. At its highest, the overcrossing would be about 25 to 30 feet above the existing highway. Lighting poles about 25 to 30 feet tall would be installed on the overcrossing above the structure. Also, on- and off-ramps that slope from ground level to the height of the overcrossing structure would be built. Figures 2-2 and 2-3 show simulations of what the interchange might look like. Figure 2-2 shows a simulation of what the interchange structure might look like from the viewpoint of drivers traveling eastbound on State Route 178. Figure 2-3 shows a simulation of what the interchange structure might look like from the northwest corner of the Morning Drive/State Route 178 intersection.

The proposed interchange would create a new visually dominant feature within the State Route 178 corridor. The overcrossing would be highly visible from westbound State Route 178 as motorists approach the interchange. Viewer exposure would be brief and last about 50 seconds at posted speeds. Eastbound views of the foothills and southern Sierra Nevada mountain range would be partially blocked briefly as viewers approach and pass under the overcrossing. The overcrossing would also be moderately visible from residential and commercial lands surrounding the interchange area in the northwest, southwest, and southeast. The structure would be most visible from properties closest to State Route 178. The structure would be highly visible from proposed land uses in the northeast quadrant of the project area.

Although the new interchange would be highly visible from State Route 178, viewer response from this viewpoint is expected to be low to moderate due to such brief exposure (about 25 to 50 seconds at posted speeds). Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes brought about by a highway project. Views of the interchange from residential and commercial areas around the interchange would be intermittent; however, viewer response would be considered high, especially if views are from residences.

Noise Barriers

Noise barriers (soundwalls) may be required to reduce noise from the project. The noise barriers could be added along State Route 178 in the northwest corner of the

project area. Figure 2-7 in Section 2.2.5 shows some potential locations of noise barriers throughout the project area.

Noise barriers that could be built along the north side of State Route 178 would partially block views of the highway from the Canyon Hills Assembly of God Church and the senior housing complex; however, views to the south would be largely preserved. Views of the walls by passing motorists would be brief. The viewer response of drivers would be considered low since drivers would be focused on driving. Viewer response by passengers would be somewhat higher.



Figure 2-2 Existing View from Eastbound State Route 178



Figure 2-3 Simulation of Interchange Overcrossing from Eastbound State Route 178



Figure 2-4 Existing View of Eastbound State Route 178 from Northwest Corner of Project Area



Figure 2-5 Simulation of Overcrossing and Noise Barrier from Northwest Corner of Project Area

The noise barrier to be built along the north side of State Route 178 would be between 6- and 16-feet high. This wall would partially block views of the highway from the church and apartment complex on the north side of State Route 178; however, views beyond the highway to the south would be largely preserved.

Lighting and Glare

The project would add new streetlights to provide nighttime lighting and illumination levels in the project area. This would be a potential source of glare.

Light poles would be installed on the interchange structure. During the daytime, sunlight reflecting off these poles could add to daytime glare in the area. At night, because the lighting would be higher than the overcrossing, this lighting could result in “spillover” lighting onto adjacent properties. Spillover lighting from the interchange could interrupt the sleep of nearby residents or cause other nuisances to them. Headlights from vehicles on the interchange could add to the overall nighttime glare, especially those coming from the higher elevation of the ramps and overcrossing.

Daytime and nighttime glare from interchange lighting would be noticed by residential and commercial land uses in the northwest corner. Spillover lighting could be a nuisance to residents of properties in this area.

Cumulative Impacts

The project area is in an area of Bakersfield that is changing from open-space and agricultural uses to commercial and residential uses. Planned development in the area such as the Fairfax Road interchange, combined with the proposed project, would change the way the area looks. The proposed project is consistent with the extent of visual conversion to urban development anticipated in the Metropolitan Bakersfield General Plan, and would not create new or additional cumulative effects to visual resources beyond those examined in the General Plan Environmental Impact Report.

Avoidance, Minimization, and/or Mitigation Measures

With the following recommended measures, the project would not be expected to result in adverse visual impacts.

Temporary Construction Impacts

Throughout project construction, building materials and debris would not be stored in highly visible areas. These areas would include, but not be limited to, the State Route 178 corridor. Construction lighting would face downward and away from

occupied properties next to the project area. Lighting would also be directed away from traffic lanes and areas where lighting could disturb passing drivers and pedestrians. Residents near the lighting would be provided with a Caltrans contact telephone number in case lighting became a nuisance.

Interchange Structure

The project design would be visually consistent with the design of the Fairfax Road/State Route 178 interchange, including the overall design theme of the interchange, landscaping techniques and planting, and aesthetic treatments on hard structures, including retaining walls, bridge overcrossing structure and ramps, and bridge railings and lighting.

Noise Barriers

While it is anticipated that the project's effects from building noise barriers along State Route 178 would be minimal, techniques to soften the appearance of the noise barriers, when feasible, include stamped or colored concrete or other aesthetic treatments.

Lighting and Glare

Light poles and signs would be designed to minimize reflection to the greatest extent feasible. All reflective surfaces would be painted with an anti-reflective coating or otherwise treated to reduce light reflection.

Light types and shading methods that reduce glare and spillover light would be incorporated into the project to the greatest extent feasible. Methods could include focusing lighting away from residential properties, using hooded lighting, and reducing the height of the lighting to the extent feasible.

2.1.7 Cultural Resources

Regulatory Setting

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include the following:

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the

opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800).

On January 1, 2004, a Section 106 Programmatic Agreement between the Advisory Council, Federal Highway Administration, State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 Code of Federal Regulations 327) (July 1, 2007).

Affected Environment

A Historic Property Survey Report was prepared on March 2010. The proposed project sits in an urbanized area in eastern Bakersfield. Archaeological and historic architectural surveys were performed.

Environmental Consequences

No archaeological sites or buildings potentially eligible for the National or California Registers of Historic Places were identified during studies.

Avoidance, Minimization, and Mitigation Measures

If any archaeological resources are encountered during construction, all work would stop in the area of the find and the resource evaluated by a professional archaeologist who meets the standards of the Secretary of the Interior.

2.2 Physical Environment

2.2.1 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, the Federal Water Pollution Control Act was amended, making the discharge of pollutants to the waters of the United States from any point source unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. The Federal Water Pollution Control Act was subsequently amended in 1977, and was renamed the Clean Water Act. The Clean Water Act, as amended in 1987, directed that storm water discharges are point source discharges. The 1987 Clean Water Act amendment established a framework for

regulating municipal and industrial storm water discharges under the National Pollutant Discharge Elimination System program. Important Clean Water Act sections are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal project that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the State that the discharge will comply with other provisions of the act.
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional water quality control boards administer this permitting program in California. Section 402(p) establishes addresses storm water and non-storm water discharges.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers.

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

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

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state.

The State Water Resources Control Board and regional water quality control boards are responsible for establishing the water quality standards (objectives) required by the Clean Water Act, and regulating discharges to ensure that the objectives are met. Details regarding water quality standards in a project area are contained in the applicable regional water quality control board’s basin plan. States designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use.

In addition, each state identifies waters failing to meet standards for specific pollutants, which are state listed in accordance with Clean Water Act Section 303(d). If a state

determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the Clean Water Act requires establishing Total Maximum Daily Loads, which establish allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, water pollution control, and water quality functions throughout the state. Regional water quality control boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

The State Water Resources Control Board adopted Caltrans Statewide National Pollutant Discharge Elimination System Permit (Order No. 99-06-DWQ) on July 15, 1999. This permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The National Pollutant Discharge Elimination System permits establish a 5-year permitting time frame, and the permit requirements remain active until a new permit has been adopted.

In compliance with the permit, Caltrans developed the Statewide Storm Water Management Plan to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Statewide Storm Water Management Plan describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of best management practices. The proposed project would be programmed to follow the guidelines and procedures outlined in the 2003 Statewide Storm Water Management Plan to address storm water runoff or any subsequent Statewide Storm Water Management Plan version draft and approved.

Municipal Separate Storm Sewer System Program

The U.S. Environmental Protection Agency defines a municipal separate storm sewer system as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, country, or other public body having jurisdiction over storm water, that are designed or used for

collecting or conveying storm water. As part of the National Pollutant Discharge Elimination System program, the U.S. Environmental Protection Agency initiated a program requiring that entities having municipal separate storm sewer systems apply to their local regional water quality control boards for storm water discharge permits. The program proceeded through two phases. Under Phase I, the program initiated permit requirements for designated municipalities with populations of 100,000 or greater. Phase II expanded the program to municipalities with populations less than 100,000.

Construction Activity Permitting

Section H.2, Construction Program Management, of Caltrans' National Pollutant Discharge Elimination System permit states that "The Construction Management Program shall be in compliance with requirement of the National Pollutant Discharge Elimination System General Permit for Construction Activities (Construction General Permit)." Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a disturbed soil area of 1 acre or greater, and is part of a common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit.

The newly adopted permit separates projects into risk levels 1–3. Requirements apply according to the risk level determined. For example, a risk level 3 project (highest risk) would require compulsory storm water runoff pH and turbidity monitoring. Risk levels are determined during the design phase and are based on potential erosion and transport to receiving waters. Applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan.

The Caltrans Statewide National Pollutant Discharge Elimination System Permit requires Caltrans to submit a Notice of Construction to the regional water quality control board to obtain coverage under the Construction General Permit. Upon project completion, a Notice of Completion of Construction is required to suspend coverage. This process would continue to apply to Caltrans projects until a new Caltrans Statewide National Pollutant Discharge Elimination System Permit is adopted by the State Water Resources Control Board. A notice of construction or equivalent form would be submitted to the regional water quality control board at least 30 days prior to construction if the associated disturbed soil area is 1 acre or

more. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan is used for projects with disturbed soil area less than 1 acre.

During the construction phase, compliance with the permit and Caltrans' Standard Special Conditions requires appropriate selection and deployment of both structural and non-structural best management practices. These best management practices must achieve performance standards of best available technology economically achievable/best conventional pollutant control technology (BAT/BCT) to reduce or eliminate storm water pollution.

Affected Environment

A Hydrology, Water Quality, and Storm Water Runoff Assessment report was prepared in April 2010 to assess the proposed project's potential effects on water quality and storm water runoff.

Surface Hydrology

The surface hydrology of the Bakersfield area includes both natural and human-made waterways, such as canals, ditches, and retention basins that move drainage water. The Kern River, which runs about 3 miles north of the project area, is the major natural surface water feature of the area, flowing from the Sierra Nevada in the east through the middle of Bakersfield. Surface drainage in and around the project area is conveyed by a combination of human-made features and natural drainage courses. No creeks or major waterways were identified in the project area.

The project area is part of two local watershed areas called the Breckenridge Drainage Area and the Shalimar Drainage Area. Off-site water runoff from the area northeast of the project site flows mostly east to the eastern part of the proposed project, where it then collects and flows under State Route 178 through culverts and to the south. Runoff from the area south of State Route 178 and east of Morning Drive flows toward State Route 178 and then to the east along the edge of the roadway and finally to the south into the Breckenridge Drainage Area. Runoff from the off-site areas west of Morning Drive flows mostly to the south into the Shalimar Drainage Area.

There is a high point on State Route 178 just west of Morning Drive. On either side of the high point, the roadway runoff is collected in asphalt-concrete dikes. To the east, runoff flows through a series of pipes and then drains mostly south into the Breckenridge Drainage Area. West of the high point, the on-site runoff is collected and flows mostly to the west and then to the south into the Shalimar Drainage Area.

Water from both drainage areas eventually flows to city-owned retention basins and does not flow into the Kern River.

Groundwater Hydrology

The project area is over the Kern County Subbasin of the San Joaquin Valley Groundwater Basin. This sub-basin is over 3,000 square miles in size and is bordered on the north by the Kern County line and the Tulare Groundwater Subbasin, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and coastal ranges. Several geological characteristics below the project area, including faults and geological formations, affect groundwater movement within the sub-basin and act as barriers to groundwater movement. The depth to groundwater in the project area is estimated to be more than 100 feet.

Existing Water Quality

Local Contaminants

Land uses in and around the project area can affect the existing water quality, with discharges adding pollution to existing surface waters and groundwater. Vacant land and a few small, commercial/institutional uses surround the project site. Also, both residential and commercial developments are proposed or already being built around the project area. Pollutant sources in urban areas, such as commercial and residential development, typically include parking lots and streets, rooftops, disturbed soils at construction sites, and landscaped areas. Pollutants in urban runoff typically include sediment (dirt and dust), hydrocarbons (motor oil and gasoline), metals, pesticides, and trash (California Regional Water Quality Control Board, Central Valley Region, 2004).

Environmental Consequences

Construction of an interchange structure and associated ramps and widening State Route 178 through the project area would cause short-term impacts on the area near the project site. By incorporating proper and accepted engineering practices and best management practices, the proposed project is not expected to substantially affect water quality during construction or affect storm water runoff after project construction.

Drainage

Temporary Construction Impacts

Construction of the proposed project could result in the temporary alteration of some on-site drainage patterns. This could result in increased erosion and siltation on- and off-site during storms.

Long-Term Operational Impacts

The proposed project would not alter the existing drainage patterns of the area. There would be an increase in surface water runoff due to increased impervious surfaces (hard surfaces such as asphalt and concrete.)

On-site storm water treatment through use of best management practices would be required. Additional drainage needs associated with the increase of impervious surfaces added by the project would be handled through the use of retention/detention basins, ditches, and curb and gutter improvements.

The proposed storm water conveyance network was designed to maintain existing drainage patterns to the maximum extent possible. The project proposes to construct two detention basins and one retention basin to provide water quality treatment and retention to prevent a net increase in downstream flow for all storms (2-year to 100-year) into the Breckenridge or Shalimar Drainage Plan Areas as a result of the project.

Because the drainage system would be sized to adequately convey surface water flows, additional runoff volume would be retained on-site and existing drainage patterns would be maintained to the greatest extent possible. Long-term impacts related to drainage would therefore be minimized, and no mitigation would be required.

Storm Water Quality

Temporary Construction Impacts

Construction of the proposed project would include vegetation removal, grading, and excavation activities within the project site, potentially resulting in increased sedimentation and erosion. If not properly controlled, these pollutants could affect water quality in area drainages.

Also, vehicles, equipment, and other construction materials would be stored on-site during construction. Per Caltrans standard best management practices, equipment fueling and vehicle maintenance (including washing) would occur in equipment

staging areas. Storm water runoff from the site could potentially cause polluted runoff or other contaminants to enter on-site and adjacent drainages.

Water quality impacts from the proposed project are limited to storm water flows. Storm water runoff would be fully accommodated by infiltration basins.

Long-Term Operational Impacts

Construction of the new interchange would add about 43 acres of impervious surfaces within the project area, which would result in more storm water runoff from the site. Also, increased traffic would travel through the project site, and highway landscaping would be added, creating additional pollutants.

Construction of the new interchange would introduce new slopes required for ramps and embankments in the project area, which could result in more erosion and siltation entering area drainages.

The proposed drainage system would be designed to retain additional storm water added by the project, preventing a net increase in total runoff from the project.

Highway storm water runoff contains pollutants associated with vehicle use and highway landscaping, as well as natural sources. These pollutants include suspended solids, nutrients, pesticides, metals, pathogens, litter, dissolved solids, and petroleum hydrocarbons, among others. Such pollutants do not generally penetrate past the first few inches or feet of finely grained soil, as they are filtered by soil particles as water penetrates into the ground. The depth to groundwater in the project area is about 100 feet below the ground surface. Therefore, any remaining pollutants in project runoff would not penetrate into groundwater, and no mitigation is required. No impacts to groundwater are anticipated.

Avoidance, Minimization, and/or Mitigation Measures

The project would result in a permanent increase in runoff, but would not result in substantial impacts to water quality. The project is designed so storm water runoff from 50-year and 100-year rains would be fully contained and drained through infiltration basins. The proposed retention basins would contain all on-site runoff using open ditches and storm drain pipes to convey the runoff to the basins; there would be no increase in velocity or volume of flow that would affect downstream flows. The final design of the project drainage facilities would ensure that drainage discharge is not directed at known locations of special-status plant species.

Three retention/detention basins would be built to hold the additional storm water runoff resulting from the project. These basins would store surface runoff for the project area and allow water to seep into the ground as a means to drain the basins.

The first detention basin, about 2.5 acres, would be at the eastern end of the project site, south of State Route 178. The second detention basin, about 1 acre, would be at the western end of the project site, south of State Route 178. The third retention basin, about a 0.5 acre, would be at the northern end of the project site, east of Morning Drive. Additional right-of-way would be required to accommodate these basins and other drainage facilities.

For project areas exceeding 1 acre, National Pollutant Discharge Elimination System guidelines require the contractor to develop a Storm Water Pollution Prevention Plan before construction starts to establish project-specific permanent and temporary best management practices. During the design phase, a Water Pollution Control Plan would be prepared to determine the minimum control requirements to be included in the Storm Water Pollution Prevention Plan.

Best management practices include any facilities and methods used to remove, reduce, or prevent storm water runoff pollutants from entering receiving waters. Erosion control methods, temporary and permanent best management practices, and improvement of drainage facilities along the roadway would minimize impacts from storm water runoff. The Storm Water Pollution Prevention Plan and National Pollutant Discharge Elimination System-compliant measures would ensure no adverse impacts would occur to water quality associated with the build alternative.

With implementation of applicable Storm Water Management Plans, Storm Water Pollution Prevention Plan, construction and permanent best management practices, and adherence to the requirements of Caltrans' National Pollutant Discharge Elimination System permit, the project would have minimal impacts to water quality.

2.2.2 Paleontology

Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (e.g., Antiquities Act of 1906 [16 U.S. Code 431-433], Federal-Aid Highway Act of 1956 [23 U.S. Code 305]). Under California law, paleontological resources are protected by the California Environmental Quality Act.

Affected Environment

A Paleontological Resource Assessment was prepared for the project in March 2010. This assessment included a combined Paleontological Identification Report, Paleontological Evaluation Report, and a Paleontological Mitigation Plan for the project.

Kern County sits on a portion of the North American Plate, an alluvial plain about 50 miles wide and 400 miles long in the central part of California, within the California Geomorphic Province known as the Great Valley. The project includes sediments of the late Miocene to Pleistocene (19 million to 11,000 years old) Kern River Formation and sediments of Quaternary older alluvium (1.8 million to 11,000 years old). Extinct animals have been found in 20 Kern River Formation sites and include elephants, rhinoceroses, camels, giant ground sloths, horses, deer, pronghorn antelopes, dwarf pronghorn antelopes, peccaries, honey badgers, dogs, foxes, cats, ringtails, weasels, rabbits, ground squirrels, gophers, mice, vultures, hawks, and giant tortoises.

Twelve sites in the Kern River Formation consist entirely of fossils of species still living today. These are smaller animals such as fish, amphibians, lizards and snakes, birds, rabbits, and many types of rodents. Mammoths, camels, horses, wolves, rabbits, rodents, reptiles, and amphibians have been recovered in older alluvial sediments in the Bakersfield area.

No fossils were observed during paleontological surveys of the project area, but surveyors found sediments that support the preservation of fossils.

Environmental Consequences

Paleontological resources are considered to be significant if they provide new data on fossil animals, distribution, evolution, or other scientifically important information. The Kern River Formation is highly sensitive for fossil resources. Likewise, Quaternary older alluvium, a type of rock, is also highly sensitive for fossil resources. The project area consists entirely of rock units (Kern River Formation and Quaternary older alluvium) known to produce significant, non-renewable vertebrate paleontological resources.

New construction on the project may affect paleontologically sensitive sediments throughout the project area. The highest potential for finding significant, non-renewable vertebrate paleontological resources is in areas of deepest excavation. Shallow grading in and around the project area has not produced fossils in the past.

Avoidance, Minimization, and/or Mitigation Measures

Because the project area consists entirely of types of rock known for having paleontological resources, construction within these rock units could not be avoided. According to the paleontological mitigation plan, a qualified vertebrate paleontologist and qualified paleontological monitor would provide oversight of all project earth-moving activities. The mitigation plan specifies that the paleontological team may, working through the resident engineer, divert work in order to recover fossils. All rock, including sediments of the Kern River Formation, would be thoroughly monitored. Many microfossil samples would also be taken, along with a stratigraphic column showing a sequence of sedimentary rocks, especially if the sediments include the upper beds of the Kern River Formation.

Monitoring would be adjusted based on the geologic conditions and the likelihood of discovering fossils. Where favorable conditions exist for fossils, full time monitoring would be necessary. In locations with unfavorable condition, monitoring would be reduced from part-time monitoring to spot-checking.

Fossil locations would be documented to the standards of the provisional curation agreement. In addition, fossils would be stabilized and identified to the standards of that agreement. All significant fossils would be transferred to the University of California Paleontology Museum at Berkeley for permanent curation.

2.2.3 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 purpose of the Comprehensive Environmental Response, Compensation and Liability Act, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act of 1976 provides for “cradle to grave” regulation of hazardous wastes. 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 and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

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

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

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

Affected Environment

An Initial Site Assessment for the proposed project was completed in July 2009. The Initial Site Assessment included a site survey, interviews, and review of regulatory agency databases and historical topographic maps and aerial photographs. A site survey of the project area was done, including properties around the project area, on September 11, 2008.

The following is a summary of the surveys of the project area with respect to the potential generation, use, and disposal/release of hazardous substances or petroleum products:

- An approximate 30- to 40-foot-wide by quarter-mile-long area south of State Route 178 near the middle of the project area contained grayish debris fill material made up of asphalt and concrete fragments, tire materials, scrap construction materials, glass/paper/plastic trash, and miscellaneous metal pieces that had been strewn on the roadbed slope and base. Surveys did not suggest that a hazardous substance or petroleum product release had occurred at the area, but the composition of the waste materials suggested that the material and

underlying/surrounding soil may be affected by metals at concentrations requiring special handling and disposal.

- A Pacific Gas and Electric Company pad-mounted electrical transformer was seen at the former municipal ball field area toward the east end of the project area. Several pole-mounted transformers stand on utility poles on the east side of Morning Drive. There are no obvious indications of leakage on or around those facilities. There were no obvious indications that use of the transformers had negatively affected the project area. No other sources of the contaminant polychlorinated biphenyls were seen in the project area.
- Several areas with large soil stockpiles exist in the project area. These stockpiles appeared to be associated with local road and residential development earthwork. No discolored soil or other obvious indication of a hazardous substance or petroleum product release was seen at the soil stockpiling areas.
- Small areas of soil (a few square feet) that appeared discolored by vehicle maintenance fluid (such as oil, grease, hydraulic fluid) spillage/leakage were found at several locations. The discolored areas did not appear to be associated with significant spillage/leakage and seem to be of minor concern.
- No obvious indications of hazardous substance or petroleum product disposal or releases were found in or around the storm water drainage basins or near drainage culverts in the project area. Surveys did not suggest that use of the drainage basin or culverts had negatively affected the project area.
- Except for scrap pieces of sheetrock that were in a pile of waste construction materials (such as lumber, plywood, pipe) within the former municipal ball field area at the east end of the project area, no potential asbestos-containing materials were seen within the project area environmental study limits.
- Potential sources of lead seen in the project area included paint on buildings, signs, and roadways.
- No obvious indications of existing or former underground storage tanks or chemical aboveground storage tanks were found in the project area.
- A sign north of State Route 178 indicates that a buried pipeline (Mojave natural gas pipeline) extends beneath portions of the project area.
- No obvious signs of the generation, use, or disposal/release of hazardous substances or petroleum products were seen on developed properties (such as the churches, apartments/dwellings, and the water aboveground storage tank compound) in the project area. Surveys did not suggest that activities conducted on the developed properties had negatively affected the environmental condition of the project area.

- No oil production facilities such as derricks, pumps, tanks, mud pits or indications of agricultural facilities/fields such as cultivated land or farm equipment were seen within the environmental study limits.

Properties next to the project area were also surveyed. The following summary is the observations of properties next to the project area with respect to the potential generation, use, and disposal/release of hazardous substances or petroleum products:

- An off-site sump and associated piping and aboveground equipment that appeared to be associated with oilfield production water treatment was seen at an area north of the central portion of the project area. No soil discoloration, stressed vegetation, or other obvious indications were seen to suggest that activities associated with the sump and piping/equipment had negatively affected the project area.
- Several areas containing large soil stockpiles were seen on properties next to the project area. Soil at those areas appeared to be associated with local road and residential development earthwork. No obvious signs of a hazardous substance or petroleum product release were seen at the soil stockpile areas.
- No obvious signs of existing or former underground storage tanks or chemical aboveground storage tanks were seen on properties next to the project area.
- A sign north of State Route 178 indicates that a buried pipeline (Mojave natural gas pipeline) extends beneath portions of adjacent properties.
- No obvious signs of the generation, use, or disposal/release of hazardous substances or petroleum products were found on developed properties (such as the churches, apartments/dwellings, and the water aboveground storage tank) next to the project area. Observations did not suggest that activities conducted on the developed properties had negatively affected the environmental condition of the project area.

Environmental Consequences

During construction, hazardous materials such as yellow thermoplastic and paint striping, asbestos-containing pipe, miscellaneous debris, and excess contaminated soils could be encountered. Any use and disposal of hazardous materials would be in compliance with all applicable federal, state, and local standards associated with the handling of hazardous materials, and impacts are not anticipated. Additionally, at least five plugged and abandoned oil wells and/or dry holes are within or immediately next to the project area; therefore, there is the potential that undocumented and/or abandoned oil wells may exist in the project area.

Avoidance, Minimization, and/or Mitigation Measures

There are no identified facilities next to or within the project area and planned right-of-way acquisition areas that require further evaluation for potential hazardous waste impacts on the design and construction of the planned Morning Drive/State Route 178 Interchange Project. Before final design and construction, a preliminary site investigation such as sampling and analytical testing would be done to further evaluate the following potential and documented areas of concern within the project area:

- Based on the results of the Fairfax Avenue/State Route 178 Interchange Project and other nearby projects, Caltrans had determined that an aerially deposited lead survey is not required for this project. If excess soil would be generated from the project and given to the contractor for off-site reuse or disposal without restriction, soil sampling and analytical testing for potential contaminants of concern (heavy metals, petroleum hydrocarbons) is recommended for off-site facility acceptance.

If soil is disposed off-site, the following would occur:

1. Dispose of material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.
2. Disclose the lead concentration of the soil to the receiving property owner when obtaining authorization for disposal on the property.
3. Obtain the receiving property owner's acknowledgment of lead concentration disclosure in the written authorization for disposal.
4. Complete, by the contractor, any additional sampling and analysis required by the receiving property owner.

If the excess soil is found to be hazardous material, the following would occur:

1. Transport hazardous material to a Class III or Class II landfill appropriately permitted to receive the material.
 2. Identify, by the contractor, the appropriately permitted landfill to receive the contaminated soil.
 3. Pay, by the contractor, all associated trucking and disposal costs including any additional sampling and analysis required by the receiving landfill.
- Grayish debris fill materials containing concrete, asphalt, rubber and metal debris and trash exist along the southern side of State Route 178 within the central portion of the project area. Sampling and analytical testing for heavy metals and

- petroleum hydrocarbons would be performed to determine if these materials require special handling and disposal during construction.
- Where found, undocumented or improperly abandoned wells or other buried structures associated with oil production facilities would be properly removed or abandoned in accordance with applicable state and county requirements.
 - Removal and disposal of yellow thermosplastic and paint striping from roadways would be done in accordance with applicable state and county requirements, unless combined with sufficient asphalt grindings per Caltrans Special Provisions 10-1.
 - Any encountered asbestos-containing pipe would require proper handling and disposal in accordance with regulatory requirements.

2.2.4 Air Quality

Regulatory Setting

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide, nitrogen dioxide, ozone, particulate matter, lead, and sulfur dioxide.

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

Regional-level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, regional transportation plans are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the regional transportation plan, an air quality model is run to determine whether the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met.

If the conformity analysis is successful, the regional planning organization, such as the Kern Council of Governments for Kern County and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the regional transportation plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the regional transportation plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the regional transportation plan, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project level also requires “hot spot” analysis if an area is in “nonattainment” or “maintenance” for carbon monoxide and/or particulate matter. A region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called maintenance areas. Hot spot analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated, and in nonattainment areas the project must not cause any increase in the number and severity of violations. If a known carbon monoxide or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Affected Environment

An Air Quality Study Report was prepared in March 2010 to analyze the air quality impacts of construction and operation of the proposed project.

Regional Climate and Topography

The project area is in central Kern County. The terrain is essentially flat and ranges in elevation from about 290 feet above sea level near the Interstate 5 (I-5) freeway and State Route 58 to 450 feet above sea level near Seventh Standard Road and State Route 99.

Coastal mountain ranges separate the study area from the ocean’s influence. The climate in Bakersfield is typical of the southern San Joaquin Valley, with hot, dry summers and cooler winters. Winters in the basin are mild, and temperatures below freezing are not common.

Rainfall in the basin is strongly influenced by the position of the semi-permanent, subtropical high-pressure belt (Pacific High) off the Pacific Coast. In the winter, this high-pressure system moves southward, allowing Pacific storms to move through the area. Rainfall averages 6.2 inches per year for Bakersfield, with 90 percent of the rain normally falling between December 1 and April 1. Heavy ground fog conditions typically occur in the area during the winter.

Bakersfield and the surrounding area experience temperatures increasing with altitude (temperature inversion) as a result of the Pacific High. This inversion limits how high air contaminants can rise from ground level, holding them relatively near the ground. Low average wind speeds, together with a persistent temperature inversion in the winter, create a climate conducive to high carbon monoxide and particulate matter.

The combination of stagnant air conditions and low inversions produces the greatest pollutant concentrations. On days without inversion or high wind speeds, ambient air pollutant concentrations are lowest. In the winter, the pollutants of concern are carbon monoxide and particulate matter less than 10 microns in diameter because of low inversions and air stagnation during the night and early morning. In the summer, if the inversion layer does not lift to allow the buildup of contaminants to be released into the southeast desert, the ozone levels will peak in the late afternoon. If the inversion layer breaks and the afternoon winds occur, ozone will peak in the early afternoon and decrease in the late afternoon as the contaminants are transported southeast to the desert.

Sensitive Receptors

Sensitive receptors for air quality include schools, medical centers and other healthcare facilities, childcare facilities, parks and playgrounds. There is a limited number of sensitive receptors in the project area. There are no existing developments south of State Route 178 for the length of the proposed improvements. While there is virtually no existing development along the east side of Morning Drive, there are a number of residences (apartments) to the west about 100 feet north of State Route 178 that front on Morning Drive, Morningstar Avenue, and adjacent cul-de-sacs. Two large churches next to the proposed project provide preschool and daycare, and one provides senior housing. An elementary school with an athletic field sits at the northwest corner of Panorama Drive and Morning Drive, over 250 feet from State Route 178.

Environmental Consequences

Regional Air Quality Conformity

The project is fully funded and is in the Kern Council of Governments 2011 Regional Transportation Plan found to conform by the Kern Council of Governments on July 15, 2010; the Federal Highway Administration and Federal Transit Administration adopted the air quality conformity finding on December 14, 2010. The project is also included in the Kern Council of Governments 2011 Federal Transportation Improvement Program (page 24). The Kern Council of Governments 2011 Federal Transportation Improvement Program was found to conform by the Federal Highway Administration and Federal Transit Administration on December 14, 2010. The design concept and scope of the proposed project are consistent with the project description in the 2011 Regional Transportation Plan, the 2011 Federal Transportation Improvement Plan, and the assumptions in the Kern Council of Governments' regional emissions analysis.

Project-Level Conformity

Air Quality Standards

The federal and state governments have established ambient air quality standards for six criteria pollutants: carbon monoxide, nitrogen dioxide, ozone, lead, sulfur dioxide, and particulate matter less than 10 microns in diameter (PM₁₀) as well as for smaller respirable particles (fine particulate matter that can be breathed into the lungs) that are 2.5 microns in diameter or less (PM_{2.5}) (see Table 2.11).

The San Joaquin Valley is classified as a nonattainment area for the federal ozone (8-hour) and PM₁₀ standards. In addition, on December 22, 2008, the Environmental Protection Agency issued a final Federal Register notice designating the greater San Joaquin Valley and portions of Kern County as nonattainment for the annual and 24-hour national air quality standards for fine particulate matter (PM_{2.5}).

Ozone

Urban sources generate most of the ozone-forming emissions in the area. Ozone is formed indirectly from hydrocarbon and oxides of nitrogen emissions, typically from sources such as industrial exhaust stacks, vehicle exhaust, and transport from adjacent air basins, in the presence of sunlight. PM₁₀ in the study area is generated by a mix of rural and urban sources: agricultural burning, agricultural field operations, dust re-suspended by vehicle traffic, secondary aerosols formed by photochemical smog reactions, and industrial emissions.

The air quality monitoring station nearest the project site is the Bakersfield Oildale monitoring station, which monitors all criteria pollutants. This station is about 5 miles northwest of the project site and represents ambient air quality at the Morning Drive/State Route 178 intersection in that both locations share similar topographic conditions (west of nearby foothills), climate, and meteorological conditions. Data from the Oildale monitoring station reveals that the state and federal ozone (8-hour) and PM₁₀ standards are exceeded each year. PM₁₀ and PM_{2.5} also exceeded state standards each year.

Table 2.11 Air Quality Standards and Status

Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
Ozone ^a	1 hour	0.09 parts per million	Severe Non-Attainment	0.075 parts per million ^a	N/A	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include a number of known toxic air contaminants.	Low-altitude ozone is almost entirely formed from reactive organic gases and nitrogen oxides in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes. Biologically produced reactive organic gases may also contribute.
	8 hours	0.070 parts per million	Non-Attainment		Serious Non-Attainment		
Carbon Monoxide	1 hour 8 hours 8 hours (Lake Tahoe)	20 parts per million 9.0 parts per million 6 parts per million	Attainment	35 parts per million 9 parts per million	Attainment/Maintenance	Asphyxiant. Carbon Monoxide interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen.	Combustion sources, especially gasoline-powered engines and motor vehicles. Carbon monoxide is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.

Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
Respirable Particulate Matter (PM ₁₀) ^a	24 hours Annual	50 µg/m ³ 20 µg/m ³	Non-Attainment	150 µg/m ³	Non-Attainment	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of Particulate Matter less than 10 microns.	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).

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Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
Fine Particulate Matter (PM _{2.5}) ^a	24 hours Annual	12 µg/m ³	Non-Attainment	35 µg/m ³ 15 µg/m ³	Non-Attainment	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – considered a toxic air contaminant – is in the particulate matter less than 2.5 microns in diameter size range. Many aerosol and solid compounds are part of particulate matter less than 2.5 microns in diameter.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including nitrogen oxides, sulfur oxides, ammonia, and reactive organic gases.
Nitrogen Dioxide	1 hour Annual	0.18 parts per million 0.030 parts per million	Attainment	0.053 parts per million	Attainment/ Unclassified	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain.	Motor vehicles and other mobile sources; refineries; industrial operations.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual	0.25 parts per million – 0.04 parts per million	Attainment	0.5 parts per million 0.14 parts per million 0.030 parts per million	Attainment	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing.

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Pollutant	Averaging Time	State Standard	State Attainment Status	Federal Standard	Federal Attainment Status	Health and Atmospheric Effects	Typical Sources
Lead ^d	Monthly Quarterly	1.5 µg/m ³		1.5 µg/m ³		Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also considered a toxic air contaminant.	Primary: lead-based industrial process like battery production and smelters. Past: lead paint, leaded gasoline. Moderate to high levels of aerially deposited lead from gasoline may still be present in soils along major roads, and can be a problem if large amounts of soil are disturbed.

Sources: California Air Resources Board Ambient Air Quality Standards chart, 02/16/2010 (<http://www.arb.ca.gov/aqs/aaqs2.pdf>). Sonoma-Marín Area Rail Transit Draft Air Pollutant Standards and Effects table, November 2005, page 3-52. U.S. Environmental Protection Agency and California Air Resources Board air toxics websites, 05/17/2006

Notes: parts per million = parts per million; µg/m³ = micrograms per cubic meter

^a Annual particulate matter less than 10 microns in diameter National Ambient Air Quality Standard revoked October 2006; was 50 µg/m³. 24-hr. particulate matter less than 2.5 microns in diameter National Ambient Air Quality Standard tightened October 2006; was 65 µg/m³.

^b 12/22/2006 Federal court decision may affect applicability of Federal 1-hour ozone standard. Prior to 6/2005, the 1-hour standard was 0.12 parts per million. Case is still in litigation.

^c Rounding to an integer value is not allowed for the State 8-hour Carbon Monoxide standard. A violation occurs at or above 9.05 parts per million.

^d The Air Resources Board has identified lead, vinyl chloride, and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of particulate matter less than 10 microns and, in larger proportion, particulate matter less than 2.5 microns in diameter. Both the Air Resources Board and U.S. Environmental Protection Agency have identified various organic compounds that are precursors to ozone and particulate matter less than 2.5 microns in diameter as toxic air contaminants. There is no threshold level of exposure for adverse health effect determined for toxic air contaminants, and control measures may apply at ambient concentrations below any criteria levels specified for these pollutants or the general categories of pollutants to which they belong

Carbon Monoxide Analysis

A carbon monoxide hot spot is a localized concentration of carbon monoxide that is above state and/or federal 1-hour or 8-hour ambient air standards. Few carbon monoxide nonattainment areas exist nationwide, with none near the proposed project in the City of Bakersfield.

Because the project was included in the regional emissions analysis for a conforming Regional Transportation Plan and Federal Transportation Improvement Plan, the project is not subject to further regional conformity analyses. Rather, it is required to undergo an examination of local carbon monoxide impacts.

The Caltrans Carbon Monoxide Protocol outlines a tiered, multi-level process for analyzing local carbon monoxide impacts. Only those projects that are likely to worsen air quality need further analysis.

Overall, the proposed project would result in a substantial improvement in local traffic flow, particularly on State Route 178, which would experience severe delay without the project under both 2015 and 2035 conditions. Because of the substantial improvement to traffic flow on State Route 178 and several intersections throughout the project area as compared to the No-Build Alternative, the proposed project would be considered to be a less than significant impact. Because the proposed project would not degrade carbon monoxide ambient air quality, no further analysis is required under the Caltrans Carbon Monoxide Protocol.

In addition to federal guidelines for evaluating carbon monoxide hot spots using the Caltrans Carbon Monoxide Protocol, the San Joaquin Valley Air Pollution Control District has its own guidelines that largely mirror the federal guidance. Because elevated carbon monoxide concentrations are usually associated with roadways that are congested and carry heavy traffic volumes, the San Joaquin Valley Air Pollution Control District has established a screening threshold that can be used to determine with fair certainty whether motor vehicle traffic could cause a potential carbon monoxide hot spot. Specifically, the San Joaquin Valley Air Pollution Control District has established that a violation of the carbon monoxide standard is likely if (San Joaquin Valley Air Pollution Control District 2002) the following occurs:

- A traffic study for the project indicates that the level of service on one or more streets or at one or more intersections in the project vicinity would be reduced to level of service E or F.

- A traffic study indicates that the project would substantially worsen an already existing level of service F on one or more streets or at one or more intersections in the project vicinity.

If either of the above criteria is triggered by the project, further analysis following the San Joaquin Valley Air Pollution Control District's carbon monoxide protocol is needed to determine significance (San Joaquin Valley Air Pollution Control District 2002).

The traffic study prepared for the project (Traffic Operations Report, 2010) shows that levels of service at all study intersections would be acceptable (level of service C or better) in 2015 under both project build alternatives, though not under the No-Build Alternative. In 2035, all study intersections except one would operate at acceptable levels of service under both project build alternatives, though not under the No-Build Alternative.

As a result, no further carbon monoxide analysis is required by the San Joaquin Valley Air Pollution Control District, and carbon monoxide levels are not expected to exceed federal or state standards, given the improvements in traffic congestion with build-out of the interchange improvements. In addition, continuing decreases in carbon monoxide emissions from cleaner vehicle engines would further minimize any potential for carbon monoxide hot spots in the future.

Particulate Matter Analysis

To meet statutory requirements, the Environmental Protection Agency adopted regulations on March 10, 2006 that require PM_{2.5} and PM₁₀ hot spot analyses to be performed for projects of air quality concern. Federal guidance calls for qualitative hot spot analyses until appropriate methods and modeling guidance are available and PM_{2.5} and PM₁₀ hot spot analyses are required under the 40 Code of Federal Regulations 93.123(b)(4). In addition, through the final rule, the Environmental Protection Agency determined that projects not identified in 40 Code of Federal Regulations 93.123(b)(1) as projects of air quality concern have also met statutory requirements without any further hot spot analyses (40 Code of Federal Regulations 93.116[a]).

The proposed interchange does not directly qualify as a project of air quality concern in that it would not significantly increase diesel vehicle activity or result in increases in congestion that would be paired with increased diesel vehicle activity. Further,

there are no diesel truck yards or other facilities that are proposed with the project that would produce point sources of particulate matter emissions.

However, because the proposed project includes widening and realigning Morning Drive and State Route 178 to bring the roadway closer to existing sensitive receptors, it is possible that the project could worsen ambient air quality levels next to the proposed project, given that it is located in an area designated as nonattainment for PM_{2.5} or PM₁₀. Therefore, interagency consultation is required to determine whether the project is a project of air quality concern.

Interagency consultation for the proposed project was initiated on September 21, 2009. In separate written responses, both the Federal Highway Administration (September 25, 2009) and the Environmental Protection Agency (September 22, 2009) concurred with the finding that the Morning Drive/State Route 178 project is not a project of air quality concern. The proposed project would not result in substantial new truck traffic that could increase PM₁₀ or PM_{2.5} from diesel fuel combustion or brake and tire wear. The widening of Morning Drive is expected to accommodate increased light-duty passenger vehicles and trucks from future residential and commercial growth. Any increases in heavy-duty truck traffic that could emit PM₁₀ or PM_{2.5} emissions are expected to produce negligible increases in concentrations of these pollutants in the limited number of receptors along Morning Drive. Ultimately, the proposed project is consistent with regional transportation plans, is accounted for in both the 2011 Federal Transportation Improvement Plan and 2011 Regional Transportation Plan, and is in conformity with the San Joaquin Valley Air Pollution Control District's 2007 PM₁₀ Maintenance Plan and the 2008 PM_{2.5} Plan.

Mobile Source Air Toxics

A limited number of sensitive receptors exist near the project area: primarily low-, medium-, and high-density housing to the west and northwest of the project site. About 0.4 mile north of State Route 178 and about 200 feet west of Morning Drive is a children's daycare center and preschool associated with the Lutheran Church of Prayer that fronts to Panorama Drive. The Canyon Hills Assembly of God Church in the northwest corner of the project area and immediately next to State Route 178 also includes daycare and preschool facilities. North of Panorama Drive, more than 250 feet west of Morning Drive, is an elementary school with an outdoor track (Thorner Elementary School).

The area east of the interchange is currently undeveloped, but is zoned for general commercial, low-density residential, low medium-density residential, high medium-density residential and high-density residential.

Southwest of the project area, a medical center is planned and approved for construction. The area east of Morning Drive along the south side of State Route 178 is zoned for low-density residential.

The Federal Highway Administration has issued interim guidance on how mobile source air toxics should be addressed in National Environmental Policy Act documents for highway projects. The Federal Highway Administration has developed a tiered approach for analyzing mobile source air toxics in the National Environmental Policy Act documents. Depending on the specific project circumstances, the Federal Highway Administration has identified three levels of analysis:

- No analysis for exempt projects with no potential for meaningful mobile source air toxics effects
- Qualitative analysis for projects with low potential mobile source air toxics effects
- Quantitative analysis to differentiate alternatives for projects with higher potential mobile source air toxics

Exempt Projects or Projects with No Meaningful Potential Mobile Source Air Toxics Effects

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 Code of Federal Regulations 771.117(c)
- Projects exempt under the Clean Air Act conformity rule under 40 Code of Federal Regulations 93.126
- Other projects with no meaningful impacts on traffic volumes or vehicle mix

The proposed project meets the criteria for a qualitative analysis for projects with low potential mobile source air toxics effects, as it is a project with no meaningful impact on traffic volumes or vehicle mix.

For each build alternative considered for the proposed project, the amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled, assuming that other variables such as fleet mix are the same for each alternative. The

emissions increase is offset somewhat by lower mobile source air toxics emission rates due to increased speeds associated with roadway improvements (according to the Air Resources Board, which is part of the California Environmental Protection Agency, Emissions Factors 2007 model used to calculate emissions rates from all motor vehicles, emissions of all of the priority mobile source air toxics except for diesel particulate matter decrease as speed increases). The extent to which these speed-related emissions decreases would offset vehicle miles traveled-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

It is expected there would be no appreciable difference in overall mobile source air toxics emissions between the two alternatives. First, forecast volumes and levels of service along the mainline State Route 178 are identical for both build alternatives. Second, while Alternative 1 results in less delay at intersections with signals for both the 2015 and 2035 milestone years, the difference in delay is within 10 percent. Moreover, regardless of the alternative chosen, emissions would likely be lower than present levels in the design year as a result of the Environmental Protection Agency's national control programs that are projected to reduce mobile source air toxics emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, vehicle miles traveled growth rates, and local control measures. However, the magnitude of the Environmental Protection Agency-projected reductions is so great (even after accounting for vehicle miles traveled growth) that mobile source air toxics emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project alternatives would have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative, there may be localized areas where ambient concentrations of mobile source air toxics could be higher under the build alternatives than under the No-Build Alternative. The localized increases in mobile source air toxics concentrations would likely be most pronounced along the expanded roadway sections that would be built on State Route 178 under the build alternatives. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models.

In summary, when a highway is widened and, as a result, moves closer to receptors, the localized level of mobile source air toxics emissions for the Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to

increases in speeds and reductions in congestion (which are associated with lower mobile source air toxics emissions). Also, mobile source air toxics would be lower in other locations when traffic shifts away from them. However, on a regional basis, the Environmental Protection Agency's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region-wide mobile source air toxics levels to be significantly lower than today.

Summary of Impacts

Short-Term Construction Impacts

During construction, the proposed project would generate air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, the largest percentage of pollutants would be windblown dust generated during excavation, grading, hauling, and various other activities. Fugitive dust emissions would vary as a function of such parameters as soil silt content, soil moisture, wind speed, and acreage of disturbance. The impacts of these activities would vary each day as construction progresses. Dust and odors at some residences very close to the right-of-way could cause occasional annoyance and complaints.

Construction-generated emissions are short term and temporary, lasting as long as construction activities are going on, but have the potential to represent a substantial air quality impact. Construction of the proposed project would result in the temporary generation of emissions resulting from site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces.

The San Joaquin Valley Air Pollution Control District recommends that projects mitigate construction PM₁₀ impacts by implementing effective and comprehensive control measures rather than to require detailed quantification of emissions. Specifically, the San Joaquin Valley Air Pollution Control District has determined that compliance with Regulation VIII for all sites and implementation of all other control measures provided in Tables 6.2 and 6.3 of the San Joaquin Valley Air Pollution Control District Guide for Assessing and Mitigating Air Quality Impacts (as appropriate, depending on the size and location of the project site) would constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less than significant under the California Environmental Quality Act (San Joaquin Valley Air Pollution Control District 2002).

Due to the implementation of San Joaquin Valley Air Pollution Control District Regulation VIII (Rules 8011 through 8081 which are designed to reduce PM₁₀ emissions generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations), the project's construction-related particulate matter emissions would be reduced. The measures included in San Joaquin Valley Air Pollution Control District Regulation VIII are outlined in Section 2.14.4 Avoidance, Minimization, and/or Mitigation Measures.

In addition, the proposed project is subject to the San Joaquin Valley Air Pollution Control District's Rule 9510 (Indirect Source Review), as it represents a transportation project where construction exhaust emissions equal or exceed two tons of oxides of nitrogen or two tons of PM₁₀. As such, the contractor would be required to prepare an Air Impact Assessment to calculate construction emissions of these two pollutants using San Joaquin Valley Air Pollution Control District-approved models (operational and area source emissions are not required for transportation projects).

The proposed project, which would be built and operational by 2035, would emit 10.8 tons of oxides of nitrogen and 43.4 tons of PM₁₀ during construction. As required by Rule 9510, the project would have to meet key requirements for mitigating construction emission (see the Avoidance, Minimization, and/or Mitigation Measures section below).

Long-Term Operational Impacts

The proposed project is not a project of air quality concern. As discussed above under "Environmental Consequences," the proposed project would provide improvements to traffic flow and is accounted for in both the 2011 Federal Transportation Improvement Plan and 2011 Regional Transportation Plan and is in conformity with the San Joaquin Valley Air Pollution Control District's 2007 PM₁₀ Maintenance Plan and the 2008 PM_{2.5} Plan.

Avoidance, Minimization, and/or Mitigation Measures

Temporary Construction Impacts

The following mitigation measures would be used to reduce air quality impacts resulting from construction activities:

As required by San Joaquin Valley Air Pollution Control District Rule 9510 (Section 6.1), the project would have to meet the following mitigation measures to reduce air quality impacts resulting from construction activities:

- The exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project would be reduced by the following amounts from the statewide average as estimated by the Air Resources Board:
- Reduce total oxides of nitrogen emissions by 20 percent
- Reduce total PM₁₀ exhaust emissions 45 percent
- Reduce emissions by using less-polluting construction equipment with add-on controls, cleaner fuels, or use newer equipment
- Pay off-site emission reduction fees for construction activities (Rule 9510 Section 7) as determined by the Air Impact Assessment

Following San Joaquin Valley Air Pollution Control District Regulation VIII, the following measures would be used to reduce PM₁₀ emissions from exhaust and fugitive sources:

- Water or dust palliative (to reduce dust) would be applied to the site and equipment as frequently as necessary to control fugitive dust emissions.
- Soil binder would be spread on any unpaved roads used for construction purposes and all project construction parking areas.
- Trucks would be washed off, as necessary, as they leave the right-of-way to control fugitive dust emissions.
- Construction equipment and vehicles would be properly tuned and maintained. Low-sulfur fuel would be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- A dust control plan would be required for this project and would be submitted to the San Joaquin Valley Air Pollution Control District before construction begins. The plan would document sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Equipment and materials storage sites would be located as far away from residential and park uses as practical. Construction areas would be kept clean and orderly.
- To the extent feasible, environmentally sensitive areas for sensitive air receptors would be established within which construction activities involving extended idling of diesel equipment would be prohibited.
- Track-out reduction measures such as gravel pads at project access points would be used to minimize dust and mud deposits on roads affected by construction traffic.

- All transported loads of soils and wet materials would be covered before transport, or adequate freeboard provided (space between the top of the material and the top of the truck) to reduce PM₁₀ emissions and deposition of particulates during transport.
- Dust and mud deposited on paved public roads due to construction activity and traffic would be removed to decrease the spread of particulate matter.
- To the extent feasible, construction traffic would be routed and scheduled to reduce congestion and to reduce related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Mulch or plant vegetation would be installed as soon as practical after grading to reduce windblown particulates in the area.

Caltrans Standard Specifications pertaining to dust control and dust palliative requirement 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 San Joaquin Valley Air Pollution Control District rules, ordinances, and regulations.

2.2.5 Noise

Regulatory Setting

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

California Environmental Quality Act

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality Act, then the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 Code of Federal Regulations 772

For highway transportation projects with the Federal Highway Administration (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern

the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criterion for residences (67 dBA) is lower than the noise abatement criterion for commercial areas (72 dBA). Table 2.12 lists the noise abatement criteria used in the analysis.

Table 2.12 Activity Categories and Noise Abatement Criteria

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	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Figure 2-6 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

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

Figure 2-6 Typical Noise Levels

In accordance with Caltrans's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or greater 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 will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A proposed noise abatement measure must be projected to achieve a minimum 5 dBA reduction in the future noise level for it to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations.

The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978 and the cost per benefited residence.

Affected Environment

A Noise Study Report was prepared for the project in June 2010 to identify land uses and sensitive receptors, particularly areas of frequent human use that would benefit from reduced noise levels. A Noise Abatement Decision Report was prepared for the project in June 2010 to estimate the construction cost for the feasible noise abatement measures identified in the Noise Study Report.

A field investigation was done to identify areas that might be affected by noise from the proposed project. Land uses in the project area were categorized by land use type, activity category, and the extent of frequent human use. Although all developed land uses are evaluated in this analysis, the focus is on existing locations of frequent human use that would benefit from a lowered noise level. Accordingly, the noise

analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences.

The noise sensitive receptors in the project consist of single-family residences, a school, two churches, and a senior citizens home, all of which are located in the northwest corner of the project site. All other quadrants of the proposed interchange are vacant and undeveloped. Figure 2-7 is an aerial view showing the locations of the sensitive receptors within the project area.

A total of 47 representative receivers were used to model existing and future land uses in the study area. Nineteen receivers in the northwest quadrant represented single-family residences, the Lutheran Church of Prayer along Morning Drive, and the Canyon Hills Assembly of God Church and nearby school and senior housing complex between Auburn Street and State Route 178. Modeling for ultimate project conditions (year 2035) included an additional 24 receivers (R11 through R34) that were used to represent residential developments that are planned for the northeast, southeast, and southwest corners of the Morning Drive/State Route 178 intersection.

In addition, four receivers (R35 through R38) were included to represent the proposed commercial land use in the southwest corner. Because detailed plans of the planned residential developments in the southeast and southwest corners were unavailable, assumptions were made about the number of stories, location, and topography of these developments. The assumptions were based on existing residences in the northwest corner of the intersection.

Figure 2-7 shows the locations of the noise-sensitive receivers. R1 through R5 represent first- and second-row residences in the northwest quadrant of the intersection (north and south of Morningstar Avenue). Addresses for these receptors are as follows:

- R1A–5107 Lyra Court
- R1–5201 Lyra Court
- R1B–5205 Lyra Court
- R2–5200 Lyra Court
- R3 and R3A–8000 Morningstar Avenue
- R4–7906 Morningstar Avenue
- R5–5102 Lyra Court
- R5A–5106 Lyra Court

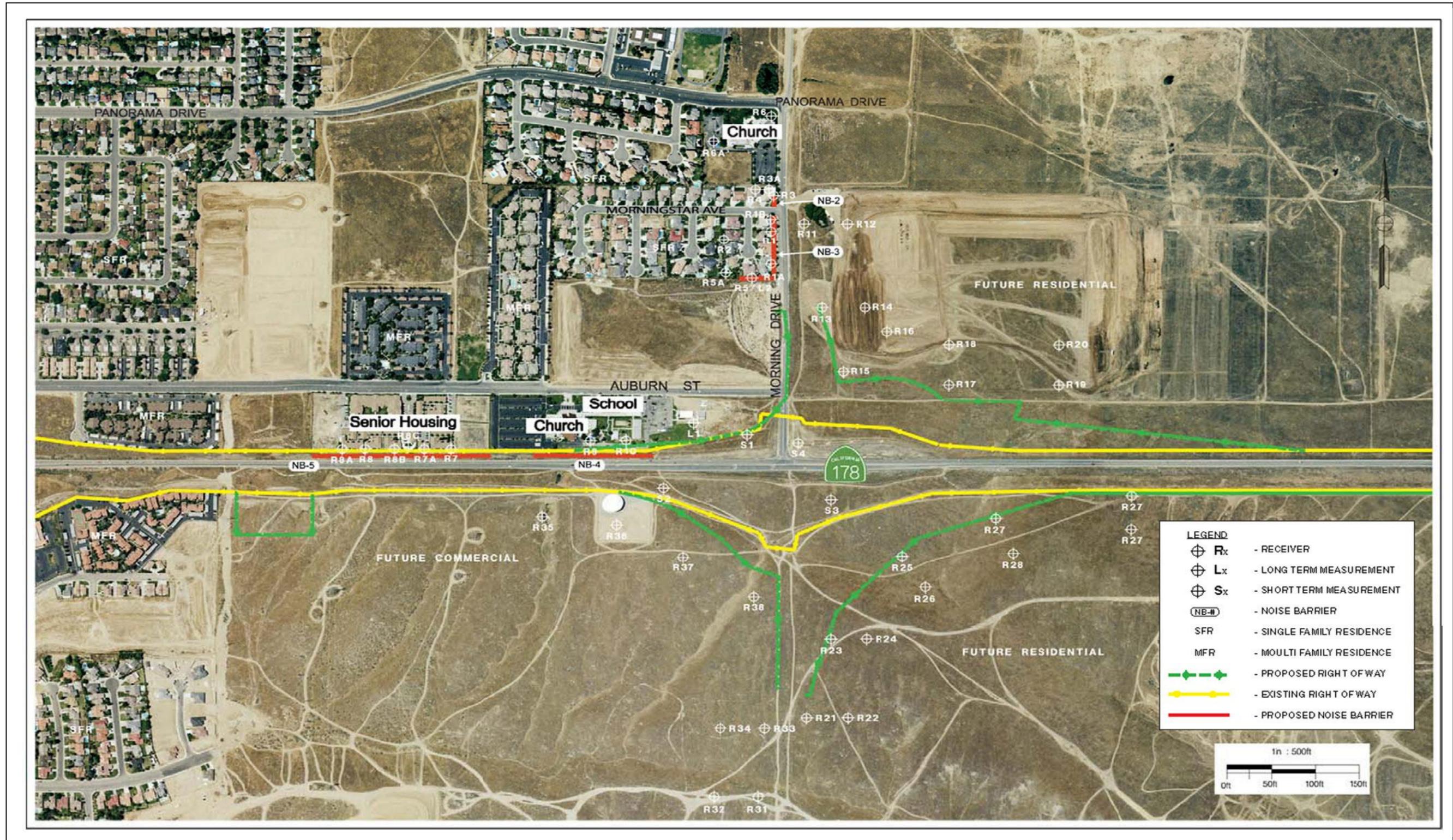


Figure 2-7 Locations of the Noise Measurement Sites, Receptor Sites, and Noise Barrier Placement

Representative sites are modeled at the backyards of the first and second rows of residences. These receivers represent five first-row and six second-row single-family residences on Lyra Court and Morningstar Avenue whose backyards are next to Morning Drive.

R6 and R6A represent the Lutheran Church of Prayer at the southwest corner of Morning Drive and Panorama Drive at 8001 Panorama Drive. R6 does not represent an area of frequent outdoor use, but it was used to determine the exterior noise outside the church windows to calculate interior noise levels. The church building and R6A represent the playground and outdoor use area behind the church building. One frontage unit has been assumed for this receiver.

R7, R7A, R8, R8A, R8B and R8C represent the senior housing complex on Auburn Street at 6701 Auburn Street. Fifteen residential units face State Route 178, and an outdoor common area can be considered a frontage unit for a total of 16.

R9 is on the grounds of Canyon Hills Assembly of God Church at 7001 Auburn Street. Two frontage buildings have been assumed for this receiver.

R10 is in the outdoor space of the school adjacent to Canyon Hills Assembly of God Church at 7001 Auburn Street. Four frontage buildings have been assumed for this receiver.

R11 through R20 represent a proposed residential development in the northeast quadrant of the Morning Drive/State Route 178 intersection. These sites are at the assumed locations of the backyards of the first row of residences and the backyards of the second row of residences.

R21 through R30 represent a proposed residential development in the southeast quadrant of the Morning Drive and State Route 178 intersection. These sites are at the assumed locations of the backyards of the first row of residences and the second row of residences.

R31 through R34 represent a proposed residential development in the southwest quadrant of the Morning Drive and State Route 178 intersection. Representative sites are at the assumed locations of the backyards of the first row of residences and the backyards of the second row of residences.

R35 through R38 represent a proposed commercial development in the southwest quadrant of the Morning Drive/State Route 178 intersection. Representative receivers are at the building line of each development.

Environmental Consequences

Table 2.13 shows the traffic noise modeling results for existing conditions and design-year conditions with and without the proposed project. Predicted design-year traffic noise levels with the project are compared to existing conditions and to design-year no-project conditions. The comparison to existing conditions is included in the analysis to identify traffic noise impacts under 23 Code of Federal Regulations 772. The comparison to no-project conditions illustrates the direct effect of the project.

Impact is defined to occur when there will be a substantial noise increase predicted (“substantial increase” is defined in the Caltrans noise protocol to occur when noise levels with the project exceed existing noise levels by 12 dBA), or when predicted noise levels under future build conditions approach within 1 dBA, or exceed the noise abatement criteria.

The predicted noise level results in Table 2.13 indicate that both future build alternatives would cause a substantial increase in noise at receivers R1, R1A, R1B, R3, R3A, R4, R5A, R6, R7, R7A, and R8C. The results in Table 2.13 indicate that predicted traffic noise levels for the design-year with-project conditions approach or exceed the noise abatement criteria of 67 dBA for residential land uses at R1, R1A, R1B, R3, R3A, R6 and R7 through R10 for both build alternatives in the northwest quadrant. Results also indicate that there would be a substantial increase in traffic noise at 18 receivers for Alternative 1 and 16 receivers for Alternative 2 in the other three quadrants. There would only be one receiver in these three quadrants that exceeds the noise abatement criterion of 67 decibels for residential land uses.

Assuming an outdoor to indoor noise reduction of 25 dBA, noise levels for the design-year with-project conditions at R6 (Lutheran Church of Prayer on the southwest corner of Morning Drive and Panorama Drive) do not approach or exceed the noise abatement criterion of 52 dBA (Interior) for Activity Category E land uses for both build alternatives.

Because traffic noise impacts are predicted to occur at Activity Category B land uses within the project area, noise abatement must be considered.

***Avoidance, Minimization, and/or Abatement Measures under the
National Environmental Policy Act***

According to the Caltrans protocol, noise abatement should be considered where traffic noise impacts are predicted. The abatement considered should provide at least 5 dBA of reduction at the affected receiver to be deemed feasible. Each noise barrier in this analysis has been evaluated for feasibility based on achievable noise reduction. For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated.

Table 2.13 Predicted Future Noise Levels at Sensitive Receptors

Receptor Number and Location	Existing Noise Level (dBA)	Predicted Noise Level Without Project (dBA)	Alternative 1								Alternative 2									
			Predicted Noise Level With Project (dBA)	Noise Impact Requiring Abatement Decision?	Predicted Noise Level With Abatement						Reasonable and Feasible?	Predicted Noise Level With Project (dBA)	Noise Impact Requiring Abatement Decision?	Predicted Noise Level With Abatement						Reasonable and Feasible?
					6-foot Wall	8-foot Wall	10-foot Wall	12-foot Wall	14-foot Wall	16-foot Wall				6-foot Wall	8-foot Wall	10-foot Wall	12-foot Wall	14-foot Wall	16-foot Wall	
R1	59	69	71	Yes	-	70	65	62*	60	58	No	71	Yes							No
R1A	56	67	68	Yes	-	63	61*	59	57	56		68	Yes							
R1B	58	69	71	Yes	-	70	66	62*	60	58		71	Yes	-	70	66	62*	60	58	
R2	41	51	52	No	-	-	-	-	-	-		52	No	-	-	-	-	-	-	
R5	48	58	58	No	-	58	57	57	57	57		58	No	-	57	57	56	56		
R5A	43	54	55	Yes	-	55	55*	55	55	55		55	Yes	-	55	55*	55	55		
R3	60	71	73	Yes	-	-	-	70	63*	60	No	73	Yes	-	-	-	70	63*	No	
R3A	54	65	67	Yes	-	-	-	66	64	63*		67	Yes	-	-	-	66	64		
R4	49	60	64	Yes	-	-	-	63	63	63*		64	Yes	-	-	-	63	63		
R6 ¹	58	68	71	No	-	-	-	-	-	-	-	71	No-	-	-	-	-	-	-	
	40	43	46		-	-	-	-	-	-		46								
R6A	40	50	54		52	52	52	52	52	51		54		52	52	52	51	51		
R7	63	71	75	Yes	67*	66	65	64	63	62	Yes	76	Yes	67*	66	65	64	63	Yes	
R7A	64	72	76	Yes	67*	66	64	63	62	61		76	Yes	67*	66	64	63	62		
R8	67	75	76	Yes	68*	66	65	63	62	62		76	Yes	67*	66	65	64	62		62
R8A	67	76	77	Yes	72	69*	67	66	65	64		77	Yes	72	69*	67	66	65		65
R8B	67	76	76	Yes				63				76	Yes							
R8C	61	70	74	Yes	66*	65	64	63	62			74	Yes	66*	65	64	63	62		62

Receptor Number and Location	Existing Noise Level (dBA)	Predicted Noise Level Without Project (dBA)	Alternative 1										Alternative 2						
			Predicted Noise Level With Abatement					Noise Requiring Abatement? Decision?	Predicted Noise Level With Project (dBA)	Reasonable and Feasible?	Predicted Noise Level With Abatement					Noise Requiring Abatement? Decision?	Reasonable and Feasible?		
6-foot Wall	8-foot Wall	10-foot Wall	12-foot Wall	14-foot Wall	16-foot Wall	6-foot Wall	8-foot Wall				10-foot Wall	12-foot Wall	14-foot Wall	16-foot Wall	6-foot Wall			8-foot Wall	10-foot Wall
R11 to R38	28 to 64	37 to 73	51 to 75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R10	63	71	73	Yes	Yes	73	Yes	Yes	67	65*	64	63	62	61	63	64	62	61	Yes
R9	64	73	75	Yes	Yes	74	Yes	Yes	71	68	66	66*	64	63	66	64	64	63	Yes
R11 to R38	28 to 64	37 to 73	51 to 75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bold type is used to indicate noise level value associated with minimum wall height that meets design goals.
 *Minimum height needed to break the line of sight between 1.5-foot truck stack and first row receivers.
 † For this receptor, the first row shows exterior noise levels and the second row shows interior noise levels.

For any noise barrier to be considered reasonable from a cost perspective the estimated construction cost of the noise barrier should be equal to or less than the total cost allowance calculated for the barrier. The cost calculations for a noise barrier should include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, and retaining walls. Construction cost estimates are presented in the Noise Abatement Decision Report, prepared for the project in June 2010. The Noise Abatement Decision Report includes noise abatement construction cost estimates that have been prepared and signed by the project engineer based on site-specific conditions. Construction cost estimates are compared to reasonableness allowances in the Noise Abatement Decision Report to identify which wall configurations are reasonable.

The design of noise barriers presented in this report is preliminary and has been conducted at a level appropriate for environmental review and not for final design of the project. Preliminary information about the physical location, minimum length, and height of noise barriers required to achieve feasible abatement is provided in this report. If pertinent parameters change substantially during final project design, preliminary noise barrier designs may be changed or eliminated from the final project. A final decision on the construction of noise abatement barriers would be made when project design and the public involvement process is completed. Noise abatement measures are considered only for existing developed locations with frequent outdoor use areas. All of these uses are located in the northwest quadrant of the project site.

Following is a discussion of noise abatement considered for each evaluation area where traffic noise impacts are predicted.

Lutheran Church of Prayer (R6 and R6A)

The traffic noise modeling results in Table 2.13 indicate that outdoor traffic noise levels at the existing Lutheran Church of Prayer (R6) are predicted to be 71 dBA in the design year for both alternatives. Assuming an outdoor to indoor noise reduction of 25 dBA, the predicted indoor noise level is 46 dBA, which is below the noise abatement criterion of 52 dBA (interior) for activity category E land uses.

Receiver R6A represents the outdoor playground behind the church. The existing noise level is 40 dBA. The predicted future noise level for this receptor in the design year 2035 is 54 dBA. The calculated increase in noise of 14 dBA would be a substantial increase. However, due to the location of the playground behind the

building and the low predicted future noise level of 54 dBA, a barrier along the roadway would not achieve a 5-dBA reduction in future noise level.

Existing Residences (R3, R3A and R4)

The traffic noise modeling results in Table 2.13 indicate that traffic noise levels at existing residences are predicted to be in the range of 64 to 73 decibels in the design year for both build alternatives. The results also show that the predicted increase in noise between existing conditions and the design year exceeds 12 decibels at both receivers. Receivers R3, R3A and R4 represent two residences in the northwest corner of the State Route 178/Morning Drive interchange north of the Morning Drive and Morningstar Avenue intersection.

Detailed modeling analysis was done for a barrier next to the existing 6-foot-high masonry retaining wall at the edge of the southbound lane of Morning Drive between Morningstar Avenue and the southern entrance to the Lutheran Church of Prayer parking lot. Noise modeling found that a minimum wall height of 14 feet would be required to reduce noise by the required 5 decibels or more. The barrier evaluated is identified as Barrier NB-2 in Figure 2-4. If the total cost of the wall at this location is less than the total cost allowance, then the wall would likely be incorporated into the project. The total cost allowance, calculated in accordance with the Caltrans Traffic Noise Analysis Protocol, is \$45,000 for both Alternative 1 and Alternative 2. The current estimated cost of the wall, based on the engineer's calculations is \$84,000, more than the total cost allowance. Therefore, this noise barrier is considered not reasonable.

Existing Residential (R1, R1A, R1B, R2, R5 and R5A)

Receivers R1, R-1A, R-1B, R2, R5 and R-5A represent nine residences on Lyra Court next to Morning Drive. The traffic noise modeling results in Table 2.13 indicate that traffic noise levels at these nine existing residences are predicted to be in the range of 52 to 71 dBA in the design year. Although the predicted noise levels would not approach or exceed the noise abatement criteria for one of the receivers at this location, the increase in noise between existing conditions and the design year is predicted to exceed 12 dBA at this receiver. Because there is a substantial increase in predicted future noise levels, noise abatement must be considered for this receiver.

Detailed modeling analysis was done for a barrier next to the existing masonry retaining wall that is parallel to the southbound lane of Morning Drive just south of Morningstar Avenue. Noise modeling found that a minimum average wall height of 12 feet would be required to reduce noise by the required 5 decibels or more. The

barrier evaluated is identified as Barrier NB-3 in Figure 2-4. If the total cost of the wall at this location is less than the total cost allowance, then the wall would likely be incorporated into the project. The total cost allowance, calculated in accordance with the Caltrans' Traffic Noise Analysis Protocol, is \$180,000 for both Alternative 1 and Alternative 2. The current estimated cost of the wall is \$204,000, which is more than the total cost allowance. Therefore, this noise barrier is not considered reasonable.

While the noise barrier is more than the total cost allowance, the potential for construction of this noise barrier would be reconsidered during the project design and engineering stage. Looking at the noise barrier again is due to public interest and the low cost difference between the cost estimate for the wall (\$204,000) and the cost allowance (\$180,000). A second look would determine if the wall could be designed for less than the initial estimate and/or non-federal funding sources could be found to cover the difference.

Canyon Hills Assembly of God Church and Canyon Hills Preschool (R9 and R10)

The traffic noise modeling results in Table 2.13 indicate that traffic noise levels at the existing Canyon Hills Assembly of God Church and the Canyon Hills Preschool along the north side of State Route 178 are predicted to be in the range of 73 to 75 dBA in the design year. Assuming an outdoor to indoor reduction of 25 dB, the predicted indoor noise level at the church would be 50 and 49 dBA for Alternative 1 and Alternative 2 respectively, which is below the noise abatement criterion of 52 dBA for activity category E land uses.

Detailed modeling analysis was conducted for a barrier at the edge of westbound State Route 178 right-of-way next to the property boundary to provide abatement for outdoor use areas (Barrier NB-4 in Figure 2-4). Because the predicted future noise level for Alternative 1 would be 75 dBA, this area is considered to have an extraordinary impact in accordance with the Caltrans noise protocol. Abatement would be required for Alternative 1 regardless of the cost. The noise barrier cost allowance for Alternative 2 is \$270,000.

Results in the Noise Study Report prepared for the project indicate that for Alternative 1 a 6-foot-tall noise barrier would be sufficient to attenuate noise by more than the 5-dBA minimum criterion established by the Caltrans Traffic Noise Analysis Protocol. Under Alternative 2, portions of the noise barrier must be 8 feet high instead of 6 feet to achieve the minimum 5-dBA reduction in traffic noise.

However, the Noise Study Report recommends noise barrier heights of 8 to 12 feet for both alternatives to shield the receptors' line-of-sight to truck stacks on State Route 178.

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a barrier along the north side of State Route 178 (see barrier NB-4 in Figure 2-4), with a length of about 570 feet and an average height of 10 feet. Calculations based on preliminary design data indicate that the barrier would reduce noise levels by 9 dBA for the outdoor use areas of the church and school at a cost of \$246,000, according to the engineer's estimate. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement would be made at the completion of the project design.

Senior Housing (R7, R7A, R8, R8-A, R8-B, and R8-C)

The traffic noise modeling results in Table 2.13 indicate that traffic noise levels at the existing senior housing complex are predicted to be in the range of 74 to 77 decibels in the design year and therefore noise abatement must be considered. Because the predicted future noise levels for both alternatives would be 75 dBA or higher, this area is considered to have an extraordinary impact in accordance with the Caltrans noise protocol. Abatement would be required for Alternative 1 and Alternative 2 regardless of the cost.

Detailed modeling analysis was conducted for a barrier at the edge of the westbound State Route 178 right-of-way next to the property boundary (Barrier NB-5 in Figure 2-4). The Noise Study Report prepared for the project found that a 6-foot-tall noise barrier would be sufficient to attenuate noise by at least the 5-dBA minimum criterion established by the Caltrans' Traffic Noise Analysis Protocol. However, the Noise Study Report recommends noise barrier heights of 6 to 8 feet to shield the receptors' line-of-sight to truck stacks on State Route 178.

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of a barrier along the north side of State Route 178 (see barrier NB-5 in Figure 2-4), with a length of about 750 feet and heights of 6 to 8 feet. Calculations based on preliminary design data indicate that the barrier would reduce noise levels by 8 to 9 dBA for the outdoor use areas of the senior housing complex at a cost of \$271,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement would be made at the completion of project design.

Abatement Summary

Based on the studies completed to date, Caltrans intends to incorporate noise abatement in the form of barriers at receptor sites NB-4 and NB-5, as shown in Figure 2-7. Barrier NB-4 would be about 570 feet long and 8 to 12 feet high and would reduce noise levels by 9 decibels for the outdoor use areas of Canyon Hills Assembly of God Church and the Canyon Hills Preschool. Barrier NB-5 would be about 750 feet long and 6 to 8 feet high and would reduce noise levels by 8 to 9 decibels for the outdoor areas of the senior housing complex at a cost of \$271,000.

Calculations based on preliminary design data indicate that Barriers NB-2 and NB-3 would not be built to abate noise resulting from the project, as they were determined in the Noise Abatement Decision Report not to meet the Caltrans Traffic Noise Analysis Protocol reasonableness criteria. While NB-3 is more than the total cost allowance, the potential for construction of this noise barrier would be reconsidered during the project design and engineering stage—due to public interest and the low cost difference between the wall cost estimate and cost allowance (cost estimate of \$204,000 versus the cost allowance of \$180,000)—to determine if the wall could be designed for less than the initial estimate and/or non-federal funding sources could be found to cover the difference.

Meetings would be held with all affected property owners to confirm their input on these improvements. The extent of the wall would be based mainly on the noise analysis once the final profile of Morning Drive has been designed.

Construction Noise

Construction of the proposed project would require the use of heavy equipment that could increase noise levels in the immediate project area. Examples of equipment used for roadway construction include concrete mixers, bulldozers, backhoes, and heavy trucks.

Typical noise levels from these types of equipment are shown in Table 2.14.

Table 2.14 Typical Construction Noise Levels

Equipment	Noise Levels at 50 feet
Front-End Loader	80 decibels
Pile Driver	95 decibels
Bulldozer	85 decibels
Backhoe	80 decibels

Equipment	Noise Levels at 50 feet
Water Truck (or other heavy truck)	85 decibels
Generator	82 decibels
Concrete Mixer	85 decibels
Tamper/Roller	85 decibels
Paver	85 decibels

Source: Federal Highway Administration, *Roadway Construction Noise Model User's Guide* (2006).

Based on the types of construction activities and equipment required for the proposed project, noise levels at 50 feet from the center of construction activities would generally range from 80 to 95 decibels. Because not all of the equipment would be operating at the same time or for the entire day, the average hourly noise from project construction would be substantially lower. In addition, any increase in community noise levels due to project construction would be temporary, lasting an estimated 24 months during construction of the project. Therefore, significant noise impacts are not predicted, and mitigation is not required.

Avoidance, Minimization, and/or Abatement Measures under the California Environmental Quality Act

To minimize potential construction noise impacts, the contractor would do the following:

- Conform to Caltrans Standard Specifications, Section 14-8.02, “Sound Control Requirements.” This section requires the contractor to comply with all local sound control and noise level rules, regulations, and ordinances that apply to any work performed, as outlined to the contract.
- Conform to Caltrans Standard Special Provisions, Section S5-310, “Sound Control Requirements.” This provision applies to work in a residential or urban area at night, or if night or Sunday noise restrictions apply to the project.
- Each internal combustion engine used for any purpose on the job or related to the job would be equipped with a muffler of a type recommended by the manufacturer.
- No internal combustion engine would be operated on the project without the muffler.
- Equipment and staging areas would be located as far from homes as possible.

- Appropriate additional noise minimization measures would be used, including moving stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction, and installing acoustic barriers around stationary construction noise sources.
- Construction activity would be limited to the hours of 7 a.m. to 7 p.m. weekdays and 8 a.m. to 6 p.m. weekends when construction is conducted in proximity to churches, schools, senior housing, and residences in the northwest corner of the interchange (the westbound off- and on-ramps). Limiting construction to only weekdays should be considered when construction is in proximity to the churches.
- Nighttime work would be minimized to the greatest extent feasible throughout project construction.

2.3 Biological Environment

2.3.1 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service and California Department of Fish and Game share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act and/or the California Endangered Species Act. Please see the Threatened and Endangered Species Section 2.3.3 in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including California Department of Fish and Game fully protected species and species of special concern, U.S. Fish and Wildlife Service candidate species, and non-listed California Native Plant Society rare and endangered plants.

The regulatory requirements for the Federal Endangered Species Act can be found at U.S. Code 16, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the California Endangered Species Act can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code,

Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

Affected Environment

A Natural Environment Study addressing special-status plant species was prepared for the project in April 2010.

Rare plant surveys were done in the biological study area in March and May of 2008 and again in April and June of 2009. The following special-status plants were identified as having potential to occur in the biological study area: Bakersfield cactus, Bakersfield smallscale, San Joaquin adobe sunburst, Vasek's clarkia, and round-leaved filaree. Because the Bakersfield cactus, Bakersfield smallscale, and San Joaquin adobe sunburst are federally or state-listed threatened or endangered species, these species are discussed in Section 2.3.3 Threatened and Endangered Species.

Vasek's Clarkia

Vasek's clarkia (*Clarkia tembloriensis* ssp. *Calientensis*) is designated as List 1B by the California Native Plant Society. This annual herb of the evening primrose family (*Onagraceae*) grows in valley and foothill grasslands. This species is typically found from 902 to 1,640 feet above sea level. The blooming period for this species is in April. Suitable habitat for this species is present within the biological study area. There are no previously recorded occurrences of this species within a 5-mile radius of the biological study area (California Department of Fish and Game 2008).

Rare plant surveys were done in the biological study area in March and May of 2008 and April of 2009. Vasek's clarkia was not found during the time of these surveys; however, suitable habitat for this species is present within the annual grassland habitat in the area. Preconstruction surveys for this species should be done within the project footprint and 25-foot temporary construction zone of areas that were not surveyed during the 2008 and 2009 botanical surveys prior to project construction.

Round-Leaved Filaree

The round-leaved filaree (*Erodium macrophyllum* var. *macrophyllum*) is designated as List 1B by the California Native Plant Society. This plant is native to California and grows in valley and foothill grasslands. This species is typically found at an elevation of 49 to 3,937 feet, and it blooms from March to May. Suitable habitat for this species is present within the biological study area, but there are no previously recorded

occurrences of this species within a 5-mile radius of the area (California Department of Fish and Game 2008).

Rare plant surveys were done in the biological study area in March and May of 2008 and April of 2009. The round-leaved filaree was found during the 2009 spring surveys. Preconstruction surveys for this species should be done within the project footprint and 25-foot temporary construction zone of areas that were not surveyed during the 2008 and 2009 botanical surveys prior to project construction.

Environmental Consequences

Vasek's Clarkia

If Vasek's clarkia is present in the project area, construction of the proposed project may directly affect this species by direct take (removal or trampling) during construction, or by destruction or degradation of this species' habitat (annual grassland habitat).

The permanent loss of up to approximately 86.65 acres for Alternative 1 or 84.43 acres for Alternative 2 of annual grassland habitat from the proposed project is considered a direct impact to this species' habitat.

If present within the biological study area, Vasek's clarkia could be indirectly affected by the proposed project. Indirect impacts include increased human/wildlife interactions, encroachment by exotic weeds, and areawide changes in surface water flows due to development of previously undeveloped areas.

Round-Leaved Filaree

Direct impacts to the round-leaved filaree are likely to occur. Because the round-leaved filaree shares the same annual grassland habitat as Vasek's clarkia, the permanent loss of up to approximately 86.65 acres of annual grassland habitat for Alternative 1 or 84.43 acres of annual grassland habitat for Alternative 2 is considered a direct impact to this species' habitat. The round-leaved filaree was found within the project footprint (direct impact area). A small number of the species was mapped within the biological study area. Because the round-leaved filaree shares the same annual grassland habitat as Vasek's clarkia, indirect impacts to the round-leaved filaree would be similar to those identified for Vasek's clarkia.

Avoidance, Minimization, and/or Mitigation Measures

Preconstruction surveys for these species would be done within the project footprint and a 25-foot-wide temporary construction zone before project construction.

The Bakersfield cactus, a federally and state-listed endangered plant, is present within the biological study area and shares the same annual grassland habitat as Vasek's clarkia and the round-leaved filaree. The Bakersfield cactus is further discussed in Section 2.3.3 Threatened and Endangered Species. Because Vasek's clarkia and the round-leaved filaree both share the same annual grassland habitat as the Bakersfield cactus, the same avoidance, minimization, and mitigation measures required for the Bakersfield cactus would also serve to mitigate for project impacts to Vasek's clarkia and the round-leaved filaree.

Because the Bakersfield cactus is a federally and state-listed endangered plant, formal consultation with U.S. Fish and Wildlife Service and California Department of Fish and Game for the Bakersfield cactus would be required. The permanent loss of annual grassland associated with Bakersfield cactus habitat for the proposed project is considered habitat loss for the species. Because the Bakersfield cactus shares the same annual grassland habitat as Vasek's clarkia and the round-leaved filaree, mitigation fees paid to compensate for the loss of annual grassland habitat for the Bakersfield cactus would also compensate for loss of other species that inhabit the same annual grasslands, including Vasek's clarkia and the round-leaved filaree. The City of Bakersfield would pay a one-time habitat mitigation fee to the Metropolitan Bakersfield Habitat Conservation Plan for the loss of undeveloped annual grassland habitat.

In addition to the paid mitigation fees described above, the following avoidance and minimization measures would be required:

- Before the start of construction activities, a qualified biologist would conduct a preconstruction plant survey during the appropriate blooming period for Vasek's clarkia (April) and the round-leaved filaree (March to May) to confirm the presence and locations of rare plants within all areas of the project footprint and temporary construction zone. If special-status plants are found within the biological study area by a qualified biologist, Caltrans would then consult with the U.S. Fish and Wildlife Service and California Department of Fish and Game on the appropriate mitigation to reduce impacts.
- Areas next to the project construction area containing special-status plant species would be designated as an environmentally sensitive area and avoided by a minimum of 15 feet from plant populations or individuals to ensure no impacts to the plants occur during construction activities.
- Biological monitors would regularly inspect construction work.

- A Worker Environmental Awareness Program would be established and implemented before construction. The program would be presented by a person knowledgeable about the biology of the covered species.

2.3.2 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration Fisheries and the California Department of Fish and Game are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.3. All other special-status animal species are discussed here, including California Department of Fish and Game fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600–1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

In addition to state and federal laws regulating impacts to wildlife, there are often local regulations that need to be considered when developing projects. If work is being done on federal land (Bureau of Land Management or Forest Service, for example), then those agencies' regulations, policies, and Habitat Conservation Plans are followed.

Affected Environment

A Natural Environment Study covering special-status animal species was completed for the proposed project in April 2010. A list of special-status species and habitats that have the potential to occur within the biological study area or vicinity was prepared

using information provided by the California Natural Diversity Database, the California Wildlife Habitat Relationships database, and a formal list of special-status species with the potential to occur in the biological study area was obtained from U.S. Fish and Wildlife Service.

Special-status animal species identified in the Natural Environment Study as occurring or having potential to occur in the biological study area include the blunt-nosed leopard lizard, the western burrowing owl, raptors and other migratory birds, the San Joaquin kit fox, the American badger, the San Joaquin pocket mouse, and the Tulare grasshopper mouse. Because they are federally or state-listed endangered species, the blunt-nosed leopard lizard and the San Joaquin kit fox are discussed in Section 2.3.3 Threatened and Endangered Species.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia hypugea*) is a California species of special concern protected as a migratory bird under the Migratory Bird Treaty Act. This owl lives in open grasslands and shrubland habitat up to 5,300 feet in elevation. This species uses abandoned burrows dug by small mammals such as ground squirrels and badgers for nesting and roosting. Suitable habitat for this species is present within the annual grasslands in the biological study area.

This species lives in areas with loose or easily crumbled soils especially in areas where rodent burrows are present. There are no previously recorded occurrences of this species within a 5-mile radius of the biological study area. No western burrowing owls were observed during field surveys completed in 2008 and 2009.

Raptors and Other Migratory Birds

Many bird species are migratory and fall under the jurisdiction of the Migratory Bird Treaty Act. Various migratory birds and raptor species have the potential to inhabit the project vicinity. Some raptor species, such as American kestrels, red-tailed hawk, barn owl, and white-tailed kites, are not considered special-status species because they are not rare or protected under the Federal Endangered Species Act or California Endangered Species Act; however, the nests of all raptor species are protected under the Migratory Bird Treaty Act (which makes it illegal to destroy any active migratory bird nest) and Section 3503.5 of the California Fish and Game Code.

Although there are no trees or tall shrubs within the biological study area in which these raptor species would nest, these raptors and migratory birds may use the annual grasslands within the biological study area as foraging habitat.

A reconnaissance-level field survey was done in the biological study area in March 2008. Additional field surveys were done in May 2008, April 2009, and June 2009. No raptor or migratory bird nests were identified within the biological study area during these surveys.

The shrubs found within the biological study area and in the vicinity may provide potential nesting habitat for migratory birds. Ground-nesting birds such as killdeer, California quail, and western meadowlark may occur in the biological study area. Suitable foraging and nesting habitat for migratory birds may be present within the biological study area.

American Badger

The American badger (*Taxidea taxus*) is a California species of special concern. This badger is a stout-bodied, mostly solitary species that hunts ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. These badgers have large home ranges and spend inactive periods in underground burrows.

The annual grasslands within the biological study area represent suitable habitat for the American badger. There has been one previously recorded occurrence within a 1-mile radius of the biological study area; no additional occurrences have been recorded within a 5-mile radius of the biological study area. No American badgers were observed during reconnaissance-level surveys for the project in 2008 and 2009.

San Joaquin Pocket Mouse

The San Joaquin pocket mouse (*Perognathus inornatus*) is a U.S. Fish and Wildlife Service species of concern, as well as a species of local concern under the Metropolitan Bakersfield Habitat Conservation Plan. This species is typically found on dry, open, grassy or weedy ground. This species requires loose and easily crumbled soils for burrowing and nesting. San Joaquin pocket mouse burrows are often at the base of shrubs. Suitable habitat for this species is present in sparsely scattered locations of valley saltbush scrub vegetation throughout the annual grassland habitat in the biological study area.

The annual grasslands within the biological study area, especially in areas where rodent burrows are present, represent suitable habitat for the San Joaquin pocket

mouse. There are no previously recorded occurrences of this species within a 5-mile radius of the biological study area. No San Joaquin pocket mice were observed during reconnaissance-level surveys for the project in 2008 and 2009.

Tulare Grasshopper Mouse

The Tulare grasshopper mouse (*Onychomys torridus tularensis*) is a California species of special concern. This species lives in hot, arid valleys and scrub deserts in the southern San Joaquin Valley. This species is known to occur along the western edges of the Tulare Basin, including western Kern County. The annual grasslands within the biological study area, especially in areas where rodent burrows and loose soils are present, represent suitable habitat for the Tulare grasshopper mouse.

There are no previously recorded occurrences of this species within a 5-mile radius of the biological study area. No Tulare grasshopper mice were observed during reconnaissance-level surveys for the project in 2008 and 2009.

Environmental Consequences

Western Burrowing Owl

Suitable nesting and foraging habitat for the western burrowing owl is present in the annual grassland habitat found within the biological study area. During construction activities, the proposed project has the potential to cause direct death of or harm to the western burrowing owl if this species is present during grading or earth-moving work. There is the potential that project construction could accidentally crush occupied burrows. Alternative 1 would disturb a total of 100 acres of annual grassland. Of this total, 86.65 acres would be permanently disturbed and 13.35 acres would be temporarily disturbed. Alternative 2 would disturb a total of 98.18 acres of annual grassland. Of this total, 84.43 acres would be permanently disturbed and 13.75 acres would be temporarily disturbed.

Construction of the proposed project may interfere with nesting activities, if nests are present within 250 feet of the proposed project. Indirect impacts such as noise or ground disturbance may cause nest failure or abandonment of a nest within the biological study area. These actions could result in direct loss (or take) of a western burrowing owl if construction activities disrupt the breeding of this species.

Indirect impacts occur for a number of reasons, though mainly through increased human/wildlife interactions, habitat fragmentation, encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously open areas. On completion of the proposed project, the project footprint would be heavily

traveled with vehicular traffic, increasing the amount and severity of indirect impacts to this species and its habitat in the biological study area.

Raptors and Other Migratory Birds

A variety of migratory birds could potentially nest in the shrubs and on the ground in and near the biological study area. There is the potential that nesting birds, protected under the Migratory Bird Treaty Act, could be affected in areas where project construction would occur, through direct removal of vegetation or by earthmoving work and construction activities occurring near active nests. The loss of active nests or direct mortality is prohibited by the Migratory Bird Treaty Act. Construction of the proposed project may interfere with nesting activities if nests are present within a 250-foot radius of the proposed project for raptors and a 50-foot radius for other migratory birds.

These actions could result in direct loss (or take) of raptor and migratory bird species if construction activities disrupt their breeding or remove active nests. Also, the proposed project could result in direct loss (or take) of protected migratory birds and raptors through habitat degradation. If construction occurs during the non-nesting season, no impacts are expected; however, if construction activities were to take place during the nesting season, mitigation would be necessary to avoid potential impacts to migratory birds and their nests.

Indirect impacts such as noise or ground disturbance may cause nest failure or loss of nests to nesting bird species within the biological study area. Noise and other human activity may also result in nest abandonment if nesting migratory birds are present within 250 feet of the construction activities.

American Badger

Construction activities could result in direct mortality or death (take) of the American badger if this species is present during construction activities. This species retreats to underground dens if threatened. There is the potential that the badger could be harmed or killed during construction due to compaction or earthmoving activities. Additionally, if construction activities occur during the breeding season badger pups in maternal dens could also be injured or killed by compaction or earthmoving activities.

Indirect impacts occur in a number of ways, though mainly through increased human/wildlife interactions, habitat fragmentation, encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously

undeveloped areas. If construction occurs during the breeding season, indirect impacts may cause the mother badger to abandon her pups, resulting in their death. On completion of the proposed project, the project area would be heavily traveled with vehicular traffic increasing the amount and severity of indirect impacts to this species and its habitat in the biological study area. Indirect impacts such as noise or ground disturbance may cause the badger to abandon its den or relocate and forage in another location.

San Joaquin Pocket Mouse and Tulare Grasshopper Mouse

The proposed project has the potential to result in direct mortality of or harm to the San Joaquin pocket mouse and Tulare grasshopper mouse and/or their habitats. Because species-specific surveys have not been conducted, these species are assumed to be present within the biological study area until protocol-level surveys determine otherwise. Direct mortality could occur if animals are killed or buried in their burrows during construction, killed by vehicle traffic on access roads, or fall into excavated areas that they cannot escape from. Habitat loss, degradation, and fragmentation are also potential direct impacts to these species resulting from construction of the project.

Alternative 1 would disturb a total of 100 acres of annual grassland. Of this total, 86.65 acres would be permanently disturbed and 13.35 acres would be temporarily disturbed. Alternative 2 would disturb a total of 98.18 acres of annual grassland. Of this total, 84.43 acres would be permanently disturbed and 13.75 acres would be temporarily disturbed.

Indirect impacts occur for a number of reasons, though mainly through increased human/wildlife interactions, habitat fragmentation, encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously undeveloped areas. On completion of the proposed project, the project area would be heavily traveled with vehicular traffic, increasing the amount and severity of indirect impacts to these species and their habitats in the biological study area.

Avoidance, Minimization, and/or Mitigation Measures

The City of Bakersfield would pay a one-time habitat mitigation fee to the Metropolitan Bakersfield Habitat Conservation Plan for the loss of undeveloped annual grassland habitat that represents potential habitat for the western burrowing owl, nesting birds protected under the Migratory Bird Treaty Act, American badger, San Joaquin pocket mouse, and Tulare grasshopper mouse.

Habitat mitigation fees paid for impacts to the Bakersfield cactus and other special-status plants would also mitigate for loss of habitat to other species that inhabit annual grasslands, including the western burrowing owl, nesting birds protected under the Migratory Bird Treaty Act, American badger, San Joaquin pocket mouse, and Tulare grasshopper mouse.

The following measures would be implemented during project construction to avoid and minimize impacts to the western burrowing owl, nesting birds protected under the Migratory Bird Treaty Act, American Badger, San Joaquin pocket mouse, and Tulare grasshopper mouse:

- There would be biological monitors regularly inspecting construction work.
- A Worker Environmental Awareness Program would be established and implemented before construction. The program would be presented by a person knowledgeable about the biology of the covered species.

In addition to the measures outlined above for all special-status animal species, the following measures would be implemented during project construction to avoid and minimize impacts specific to the western burrowing owl:

- A qualified biologist would perform burrowing owl surveys to determine burrow locations within 30 days before site mobilization, or restart of activities, using California Department of Fish and Game and California Burrowing Owl Consortium guidelines. If construction is delayed or suspended for more than 30 days after the survey, the area would be resurveyed. Surveys for occupied burrows would be completed within a 500-foot buffer from the proposed project work areas (where possible and appropriate based on habitat). All occupied burrows would be mapped on an aerial photo. At least 15 days before the expected start of any project-related ground disturbance activities, or restart of activities, Caltrans would provide the burrowing owl survey report and mapping to the California Department of Fish and Game.

Based on the burrowing owl survey results, the following actions would be taken by Caltrans to offset impacts during construction:

- All occupied burrows within 160 feet of all project construction during the non-breeding season of September 1 through January 31, or all occupied burrows within 250-foot buffer of all project construction during the breeding season of

February 1 through August 31, would be clearly marked with flags to identify burrow locations.

- If owls are present in or within 160 feet of areas scheduled for disturbance or degradation (for example, grading or excavation work) and nesting is not occurring, owls would be removed per California Department of Fish and Game-approved passive relocation techniques. Passive relocation requires the use of one-way exclusion doors, which must remain in place at least 48 hours before site disturbance to ensure owls have left the burrow before construction.
- If paired owls are nesting in areas scheduled for disturbance or degradation, nest(s) would be avoided from February 1 through August 31 by a minimum of a 250-foot buffer or until fledging has occurred. Following fledging (leaving the nest), owls may be passively relocated.
- When destruction of occupied burrows is unavoidable, existing unsuitable burrows would be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on a preserve.

In addition to the measures outlined above for all special-status animal species, the following measures would be implemented during project construction to avoid and minimize impacts to raptors and other migratory birds:

- If construction activities are planned to occur during the nesting seasons for local bird species (typically March 1 through August 31), Caltrans would retain a qualified biologist to conduct a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 150 feet outside the area of construction activities) the construction area no more than 30 days before ground disturbance or tree removal.
- If active nests are located during preconstruction surveys, the U.S. Fish and Wildlife Service and/or California Department of Fish and Game would be notified of the status of the nests. Furthermore, construction activities would be restricted as necessary to avoid disturbance of the nest until it is abandoned or a biologist deems disturbance potential to be minimal (in consultation with the U.S. Fish and Wildlife Service and/or California Department of Fish and Game). Restrictions may include establishment of exclusion zones (no entry of personnel or equipment at a minimum radius of 250 feet around the nest) or changing the construction schedule. No action is necessary if construction would occur during the non-breeding season (generally September 1 through February 28).

In addition to the measures outlined above for all special-status animal species, the following measures would be used during project construction to avoid and minimize impacts to the American badger: before beginning construction activities, a biologist would perform focused surveys to determine the presence of an American badger or potential dens within the project footprint and temporary construction zone. If an American badger or potential den is observed by a biologist within the project footprint or temporary construction zone during a preconstruction survey, then the California Department of Fish and Game would be contacted to determine what types of avoidance measures may be implemented.

In addition to the above measures outlined above for all special-status animal species, the following measures would be used during project construction to avoid and minimize impacts to the San Joaquin pocket mouse and the Tulare grasshopper mouse: if a San Joaquin pocket mouse or Tulare grasshopper mouse is found by a qualified biologist during a preconstruction survey of the biological study area, the California Department of Fish and Game would be contacted to determine if relocation, environmentally sensitive area fencing, or other avoidance or minimization efforts would be implemented.

2.3.3 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S. Code Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an Incidental Take statement. Section 3 of the Federal Endangered Species Act defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

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

rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Game is the agency responsible for implementing the California Endangered Species Act.

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

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

Affected Environment

A Natural Environment Study addressing special-status species, including federally and state-listed endangered and threatened species, was completed for the project in April 2010. Federally or state-listed threatened or endangered species identified in the Natural Environment Study include the Bakersfield cactus, San Joaquin adobe sunburst, Bakersfield smallscale, blunt-nosed leopard lizard, and San Joaquin kit fox.

Section 7 formal consultation was initiated with the U.S. Fish and Wildlife Service for potential effects to federally listed species. A Biological Assessment evaluating the project’s potential effects to federally listed threatened and endangered species was prepared and submitted to the U.S. Fish and Wildlife Service on November 12, 2010. A Biological Opinion was issued on August 18, 2011 (See Appendix J).

Bakersfield Cactus

The Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) is federally and state-listed as endangered. This species is a species of local concern under the Metropolitan Bakersfield Habitat Conservation Plan.

This stem succulent plant from the cactus family (*Cactaceae*) can be found in chenopod scrub, valley and foothill grassland, and cismontane woodland habitats. This species commonly occurs on coarse or mixed-cobble, well-drained granite sand surfaces as well as on bluffs, low hills, and flats within grassland areas. This cactus

typically blooms from April to May and can be found from 394 to 1,805 feet in elevation.

Suitable habitat for this species is present within the biological study area. There are four previously recorded occurrences of this species within a 1-mile radius of the biological study area (California Department of Fish and Game 2008). Rare plant surveys were done during this species' blooming period, and this species was found within the biological study area but outside of the project footprint.

Bakersfield cactus populations were mapped in 29 locations within and two locations outside the biological study area during the March 27, 2008 rare plant survey. All 29 cacti populations were found in a 0.23-acre (10,200-square foot) area southwest of the intersection of Morning Drive and State Route 178. The 29 Bakersfield cactus populations are outside of the project footprint's direct impact area and temporary construction buffer (25-foot radius around the project footprints). The closest individual cactus is about 90 feet from the project footprint of both build alternatives.

San Joaquin Adobe Sunburst

The San Joaquin adobe sunburst (*Pseudobahia peirsonii*) is federally listed as threatened and state-listed as endangered. This annual herb of the aster family (*Asteraceae*) inhabits cismontane woodland as well as valley and foothill grassland. Known occurrences of this species are recorded within a range of 295 to 2,624 feet in elevation. The blooming period for this species lasts from March through April. Suitable habitat for this species is present within the biological study area, but there are no previously recorded occurrences of this species within a 5-mile radius of the area.

Rare plant surveys were done within the biological study area in March and May of 2008 and April of 2009. The San Joaquin sunburst was not observed during these surveys. Additional surveys for this species would be done before the start of construction within the project footprint.

Bakersfield Smallscale

The Bakersfield smallscale (*Atriplex tularensis*) is state-listed as endangered. This annual herb of the goosefoot family (*Chenopodiaceae*) occupies chenopod scrub habitat. Known occurrences of this herb have been recorded within a range of 295 to 656 feet in elevation. The blooming period for this species occurs from June to October. Suitable habitat for this species is present within the biological study area,

but there are no previously recorded occurrences of this species within a 5-mile radius of the area.

Rare plant surveys were done for the Bakersfield smallscale in March and May of 2008 and again in April of 2009. Rare plant surveys were not done during the blooming period for the Bakersfield smallscale (June to October), although this species can be identified without a bloom. The Bakersfield smallscale was not identified during the field surveys. Additional surveys for this species would be done before the start of construction within the project footprint.

California Jewel-Flower

California jewel-flower is federally and state-listed as endangered. This species is also classified as a List 1B species by the California Native Plant Society . This annual herb of the mustard family (Brassicaceae) is endemic to California, where it can be found in chenopod scrub, pinyon and juniper woodland as well as valley and foothill grassland habitats. This species is commonly found in sandy soils within a range 200 to 3,281 feet in elevation. Its blooming period is from February to May. Suitable habitat for the species occurs within the area. There are no previously recorded occurrences for this species within a 5-mile radius of the area.

Rare plant surveys were conducted in March and May of 2008 and again in April of 2009 during the blooming period of the California jewel-flower; and this species were not observed.

San Joaquin Woollythreads

San Joaquin woollythreads is federally listed as endangered. This species is also classified as a List 1B species by CNPS. This annual herb of the aster family (Asteraceae) occurs in chenopod scrub as well as valley and foothill grasslands. This species is generally found in alkaline or loamy plains or in sandy soils accompanied with grasses. Known occurrences of this species range from 197 to 2,625 feet in elevation. The blooming period for this species lasts from February-May. Suitable habitat for this species is present within the area. There are no previously recorded occurrences of this species within a 5-mile radius of the area.

Rare plant surveys were conducted in March and May of 2008 and again in April of 2009 during the blooming period of the San Joaquin woollythreads; and this species were not observed.

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard (*Gambelia sila*) is federally and state-listed as endangered. This species is also listed as a California fully protected species. This species is a species of local concern under the Metropolitan Bakersfield Habitat Conservation Plan. This species inhabits semi-arid grasslands, alkali flats, low foothills, canyon floors, large washes, and arroyos, usually on sandy, gravelly, or loamy substrate, sometimes on hardpan. This species is common where there are abundant rodent burrows, but rare or absent in dense vegetation or tall grass.

This lizard cannot survive on lands under cultivation, although it may use edges next to suitable habitat. Repopulation of this species for an area after tilling ends requires at least 10 years. This lizard basks on kangaroo rat (*Dipodomys deserti*) mounds and often seeks cover at the base of shrubs, in the burrows of small mammals, or in rock piles. Adults may excavate shallow burrows for shelter but depend on deeper burrows of rodents for hibernation and nesting. Eggs typically are laid in an abandoned rodent burrow, at a depth of about 20 inches. Suitable habitat for this species is present within annual grassland habitat in the biological study area, and there has been one previously recorded occurrence of this species within a 1-mile radius of the biological study area.

The annual grasslands within the biological study area represent marginal habitat for the blunt-nosed leopard lizard, but due to the existing condition of the biological study area (consisting of highly compacted soils and high areas of disturbance), absence of the species is expected. This species frequently seeks refuge in burrows of small mammals. No burrows suitable for the blunt-nosed leopard lizard were found during field surveys.

San Joaquin Kit Fox

The San Joaquin kit fox is federally listed as endangered and state-listed as threatened. This species is included as a species of local concern under the Metropolitan Bakersfield Habitat Conservation Plan.

Because of the open nature of the project-specific kit fox study area and relatively low level of current human development, a kit fox could potentially use any of the habitat for denning and movement. The non-native grasslands are considered suitable open space areas for kit fox denning and movement as are the school and church properties and the manicured landscapes and portable buildings and sheds associated with the abandoned baseball diamond.

Portions of State Route 178 in the project-specific kit fox study area are slightly higher than surrounding ground level. Road embankments in these areas are suitable locations for kit fox denning. State Route 178 also has many below-ground culverts that provide opportunities for the kit fox to safely cross beneath the freeway between north and south.

The kit fox has been previously documented throughout the State Route 178 at Morning Drive project-specific study area, indicating that this alignment is, or has been, highly suitable for kit fox denning and movement. The California Natural Diversity Database records indicate kit fox activity in the eastern, west-southwestern, and northern portions of the project-specific kit fox study area. Kit fox dens have also been previously found north of the project-specific study area at the intersection of Vineland Road and Paladino Drive. Records of the kit fox north and south of the study area suggest that the proposed alignment would further fragment the potential kit fox movement corridor.

Surveys done in 2008 found one kit fox carcass, eight potential kit fox dens, two dens presumed to be active, one active natal den system, and four kit fox signs. The kit fox carcass was found in the abandoned baseball diamond very near two potential dens, including one den presumed to be active based on evidence of recent digging and kit fox scat. Both dens were built into the slope of the road embankment along the southern edge of State Route 178. A second presumed active den was identified east of Vineland Road and west of the kit fox carcass in the sloping non-native grasslands south of State Route 178.

One sign of the kit fox and one potential den were identified within 250 feet of State Route 178 east of Masterson Street and west of Grand Canyon Drive. One system of active natal dens was found just west of Comanche Drive, about 20 feet south of State Route 178. The natal den site included multiple den entrances and evidence of kit fox use that included scat, fur, and prey remains. Just east of the natal den system, and in the area of Comanche Drive and Alfred Harrell Highway, biologists found four potential dens and two kit fox scat within 250 feet of the current road alignment. East of Alfred Harrell Highway and west of Miramonte Drive, biologists found two additional potential dens and one kit fox scat about 250 feet north of the proposed alignment.

Survey results and existing kit fox information suggest that the kit fox occurs within and surrounding the project area. Kit foxes likely use this area to den in the sloping terrain of the non-native grasslands. Kit foxes likely also move across State Route

178 using local roadways such as Canterria Drive and Morning Drive and may also use drainage culverts for movement under roadways.

Environmental Consequences

Bakersfield Cactus

Under both build alternatives of the proposed project, there would be no direct removal (take) of Bakersfield cactus. The Bakersfield cactus individuals observed within the biological study area are about 90 feet from the project footprint of both alternatives; therefore, no direct take of this species is anticipated.

Suitable habitat for the Bakersfield cactus (and other special-status plant species) exists within the biological study area and could be indirectly affected by the proposed project. Indirect impacts include increased human/wildlife interactions, encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously open areas.

San Joaquin Adobe Sunburst and Bakersfield Smallscale

If these species are present, implementation of the proposed project may directly affect these species by direct take (removal or trampling) during construction, or by destruction or degradation of these species' habitat (annual grassland habitat).

Alternative 1 would disturb a total of about 100 acres of annual grassland. Of this total, 86.65 acres would be permanently disturbed and 13.35 acres would be temporarily disturbed. Alternative 2 would disturb a total of 98.18 acres of annual grassland. Of this total, 84.43 acres would be permanently disturbed and 13.75 acres would be temporarily disturbed. The permanent loss of up to approximately 86.65 acres for Alternative 1 or 84.43 acres for Alternative 2 of annual grassland habitat from the proposed project is considered a direct impact to habitat for the San Joaquin adobe sunburst and Bakersfield smallscale.

If they are present within the biological study area, similar indirect impacts could occur to the San Joaquin adobe sunburst and Bakersfield smallscale as the indirect impacts described above for the Bakersfield cactus.

Blunt-Nosed Leopard Lizard

Potential impacts to the blunt-nosed leopard lizard are based on the assumption that suitable habitat for this species is present in the grassland habitat of the biological study area. Direct impacts to blunt-nosed leopard lizard habitat would occur in the form of habitat modification associated with the removal of annual grassland within

the project footprint. Use of avoidance and minimization measures should prevent direct death of individual lizards.

Even if lizards themselves were not disturbed by the project, adverse effects on habitat through its modification or destruction would occur with implementation of the project. The proposed project would permanently and directly remove up to 86.65 acres for Alternative 1 and up to 84.43 acres for Alternative 2 of annual grassland, and temporarily disturb 13.35 acres for Alternative 1 and 13.75 acres for Alternative 2 of annual grassland.

Indirect impacts are caused by a number of factors, though primarily increased human/wildlife interactions, habitat fragmentation, encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously undeveloped areas. During construction activities, trash and food items left by construction workers can attract predators to the area, which may directly affect special-status species. On completion of the proposed project, the project footprint would carry heavy vehicular traffic, increasing the amount and severity of indirect impacts to this species and its habitat in the biological study area.

San Joaquin Kit Fox

For the San Joaquin kit fox, the proposed project would permanently affect 86.65 acres (Alternative 1) and up to 84.43 acres (Alternative 2) of annual grassland. Alternative 1 would temporarily disturb 13.35 acres, and Alternative 2 would temporarily disturb 13.75 acres.

Potential impacts on San Joaquin kit fox habitat were estimated based on the existing opportunities for San Joaquin kit fox denning and foraging. The proposed project would have a high potential impact because the alignment includes moderate to extensive loss of acreage of suitable habitat with maximum existing opportunity for San Joaquin kit fox denning and foraging.

The loss of habitat resulting from the proposed project would reduce the amount of kit fox habitat connected to other suitable areas and increase habitat fragmentation. Roadway expansion could make it more dangerous for a kit fox to move from one area of suitable habitat to another in search of denning and foraging opportunities by breaking up safe movement corridors. Areas that currently house the kit fox could be degraded by the expanded roadway and associated infrastructure to the extent that they are no longer suitable habitat. Reduced connectivity associated with the build-

out of this alignment could force the kit fox to move through areas that present greater risk including increased potential to become prey or to be struck by vehicles.

Avoidance, Minimization, and/or Mitigation Measures

The measures listed below are based on the avoidance and minimization measures provided in the Biological Opinion.

The following measures would apply to the Bakersfield cactus, San Joaquin adobe sunburst, Bakersfield smallscale, blunt-nosed leopard lizard, and San Joaquin kit fox:

- The City would compensate for the permanent loss of 86.65 acres and temporary disturbance to 13.35 acres of non-native grassland habitat suitable for both the blunt-nosed leopard lizard and San Joaquin kit fox by funding the purchase of 274.64 acres (using a 3:1 compensation ratio for permanent effects and 1.1:1 compensation ratio for temporary effects) through the Metropolitan Bakersfield Habitat Conservation Plan.
- Prior to construction, the verified limits of affected habitat acreage would be verified and delineated on a map submitted for approval to the U.S. Fish and Wildlife Service and the California Department of Fish and Game. This would be done before its submittal to the City of Bakersfield Planning Department for fee payment.
- All areas temporarily disturbed by project activities would be restored following the completion of construction.
- Before construction starts on this project, the U.S. Fish and Wildlife Service would receive the final documents related to the protection of conservation acres, including but not limited to, fee payment of compensation acreage. Proof of recorded easement and perpetual non-wasting endowment holdings for each sump included in the Sump Habitat Program have long-term conservation assurances in place and do not need to be provided to the U.S. Fish and Wildlife Service prior to construction of this project. Easement and endowment documentation, as part of the Sump Habitat Program would be in place following approval of the final environmental document for the last of the six Thomas Roads Improvement Program projects. Caltrans would fully fund the Sump Habitat Program within one year of that approval.
- A post-construction report detailing compliance with the project design criteria and proposed conservation measures described in the Biological Opinion would be provided to the U.S. Fish and Wildlife Service within 30 calendar days of completion of the project. The report would include the following: (1) dates of

- project groundbreaking and completion; (2) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (3) an explanation of the failure to meet such measures, if any; (4) known project effects on the blunt-nosed leopard lizard and San Joaquin kit fox, if any; (5) occurrences of incidental take of the blunt-nosed leopard lizard and San Joaquin kit fox; and (6) any other pertinent information.
- Chemicals, lubricants, and petroleum products would be closely monitored, and precautions would be used. All equipment would be maintained to prevent leaks of fluids such as gasoline, oils, or solvents. If any spills occur, cleanup would take place immediately.
 - Any sensitive sites, such as the two swales located adjacent to construction activities, would be designated as environmentally sensitive areas to prevent accidental construction-related effects.
 - Trees, shrubs, and other vegetation would be removed prior to the nesting season of migratory birds.
 - Other than the swales outside the project footprint, no other water features are present in the project area, so effects to water quality would be avoided. Even so, the contractor would at all times adhere to the *State of California, Department of Transportation Standard Specifications* for avoidance of water pollution (Section 7-1.01G; July 1, 2008). These measures include detailed recommendations for keeping heavy machinery out of the water, limiting the amount of material (excavated or construction materials) that enter the waterway, and maintaining flows at all times. Temporary measures may include, but are not limited to, the use of sediment basins, hay bales, and downstream silt catchment.
 - A Storm Water Pollution Prevention Plan would be prepared prior to construction to reduce or eliminate any water quality reductions that might occur as a result of the project.
 - Staging and refueling areas for equipment would be located a minimum of 150 feet away from any active stream channel. If equipment has to be washed, washing would occur where water cannot flow into the stream channel.
 - Soil exposure would be minimized through the use of best management practices, ground cover, and stabilization practices. Exposed dust-producing surfaces would be sprinkled daily with water until wet while avoiding producing runoff.
 - The contractor would conduct maintenance of erosion and sediment control measures as needed. Inspectors would be on-site daily to monitor the need for these types of activities. All such measures would be removed after the area is stabilized or as directed by the resident engineer.

- A biologist approved by the U.S. Fish and Wildlife Service must have oversight over implementation of all the measures described in the Biological Opinion and should have the authority to stop project activities, through communication with the resident engineer, if any requirements associated with these measures are not being fulfilled. Any stop-work request due to take of listed species must be communicated to the U.S. Fish and Wildlife Service and the California Department of Fish and Game within one day.

The following measures would apply to the Bakersfield cactus, California jewel-flower, San Joaquin woollythreads, San Joaquin adobe sunburst, and Bakersfield smallscale:

- A biologist approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game would conduct preconstruction protocol-level plant surveys during the appropriate blooming periods for the following species: Bakersfield cactus: April-May; Bakersfield smallscale: June-October; San Joaquin adobe sunburst: March-April; California jewel-flower: February-May; San Joaquin woolly-threads: February-May. Surveys would be done prior to project groundbreaking within all portions of the project footprint, the temporary construction zone, and within the six parcels that originally had restricted access. The intention would be to discover any changes in or new additions to the floristic (plant groups) composition of the project site. If any of the four species are found, Caltrans would notify the U.S. Fish and Wildlife Service and California Department of Fish and Game. Further appropriate measures would be proposed to ensure that none of the plant species are adversely affected.
- Areas next to the project construction area containing the known Bakersfield cactus populations would be designated as environmentally sensitive areas. These areas would be avoided by a minimum of 15 feet from each individual cactus to ensure no adverse effects to the plants occur during construction. Signs would be posted identifying the areas.
- If other listed plants are found, silt fencing is one potential measure to ensure that plants are not disturbed during construction activities. Fencing would be placed at the limit of the temporary disturbance, but 15 feet or more from individual plants.
- A biologist approve by the U.S. Fish and Wildlife Service and California Department of Fish and Game would regularly inspect and verify field conditions to ensure that species and sensitive habitats outside construction areas are not affected. These individuals would coordinate with the resident engineer to stop any activity that has the potential to affect a special-status species.

- A worker environmental awareness program would be established and implemented prior to construction. The worker environmental awareness program would be presented by a biologist approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game would cover the distribution of listed and other special-status species, the general behavior and ecology of these species, their sensitivity to human activities, their legal protection, the penalties for violation of state and federal laws, reporting requirements, compensation measures, and measures to implement in the event that a species is found during construction. A fact sheet with all this information would be prepared and distributed. The worker environmental awareness program would be presented to all construction employees. They would receive formal, approved training prior to working on-site. Upon completion of the worker environmental awareness program, employees would sign a form stating that they attended and understood all protection measures. Forms would be filed with Caltrans and the City and made available to the Service and California Department of Fish and Game.
- Storm-water drainages and culverts would not be placed in areas within or surrounding known locations of special-status plant species.
- Preventative measures against the spread of noxious weeds would be used.
- Restoration of disturbed areas would be undertaken as soon as possible following the completion of construction.
- Fertilizer would not be applied to restored areas with known weed infestations (nutrients may enhance weed growth).
- Straw bales used for sediment barriers or mulch would be certified as weed-free.
- Post-construction monitoring and treatment of weed infestation within the action area would be done as needed.

The following measures would apply to the blunt nose leopard lizard and the San Joaquin kit fox:

- All of the conservation measures proposed in the Biological Assessment, the Draft Sump Habitat Plan, and the project description, as supplemented and modified below, must be fully implemented.
 - a. Caltrans must be responsible for using all measures described in this Biological Opinion. Terms and conditions that apply to contractor activities must be considered in contracts for work.
 - b. On a monthly basis, Caltrans would monitor and document the amount of habitat lost during construction to ensure that the amount of habitat lost does

not exceed the amount of take anticipated in the Biological Opinion. Caltrans would notify the U.S. Fish and Wildlife Service when the take limit is reached and would reinitiate consultation if the limit would be exceeded.

- c. Following project completion, any and all construction debris and stockpiled materials would be removed from the project site.
- Trash would be handled in a manner that minimizes potential of the blunt-nosed leopard lizard and the San Joaquin kit fox. To minimize both habitat pollution and opportunistic predatory effects to the blunt-nosed leopard lizard and the San Joaquin kit fox, Caltrans contracts would tell contractors that trash, litter, and debris must be removed daily from project areas and disposed of off-site so as not to attract predators and scavengers.
 - New sightings of the blunt-nosed leopard lizard and San Joaquin kit fox or any other sensitive animal species would be reported to the California Natural Diversity Data Base. A copy of the reporting form and a topographic map clearly marked with the location in which the animals were observed would also be provided to the U.S. Fish and Wildlife Service.
 - In the case of injured and/or dead blunt-nosed leopard lizards and San Joaquin kit foxes, the U.S. Fish and Wildlife Service must be notified of events within one day, and the animals must only be handled by a permitted biologist approved by the U.S. Fish and Wildlife Service. Injured blunt-nosed leopard lizards and San Joaquin kit foxes would be cared for by a licensed veterinarian or other qualified person. In the case of a dead animal, the individual animal must be preserved, as appropriate, and held in a secure location until instructions are received from the U.S. Fish and Wildlife Service regarding the disposition of the specimen or until the Service takes custody of the specimen. Caltrans would report to the Service within one calendar day any information about take of federally-listed species not exempted in the Biological Opinion. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal.
 - Any contractor or employee who, during routine operations and maintenance activities inadvertently kills or injures a listed wildlife species must immediately report the incident to his representative at his contracting/employment firm and to Caltrans. This representative must contact the U.S. Fish and Wildlife Service within one calendar day in the case of a federally-listed species and contact the California Department of Fish and Game in the case of a dead or injured state-listed species.

The following measures are specific to each species:

Bakersfield Smallscale

The following avoidance and minimization measures would be implemented to avoid impacts to the Bakersfield smallscale: A biologist approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game would conduct preconstruction protocol-level plant surveys during the appropriate blooming period (June to October) prior to project groundbreaking within all portions of the project footprint.

Blunt-Nosed Leopard Lizard

The following avoidance and minimization measures would be used to avoid impacts to the blunt-nosed leopard lizard:

- Protocol-level surveys would be done during the season prior to construction. Surveys would be throughout the action area, as well as within the six parcels previously un-surveyed because of access restrictions. Pre-construction surveys would also be conducted within 60 days prior to the onset of ground-breaking to identify species presence and/or significant habitat features. Daytime transect line surveys consistent with the California Department of Fish and Game's 2004 protocol guidelines would be employed and would include areas of surface disturbance, appropriate buffers, access routes, and cross-country travel routes.
- If the blunt-nosed leopard lizard is located within the action area, (during preconstruction surveys or during construction activities), Caltrans would notify the U.S. Fish and Wildlife Service and the California Department of Fish and Game and would install and maintain exclusionary fencing around the observation site throughout construction. All blunt-nosed leopard lizards would be allowed to leave the area without harassment.
- A biologist approved by the U.S. Fish and Wildlife Service would stop construction activity in the vicinity of the blunt-nosed leopard lizard, monitor the area, and allow the blunt-nosed leopard lizard to leave on its own. The biologist would stay in the area for the remainder of the workday to ensure the blunt-nosed leopard lizard is not harmed and that it leaves the site and does not return. If the blunt-nosed leopard lizard does not leave on its own accord within one working day, the Service and the California Department of Fish and Game would be consulted further.

- To prevent inadvertent entrapment of the blunt-nosed leopard lizard during construction, any open trenches and holes would be surveyed in the morning and late afternoon hours in order to identify any individuals that may have fallen in. Escape ramps or other such methods enabling the blunt-nosed leopard lizard to escape from trenches would be used.
- Only a Service-approved biologist with a valid take permit pursuant to Section 10(a)(1) (A) of the Act would have the authority to capture and/or relocate any blunt-nosed leopard lizards encountered in the action area.
- Plastic monofilament netting (erosion control matting) or similar material would not be used on-site because the blunt-nosed leopard lizard may become entangled or entrapped in it. Acceptable alternatives such as coconut coir matting or tactified (sticky) hydroseeding compounds would be used.
- A worker environmental awareness program for construction personnel would be required before construction begins. It would provide workers with information on their responsibilities with regard to listed and fully protected species, including: locations of environmentally sensitive areas, exclusion zones, timing constraints, and communication with Service-approved biologists.
- Burrows with the potential for blunt-nosed leopard lizard living area would be avoided by a minimum of 250 feet.
- A qualified biological consultant would be contracted to conduct the construction monitoring requirements. The consultant would submit a Natural Resource Protection Plan that would describe monitoring methods and timing. Initial construction disturbance is expected to occur in suitable blunt-nosed leopard lizard habitat between April and October; monitoring would also take place throughout this period. By scheduling initial disturbance activities from about April 15 to September 15, when the air temperature is most suitable for the species, the blunt-nosed leopard lizard would have the best chance to maneuver away from construction equipment /vehicles and would minimize the risk of accidental entombment in burrows.
- If a live blunt-nosed leopard lizard is encountered during construction, both the Service and the California Department of Fish and Game would be immediately notified.

San Joaquin Kit Fox

The following avoidance and minimization measures would be implemented to avoid impact to the San Joaquin kit fox:

- Caltrans would include Special Provisions that include the avoidance and minimization measures of the Biological Opinion in the contractor bid package during solicitation for bid information.
- No less than 30 days but no more than 60 days prior to road construction, a biologist approved by the U.S. Fish and Wildlife Service would conduct preconstruction surveys for San Joaquin kit fox dens within 200 feet of the construction footprint, inclusive of utility relocations. A letter report and map of known and potential San Joaquin kit fox dens would be submitted to the Service and California Department of Fish and Game. Repeat clearance surveys would be conducted no more than 14 days before construction or after any delays in construction of over two weeks. Any new San Joaquin kit fox dens identified in the interim would be reported to the Service and California Department of Fish and Game in a letter report and map. If no new San Joaquin kit fox dens are observed, an internal record would be kept that includes the survey date, the Service-approved biologist, and general survey findings. Records would be submitted to the Service and California Department of Fish and Game upon request.
- Disturbance to all San Joaquin kit fox dens would be avoided to the maximum extent possible. If dens or potential dens are identified within the footprint during the 60-day or 14-day preconstruction surveys, Caltrans would request to monitor and excavate those dens that are expected to be affected by the project. Active dens would not be excavated during the natal season (approximately January 1-June 14). The biologist approved by the U.S. Fish and Wildlife Service would monitor potential dens for three consecutive nights and submit monitoring results in a letter report to the Service and California Department of Fish and Game. The biologist would also oversee the excavation of dens with no San Joaquin kit fox use following approval by the Service and California Department of Fish and Game.
- Dens found within 200 feet of project construction, though not be affected by construction activities, would be monitored and buffered by an exclusion zone as measured outwards from the entrance or cluster of entrances. Potential or atypical dens would be protected with a 50-foot-radius buffer, and known dens would be protected with a 100-foot buffer.
- If natal or pupping dens are discovered within the action area or within 200 feet of the action area, Caltrans would immediately notify the Service and California Department of Fish and Game.

- Caltrans and the City would adhere to the standard construction and operational requirements described in the Service's revised January 2011 *Standard Measures for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance Construction and Operation Requirements* (Standard Measures).
- The Service-approved biologist would conduct a worker environmental awareness program for all construction crews before ground-disturbing activities, with the purpose of informing all crew members of the potential for San Joaquin kit fox to occur on-site and the effects on the species by construction activities. The training would be repeated to all new crew members and annually to all crew members working in San Joaquin kit fox habitat. Crew members would sign an attendance sheet and confirm that they understand the protection measures and construction restrictions. Training materials and records of attendees would be submitted to the Service and California Department of Fish and Game.
- The Service-approved biologist would monitor road construction activities once per day and would verify that construction complies with the measures laid out in the Biological Opinion, as well as in the construction and operation requirements described in the revised 2011 Standard Measures. The Service-approved biologist would maintain a log of daily monitoring notes that can be summarized and transmitted to the Service and California Department of Fish and Game by request.
- Permeable fencing would be installed along the proposed right-of-way of the State Route 178 and Morning Drive interchange in all locations where permanent new fencing is required. One or a combination of three design options may be adopted to provide the San Joaquin kit fox with passage and movement opportunities:
 - Elevate the bottom of the fence 5 inches above ground to allow unobstructed movement by the San Joaquin kit fox under the fence.
 - Install ground-level 8-by-8-inch-wide gaps no more than 100 feet apart along the length of the fence, to allow for San Joaquin kit fox movement at regular intervals along the right-of-way.
 - Install fencing with a minimum mesh size of 3.5-by-7 inches, preferably 5-by-12 inches, to allow unlimited movement through the fence.
 - Curbed medians may be included in the project design to address public safety. If they become necessary, their height would be no greater than 10 inches. Ten-inch curbed medians would remain un-vegetated so as not to obstruct the visual field of the San Joaquin kit fox near the roadway. Curbed medians less than 10 inches in height and which require landscaping would either be planted with low-level

- vegetation (less than 6 inches) or be frequently mowed to prevent overgrowth and provide an unobstructed line of sight.
- Landscaping would be designed in conjunction with curbed median design in order to allow unobstructed visibility to the San Joaquin kit fox and to maintain and/or enhance opportunities for movement across the roadway. Three alternative strategies are proposed: 1) select plants that do not exceed 6 inches tall at maturity; 2) maintain vegetation height so that it does not exceed 6 inches; and/or 3) create gaps of no less than 4 feet wide every 12 feet in areas landscaped with trees and shrubs.
 - If taller median barriers are deemed necessary for the purposes of public safety during later planning stages, Caltrans-designed modified type 60/S wildlife passageways would be incorporated into the barrier design. These openings would have a 9-inch radius and be spaced every 150 feet to allow for San Joaquin kit fox passage. Maintaining permeability would reduce the potential to disrupt north-south San Joaquin kit fox movement and connectivity in the project area.
 - Existing north-south drainage culverts would be maintained and enhanced, with potential for installation of a new culvert to provide additional opportunities for San Joaquin kit fox movement. Grating at each entrance may be necessary for public safety and for predator exclusion. Caltrans proposes hinged iron grates with a 6- x 6-inch mesh. Escape dens are proposed for installation in all culverts with the exception of the two 60-inch culverts identified in 'd' below since they have the potential to both compromise drainage function and harm the San Joaquin kit fox in the event of large water flows:
 - An east-west culvert is under consideration for the Morning Drive overpass south of State Route 178, with a minimum recommended diameter of 48-60 inches.
 - An existing 24-inch diameter drainage culvert west of Morning Drive would be retained as is. The widening of this culvert was considered, but it ultimately was determined to be infeasible and cost prohibitive. However, the entrance would be made more accessible to the San Joaquin kit fox.
 - An existing 30-inch-diameter drainage culvert immediately east of Morning Drive would be replaced with a 36-inch-diameter culvert that would allow San Joaquin kit fox access. Any additional widening is considered cost prohibitive.
 - Two 60-inch-diameter culverts between Vineland Road and Canteria Drive would be either retained or replaced.
 - Warning signs would be installed between Morning Drive and Vineland Road, in particular, at intersections and along segments of road surrounded by open space that would alert east- and west-bound drivers to potential San Joaquin kit fox

- presence. The need for signage at additional intersections would continue to be evaluated as project designs advance. Proposed signage would follow current Federal Highway Administration guidelines or other Caltrans-recommended guidelines.
- An agency-approved biologist would monitor San Joaquin kit fox use of those culverts that are included in the project design modifications. Monitoring would occur for two-week periods at quarterly intervals for three years following the completion of construction. The agency-approved biologist would use track plates at culvert entrances and, where feasible, camera stations. Caltrans would prepare and submit an annual letter report to the Service and California Department of Fish and Game documenting the results of the monitoring at the crossing structures.
 - An inspection of those culverts included in the project design modifications would occur once annually from April to May for three years following the completion of construction to verify that culvert access is not impeded by debris.
 - The *Draft Thomas Roads Improvement Program Mitigation for Cumulative Effects to the San Joaquin Kit Fox* (Draft Sump Habitat Program Plan) dated September 2, 2010 would provide long-term habitat conservation for the urban San Joaquin kit fox population in the metro-Bakersfield area by focusing on sumps (stormwater drainage basins) as known and functional habitat for the species. The City, in coordination with Caltrans, proposes to use the Sump Habitat Program to compensate for collective effects to the San Joaquin kit fox engendered by this and five future Thomas Roads Improvement Program road improvement projects. The SHP's conservation goals include measures addressing the installation of artificial dens in selected sumps, the enhancement of San Joaquin kit fox habitat by controlling vegetation in and around dens, the increase in San Joaquin kit fox accessibility to sumps through fence/gate openings (with proposed dimensions of 6 x 6 inches to exclude predators like coyotes (*Canis latrans*) and medium- to large-sized dogs), and the reduction in the potential for impacts to the San Joaquin kit fox associated with regular maintenance activities and predator access. The City provided a letter of commitment to the Service, dated August 10, 2010, fully supporting and providing assurance of the implementation and management of the Sump Habitat Program and its conservation efforts.
 - The current conceptual framework for the Sump Habitat Program at the time of this consultation is described in the September 2010 Draft Sump Habitat Program Plan, which addresses five core conservation measures in detail that are integral to

the implementation and success of the Sump Habitat Program: 1) the selection of sumps that maintain San Joaquin kit fox accessibility and/or habitat (those of high/medium conservation priority based on the relative potential for minimizing both project-level and program-level effects); 2) the installation and maintenance of San Joaquin kit fox enhancement features (fence/gate gaps, artificial dens, conservation zones, signs, and enhancement maintenance and repair); 3) the management of sump vegetation compatible with San Joaquin kit fox presence and/or use (performance of routine maintenance outside the San Joaquin kit fox natal season and the use of hand tools in conservation zones and new active dens); 4) the biological monitoring and reporting of results (pre-maintenance surveys; den monitoring and supervised den excavation; environmental awareness training; maintenance monitoring; annual enhancement inspection; annual San Joaquin kit fox sump use monitoring; and annual reporting); and 5) the provision of long-term conservation assurances (individual conservation easements for each sump; a perpetual non-wasting endowment for management, maintenance, and monitoring costs associated with ongoing implementation; and an agency-approved long-term Management Plan). Further details in regards to these five core measures can be found in the latest version of the Draft Sump Habitat Program Plan.

- The Sump Habitat Program would continue to be updated and refined through an ongoing collaborative consultation process among Caltrans, the City, the Service, and California Department of Fish and Game over the course of the six Thomas Roads Improvement Program projects. The Draft Sump Habitat Program Plan would therefore also continue to be modified over this period until a final document is developed.
- The finalized Sump Habitat Program would be established and implemented following the approval of the final environmental document for the last of the six Thomas Roads Improvement Program projects. Caltrans would fully fund the Sump Habitat Program within one year of this approval. Caltrans and the City would share responsibility for the Sump Habitat Program; Caltrans would adhere to the proposed avoidance and minimization measures and terms and conditions of the Biological Opinion and would be responsible for the overall implementation of the Sump Habitat Program, while the City would be responsible for enhancing sumps and conducting long-term management of the Sump Habitat Program.

2.3.4 Invasive Species

Regulatory Setting

On February 3, 1999, President Bill Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.”

Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act analysis for a proposed project.

Affected Environment

A Natural Environment Study addressing invasive species was prepared for the proposed project in April 2010.

Weed species are common to the biological study area. Within the non-native grasslands, yellow star-thistle, milk thistle (*Silybum marlanum*), and fennel (*Foeniculum vulgare*) are introduced non-native invasive species that are distributed throughout most of the site, especially in disturbed areas.

Introduced invasive grasses including rip-gut brome, soft brome, and wild-oat, as well as yellow star thistle are also found along State Route 178 roadway edges that are designated as non-native grassland within the biological study area. All noted species are listed as “invasive plants that threaten California wildlands” by the California Invasive Plant Council.

Yellow star-thistle is included on noxious plant species List A by the State of California Department of Food and Agriculture.

Environmental Consequences

Six invasive plant species described above were identified in the project area during biological studies. Some of these invasive plant species may be removed due to construction of the project. Neither project build alternative would promote the spread of invasive species, as none of the species identified on the California list of noxious weeds is currently used by Caltrans for erosion control or highway planting measures.

Avoidance, Minimization, and/or Mitigation Measures

To comply with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or next to construction areas. Precautions would include the inspection and cleaning of construction equipment and eradication (do away with) strategies if an invasion occurs.

To prevent further spread of invasive plant species, a noxious weed special provision would be adhered to during construction. In addition, any areas re-vegetated after disturbance has occurred would be seeded with a weed-free/native plant mixture following construction.

- Restoration of disturbed areas would be undertaken as soon as possible following the completion of construction.
- Fertilizer would not be applied to restored areas with known weed infestations (nutrients may enhance weed growth).
- Straw bales used for sediment barriers or mulch would be certified as weed-free.

Post-construction monitoring and treatment of weed infestation within the action area would be undertaken as needed.

Chapter 3. California Environmental Quality Act Evaluation

3.1 Determining Significance under the California Environmental Quality Act

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

The Federal Highway Administration's responsibility for environmental review, consultation, and any other action required in accordance with the National Environmental Policy Act and other applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S. Code 327. Caltrans is the lead agency under the California Environmental Quality Act and the National Environmental Policy Act.

One of the main differences between the National Environmental Policy Act and the California Environmental Quality Act is the way significance is determined.

Under the National Environmental Policy Act, significance is used to determine whether an Environmental Impact Statement, or some lower level of documentation, will be required. The National Environmental Policy Act requires that an Environmental Impact Statement be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity.

Some impacts determined to be significant under the California Environmental Quality Act may not be of sufficient magnitude to be determined significant under the National Environmental Policy Act. Under the National Environmental Policy Act, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. The National Environmental Policy Act does not require that a determination of significant impacts be stated in the environmental documents.

The California Environmental Quality Act, on the other hand, does require Caltrans to identify each “significant effect on the environment” resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared. Each significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible.

In addition, the California Environmental Quality Act Guidelines list a number of mandatory findings of significance, which also require the preparation of an Environmental Impact Report. There are no types of actions under the National Environmental Policy Act that parallel the findings of mandatory significance under the California Environmental Quality Act.

This chapter discusses the effects of this project and California Environmental Quality Act significance.

3.2 Discussion of Significant Impacts

3.2.1 Less than Significant Effects of the Proposed Project

The following impacts would have a less than significant effect on the environment (see Chapter 2 for further information):

- Community Impacts
- Cultural Resources
- Farmlands
- Geology/Soils/Seismic/Topography
- Groundwater Quality
- Hydrology and Floodplain
- Parks and Recreational Facilities

3.2.2 Significant Environmental Effects of the Proposed Project

The following impacts would have a significant effect on the environment without mitigation (see Chapter 2 for further information):

- Air Quality
- Biology
- Hazardous Waste or Materials
- Land Use
- Paleontology

- Traffic and Transportation
- Utilities/Emergency Services
- Visual/Aesthetics
- Water Quality and Storm Water Runoff

3.2.3 Unavoidable Significant Environmental Effects

Noise (see below for further information)

Noise under the California Environmental Quality Act

When determining whether a noise impact is significant under the California Environmental Quality Act, comparison is made between the No-Build Alternative and the build alternatives. The California Environmental Quality Act noise analysis is completely independent of the National Environmental Policy Act-23 Code of Federal Regulations 772 analysis discussed above, which is centered largely on noise abatement criteria.

Under California Environmental Quality Act, the assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected and the absolute noise level.

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

Noise levels for the existing conditions, No-Build Alternative, and build alternatives are presented in Table 3.1. Sixteen of the 19 existing developed receptors modeled in the project area would experience a substantial increase in traffic noise levels under future 2035 build traffic conditions compared to existing conditions. These affected sensitive receptor locations are identified in Table 3.1 by a "Yes" in the "Affected Under CEQA?" column. For these affected receivers, noise mitigation measures must be considered.

As described in the noise impact analysis in Section 2.2.5 of this Environmental Impact Report, noise barriers were analyzed for each affected sensitive receptor

location. The results of the modeled noise barriers are shown in Table 2.13. Based on these modeled results, construction of the following noise barriers at the indicated corresponding heights would reduce all significant increases in traffic noise levels at the following identified affected modeled sensitive receptor locations to less-than-significant levels:

- NB 4 (8–12 feet)—Inclusion of this noise barrier would be required to reduce the California Environmental Quality Act-identified traffic noise impacts for affected receptor locations R9 and R10.
- NB 5 (6–8 feet)—Inclusion of this noise barrier would be required to reduce the California Environmental Quality Act-identified traffic noise impacts for affected receptor locations R7, R7A, R8, R8A, R8B and R8C.

Implementation of these two noise barriers, at the recommended locations, heights, and lengths indicated in Section 2.2.5 of this Environmental Impact Report, would reduce all significant increases in traffic noise levels associated with implementation of the proposed project to less-than-significant levels at these locations.

Lutheran Church of Prayer (R6 and R6A)

A noise barrier was studied for the Lutheran Church of Prayer at the southwest corner of Morning Drive and Panorama Drive. The interior noise level of the church is predicted to be 46 dBA, which is below the noise abatement criterion of 52 dBA (Interior) for Activity Category E land uses.

The predicted future noise level for the outdoor playground behind the church in design year 2035 is 54 dBA, an increase in noise of 14 dBA over existing conditions. This would be a substantial increase, however, due to the location of the playground behind the building and the low predicted future noise level of 54 dBA, a barrier along the roadway would not achieve a 5-dBA reduction in future noise level.

Existing Residential (R3, R3A and R4)

The traffic noise modeling results in Table 3.1 indicate that traffic noise levels at these two existing residences are predicted to be in the range of 64 to 73 decibels in the design year for both build alternatives. The results also show that the predicted increase in noise between existing conditions and the design year exceeds 12 decibels at both receivers.

Analysis was conducted for a noise barrier for the residential area between Morningstar Avenue and the southern entrance to the Lutheran Church of Prayer

parking lot. The Noise Abatement Decision Report prepared for the project indicated that construction of the wall would be feasible. The total cost allowance, calculated in accordance with the Caltrans' Traffic Noise Analysis Protocol, is \$45,000 for both Alternative 1 and Alternative 2. The current estimated cost of the wall, based on the engineer's calculations is \$84,000, more than the total cost allowance. Therefore, the noise barrier is not considered reasonable.

Existing Residential (R1, R1A, R1B, R2, R5 and R5A)

Traffic noise modeling results in Table 3.1 indicate that traffic noise levels at these nine existing residences are predicted to be in the range of 52 to 71 dBA in the design year. Although the predicted noise levels would not approach or exceed the noise abatement criteria for one of the receivers at this location, the increase in noise between existing conditions and the design year is predicted to exceed 12 dBA at this receiver. Because there is a substantial increase in predicted future noise levels, noise abatement must be considered for this receiver.

Analysis was conducted for the potential provision of a noise barrier (soundwall) for the residential area south of Morningstar Avenue to address identified noise impacts. The Noise Abatement Decision Report prepared for the project indicated that construction of the wall would be feasible. The total cost allowance, calculated in accordance with the Caltrans' Traffic Noise Analysis Protocol, is \$180,000 for both Alternative 1 and Alternative 2. The current estimated cost of the wall is \$204,000, which is more than the total cost allowance. Therefore, the noise barrier is not considered reasonable. While the noise barrier is more than the total cost allowance, the potential for construction of this noise barrier would be reconsidered during the project design and engineering stage—due to public interest and the low cost difference between the wall cost estimate and cost allowance (engineer cost estimate of \$204,000 versus the cost allowance of \$180,000). The analysis would determine if the wall could be designed for less than the initial estimate and if non-federal funding could be found to cover the difference.

Operational Noise

According to the Caltrans Traffic Noise Analysis Protocol, a “substantial increase” is defined as when noise levels with the project exceed existing noise levels by 12 decibels. As shown in Table 3.1, the proposed project would result in a 15-decibel increase, possibly less, under both Alternative 1 and Alternative 2, as compared to the No-Build Alternative. This would be a substantial increase in noise under the California Environmental Quality Act.

3.2.4 Significant Irreversible Environmental Changes

No changes would occur.

3.2.5 Growth-Inducing Impacts

Growth-inducing impacts are addressed under Growth in Section 2.1.2.

3.2.6 Climate Change under the California Environmental Quality Act

Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are mainly concerned with the emissions of greenhouse gas related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change at the state level. Assembly Bill 1493 requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year; however, to enact the standards, California needed a waiver from the U.S. Environmental Protection Agency. The waiver was denied by the Environmental Protection Agency in December 2007 and efforts to overturn the decision had been unsuccessful. See *California v. Environmental Protection Agency*, 9th Cir. July 25, 2008, No. 08-70011.

On January 26, 2009, it was announced that the U.S. Environmental Protection Agency would reconsider its decision regarding the denial of California's waiver. On May 18, 2009, President Barack Obama announced the enactment of a 35.5-mile-per-gallon fuel economy standard for automobiles and light-duty trucks, which will take effect in 2012. On June 30, 2009, the U.S. Environmental Protection Agency granted California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

Table 3.1 Predicted Traffic Noise Levels (dBA Leq)

Record Number	Location	Type of Land Use	Alternative 1					Alternative 2				
			Existing Noise Level	Future (2035) No Project Noise Level	Future (2035) Noise Level With Project	Change From Existing Noise Level	Affected Under CEQA?	Existing Noise Level	Future (2035) No Project Noise Level	Future (2035) Noise Level With Project	Change from Existing Noise Level	Affected Under CEQA?
R1	Lyra Court	Residential	59	69	71	12	Yes	59	69	71	12	Yes
R1A	Lyra Court	Residential	56	67	68	12	Yes	56	67	68	12	Yes
R1B	Lyra Court	Residential	58	69	71	13	Yes	58	69	71	13	Yes
R2	Lyra Court	Residential	41	51	52	11	No	41	51	52	11	No
R5	Lyra Court	Residential	48	58	58	10	No	48	58	58	10	No
R5A	Lyra Court	Residential	43	54	55	12	Yes	43	54	55	12	Yes
R3	Morning Star Avenue	Residential	60	71	73	13	Yes	60	71	73	13	Yes
R3A	Morning Star Avenue	Residential	54	65	67	13	Yes	54	65	67	13	Yes
R4	Morning Star Avenue	Residential	49	60	64	15	Yes	49	60	64	15	Yes
R6	Morning Drive/Panorama Drive	Church	58	68	71	13	Yes	58	68	71	13	Yes
	Morning Drive/Panorama Drive	Church	40	43	46	6	No	40	43	46	6	No
R6A	Morning Drive/Panorama Drive	Church	40	50	54	14	Yes	40	50	54	14	Yes
R7	Auburn Street	Residential	63	71	75	12	Yes	63	71	76	13	Yes
R7A	Auburn Street	Residential	64	72	76	12	Yes	64	72	76	12	Yes
R8	Auburn Street	Residential	67	75	76	11	Yes	67	75	76	11	Yes
R8A	Auburn Street	Residential	67	76	77	10	Yes	67	76	77	10	Yes
R8B	Auburn Street	Residential	67	76	76	9	Yes	67	76	76	9	Yes
R8C	Auburn Street	Residential	61	70	74	13	Yes	61	70	74	13	Yes
R9	Auburn Street	Church	64	73	75	11	Yes	64	73	74	10	Yes
R10	Auburn Street	Church/School	63	71	73	10	Yes	63	71	73	10	Yes

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

With Executive Order S-01-07, then-Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

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

On December 7, 2009, the U.S. Environmental Protection Agency administrator signed two distinct findings on greenhouse gases under Section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution that threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. Environmental Protection Agency's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

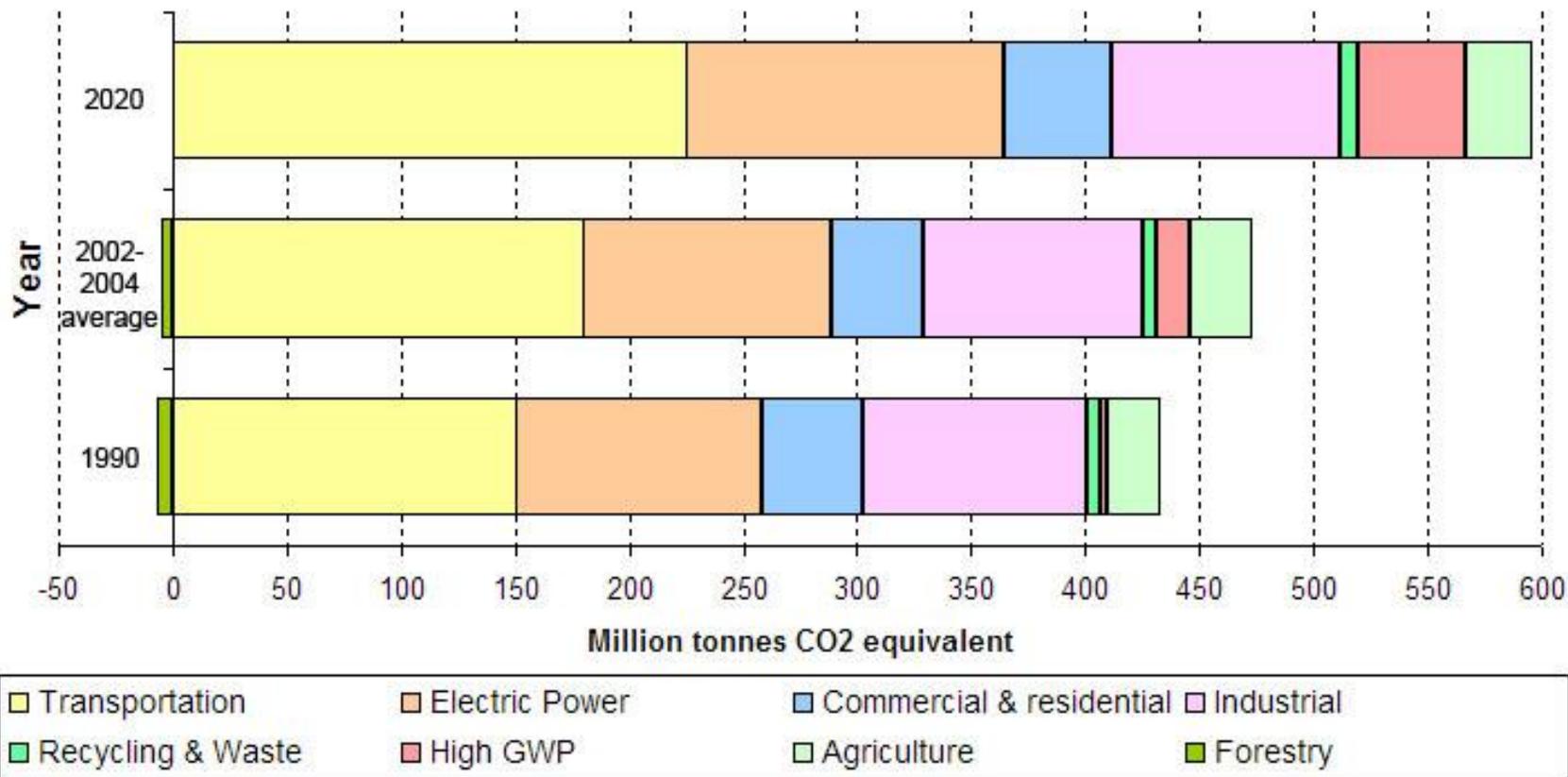
The final combined U.S. Environmental Protection Agency and National Highway Traffic Safety Administration standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards will cut greenhouse gas emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

According to *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of greenhouse gas. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See California Environmental Quality Act Guidelines Sections 15064(i)(1) and 15130. To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult if not impossible task.

As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board recently released an updated version of the greenhouse gas

inventory for California (June 26, 2008). Figure 3-1 is a graph from that update that shows the total greenhouse gas emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

California GHG Inventory Forecast



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

Figure 3-1 California Greenhouse Gas Inventory

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California's greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human-made greenhouse gas emissions are from transportation (see Climate Action Program at Caltrans, December 2006), Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>

Project Analysis

One of the main strategies in Caltrans' Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure 3-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors greenhouse gas emissions, particularly carbon dioxide, may be reduced.

The proposed project is fully funded and included in the Kern Council of Governments 2011 Regional Transportation Plan, which was found to conform by the Kern Council of Governments on December 14, 2010, and Kern Council of Governments 2011 Federal Transportation Improvement Program, page 24. The Federal Highway Administration and Federal Transit Administration (FTA) adopted the air quality conformity finding on December 14, 2010.

In addition, the Kern Council of Governments 2011 Federal Transportation Improvement Program was found to conform by the Federal Highway Administration and Federal Transit Authority on December 14, 2010. The design concept and scope of the proposed project is consistent with the project description in the 2011 Regional Transportation Plan, the 2011 Federal Transportation Improvement Program, and the assumptions in the Kern Council of Governments' regional emissions analysis.

Quantitative Analysis

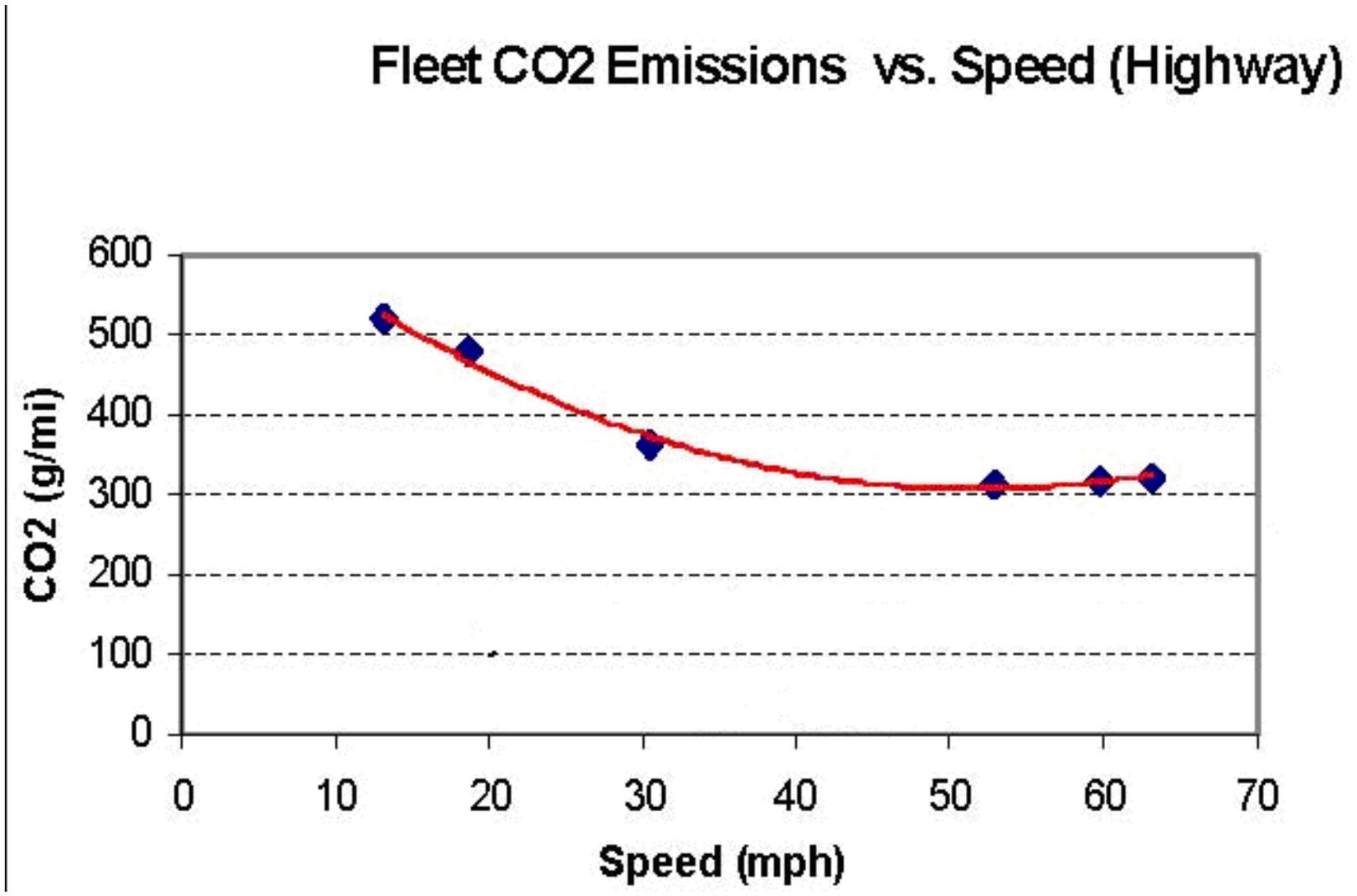
The proposed project would accommodate growth in the vicinity of the interchange at Morning Drive and State Route 178, but would neither alter the average daily trips on State Route 178 between Vineland and Fairfax in both directions nor result in increased truck travel compared with the No-Build Alternative (Traffic Operations Report, 2009). As illustrated below, highway densities are expected to decrease under both build alternatives, thereby increasing average speeds in both 2015 and 2035.

As shown in Tables 2.9 and Table 2.10, reduced delay at study intersections would occur for the proposed project under both 2015 and the 2035 horizon year, respectively (Fehr and Peers, 2009). This would result in an improvement in intersection conditions compared to the No-Build Alternative.

Finally, higher average speeds for uninterrupted roadway segments on State Route 178 in both directions are expected, based on a decrease in the density of travel lanes (the average number of passenger vehicles per mile per lane). This would result in an improvement in traffic flow on the mainline highway for the proposed project as compared to the No-Build Alternative.

It is important to recognize that the CO₂ emissions numbers are only useful for a comparison between alternatives. The numbers are not necessarily an accurate reflection of what the true CO₂ emissions will be because CO₂ emissions are dependent on other factors that are not part of the model such as the fuel mix (EMFAC model emission rates are only for direct engine-out CO₂ emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles.

Estimated annual CO₂ emissions were modeled using CT-EMFAC 2007. The average daily traffic was the same for the build alternatives and the No-Build Alternative. The level of service and consequently the average speeds were different. The model assumed a two-hour peak period per day. The prevailing peak hour speeds for the Build Alternatives were assumed to be 40–45 miles per hour, with a non-peak hour prevailing free-flow speed of 35–65 miles per hour. Vehicle miles traveled were allotted between the peak and non-peak hours.



Source: Center for Clean Air Policy— [http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20\(1-13-04\).pdf](http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf)

Figure 3-2 Fleet Carbon Dioxide Emissions Versus Highway Speeds

Table 3.2 shows that the projected CO₂ emissions for both the build alternatives and for the No-Build Alternative would be higher than for the existing conditions due to the increase in the average daily traffic, while the projected CO₂ emissions for the build alternatives for the project at both opening day and the design year are lower than for the No-Build Alternative. Projected CO₂ emissions from the build alternatives would be lower than from the No-Build Alternative because the project relieves congestion by enhancing operations and improving travel times as demonstrated by the improved level of service and the higher prevailing speeds.

Table 3.2 Estimated Carbon Dioxide Emissions in Tons per Year for Build and No-Build Alternatives

Estimated	2007	2015 Build	2015 No-Build	2035 Build	2035 No-Build
Volume CO ₂	361.41	1,678.8	1,697.7	2,927.0	3,039.47

Source: Caltrans Central Region Environmental Engineering, 2010.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Measures to reduce construction emissions are listed in Section 2.2.4 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

California Environmental Quality Act Conclusion

While construction will result in a slight increase in greenhouse gas emissions during construction, it is anticipated that any increase in greenhouse gas emissions due to construction will be offset by the improvement in operational greenhouse gas emissions.

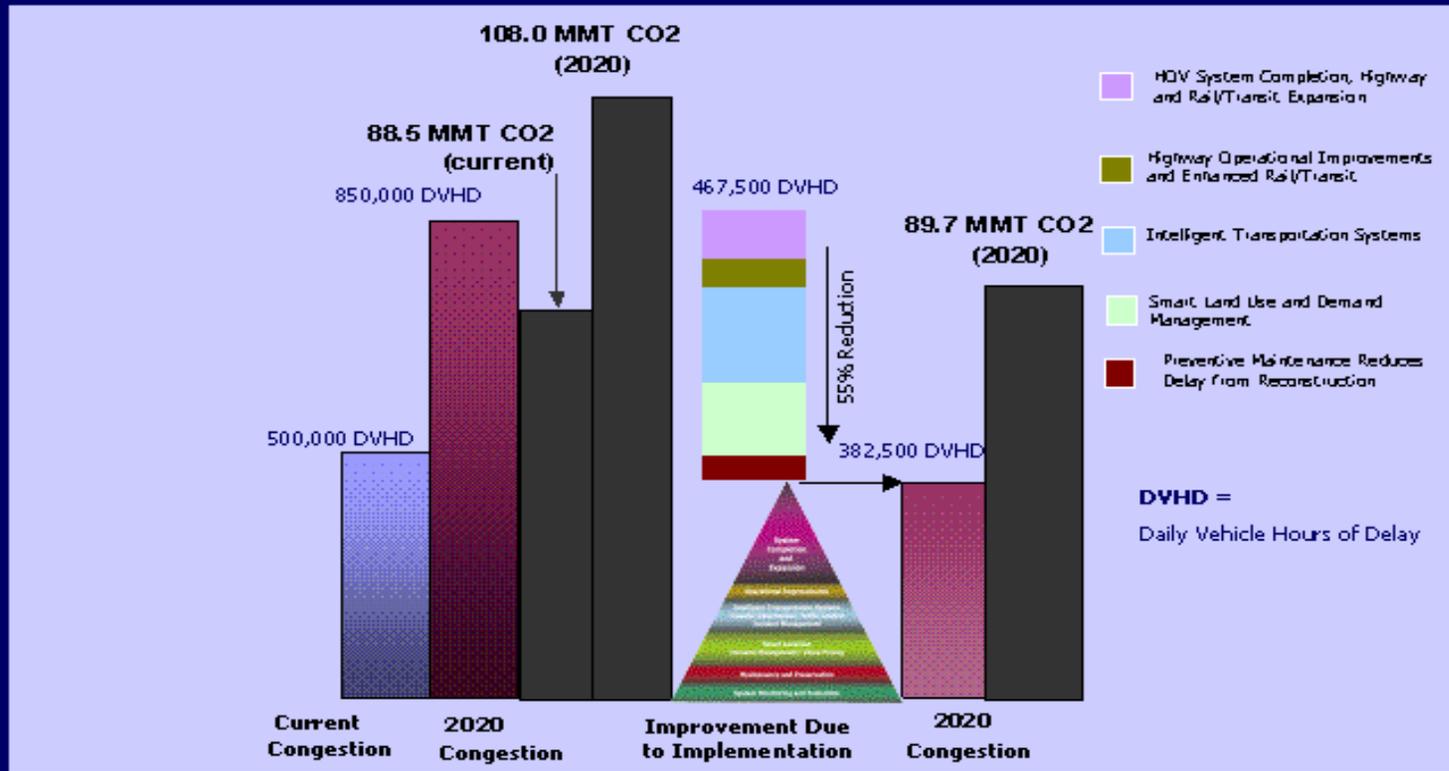
While it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

Assembly Bill 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement the Governor's Executive Orders and help achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from the California Strategic Growth Plan, which is updated each year. Then-Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016.

As shown in Figure 3-3, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

Outcome of Strategic Growth Plan



Conceptual Framework for Reducing Congestion that Needs to be Verified Through Experience

* Numbers reflect SHWY system

Figure 3-3 Outcome of Strategic Growth Plan

As part of the Climate Action Program at Caltrans (December 2006, <http://www.dot.ca.gov/docs/ClimateReport.pdf>), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority.

Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light- and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by the Environmental Protection Agency and the California Air Resources Board.

Lastly, the use of alternative fuels is also being considered. Caltrans is participating in funding for alternative fuel research at the University of California at Davis.

Table 3.3 summarizes Caltrans' and statewide efforts that Caltrans is implementing to reduce greenhouse gases emissions. For more detailed information about each strategy, please see Climate Action Program at Caltrans (December 2006), available at <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

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

- Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- The Kern Council of Governments provides ridesharing services to help manage the growth in demand for highway capacity.

- Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. The project proposes planting throughout the project area, which would help reduce surface warming in the project area.
- The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs—or balls, in the stoplight vernacular—cost \$60 to \$70 apiece but last five to six years compared to the one-year average lifespan of the incandescent bulbs previously used. The LED balls themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project’s CO₂ emissions.
- According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with San Joaquin Valley Unified Air Pollution Control District’s rules, ordinances, and regulations in regard to air quality restrictions.

Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires.

These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Schwarzenegger signed Executive Order S-13-08, which directed a number of state agencies to address California’s vulnerability to sea level rise caused by climate change.

Table 3.3 Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & greenhouse gases into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Total					2.72	18.67

The California Resources Agency (now the Natural Resources Agency, [Resources Agency]), through the interagency Climate Action Team, was directed to coordinate with local, regional, state and federal public and private entities to develop a state Climate Adaptation Strategy. The Climate Adaptation Strategy would summarize the best known science on climate change impacts to California, assess California's vulnerability to the identified impacts, and then outline solutions that can be implemented within and across state agencies to promote resiliency.

As part of its development of the Climate Adaptation Strategy, the Resources Agency was directed to request the National Academy of Science to prepare a *Sea Level Rise Assessment Report* by December 2010 to advise how California should plan for future sea level rise. The report was to include the following:

- Relative sea level rise projections for California, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise for California.

Furthermore, Executive Order S-13-08 directed the Business, Transportation and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Prior to the release of the final *Sea Level Rise Assessment Report*, all state agencies that are planning to build projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. However, all projects that have filed a Notice of Preparation, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects as of the date of Executive Order S-13-08 may, but are not required to, consider these planning guidelines. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and

storm wave data. (Executive Order S-13-08 allows some exceptions to this planning requirement.)

A Notice of Preparation for the project was filed with the Governor's Office of Planning and Research–State Clearinghouse and Planning Unit on July 20, 2010. Therefore, this project is not mandated to evaluate sea level rise. Additionally, the proposed project is in Kern County, which is not one of the coastal counties mentioned in the Final Paper “The Impacts of Sea-Level Rise on the California Coast.”

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted as part of then-Governor Schwarzenegger's Executive Order on Sea Level Rise and is mobilizing to be able to respond to the National Academy of Science report on *Sea Level Rise Assessment* which was due for release by December 2010.

On August 3, 2009, the Natural Resources Agency in cooperation and partnership with multiple state agencies released the 2009 California Climate Adaptation Strategy Discussion Draft, which summarizes the best-known science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats. The release of the draft document set in motion a 45-day public comment period.

Led by the California Natural Resources Agency, numerous other state agencies were involved in the creation of discussion draft, including Environmental Protection; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The discussion draft focuses on sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure.

The strategy is in direct response to then-Governor Schwarzenegger's November 2008 Executive Order S-13-08 that specifically asked the Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

A revised version of the report was posted on the Natural Resource Agency website on December 2, 2009; it can be viewed at:
<http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change impacts, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities.

Once statewide planning scenarios become available, Caltrans would be able review its current design standards to determine what changes, if any, may be warranted to protect the transportation system from sea level rise.

Chapter 4. Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings and interagency coordination meetings. This chapter summarizes the results of Caltrans' efforts to identify, address and resolve project-related issues through early and continuing coordination.

Early Coordination

Since 2006, Caltrans representatives have met regularly with representatives from the City of Bakersfield. Both Caltrans and the City are interested in the project and support its construction.

Caltrans coordinated with the U.S. Fish and Wildlife Service and California Department of Fish and Game on the approach for San Joaquin kit fox field surveys, potential project-specific and program-level effects of the Thomas Roads Improvement Program projects, and mitigation options for project-specific impacts.

On October 7, 2009, the U.S. Fish and Wildlife Service sent a letter to the Thomas Roads Improvement Program approving the Draft Thomas Roads Improvement Program San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy. The Fish and Wildlife Service and California Department of Fish and Game approved the plan on March 11, 2010.

On May 11, 2010, the U.S. Fish and Wildlife Service and California Department of Fish and Game agreed to concurrent review of the Biological Assessment and the 2080.1 permit for the project when these documents are submitted.

Kern County Historical Society

A letter was mailed to the Kern County Historical Society on June 20, 2008. On July 24, 2008, the president of the Kern County Historical Society responded that the historical society did not know of any historic properties that would be potentially affected by the proposed project.

Kern County Historical Museum

A letter was mailed to the Kern County Historical Museum on June 20, 2008. On July 3, 2008, the assistant director of the museum responded that it was possible there are Native American artifacts within the area of potential effects of the project. The museum's letter indicated that there would be no issues with the project if the Southern San Joaquin Valley Information Center did not identify any problem areas within the project area.

Native American Groups

On June 11, 2007, the Environmental Program Manager for the Thomas Roads Improvement Program sent a letter about the project to the Native American Heritage Commission. The response from the Native American Heritage Commission stated that no Native American cultural resources were known within the project vicinity. The commission recommended contacting 12 tribes or individuals for additional information.

On July 30, 2007, letters were mailed to the 12 tribes or individuals recommended by the commission plus 10 additional contacts. None of the Native American contacts had any specific concerns about the project. One individual commented that the general area was sensitive for Native American archaeological resources and noted that unanticipated discoveries have occurred on previous road improvement projects in the Bakersfield area in the past.

San Joaquin Valley Interagency Consultation Partners

Interagency consultation for the proposed project was initiated on September 21, 2009. In separate written responses, both the Federal Highway Administration (September 25, 2009) and the U.S. Environmental Protection Agency (September 22, 2009) concurred with the finding that the Morning Drive/State Route 178 project is not a project of air quality concern.

Public Hearing

A public hearing was held on September 15, 2010 from 4:00 p.m. to 7:00 p.m. at Highland High School in the city of Bakersfield. The purpose of the hearing was to give attendees the latest information on the project and address any questions or concerns they might have. The public hearing also provided an opportunity for attendees to comment on the project before a final design was selected.

The public hearing was held in an informal open-house format, where members of the public could attend at any time during the three-hour period and view the display boards and maps at their leisure. Caltrans staff was also available to individually address the questions and concerns of attendees.

A total of 51 people attended the public hearing. Nine written comment cards were submitted, and seven people provided testimony to the court reporter.

The following is a summary of the issues raised at the public hearing:

Alignment—One resident expressed support for the expansion of State Route 178 and noted that the existing two-lane highway with steep embankments is a traffic hazard. The resident also recommended the continued expansion of Morning Drive north to Paladino Drive and south to Niles Street.

Traffic Signals—Two individuals expressed concern about not having traffic lights controlling traffic exiting Masterson Street onto State Route 178. One of the individuals specifically cited safety issues due to the large volume of traffic, making it very difficult to cross the intersection of Masterson Street and State Route 178.

Noise—Two comments expressed concern with increases in traffic noise along the property line on Morning Drive. One comment requested that a soundwall be considered, and the other requested notification regarding options of a soundwall.

Traffic Speed—One resident noted that the new eastbound 178 freeway narrows to two lanes just prior to the signal light at Canteria Drive. The resident wanted to know what the mitigation would be for eastbound traffic slowing prior to the Canteria Drive signal.

Proponent of Alternative A, Option 1—One resident noted that Alternative A Option 1 seemed the best idea, based on making the right lane on Fairfax Road southbound between Auburn Oaks Drive and Auburn Street a right-turn lane onto Auburn Street.

Incorporation of Bike Lanes—One resident requested that bike lanes be part of the project. The resident noted that a bike path separate from the road would be preferable.

Proponent of Alternative 1, Option B—One resident noted that Alternative 1 Option B looked the best. The resident believed the project would promote development in the rocky soils east of town and may save heritage soils to the west. Likewise, the resident noted that the project would potentially help air quality. The resident suggested landscaping with endangered plants be considered as mitigation, and that the project should use terrain to advantage, unlike the Fairfax Road Interchange improvements. The resident also suggested that concurrent with the project, an off-ramp should be graded on Caltrans property east of Oswell to the mall for a slight traffic improvement. Lastly, the resident asked that Caltrans consider widening Morning Drive from State Route 178 to State Route 58.

Appendix G, Comments and Responses, contains all public comments received (including comments received at the September 15, 2010 public hearing) on the circulated environmental impact report/environmental assessment. Caltrans responses to those comments are also provided.

Chapter 5. List of Preparers

Caltrans

Allam Alhabaly, Transportation Engineer. B.S., California State University, Fresno, School of Engineering; 10 years in the environmental engineering unit. Contribution: Oversight review of the Noise Study Report.

Javier Almaguer, Associate Environmental Planner. B.S., Biology, California State University, Fullerton; 4 years of environmental planning experience. Contribution: Oversight review of growth section.

Todd Barosso, Environmental Planner. B.S., Wildlife Biology, California State University, Humboldt; 9 years of biology (wetlands) experience. Contribution: Oversight of the Natural Environment Study and the Biological Assessment

Abdulrahim Chafi, Transportation Engineer. Ph.D., Environmental Engineering, California Coast University, Santa Ana; B.S., M.S., Chemistry, and M.S. Civil/Environmental Engineering, California State University, Fresno; 14 years of environmental technical studies experience. Contribution: Oversight of the Air Quality Report.

Ken Doran, Engineering Geologist. M.S., Geology, California State University, Fresno; B.S., Geology, California State University, Fresno; 10 years of hazardous waste assessment experience. Contribution: Oversight review of the Initial Site Assessment.

Rajeev Dwivedi, Associate Engineering Geologist. Ph.D., Environmental Engineering, Oklahoma State University, Stillwater; 18 years of environmental technical studies experience. Contribution: Oversight review of the Hydrology, Water Quality, and Storm Water Runoff Assessment Report.

Kevin Gallo, Landscape Architect. B.L.A., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 4 years of landscape architecture experience. Contribution: Oversight review of the Visual Impact Assessment.

Peter Hansen, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 1 year of hazardous waste experience, 9 years of paleontology/geology experience. Contribution: Oversight review of the Paleontological Identification and Evaluation Report.

Kirsten Helton, Senior Environmental Planner. B.A., Economics, California State University, Fresno; 18 years of environmental planning experience. Contribution: Environmental oversight supervision.

Masis Kayaian, Transportation Engineer, Civil. B.S., Industrial Technology, California State University, Fresno; A.S., Engineering, Fresno City College; 9 years of transportation engineering experience. Contribution: Oversight review of the Hydrology, Water Quality, and Storm Water Runoff Assessment Report.

Anton A. Kismetian, Transportation Engineer, Civil. B.S., Engineering, California State University, Fresno; over 7 years of transportation engineering and oversight experience. Contribution: Engineering design oversight.

Mandy Marine, Associate Environmental Planner. B.A., Anthropology, California State University, Fresno; 11 years of environmental impact assessment experience. Contribution: Native American Coordination oversight.

Wendy M. Nettles, Associate Environmental Planner. M.A., Anthropology, Florida State University; B.A., Anthropology, Florida State University; 18 years of archaeology/cultural resources management experience. Contribution: Oversight review of the Historic Property Survey Report.

G. William “Trais” Norris, III, Senior Environmental Planner. B.S., Urban Regional Planning, California Polytechnic University, Pomona; 12 years of land use, housing, redevelopment, and environmental planning experience. Contribution: Senior peer review.

Zachary Parker, Senior Environmental Planner. B.S., Environmental Biology, California State University, Humboldt; 11 years of wildlife biology and environmental planning experience. Contribution: Oversight review of the biological studies.

Richard Putler, Associate Environmental Planner. M.A., City and Regional Planning, California State University, Fresno; B.A., Political Science, University of California, Davis; 10 years of environmental planning experience. Contribution: Oversight review of the environmental document.

Minerva Rodriguez, Senior Transportation Engineer, Civil. B.S., Engineering, California State Polytechnic University, Pomona; over 15 years of transportation engineering and project management experience. Contribution: Oversight Project Manager. Reviewed various submittals and served as a liaison between Caltrans functional units and the Thomas Roads Improvement Program.

Scott Smith, Associate Environmental Planner. B.A., Economics, California State University, Fresno; 10 years of environmental planning experience. Contribution: Associate peer review.

Jeannie (Mary) Stevens, Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 20 years of engineering experience. Contribution: Oversight project management of the Morning Drive Project.

John Thomas, Associate Environmental Planner. B.A., Geography, California State University, Fresno; 10 years of environmental planning experience. Contribution: Associate peer review.

Juan Torres, Associate Environmental Planner. B.A., Environmental Studies, University of the Pacific; 11 years of environmental planning experience. Contribution: Associate peer review.

Philip Vallejo, Associate Environmental Planner. B.A., History, California State University, Fresno; 7 years of experience in architectural history field. Contribution: Oversight review of the Architectural Survey Report.

Jeff Whitaker, Transportation Engineer, Civil. B.S., Engineering, California State University, Fresno; 10 years of Transportation Engineering experience. 11 years of Water Resource Engineering experience. Contribution: Oversight review of the Hydrology, Water Quality, and Storm Water Runoff Assessment Report.

John Whitehouse, Associate Environmental Planner. M.A., Archaeology and Heritage, University of Leicester; 17 years of experience in California archaeology. Contribution: Oversight review of the Historic Property Survey Report.

Winter Yeung, Transportation Engineer. B.S., Civil Engineering, California State University, Fresno; 2 years experience in Traffic Operations. Contribution: Oversight review of the Traffic Operations Report.

Thomas Roads Improvement Program

Greg Berg, Senior Scientist, Parsons. B.A., Acoustics, Columbia College, Chicago, Illinois. Five years of experience preparing noise and vibration studies. Contribution: Prepared the Noise Study Report.

David Clark, Environmental Manager, Parsons. M.S. and B.S., Chemistry/Biology, California State University, Fullerton; over 30 years of environmental planning experience. Contributions: Oversight review of the environmental document.

Heather Ellison, Senior Environmental Planner, Parsons. B.S., Environmental and Natural Resource Science, University of Nevada, Reno; 10 years of environmental and planning experience. Contribution: Oversight review of the environmental document.

Areg Gharabegian, PE, Principal Project Manager, Parsons. M.S. and B.S. in Mechanical Engineering; 31 years of noise control engineering experience. Contribution: Oversight and quality control.

Jason Ogden, Noise and Vibration Specialist, Parsons. B.A., Acoustics, Columbia College, Chicago, Illinois; 3 years of experience preparing noise and vibration studies. Contribution: Prepared the Noise Study Report.

Consultants

Patrick Angell, Environmental Project Director, PMC. B.A., Environmental Science, California State University, Sacramento; 18 years of environmental planning experience. Contribution: Environmental Project Director.

Melanie J. Halajian, AICP, Senior Planner, PMC. B.A., Systems Analysis, Fresno Pacific College, Fresno; Master of Business Administration, California Polytechnic University, San Luis Obispo; Master of City and Regional Planning, California Polytechnic University, San Luis Obispo; 15 years of environmental document preparation and CEQA/NEPA compliance. Contribution: Quality Assurance/Quality Control review.

Jared Jerome, Assistant Transportation Planner, PMC. B.A., Geography, Urban Analysis Program, California State University, Los Angeles; 5 years of transportation, land use, and air quality impacts/analyses for EIR studies, general plan updates, traffic impact analyses, and short- and long-range transportation plans. Contribution: Prepared the Air Quality Study Report.

Douglas Kim, AICP, PMC. B.A., Economics and City and Regional Planning, University of California, Berkeley; over 20 years of policy and technical experience in developing long- and short-range multi-modal transportation plans, including development of performance measures, performing alternatives analyses, and managing technical modeling, preparation of air quality plans, development of air quality regulations, and completion of urban land use and growth analyses. Contribution: Primary preparer of the Air Quality Study Report.

Melissa D. Logue, Environmental Project Manager, PMC. B.A., History, California State University, Sacramento; 6 years of environmental planning experience and 5 years of environmental project management experience. Contribution: Primary preparer of the Initial Study/Environmental Assessment, Visual Impact Assessment, Hydrology, Water Quality, and Storm Water Runoff Assessment Report. Coordinated the environmental process for the project.

James McLaughlin, Environmental Planner, PMC. B.A., Liberal Studies, Emphasis in Geology, California State University, Hayward; 5 years of environmental planning experience. Contribution: Prepared the Community Impact Assessment and Human Environment Section.

Jeannette Owen, Senior Biologist, PMC. B.S., Ecology and Systematic Biology; 12 years of experience performing detailed field studies, including data analysis and reporting on environmental impacts. Contribution: Prepared the Natural Environment Study.

Julie Smith, Environmental Planner, PMC. B.A., Geography and Environmental Studies, California State University, San Bernardino; 7 years environmental planning experience. Contribution: Prepared the Initial Study/Environmental Assessment.

Sherri Gust, Registered Professional Archaeologist, Cogstone Resource Management. M.S., Anatomy (Evolutionary Morphology), University of Southern California; B.S., Anthropology, University of California, Davis; over 25 years of experience in California. Contribution: Prepared Archaeological Study Report and Paleontological Identification and Evaluation Report.

James P. Quinn, California Professional Geologist, Cogstone Resource Management. M.S., Geology, University of California, Riverside; B.S., Earth Science, California State University, Northridge; over 20 years of experience in geology and paleontology in California. Contribution: Reviewed the Paleontology Report.

Andrea Galvin, Principal, Galvin Preservation Associates. M.S., Historic Preservation, University of Pennsylvania; B.S., Environmental Design, University of California, Davis; over 10 years of experience with research and documentation of historic districts, sites, buildings, and structures. Contribution: Prepared the Historic Property Survey Report.

Russell Anthony, PG, REA II, Geocon Consultants. B.S., Geology; 15 years of experience in the preparation and management of Phase I Environmental Site Assessments (ESA) and other site investigation activities. Contribution: Primary preparer of the Phase I ESA.

John Juhrend, PE, CEG, REA II, Geocon Consultants. M.S., Civil Engineering, and B.S., Engineering Geology; over 25 years of experience in the environmental and geotechnical consulting industry in California. Contribution: Prepared the Phase I ESA.

Robert Nixon, PE, GE, Geocon Consultants. M.S., Civil Engineering; 15 years of experience in the geotechnical engineering and construction industry. Contribution: Prepared the Geotechnical Report.

Jeremy Zorne, PE, GE, Geocon Consultants. M.S., Civil Engineering; 12 years of experience in geotechnical engineering. Contribution: Prepared the Geotechnical Report.

Hugh Saurenman, Ph.D., PE, President, ATS Consulting. Ph.D. and M.S., Mechanical Engineering, Tufts University, Medford, Massachusetts; B.S., Engineering, Harvey Mudd College, Claremont, California; 30 years of acoustical consulting experience. Contribution: Oversight of Noise Study Report preparation.

Andrew Somerville, Associate, ATS Consulting. B.A., Acoustics, Columbia College, Chicago, Illinois; 5 years of environmental technical studies experience and 5 years of experience preparing noise and vibration studies. Contribution: Prepared the Noise Study Report.

Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 2 of this Environmental Impact Report/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Except for noise, discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2. Noise impacts under the California Environmental Quality Act are discussed in Chapter 3.

Potentially
Significant
ImpactLess Than
Significant with
MitigationLess Than
Significant
Impact

No Impact

AESTHETICS Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AGRICULTURE RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
AIR QUALITY Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BIOLOGICAL RESOURCES Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CULTURAL RESOURCES Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
GEOLOGY AND SOILS Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Greenhouse Gas Emissions Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gases emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				
HAZARDS AND HAZARDOUS MATERIALS Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HYDROLOGY AND WATER QUALITY Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
LAND USE AND PLANNING Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
NOISE Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or of applicable standards of other agencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
POPULATION AND HOUSING Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PUBLIC SERVICES 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 following public services:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TRANSPORTATION/TRAFFIC Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
UTILITIES AND SERVICE SYSTEMS Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)

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

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S. Code §303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl, and historic sites.”

Section 4(f) specifies that “[t]he Secretary [of Transportation] may approve a transportation program or project...requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if –

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.”

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f).

In general, a Section 4(f) “use” occurs with a Department of Transportation-approved project or program when (1) Section 4(f) land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of Section 4(f) land that is adverse in terms of the Section 4(f) preservationist purposes as determined by specified criteria (23 CFR

§771.135[p][7]); and (3) when Section 4(f) land is not incorporated into the transportation project, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (constructive use) (23 CFR §§771.135[p][1] and [2]).

The eastern project limit is adjacent to a parcel just north of the former Mesa Marin Raceway and south of State Route 178, where baseball fields were historically located until 2006. This parcel is owned by the City of Bakersfield and designated as Open Space – Parks and Recreation on the Metropolitan Bakersfield General Plan Land Use Map. According to Ken Trone at the City of Bakersfield Parks and Recreation Department, this parcel is currently undergoing redevelopment with new lighted softball fields, a concession and restroom building, and parking lot. Mr. Trone said that ultimately, this sports complex would also include a picnic area, a skateboard park, a splash pool, and a larger concession building.

The Morning Drive/State Route 178 project does not include the park as part of any transportation facility. There will not be any occupancy, temporary or otherwise of the park. All activities, attributes, and features would remain intact as no work is scheduled within the proposed park grounds. The only project activities adjacent to this parcel involve roadway restriping and repaving.

Construction on the mainline would be done in a manner that would facilitate continued access to the proposed park through use of a traffic management plan. Noise and dust abatement pursuant to Caltrans' Standard Specifications would be implemented to address any temporary construction impacts.

If night and weekend work is required during construction, it would be coordinated with the City's Parks and Recreation Department to ensure minimal traffic conflicts with this facility.

The Federal Highway Administration states that constructive use occurs when the proximity impacts of a project are so severe that the activities, features or attributes that qualify the property or resource for protection are substantially impaired or diminished. As the Morning Drive and State Route 178 interchange project does not disturb or diminish the value of the park parcel, it would not be considered constructive use.

Incorporation of these measures avoids severe impacts and would not substantially impair site use. Additional coordination with City of Bakersfield is planned to ensure that the project addresses the needs of this proposed park facility. Therefore the provisions of Section 4(f) are not triggered.

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION

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July 20, 2010

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

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, or age, please visit the following web page:
http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Charles Wahnon, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353 or toll free 1-866-810-6346 (voice), TTY 711, fax (916) 324-1869, or via email: charles_wahnon@dot.ca.gov.


CINDY MCKIM
Director

"Caltrans improves mobility across California"

Appendix D Typical Cross Sections

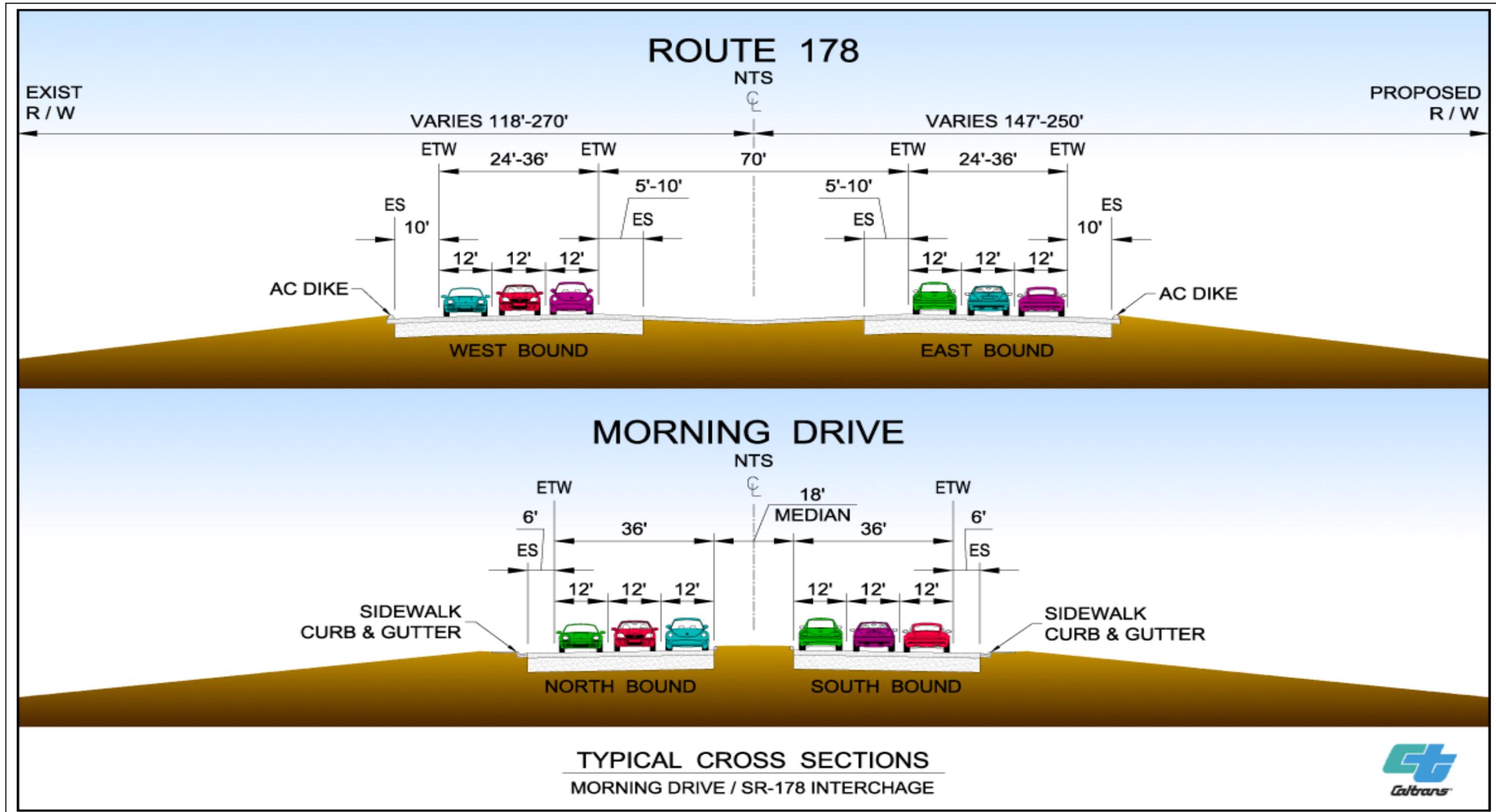


Figure D-1 Typical Cross Sections

Appendix E Minimization and/or Mitigation Summary

This appendix summarizes the minimization and/or mitigation measures discussed in Chapter 2. Table E.1 lists avoidance and minimization measures that are typically followed during project construction, and Table E.2 lists mitigation measures that are above and beyond standard construction contract requirements. Mitigation is provided for paleontology, traffic and transportation, and potential effects to special-status species.

Table E.1 Avoidance and Minimization Measures

Issue	Avoidance and Minimization Measures
Archaeological Resources	When archaeological resources are encountered during construction, all work would stop in the area of the find. The resource would be evaluated by a professional archaeologist that meets the Secretary of Interior standards.
Utilities	All aboveground and underground utility relocations would involve coordination between the utility service providers mentioned above and the City of Bakersfield and Kern County public works departments. Utility relocations would minimize negative impacts to existing or planned development. Coordination with utility providers would avoid disruption of utility services during relocation.
Emergency Services	Caltrans would prepare a Traffic Management Plan to maintain access to local residential, commercial, and public facilities during construction. The City will prepare and submit its Traffic Management Plan to Caltrans before approval of final design. Caltrans would coordinate with local emergency service agencies to prepare an Emergency Access Plan to be used during project construction to maintain adequate emergency response times through the area.
Traffic and Transportation	A Transportation Management Plan would be prepared and submitted to Caltrans and the City of Bakersfield for review and approval before starting construction work. This plan would include such elements as public information/public awareness, the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turn restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, and designated parking and staging areas for workers and equipment. A Construction Zone Enhanced Enforcement Program may be appropriate during portions of this project. The program involves the presence at all times of the California Highway Patrol in construction zones to remind motorists to slow down and use caution when traveling through work areas. The Caltrans Construction Division would be consulted to decide if the program is warranted for this project.
Visual/Aesthetics	Throughout project construction, building materials and debris would not be stored in highly visible areas. These would include, but not be limited to, the State Route 178 corridor. Construction lighting would face downward and away from occupied properties next to the project area. Also, lighting would be directed away from traffic lanes and areas where lighting could disturb

Issue	Avoidance and Minimization Measures
	<p>passing drivers and/or pedestrians. Adjacent residents would be provided with a Caltrans contact number in case nighttime lighting became a nuisance.</p> <p>The project design would be visually consistent with the design of the Fairfax Road/State Route 178 interchange, including the overall design theme of the interchange, landscaping techniques and planting, and aesthetic treatments on hard structures, including retaining walls, bridge overcrossing structure and ramps, and bridge railings and lighting.</p> <p>Techniques to soften the appearance of the soundwalls would be used when feasible, including using stamped or colored concrete or other aesthetics treatments.</p> <p>Light poles and signs would be designed to minimize reflection to the greatest extent feasible. All reflective surfaces would be painted with an anti-reflective coating or otherwise treated to reduce light reflection.</p> <p>Light types and shading methods that reduce glare and spillover light would be incorporated into the project to the greatest extent feasible. Methods could include focusing lighting away from residential properties, using hooded lighting, and reducing the height of the lighting to the extent feasible.</p>
<p>Water Quality and Storm Water Runoff</p>	<p>The project would result in a permanent increase in runoff but would not result in substantial impacts to water quality. The proposed project is designed so storm water runoff from 50-year and 100-year rains would be fully contained and drained through infiltration basins. The proposed retention basins would contain all on-site runoff using open ditches and storm drain pipes to convey the runoff to the basins; there would be no increase in velocity or volume of flow that would affect downstream flows. Final design of the project drainage facilities would ensure that drainage discharge is not directed at known locations of special-status plant species.</p> <p>Three retention/detention basins would be built to retain the additional storm water runoff resulting from the project. These basins would store surface runoff for the project area and allow water to seep into the ground as a means to drain the basins. The first detention basin would be about 2.5 acres at the eastern end of the project site, south of State Route 178. The second detention basin would be nearly 1 acre at the western end of the project site, south of State Route 178. The third retention basin would be about 0.5 acre at the northern end of the project site, east of Morning Drive. Additional right-of-way would be required to accommodate these basins and/or other drainage facilities.</p> <p>For project areas exceeding 1 acre, National Pollutant Discharge Elimination System guidelines require the contractor to develop a Storm Water Pollution Prevention Plan before construction starts to establish project-specific permanent and temporary best management practices. During the design phase, a Water Pollution Control Plan would be prepared to determine the minimum control requirements to be included in the Storm Water Pollution Prevention Plan.</p> <p>Best management practices include any facilities and methods used to remove, reduce, or prevent storm water runoff pollutants from entering receiving waters. Erosion control methods, temporary and permanent best management practices, and improvement of drainage facilities along the roadway would minimize impacts from storm water runoff. The Storm Water Pollution Prevention Plan and National Pollutant Discharge Elimination System -compliant measures would ensure that no adverse impacts occur associated with the build alternative.</p> <p>With implementation of applicable Storm Water Management Plans, Storm Water Pollution Prevention Plan, construction and permanent best management practices, and adherence to the requirements of the Caltrans National Pollutant Discharge Elimination System permit, the project would</p>

Issue	Avoidance and Minimization Measures
	have minimal impacts to water quality.
<p>Paleontology</p>	<p>Because the project area consists entirely of types of rock known for having paleontological resources, construction within these rock units could not be avoided. According to the paleontological mitigation plan, a qualified vertebrate paleontologist and qualified paleontological monitor would provide oversight of all project earthmoving activities. The paleontological team may, working through the resident engineer, divert work in order to recover fossils. Types of rock, including sediments of the Kern River Formation, would be thoroughly monitored and many microfossil samples taken along with a column showing a sequence of sedimentary rocks, known technically as a stratigraphic column, especially if the sediments present were to include some of the Kern River Formation upper beds.</p> <p>The extent of monitoring would be adjusted based on the geologic conditions encountered during construction and the likelihood of fossils being found. Where favorable conditions were encountered, full-time monitoring would be necessary. If unfavorable conditions were encountered, monitoring would be reduced from part-time monitoring to spot-checking.</p> <p>Fossil localities would be documented to the standards of the provisional curation agreement. In addition, fossils would be stabilized and identified to the standards of that agreement. All significant fossils would be transferred to the University of California Museum of Paleontology at Berkeley for permanent curation.</p>
<p>Hazardous Materials/ Waste</p>	<p>There are no identified facilities next to or within the project area and planned right-of-way acquisition areas that require further evaluation for potential hazardous waste impacts on the design and construction of the planned Morning Drive/State Route 178 Interchange Project. Before final design and construction, a preliminary site investigation such as sampling and analytical testing would be done to further evaluate the following potential and documented areas of concern within the project area: based on the results of the Fairfax Avenue/State Route 178 Interchange Project and other nearby projects, Caltrans had determined that an aerially deposited lead survey is not required for this project. If excess soil would be generated from the project and given to the contractor for off-site reuse or disposal without restriction, soil sampling and analytical testing for potential contaminants of concern (heavy metals, petroleum hydrocarbons) is recommended for off-site facility acceptance.</p> <p>If earth material is disposed of off-site, the following would occur:</p> <ul style="list-style-type: none"> • Dispose of material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. • Disclose the lead concentration of the earth material to the receiving property owner when obtaining authorization for disposal on the property. • Obtain the receiving property owner's acknowledgment of lead concentration disclosure in the written authorization for disposal. • Contractor would be responsible for any additional sampling and analysis required by the receiving property owner. <p>If the excess soil is found to be hazardous material, the following would occur:</p> <ul style="list-style-type: none"> • Transport hazardous material to a Class III or Class II landfill appropriately permitted to receive the material. • Contractor would be responsible for identifying the appropriately permitted landfill to receive the earth material and for all associated trucking and disposal costs including any additional sampling and analysis required by the receiving landfill.

Issue	Avoidance and Minimization Measures
	<ul style="list-style-type: none"> • Grayish debris fill materials containing concrete, asphalt, rubber and metal debris and trash exist along the southern side of State Route 178 within the central portion of the project area. Sampling and analytical testing for heavy metals and petroleum hydrocarbons would be performed to determine if these materials require special handling and disposal during construction. • Where found, undocumented or improperly abandoned wells or other buried structures associated with oil production facilities would be properly removed or abandoned in accordance with applicable state and county requirements. • Removal and disposal of yellow thermosplastic and paint striping from roadways would be done in accordance with applicable state and county requirements, unless combined with sufficient asphalt grindings per Caltrans Special Provisions 10-1. • Any encountered asbestos-containing pipe would require proper handling and disposal in accordance with regulatory requirements.
<p style="text-align: center;">Air Quality</p>	<p>Temporary Construction Impacts</p> <p>Mitigation measures would be used to reduce air quality impacts resulting from construction activities:</p> <p>As required by San Joaquin Valley Air Pollution Control District Rule 9510 (Section 6.1), the project must meet the following mitigation measures to reduce air quality impacts resulting from construction activities:</p> <ul style="list-style-type: none"> • The exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project would be reduced by the following amounts from the statewide average as estimated by the Air Resources Board: 20 percent of the total oxides of nitrogen emissions; 45 percent of the total PM₁₀ exhaust emissions. • Reduce emissions by using less-polluting construction equipment, which can be achieved by using add-on controls, cleaner fuels, or newer equipment Pay Off-site Emission Reduction Fees for construction activities (Rule 9510 Section 7) as determined by the Air Impact Assessment. <p>Pursuant to San Joaquin Valley Air Pollution Control District Regulation VIII, the following measures would be used to reduce PM₁₀ emissions from exhaust and fugitive sources:</p> <ul style="list-style-type: none"> • Water or dust palliative would be applied to the site and equipment as frequently as necessary to control fugitive dust emissions. • Soil binder would be spread on any unpaved roads used for construction purposes and all project construction parking areas. • Trucks would be washed off as they leave the right-of-way as necessary to control fugitive dust emissions. • Construction equipment and vehicles would be properly tuned and maintained. Low-sulfur fuel would be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114. • A dust control plan would be required for this project and would be submitted to the San Joaquin Valley Air Pollution Control District before construction begins. The plan would document sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities. • Equipment and materials storage sites would be located as far away from residential and park uses as practical. Construction areas would be kept clean and orderly. • To the extent feasible, environmentally sensitive areas for sensitive air receptors will be established within which construction activities involving extended idling of diesel equipment will be prohibited.

Issue	Avoidance and Minimization Measures
	<ul style="list-style-type: none"> • Track-out reduction measures such as gravel pads at project access points would be used to minimize dust and mud deposits on roads affected by construction traffic. • All transported loads of soils and wet materials would be covered prior to transport, or adequate freeboard provided (space between the top of the material and the top of the truck) to reduce PM₁₀ emissions and deposition of particulate during transportation. • Dust and mud that are deposited on paved, public roads due to construction activity and traffic would be removed to decrease particulate matter. • To the extent feasible, construction traffic would be routed and scheduled to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times. <p>Mulch or plant vegetation would be installed as soon as practical after grading to reduce windblown particulate in the area.</p> <p>Caltrans Standard Specifications pertaining to dust control and dust palliative requirement 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 San Joaquin Valley Air Pollution Control District rules, ordinances, and regulations.</p>
<p style="text-align: center;">Noise</p>	<p>To minimize potential construction noise impacts, the contractor would do the following:</p> <ul style="list-style-type: none"> • Conform to Caltrans Standard Specifications, Section 14-8.02, Sound Control Requirements. This section requires the contractor to comply with all local sound control and noise level rules, regulations, and ordinances that apply to any work performed pursuant to the contract. • Conform to Caltrans Standard Special Provisions, Section S5-310, Sound Control Requirements. This provision applies to work in a residential or urban area at night or if night or Sunday noise restrictions apply to the project. • Equip each internal combustion engine used for any purpose on the job or related to the job with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the project without the muffler. • Locate equipment and staging areas as far from homes as possible. • Use appropriate additional noise minimization measures, including moving stationary construction equipment, turning off idling equipment, rescheduling construction activities, notifying adjacent residents in advance of construction, and installing acoustic barriers around stationary construction noise sources. • Limit construction activity to 7 a.m. to 7 p.m. weekdays and 8 a.m. to 6 p.m. weekends when construction is done near churches, schools, senior housing, and residences in the northwest corner of the interchange (the westbound off- and on-ramps). Limiting construction to only weekdays should be considered when construction is near churches. • Nighttime work would be minimized to the greatest extent feasible throughout project construction.

Issue	Avoidance and Minimization Measures
<p style="text-align: center;">Plant Species</p> <p>Vasek's clarkia and round-leaved filaree</p>	<p>Pre-construction surveys for these species would be done within the project footprint and 25-foot temporary construction zone prior to project construction.</p> <p>Bakersfield cactus, a federally and state-listed endangered plant, is present within the biological study area, and shares the same annual grassland habitat as Vasek's clarkia and round-leaved filaree. Bakersfield cactus is further discussed in Section 2.3.3 Threatened and Endangered Species.</p> <p>Because Vasek's clarkia and the round-leaved filaree both share the same annual grassland habitat as the Bakersfield cactus, the same avoidance, minimization, and mitigation measures required for the Bakersfield cactus would also serve to mitigate for project impacts to Vasek's clarkia and the round-leaved filaree.</p> <p>Because the Bakersfield cactus is a federally and state-listed endangered plant, formal consultation with U.S. Fish and Wildlife Service and California Department of Fish and Game for the Bakersfield cactus would be required.</p> <p>The following avoidance and minimization measures would be required:</p> <ul style="list-style-type: none"> • Before the start of construction activities, a qualified biologist would conduct a preconstruction plant survey during the appropriate blooming period for Vasek's clarkia (April) and the round-leaved filaree (March to May) to confirm the presence and locations of rare plants within all areas of the project footprint and temporary construction zone. If special-status plants are found within the biological study area by a qualified biologist, Caltrans would then consult with the U.S. Fish and Wildlife Service and California Department of Fish and Game on the appropriate mitigation to reduce impacts. • Areas next to the project construction area containing special-status plant species would be designated as an environmentally sensitive area and avoided by a minimum of 15 feet from plant populations or individuals to ensure no impacts to the plants occur during construction activities. • Biological monitors would regularly inspect construction work. <p>A Worker Environmental Awareness Program would be established and implemented before construction. The program would be presented by a person knowledgeable about the biology of the covered species.</p>
<p>Animal Species</p> <p>Western burrowing owl Raptors and other migratory birds American badger San Joaquin pocket mouse Tulare grasshopper mouse</p>	<p>The following measures would be implemented during project construction to avoid and minimize impacts to the western burrowing owl, nesting birds protected under the Migratory Bird Treaty Act, American Badger, San Joaquin pocket mouse, and Tulare grasshopper mouse:</p> <ul style="list-style-type: none"> • There would be biological monitors regularly inspecting construction work. • A Worker Environmental Awareness Program would be established and implemented before construction. The program would be presented by a person knowledgeable about the biology of the covered species.

Issue	Avoidance and Minimization Measures
	<p>In addition to the measures outlined above for all special-status animal species, the following measures would be implemented during project construction to avoid and minimize impacts specific to the western burrowing owl:</p> <ul style="list-style-type: none"> • A qualified biologist would perform burrowing owl surveys to determine burrow locations within 30 days before site mobilization, or restart of activities, using California Department of Fish and Game and California Burrowing Owl Consortium guidelines. If construction is delayed or suspended for more than 30 days after the survey, the area would be resurveyed. Surveys for occupied burrows would be completed within a 500-foot buffer from the proposed project work areas (where possible and appropriate based on habitat). All occupied burrows would be mapped on an aerial photo. At least 15 days before the expected start of any project-related ground disturbance activities, or restart of activities, Caltrans would provide the burrowing owl survey report and mapping to the California Department of Fish and Game. <p>Based on the burrowing owl survey results, the following actions would be taken by Caltrans to offset impacts during construction:</p> <ul style="list-style-type: none"> • All occupied burrows within 160 feet of all project construction during the non-breeding season of September 1 through January 31, or all occupied burrows within 250-foot buffer of all project construction during the breeding season of February 1 through August 31, would be clearly marked with flags to identify burrow locations. • If owls are present in or within 160 feet of areas scheduled for disturbance or degradation (for example, grading or excavation work) and nesting is not occurring, owls would be removed per California Department of Fish and Game-approved passive relocation techniques. Passive relocation requires the use of one-way exclusion doors, which must remain in place at least 48 hours before site disturbance to ensure owls have left the burrow before construction. • If paired owls are nesting in areas scheduled for disturbance or degradation, nest(s) would be avoided from February 1 through August 31 by a minimum of a 250-foot buffer or until fledging has occurred. Following fledging (leaving the nest), owls may be passively relocated. • When destruction of occupied burrows is unavoidable, existing unsuitable burrows would be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on a preserve. • In addition to the measures outlined above for all special-status animal species, the following measures would be implemented during project construction to avoid and minimize impacts to

Issue	Avoidance and Minimization Measures
	<p>raptors and other migratory birds: If construction activities are planned to occur during the nesting seasons for local bird species (typically March 1 through August 31), Caltrans would retain a qualified biologist to conduct a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 150 feet outside the area of construction activities) the construction area no more than 30 days before ground disturbance or tree removal.</p> <ul style="list-style-type: none"> If active nests are located during preconstruction surveys, the U.S. Fish and Wildlife Service and/or California Department of Fish and Game would be notified of the status of the nests. Furthermore, construction activities would be restricted as necessary to avoid disturbance of the nest until it is abandoned or a biologist deems disturbance potential to be minimal (in consultation with the U.S. Fish and Wildlife Service and/or California Department of Fish and Game). Restrictions may include establishment of exclusion zones (no entry of personnel or equipment at a minimum radius of 250 feet around the nest) or changing the construction schedule. No action is necessary if construction would occur during the non-breeding season (generally September 1 through February 28). <p>In addition to the measures outlined above for all special-status animal species, the following measures would be used during project construction to avoid and minimize impacts to the American badger:</p> <ul style="list-style-type: none"> Before beginning construction activities, a biologist would perform focused surveys to determine the presence of an American badger or potential dens within the project footprint and temporary construction zone. If an American badger or potential den is observed by a biologist within the project footprint or temporary construction zone during a preconstruction survey, then the California Department of Fish and Game would be contacted to determine what types of avoidance measures may be implemented. <p>In addition to the above measures outlined above for all special-status animal species, the following measures would be used during project construction to avoid and minimize impacts to the San Joaquin pocket mouse and the Tulare grasshopper mouse: if a San Joaquin pocket mouse or Tulare grasshopper mouse is found by a qualified biologist during a preconstruction survey of the biological study area, the California Department of Fish and Game would be contacted to determine if relocation, environmentally sensitive area fencing, or other avoidance or minimization efforts would be used.</p>
<p>Threatened and Endangered Species</p> <p>Bakersfield cactus San Joaquin adobe</p>	<p>The following measures would apply to the Bakersfield cactus, San Joaquin adobe sunburst, Bakersfield smallscale, blunt-nosed leopard lizard, and San Joaquin kit fox:</p> <p>All areas temporarily disturbed by project activities would be restored</p>

Issue	Avoidance and Minimization Measures
<p>sunburst Bakersfield smallscale Blunt-nose leopard lizard San Joaquin kit fox</p>	<p>following the completion of construction.</p> <p>Before construction starts on this project, the U.S. Fish and Wildlife Service would be provided with the final documents related to the protection of conservation acres, including but not limited to, fee payment of compensation acreage. Proof of recorded easement and perpetual non-wasting endowment holdings for each sump included in the Sump Habitat Program have long-term conservation assurances in place, and do not need to be provided to the service prior to construction of this project. Easement and endowment documentation, as part of the Sump Habitat Program would be in place following approval of the Final Environmental Document for the last of the six Thomas Roads Improvement Program projects. Caltrans would fully fund the Sump Habitat Program within one year of that approval.</p> <p>A post-construction report detailing compliance with the project design criteria and proposed conservation measures described in the Biological Opinion would be provided to the Service within 30 calendar days of completion of the project. The report would include: (1) dates of project groundbreaking and completion; (2) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (3) an explanation of the failure to meet such measures, if any; (4) known project effects on the blunt-nosed leopard lizard and San Joaquin kit fox, if any; (5) occurrences of incidental take of the blunt-nosed leopard lizard and San Joaquin kit fox; and (6) any other pertinent information.</p> <p>Chemicals, lubricants, and petroleum products would be closely monitored, and precautions would be used. All equipment would be maintained to prevent leaks of fluids, such as gasoline, oils, or solvents. If any spills occur, cleanup would take place immediately.</p> <p>Any sensitive sites, such as the two swales located adjacent to construction activities, would be designated as environmentally sensitive areas (ESAs) to prevent accidental construction-related effects.</p> <p>Trees, shrubs, and other vegetation would be removed prior to the nesting season of migratory birds.</p> <p>Other than the swales outside the project footprint, no other water features are present in the project area, so effects to water quality would be avoided. Even so, the contractor would at all times adhere to the <i>State of California, Department of Transportation Standard Specifications</i> for avoidance of water pollution (Section 7-1.01G; July 1, 2008). These measures include detailed recommendations for keeping heavy machinery out of the water, limiting the amount of material (excavated or construction materials) that enter the waterway, and maintaining flows at all times. Temporary measures may include, but are not limited to, the use of sediment basins, hay bales, and downstream silt catchment.</p>

Issue	Avoidance and Minimization Measures
	<p>A Storm Water Pollution Prevention Plan (SWPPP) would be prepared prior to construction to reduce or eliminate any water quality reductions that might occur as a result of the project.</p> <p>Staging and refueling areas for equipment would be located a minimum of 150 feet away from any active stream channel. If equipment washing would occur where water cannot flow into the stream channel.</p> <p>Soil exposure would be minimized through the use of best management practices, ground cover, and stabilization practices. Exposed dust-producing surfaces would be sprinkled daily with water until wet while avoiding producing runoff.</p> <p>The contractor would conduct maintenance of erosion and sediment control measures as needed. Inspectors would be on-site daily to monitor these types of activities. All such measures would be removed after the area is stabilized or as directed by the resident engineer.</p> <p>A biologist approved by the U.S. Fish and Wildlife Service should have oversight over use of all the measures described in the Biological Opinion and should have the authority to stop project activities, through communication with the Resident Engineer, if any requirements associated with these measures are not being fulfilled. Any stop-work request due take of listed species should be communicated to the Service and the California Department of Fish and Game within one day.</p> <p>The following measures would apply to the Bakersfield cactus, California jewel-flower, San Joaquin woollythreads, San Joaquin adobe sunburst, and Bakersfield smallscale:</p> <p>A biologist approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game would conduct preconstruction protocol-level plant surveys during the appropriate blooming periods for each of the four species (Bakersfield cactus: April-May; Bakersfield smallscale: June-October; San Joaquin adobe sunburst: March-April; California jewel-flower: February-May; San Joaquin woolly-threads: February-May) prior to project groundbreaking within all portions of the project footprint, the temporary construction zone, and within the six parcels that originally had restricted access. The intention would be to discover any changes in or new additions to the floristic composition of the project site. If individuals are found, Caltrans would notify the Service and California Department of Fish and Game to propose further appropriate measures to ensure none of the plant groups are adversely affected.</p> <p>Areas next to the project construction area containing the known Bakersfield cactus populations would be designated as environmentally sensitive areas (ESAs) and avoided by a minimum of 15 feet from each individual cactus to ensure no adverse effects to the plants occur during construction. Signs would be posted identifying the areas.</p>

Issue	Avoidance and Minimization Measures
	<p>If other listed plants are found, silt fencing is one potential measure to ensure that plants are not disturbed during construction activities. Fencing would be placed at the limit of temporary disturbance, but no less than 15 feet from individual plants.</p> <p>Biologists approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game would regularly inspect and verify field conditions to ensure that species and sensitive habitats outside construction areas are not affected. These individuals would coordinate with the resident engineer to stop any activity that has the potential to affect a special-status species.</p> <p>A worker environmental awareness program would be established and implemented prior to construction. The worker environmental awareness program would be presented by a biologist approved by the Service and California Department of Fish and Game would cover the distribution of listed and other special-status species, the general behavior and ecology of these species, their sensitivity to human activities, their legal protection, the penalties for violation of state and federal laws, reporting requirements, compensation measures, and measures to implement in the event that a species is found during construction. A fact sheet with all this information would be prepared and distributed. The worker environmental awareness program would be presented to all construction employees who would receive formal, approved training prior to working on-site. Upon completion of the worker environmental awareness program, employees would sign a form stating that they attended and understood all protection measures. Forms would be filed with Caltrans and the City of Bakersfield and made available to the Service and California Department of Fish and Game upon request.</p> <p>Storm-water drainages and culverts would not be placed in areas within or surrounding known locations of special-status plant species.</p> <p>Preventative measures against the spread of noxious weeds would be implemented.</p> <p>Restoration of disturbed areas would be undertaken as soon as possible following the completion of construction.</p> <p>Fertilizer would not be applied to restored areas with known weed infestations (nutrients may enhance weed growth).</p> <p>Straw bales used for sediment barriers or mulch would be qualified as weed-free.</p> <p>Post-construction monitoring and treatment of weed infestation within the action area would be undertaken as needed.</p> <p>The following measures would apply to the blunt nose leopard lizard and</p>

Issue	Avoidance and Minimization Measures
	<p>the San Joaquin kit fox:</p> <ul style="list-style-type: none"> • All of the conservation measures proposed in the Biological Assessment, the Draft Sump Habitat Plan, the Project Description, and as supplemented and modified below, must be fully implemented. <ol style="list-style-type: none"> a. Caltrans shall be responsible for implementing all measures described in this Biological Opinion. Terms and conditions that apply to contractor activities shall be conditioned in contracts for work. b. On a monthly basis Caltrans would monitor and document the amount of habitat lost during construction to ensure that the amount of habitat lost does not exceed the amount of take anticipated in the Biological Opinion. Caltrans would notify the Service when the take limit is reached and would reinitiate consultation if the limit would be exceeded. c. Following project completion, any and all construction debris/stockpiled materials would be removed from the project site. • Trash would be handled in a manner so as to minimize the potential for take of the blunt-nosed leopard lizard and the San Joaquin kit fox: to minimize both habitat pollution and opportunistic predatory effects to the blunt-nosed leopard lizard and the San Joaquin kit fox, Caltrans would condition contracts with contractors to require that trash, litter and debris be removed daily from project areas and disposed of off-site so as not to attract predators and scavengers. • New sightings of the blunt-nosed leopard lizard and San Joaquin kit fox or any other sensitive animal species would be reported to the California Natural Diversity Data Base. A copy of the reporting form and a topographic map clearly marked with the location in which the animals were observed would also be provided to the Service. • In the case of injured and/or dead blunt-nosed leopard lizards and San Joaquin kit foxes, the Service shall be notified of events within one day and the animals shall only be handled by a Service-approved, permitted biologist. Injured blunt-nosed leopard lizards and San Joaquin kit foxes would be cared for by a licensed veterinarian or other qualified person. In the case of a dead animal, the individual animal shall be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or until the Service takes custody of the specimen. Caltrans would report to the Service within one calendar day any information about take of federally-listed species not exempted in the Biological Opinion. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal. • Any contractor or employee who, during routine operations and maintenance activities inadvertently kills or injures a listed wildlife species must immediately report the incident to his representative at his contracting/employment firm and to Caltrans. This representative must contact the Service within one calendar day in the case of a federally-listed species and contact the California Department of Fish and Game in the case of a dead or injured State-listed species. <p>The following measures are specific to each of the species:</p> <p><i>Bakersfield Smallscale</i> The following avoidance and minimization measures would be implemented to avoid impacts to the Bakersfield smallscale: a biologist approved by the U.S. Fish and Wildlife Service and California Department of Fish and Game would conduct preconstruction protocol-level plant surveys during the appropriate blooming period (June to October) prior to project groundbreaking within all portions of the project footprint.</p> <p><i>Blunt-Nosed Leopard Lizard</i> The following avoidance and minimization measures would be implemented to avoid impact to the blunt-nosed leopard lizard: In the season prior to construction, protocol-level surveys would be</p>

Issue	Avoidance and Minimization Measures
	<p>conducted throughout the action area and the six parcels previously un-surveyed because of access restrictions. Preconstruction surveys would also be conducted within 60 days prior to the onset of ground-breaking to identify species presence and/or significant habitat features. Daytime transect line surveys consistent with the California Department of Fish and Game's 2004 protocol guidelines would be employed and would include areas of surface disturbance, appropriate buffers, access routes, and cross-country travel routes.</p> <p>If the blunt-nosed leopard lizard is located within the action area, (during preconstruction surveys or during construction activities), Caltrans would notify the Service and the California Department of Fish and Game and would install and maintain exclusionary fencing around the observation site throughout construction. All blunt-nosed leopard lizards would be allowed to leave the area without harassment.</p> <p>A biologist approved by the Service would stop construction activity in the vicinity of the blunt-nosed leopard lizard, monitor the area, and allow the blunt-nosed leopard lizard to leave on its own. The biologist would stay in the area for the remainder of the workday to ensure the blunt-nosed leopard lizard is not harmed and that it leaves the site and does not return. If the blunt-nosed leopard lizard does not leave on its own accord within one working day, the Service and the California Department of Fish and Game would be consulted further.</p> <p>To prevent inadvertent entrapment of the blunt-nosed leopard lizard during construction, any open trenches and holes would be surveyed in the morning and late afternoon hours in order to identify any individuals that may have fallen in. Escape ramps or other such methods enabling the blunt-nosed leopard lizard to escape from trenches would be used.</p> <p>Only a biologist approved by the Service with a valid take permit pursuant to Section 10(a)(1)(A) of the Act would have the authority to capture and/or relocate any blunt-nosed leopard lizards encountered in the action area.</p> <p>Plastic mono-filament netting (erosion control matting) or similar material would not be used on-site because the blunt-nosed leopard lizard may become entangled or entrapped in it. Acceptable alternatives (coconut coir matting or tactified hydroseeding compounds) would be used.</p> <p>A worker environmental awareness program for construction personnel would be required before construction begins. It would provide workers with information on their responsibilities with regard to listed and fully protected species, including: locations of environmentally sensitive areas, exclusion zones, timing constraints, and communication with Service-approved biologists.</p> <p>Burrows that have the potential to be occupied by the blunt-nosed leopard</p>

Issue	Avoidance and Minimization Measures
	<p>lizard would be avoided by a minimum of 250 feet.</p> <p>A qualified biological consultant would be contracted to conduct the construction monitoring requirements. The consultant would submit a natural resource protection plan that would describe monitoring methods and timing. Initial construction disturbance is expected to occur in suitable blunt-nosed leopard lizard habitat between April and October; monitoring would also take place throughout this period. By scheduling initial disturbance activities from about April 15 and September 15, when the air temperature is most suitable for the species, this would maximize the blunt-nosed leopard lizard's ability to maneuver away from construction equipment and vehicles and would minimize the risk of accidental entombment in burrows.</p> <p>If a live blunt-nosed leopard lizard is encountered during construction, both the Service and the California Department of Fish and Game would be immediately notified.</p> <p><i>San Joaquin Kit Fox</i></p> <p>The following avoidance and minimization measures would be implemented to avoid impact to the San Joaquin kit fox:</p> <p>Caltrans would include Special Provisions that include the avoidance and minimization measures of the Biological Opinion in the contractor bid package during solicitation for bid information.</p> <p>No less than 30 days but no more than 60 days prior to road construction, a Service-approved biologist would conduct preconstruction surveys for San Joaquin kit fox dens within 200 feet of the construction footprint, inclusive of utility relocations. A letter report and map of known and potential San Joaquin kit fox dens would be submitted to the Service and California Department of Fish and Game. Repeat clearance surveys would be conducted no more than 14 days before construction or after any delays in construction of over two weeks. Any new San Joaquin kit fox dens identified in the interim would be reported to the Service and California Department of Fish and Game in a letter report and map. If no new San Joaquin kit fox dens are observed, an internal record would be kept that includes the survey date, the Service-approved biologist, and general survey findings. Records would be submitted to the Service and California Department of Fish and Game upon request.</p> <p>Disturbance to all San Joaquin kit fox dens would be avoided to the maximum extent possible. If dens or potential dens are identified within the footprint during the 60-day or 14-day preconstruction surveys, Caltrans would request to monitor and excavate those dens that are expected to be affected by the project. Active dens would not be excavated during the natal</p>

Issue	Avoidance and Minimization Measures
	<p>season (about January 1 to June 14). The Service-approved biologist would monitor potential dens for three consecutive nights and submit monitoring results in a letter report to the Service and California Department of Fish and Game, and would also oversee the excavation of dens with no San Joaquin kit fox use following approval by the Service and California Department of Fish and Game.</p> <p>Dens found within 200 feet of project construction but which would not be affected by construction activities, would be monitored and buffered by an exclusion zone as measured outwards from the entrance or cluster of entrances: potential or atypical dens would be protected with a 50-foot-radius buffer, and known dens would be protected with a 100-foot buffer.</p> <p>If natal/pupping dens are discovered within the action area or within 200 feet of the action area, Caltrans would immediately notify the Service and California Department of Fish and Game.</p> <p>Caltrans and the City would adhere to the standard construction and operational requirements described in the Service's revised January 2011 <i>Standard Measures for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance Construction and Operation Requirements</i> (Standard Measures).</p> <p>The Service-approved biologist would conduct a worker environmental awareness program for all construction crews before ground-disturbing activities, with the purpose of informing all crew members of the potential for San Joaquin kit fox to occur on-site and the effects on the species by construction activities. The training would be repeated to all new crew members and annually to all crew members working in San Joaquin kit fox habitat. Crew members would sign an attendance sheet and confirm that they understand the protection measures and construction restrictions. Training materials and records of attendees would be submitted to the Service and California Department of Fish and Game.</p> <p>The Service-approved biologist would monitor road construction activities once per day and would verify that construction complies with the measures laid out in the Biological Opinion, as well as in the construction and operation requirements described in the revised 2011 Standard Measures. The Service-approved biologist would maintain a log of daily monitoring notes that can be summarized and transmitted to the Service and California Department of Fish and Game by request.</p> <p>Permeable fencing would be installed along the proposed right-of-way of the State Route 178 and Morning Drive interchange in all locations where permanent new fencing is required. One or a combination of three design options may be adopted to provide the San Joaquin kit fox with passage and movement opportunities:</p> <p>Elevate the bottom of the fence 5 inches above ground to allow</p>

Issue	Avoidance and Minimization Measures
	<p>unobstructed movement by the San Joaquin kit fox under the fence.</p> <p>Install ground-level 8-by-8-inch-wide gaps no more than 100 feet apart along the length of the fence, to allow for San Joaquin kit fox movement at regular intervals along the right-of-way.</p> <p>Install fencing with a minimum mesh size of 3.5-by-7 inches, preferably 5-by-12 inches, to allow unlimited movement through the fence.</p> <p>Curbed medians may be included in the project design to address public safety. If they become necessary, their height would be no greater than 10 inches. Ten-inch curbed medians would remain un-vegetated so as not to obstruct the visual field of the San Joaquin kit fox near the roadway. Curbed medians less than 10 inches in height and which require landscaping would either be planted with low-level vegetation (less than 6 inches) or be frequently mowed to prevent overgrowth and provide an unobstructed line of sight.</p> <p>Landscaping would be designed in conjunction with curbed median design in order to allow unobstructed visibility to the San Joaquin kit fox and to maintain and/or enhance opportunities for movement across the roadway. Three alternative strategies are proposed: 1) select plants that do not exceed 6 inches tall at maturity; 2) maintain vegetation height so that it does not exceed 6 inches; and/or 3) create gaps of no less than 4 feet wide every 12 feet in areas landscaped with trees and shrubs.</p> <p>If taller median barriers are deemed necessary for the purposes of public safety during later planning stages, Caltrans-designed modified type 60/S wildlife passageways would be incorporated into the barrier design. These openings would have a 9-inch radius and be spaced every 150 feet to allow for San Joaquin kit fox passage. Maintaining permeability would reduce the potential to disrupt north-south San Joaquin kit fox movement and connectivity in the project area.</p> <p>Existing north-south drainage culverts would be maintained and enhanced, with potential for installation of a new culvert to provide additional opportunities for San Joaquin kit fox movement. Grating at each entrance may be necessary for public safety and for predator exclusion. Caltrans proposes hinged iron grates with a 6-by-6-inch mesh. Escape dens are proposed for installation in all culverts with the exception of the two 60-inch culverts identified in 'd' below since they have the potential to both compromise drainage function and harm the San Joaquin kit fox in the event of large water flows:</p> <p>An east-west culvert is under consideration for the Morning Drive overpass south of State Route 178, with a minimum recommended diameter of 48 to 60 inches.</p> <p>An existing 24-inch diameter drainage culvert west of Morning Drive would</p>

Issue	Avoidance and Minimization Measures
	<p>be retained as is. The widening of this culvert was considered, but it ultimately was determined to be infeasible and cost prohibitive. However, the entrance would be made more accessible to the San Joaquin kit fox.</p> <p>An existing 30-inch-diameter drainage culvert immediately east of Morning Drive would be replaced with a 36-inch-diameter culvert and would be open for the San Joaquin kit fox to access. Any additional widening is considered cost prohibitive.</p> <p>Two 60-inch-diameter culverts between Vineland Road and Canteria Drive would be either retained or replaced.</p> <p>Warning signs would be installed between Morning Drive and Vineland Road, in particular, at intersections and along segments of road surrounded by open space that would alert east- and west-bound drivers to potential San Joaquin kit fox presence. The need for signage at additional intersections would continue to be evaluated as project designs advance. Proposed signage would follow current Federal Highway Administration guidelines or other Caltrans-recommended guidelines.</p> <p>An agency-approved biologist would monitor San Joaquin kit fox use of those culverts that are included in the project design modifications. Monitoring would occur for two-week periods at quarterly intervals for three years following the completion of construction. The agency-approved biologist would use track plates at culvert entrances and, where feasible, camera stations. Caltrans would prepare and submit an annual letter report to the Service and California Department of Fish and Game documenting the results of the monitoring at the crossing structures.</p> <p>An inspection of those culverts included in the project design modifications would occur once annually during April-May for three years following the completion of construction to verify that culvert access is not impeded by debris.</p> <p>The <i>Draft Thomas Roads Improvement Program Mitigation for Cumulative Effects to the San Joaquin Kit Fox</i> (Draft Sump Habitat Program Plan) dated September 2, 2010 would provide long-term habitat conservation for the urban San Joaquin kit fox population in the metro-Bakersfield area by focusing on sumps (storm-water drainage basins) as known and functional habitat for the species. The City, in coordination with Caltrans, proposes to use the Sump Habitat Program to compensate for collective effects to the San Joaquin kit fox engendered by this and five future Thomas Roads Improvement Program road improvement projects. The SHP's conservation goals include measures addressing the installation of artificial dens in selected sumps, the enhancement of San Joaquin kit fox habitat by controlling vegetation in and around dens, the increase in San Joaquin kit fox accessibility to sumps through fence/gate openings (with proposed dimensions of 6 x 6 inches to exclude predators like coyotes (<i>Canis latrans</i>) and medium- to large-sized dogs), and the reduction in the potential</p>

Issue	Avoidance and Minimization Measures
	<p>for impacts to the San Joaquin kit fox associated with regular maintenance activities and predator access. The City provided a letter of commitment to the Service, dated August 10, 2010, fully supporting and providing assurance of the implementation and management of the Sump Habitat Program and its conservation efforts.</p> <p>The current conceptual framework for the Sump Habitat Program at the time of this consultation is described in the September 2010 Draft Sump Habitat Program Plan, which addresses five core conservation measures in detail that are integral to the implementation and success of the Sump Habitat Program: 1) the selection of sumps that maintain San Joaquin kit fox accessibility and/or habitat (those of high/medium conservation priority based on the relative potential for minimizing both project-level and program-level effects); 2) the installation and maintenance of San Joaquin kit fox enhancement features (fence/gate gaps, artificial dens, conservation zones, signs, and enhancement maintenance and repair); 3) the management of sump vegetation compatible with San Joaquin kit fox presence and/or use (performance of routine maintenance outside the San Joaquin kit fox natal season and the use of hand tools in conservation zones and new active dens); 4) the biological monitoring and reporting of results (pre-maintenance surveys; den monitoring and supervised den excavation; environmental awareness training; maintenance monitoring; annual enhancement inspection; annual San Joaquin kit fox sump use monitoring; and annual reporting); and 5) the provision of long-term conservation assurances individual conservation easements for each sump; a perpetual non-wasting endowment for management, maintenance, and monitoring costs associated with ongoing implementation; and an agency-approved long-term Management Plan). Further details in regards to these five core measures can be found in the latest version of the Draft Sump Habitat Program Plan.</p> <p>The Sump Habitat Program would continue to be updated and refined through an ongoing collaborative consultation process among Caltrans, the City, the Service, and California Department of Fish and Game over the course of the six Thomas Roads Improvement Program projects. The Draft Sump Habitat Program Plan would therefore also continue to be modified over this period until a final document is developed: the finalized Sump Habitat Program would be established and implemented following the approval of the final environmental document for the last of the six Thomas Roads Improvement Program projects. Caltrans would fully fund the Sump Habitat Program within one year of this approval. Caltrans and the City would share responsibility for the Sump Habitat Program; Caltrans would adhere to the proposed avoidance and minimization measures and terms and conditions of the Biological Opinion and would be responsible for the overall implementation of the Sump Habitat Program, while the City would be responsible for enhancing sumps and conducting long-term management of the Sump Habitat Program.</p>

Issue	Avoidance and Minimization Measures
<p>Invasive Species</p>	<p>To comply with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species were found in or next to construction areas, including inspecting and cleaning construction equipment and implementing eradication strategies if an invasion occurs.</p> <p>To prevent further spread of invasive plant species, a noxious weed special provision would be adhered to during construction. In addition, any areas re-vegetated following disturbance would be seeded with a weed-free/native plant mixture following construction. Restoration of disturbed areas would be undertaken as soon as possible following the completion of construction.</p> <p>Fertilizer would not be applied to restored areas with known weed infestations (nutrients may enhance weed growth).</p> <p>Straw bales used for sediment barriers or mulch would be certified as weed-free.</p> <p>Post-construction monitoring and treatment of weed infestation within the action area would be undertaken as needed.</p>

Table E.2 Mitigation Measures

Issue	Mitigation Measures
<p>Traffic and Transportation</p>	<p>A Transportation Management Plan would be prepared and submitted to Caltrans and the City of Bakersfield for review and approval before starting construction work. This plan would include such elements as public information/public awareness, the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turn restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, and designated parking and staging areas for workers and equipment.</p>
<p>Paleontology</p>	<p>Develop a Paleontological Mitigation Plan</p>
<p>Air Quality</p>	<p>A dust control plan would be required for this project and would be submitted to the San Joaquin Valley Air Pollution Control District before construction begins. The plan will document sprinkling, temporary paving, speed limits, and expedited re-vegetation of disturbed slopes as needed to minimize construction impacts to existing communities.</p>
<p>Plant Species</p> <p>Vasek's clarkia and round-leaved filaree</p>	<p>Pay one-time habitat mitigation fee in compliance with Metropolitan Bakersfield Habitat Conservation Plan.</p>
<p>Animal Species</p> <p>Western burrowing owl Raptors and other migratory birds American badger San Joaquin pocket mouse Tulare grasshopper mouse</p>	<p>Pay one-time habitat mitigation fee in compliance with Metropolitan Bakersfield Habitat Conservation Plan.</p>
<p>Threatened and Endangered Species</p> <p>Bakersfield cactus San Joaquin adobe sunburst Bakersfield smallscale Blunt-nose leopard lizard San Joaquin kit fox</p>	<p>Pay one-time habitat mitigation fee in compliance with Metropolitan Bakersfield Habitat Conservation Plan.</p>

Appendix F Sensitive Plant and Animal Species

Table F.1 Special-Status Plant Species Potentially Known to Occur in the Project Area

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Plants				
<i>Imperata brevifolia</i> California satintail	CNPS 2.1	Coastal scrub, chaparral, riparian scrub, Mojavean scrub, meadows and seeps (alkali). Commonly found in mesic sites, alkali seeps and riparian areas. Blooms: Sept–May Elev: 0–1,640 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the biological study area (BSA) (CDFG 2008). Suitable habitat does not occur within the BSA. Rare plant surveys were conducted during this species' blooming period.
<i>Eriastrum hooveri</i> Hoover's eriastrum	FD CNPS 4.2	Chenopod scrub, valley and foothill grasslands, and pinyon-juniper woodland. This species also occurs on sparsely vegetated alkaline alluvial fans and in the Temblor Range on sandy soils. Blooms: Mar–Jul Elev: 165–3,000 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk-vetch	CNPS 1B.1	Meadows, seeps and playas. Commonly found near lake margins and alkaline sites. Blooms: May–Oct Elev: 300–2,780 ft.	A	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
<i>Pterygoneurum californicum</i> California chalk moss	CNPS 1B.1	Chenopod scrub, alkali playas, as well as valley and foothill grassland. This moss is usually found growing on alkali soil. Elev: 32–328 ft.	A	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Stylocline masonii</i> Mason's neststraw	CNPS 1B.1	Chenopod scrub and pinyon-juniper woodland. This species is commonly found on sandy washes. Blooms: Mar–May Elev: 32–3,937 ft.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species' was not observed.
<i>Atriplex tularensis</i> Bakersfield smallscale	SE CNPS 1B.1	Chenopod scrub and alkali meadow areas. Historically found in valley sink scrub or among saltgrass. Blooms: Jun–Oct Elev: 295–656 ft.	P	Suitable habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were not conducted during this species' blooming period; however this species can be identified year-round. Prior to the start of construction activities, focused surveys will be conducted during the appropriate blooming period for Bakersfield smallscale (Jun to Oct)
<i>Layia leucopappa</i> Comanche Point layia	CNPS 1B.1	Chenopod scrub as well as valley and foothill grassland areas. This species is often found on dry hills in white to grey clay soils, among weedy grasses. Blooms: Mar–Apr Elev: 330–1,148 ft.	A	There has been one previously recorded occurrence within a one-mile radius of the BSA; no additional occurrences have been recorded within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
<i>Opuntia basilaris</i> var. <i>treleasei</i> Bakersfield cactus	FE SE; SLC CNPS 1B.1	Chenopod scrub, valley and foothill grassland, and cismontane woodland. Commonly occurs on coarse or cobbly well-drained granite sand on bluffs, low hills, and flats within grassland areas. Blooms: Apr–May Elev: 393–1,804 ft.	P	Suitable habitat is present within the BSA. There are 4 previously recorded occurrences within a 1-mile radius of the BSA; no additional occurrences have been recorded within a 5-mile radius of the BSA (CDFG 2008). This species was observed within the BSA.
<i>Navarretia setiloba</i> Piute Mountains navarretia	CNPS 1B.1	Cismontane woodland, pinyon-juniper woodland, as well as valley and foothill grassland. This species generally occurs on red clay soils or on gravelly loam. Blooms: Apr–Jul Elev: 1,000–6,889ft.	A	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Stylocline citroleum</i> Oil neststraw	CNPS 1B.1	Chenopod scrub and may occur in coastal scrub areas. This species is usually found on flats, clay soils, and in oil-producing areas. Blooms: Mar–Apr Elev: 165–1,312 ft.	A	There has been 1 previously recorded occurrence within a 1-mile radius of the BSA; no additional occurrences have been recorded within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Caulanthus californicus</i> California jewel-flower	FE SE; SLC CNPS 1B.2	Chenopod scrub, valley and foothill grassland, pinyon-juniper woodland. Historically found in various valley habitats in both the Central Valley and Carrizo Plain. Blooms: Feb–May Elev: 200–3,280 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
<i>Monolopia congdonii</i> San Joaquin woollythreads	FE SLC CNPS 1B.2	Chenopod scrub as well as valley and foothill grasslands. This species is generally found in alkaline or loamy plains or in sandy soils accompanied with grasses. Blooms: Feb–May Elev: 196–2,624 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Delphinium recurvatum</i> Recurved larkspur	SLC CNPS 1B.2	Chenopod scrub, cismontane woodland, Valley and foothill grassland in alkaline soils. Blooms: Mar–Jun Elev: 10–2,460 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Tortula californica</i> California screw moss	CNPS 1B.2	Chenopod scrub as well as valley and foothill grassland. This moss is commonly found growing on sandy soil. Elev: 32–4,790 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Mimulus pictus</i> Calico monkeyflower	CNPS 1B.2	Broadleafed upland forest and cismontane woodland. This species is commonly found on bare ground areas around gooseberry bushes or around granite rock outcrops. Blooms: Mar–May Elev: 328–984 ft.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Atriplex cordulata</i> Heartscale	CNPS 1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland sandy/saline or alkaline. Blooms: Apr–Oct Elev: 3–1,230 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
<i>Monardella linoidea</i> ssp. <i>Oblonga</i> Tehachapi monardella	CNPS 1B.3	This species inhabits lower and upper montane coniferous forests as well as pinyon-juniper woodland. Blooms: Jun–Aug Elev: 2,952–8,103 ft.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Eschscholzia lemmonii</i> ssp. <i>Kernensis</i> Tejon poppy	CNPS 1B.1	This species inhabits chenopod scrub as well as valley and foothill grassland habitats. Blooms: Mar–May Elev: 524–3,280 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species blooming period and this species was not observed.
<i>Layia heterotricha</i> Pale-yellow layia	CNPS 1B.1	This species inhabits cismontane woodland, coastal scrub, pinyon and juniper woodland as well as valley and foothill grassland. Commonly found in alkaline or clay soils. Blooms: Mar–Jun Elev: 984–5,593 ft.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species' blooming period and this species was not observed.
<i>Heterotheca shevockii</i> Shevock's golden-aster	CNPS 1B.3	This species inhabits chaparral and cismontane woodland areas. Blooms: Aug–Nov Elev: 754–2,952 ft.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Fritillaria striata</i> Striped adobe lily	ST; SLC CNPS 1B.1	This species inhabits cismontane woodland as well as valley and foothill grassland. Typically found in clay soils. Blooms: Feb–Apr Elev: 442–4,773 ft.	A	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species blooming period and this species was not observed.

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
<i>Delphinium purpusii</i> Kern County larkspur	CNPS 1B.3	This species inhabits chaparral, cismontane woodland as well as pinyon and juniper woodland. Typically found in carbonate soils. Blooms: Apr–May Elev: 984–4,396 ft.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species blooming period and this species was not observed.
<i>Clarkia tembloriensis</i> ssp. <i>Calientensis</i> Vasek's clarkia	CNPS 1B.1	This species inhabits valley and foothill grassland. Blooms: April Elev: 902–1,640 ft.	P	Suitable habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were not conducted during this species' blooming period. Before construction activities, preconstruction surveys will be conducted during the appropriate blooming period for Vasek's clarkia (April)
<i>Erodium macrophylla</i> Round-leaved filaree	CNPS 1B.1	Annual herb. Cismontane woodland, Valley and foothill grassland in clay soils. Blooms: Mar–May Elev: 49–3,937 ft.	P	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted during this species blooming period and this species was observed.
<i>Pseudobahia peirsonii</i> San Joaquin adobe sunburst	FT SE CNPS 1B.1	This species inhabits cismontane woodland as well as valley and foothill grassland. Blooms: Mar–Apr Elev: 295–2,952 ft.	P	Suitable habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008). Rare plant surveys were conducted for a portion of the BSA during this species blooming period. This species was not identified within the portion of the BSA surveyed. Before the start of construction activities, preconstruction plant surveys will be conducted during the appropriate blooming period

Code Designations

Federal status	State status	California Native Plant Society
FE = Listed as endangered under the Federal Endangered Species Act	SE = Listed as endangered under the California Endangered Species Act	1B = Plant species that are rare, threatened, or endangered in California and elsewhere.
FT = Listed as threatened under the Federal Endangered Species Act	ST = Listed as threatened under the California Endangered Species Act	List 2 = Plant species that are rare, threatened, or endangered in California, but more common elsewhere.
FD = Delisted in accordance with the Federal Endangered Species Act		List 4 = Plants that have a limited distribution or that are infrequent throughout a broader area in California.
		Threat Ranks 0.1 -Seriously threatened in California (high degree/immediacy of threat) 0.2 -Fairly threatened in California (moderate degree/immediacy of threat) 0.3 -Not very threatened in California (low degree/immediacy of threats or no current threats known)
Other		
SLC = Species of Local or Regional Concern or conservation significance, as identified in the MBHCP (City of Bakersfield 1994)		
Habitat description: Habitat description adapted from CNDDDB (CDFG 2008) and CNPS online inventory (CNPS 2008)		

Table F.2 Special-Status Wildlife Species Potentially Known to Occur in the Project Area

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
Invertebrates				
<i>Danaus plexippus</i> Monarch butterfly	~	Habitat is a complex issue for this species. In general, breeding areas are virtually all patches of milkweed in North America and some other regions. The critical conservation feature for North American populations is the overwintering habitats, which are certain high altitude Mexican conifer forests or coastal California conifer or Eucalyptus groves as identified in literature. Coastal regions are important flyways and so nectar (wild or in gardens) is an important resource in such places. However, essential overwintering areas for North American populations are limited to about 100 places in coastal California and the mountains of Mexico.	A	Suitable overwintering habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Lytta moesta</i> Moestan blister beetle	~	All specimens of this species have been collected from vernal pool vegetation. Very little is known about the life cycle or other requirements of the Molestan blister beetle. Distribution of this species has been recorded within the southern Central Valley, including Kern County.	A	Suitable habitat is not present within the BSA; there are no vernal pools within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Lytta morrisoni</i> Morrison's blister beetle	~	This species is known to occur in the southern portion of the Central Valley and has been recorded in Kern and San Benito counties. Distribution of this species has been recorded in the Tulare-Buena Vista Lakes, Middle San Joaquin-Lower, Panoche-San Luis reservoir and the Carrizo Plain. This species is typically found on flowers and has been recorded feeding on bird's eyes (<i>Gilia tricolor</i>) and flax-flowered linanthus (<i>Linanthis liniflorus</i>), which occur in valley grassland	A	The BSA is outside this species known range. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
		habitat. This species is generally found in large aggregations on plants near the nesting sites of their host bees. Morrison's blister beetle larvae are "nest parasites of solitary bees," generally, the beetle larvae feed on the pollen stores that the female bee has provided for her own larvae (CDFG 2006).		
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle (VELB)	FT	Associated exclusively with elderberry shrubs (<i>Sambucus</i> spp.) in Central Valley and foothills during its entire life cycle; larvae bore into elderberry stems and feed upon the pith during their 2-year life cycle.	A	Suitable habitat is not present within the BSA; there are no elderberry shrubs within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	Inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet in the former Mather Air Force Base area of Sacramento County, to the 89-acre Olcott Lake at Jepson Prairie. Tadpole shrimp climb objects and plow along or within bottom sediments feeding on organic debris and living organisms, such as fairy shrimp and other invertebrates.	A	Suitable habitat is not present in the BSA, due to the absence of vernal pools. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Andrena macswaini</i> Andrenid bee	~	This species is distributed throughout the Central Valley and adjacent foothills, from Kern to Madera counties. Andrenid bee is a solitary ground nesting bee that nests in deep sandy soils in the upland areas surrounding vernal pools. The lifecycle of this bee is closely synchronized to that of its pollen host flower's blooming period. Once vernal pool flower species are in bloom, the andrenid bee uses pollen from the flowers to provide protein for the development of offspring.	A	Suitable habitat is not present in the BSA, due to the absence of vernal pools. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
MOLLUSKS				
STYLOMMATOPHORA (terrestrial snails and slugs)				
<i>Helminthoglypta callistoderma</i> Kern shoulderband (snail)	~	Recorded occurrences of this species include Kern County and Tulare County. This terrestrial snail is a non-migrant species. Barriers to dispersal include the presence of permanent water bodies greater than 984 feet in width, permanently frozen areas or dry, xeric areas with less than six inches precipitation annually, as moisture is required for respiration and the hatching of eggs.	A	The average annual rainfall in the BSA is less than 6 inches; therefore, suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
Fish				
<i>Hypomesus transpacificus</i> Delta smelt	FT ST	Located exclusively in the Sacramento-San Joaquin Delta. They have been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. They extend downstream as far as San Pablo Bay. Delta smelt are found in brackish water. They usually inhabit salinity ranges of less than two parts per thousand (ppt) and are rarely found at salinities greater than 14 ppt.	A	Suitable habitat is not present in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
Amphibians				
<i>Rana aurora draytonii</i> California red-legged frog	FT CSC	Lowlands and foothill streams, pools, and marshes in or near permanent or late season sources of deep water with dense, shrubby, riparian, or emergent vegetation (e.g., ponds, perennial drainages, well-developed riparian) below 3,936 feet in elevation. Breeds late December to early April.	A	Suitable habitat is not present within the BSA. There are no streams, pools, or marshes within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
Reptiles				
<i>Actinemys marmorata pallida</i> Southwestern	CSC	Permanent or nearly permanent water in various habitats (e.g., ponds, streams, perennial drainages). Requires basking sites particularly in areas vegetated	A	Suitable habitat is not present within the BSA. There are no permanent sources of water within the BSA. There are no previously recorded

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
pond turtle		with riparian habitats. The western pond turtle includes two subspecies, the northwestern pond turtle (<i>A. marmorata marmorata</i>) and the southwestern pond turtle (<i>A. marmorata pallida</i>). The two subspecies range is interconnected within and around the San Francisco Bay Area.		occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Gambelia sila</i> Blunt-nosed leopard lizard	FE SE; CFP; SLC	This species inhabits semiarid grasslands, alkali flats, low foothills, canyon floors, large washes, and arroyos, usually on sandy, gravelly, or loamy substrate, sometimes on hardpan. It is common where there are abundant rodent burrows, rare or absent in dense vegetation or tall grass. Habitats in order of decreasing favorability: 1) clump grass and saltbush grassland, with sandy soil, 2) washes with brush, in grassland, with sandy soil, 3) alkali flats, with saltbush in sandy or gravelly soil, and 4) grassland with hardpan soil. This lizard cannot survive on lands under cultivation (may use edges adjacent to suitable habitat); repopulation of an area after tilling ends requires at least 10 years. It basks on kangaroo rat mounds and often seeks cover at the base of shrubs, in the burrows of small mammals, or in rock piles. Adults may excavate shallow burrows for shelter but depend on deeper burrows of rodents for hibernation (and egg laying). Eggs typically are laid in an abandoned rodent burrow, at a depth of about 19 inches.	P	Marginal habitat is present within the BSA. There has been one previously recorded occurrence within a one-mile radius of the BSA; no additional occurrences have been recorded within a 5-mile radius of the BSA (CDFG 2008).
<i>Anniella pulchra pulchra</i> Silvery legless lizard	CSC	Riparian, sand / dune, shrubland / chaparral, woodland - hardwood, and mixed woodland. Burrows in loose soil, especially in semi-stabilized sand dunes and also in other areas with sandy	A	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
		soil, in areas vegetated with oak or pine-oak woodland, or chaparral; also wooded stream edges, and occasionally desert-scrub. Bush lupine often is an indicator of suitable conditions. Often found in leaf litter, under rocks, logs, and driftwood. May forage in leaf litter during the day, emerging on the surface at dusk or at night.		
<i>Thamnophis gigas</i> Giant garter snake	FT ST	Inhabits freshwater sloughs, marshes, canals, wetlands. Also uses rice fields, drainage canals and irrigation ditches for hunting and overwinters underground in uplands. This species inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout its winter dormancy period. Burrows commonly have sunny exposure along south and west facing slopes. The breeding season extends through March and April, and females give birth to live young from late July through early September.	A	Suitable habitat is not present within the BSA. There are no habitats that support water during this species active season. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
Birds				
Falconiformes (hawks, falcons)				
<i>Gymnogyps californianus</i> California condor	FE	This species historically occurred in California, Oregon, Arizona, and Mexico, though populations declined to extirpation in the wild by the 1980s. Reintroduction efforts are in progress in California and Arizona. Captive propagation has been successful, but reestablishment of wild breeding populations is uncertain in part because of environmental perils, such as lead poisoning, that are difficult to manage. Terrestrial habitats of this species include cliff, grassland/herbaceous, savanna, scrubland/chaparral,	A	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
		and the following woodland types: conifer, hardwood and mixed. Special habitat preferences include mountainous country at low and moderate elevations, especially rocky and brushy areas with cliffs available for nest sites. This species roosts in snags or tall open-branched trees near foraging areas (grasslands, oak savanna, mountain plateaus, ridges and canyons).		
Passeriformes (perching birds)				
<i>Agelaius tricolor</i> Tri-colored blackbird	MNBMC CSC	(Nests). Breeds in freshwater wetlands, with tall dense vegetation including tule, cattail, blackberry and rose. Forages in grasslands and croplands. Resident year-round. Breeds April to July.	A	Suitable habitat is not present within the BSA. There are no emergent wetlands or areas with tall dense vegetation that this species would use as breeding habitat. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
Strigiformes (owls)				
<i>Athene cunicularia hypugea</i> Western burrowing owl	MNBMC CSC	Open grasslands and shrublands up to 5,300 feet with low perches and small mammal burrows. Resident year-round. Breeding range is from March to August.	P	Suitable habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
Mammals				
<i>Eumops perotis californicus</i> Western mastiff bat	CSC	Found mostly in the southern half of California, but ranges north to Butte County. It prefers open, arid areas with high cliffs, but can also be found in bare rock, cliff, desert, herbaceous grassland, savanna, shrub land, chaparral, suburban, orchard, and conifer, hardwood and mixed woodlands. It roosts in small colonies and can also be found in caves and buildings. This bat catches strong flying insects such as dragonflies, moths, and beetles.	A	Suitable roosting habitat is not present within the BSA. There are no previously recorded occurrences of this species within a 5-mile radius of the BSA (CDFG 2008).

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
<i>Lasiurus cinereus</i> Hoary bat	CSC	Prefers deciduous and coniferous forests and woodlands. Roosts usually in tree foliage 10-16 feet above ground, with dense foliage above and open flying room below, often at the edge of a clearing and commonly in hedgerow trees. Sometimes roosts in rock crevices, rarely uses caves in most of range. Hibernating individuals have been found on tree trunks, in a tree cavity, in a squirrel's nest, and in a clump of Spanish-moss. Solitary females with young roost among tree foliage; female may use same site in successive years. Basically solitary, except for mother-young association; however, during migration, groups of up to hundreds of individuals may form. Those migrating through the western U.S. in fall go south at least into Mexico.	A	Suitable roosting habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Antrozous pallidus</i> Pallid bat	CSC	Pallid bats roost in rock crevices, tree hollows, mines, caves, and a variety of anthropogenic structures, including vacant and occupied buildings, mines, and natural caves. Occurrence is primarily in arid habitats. Colonies are usually small and may contain 12-100 bats.	A	Suitable roosting habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE ST; SLC	Alkali sink, valley grassland, foothill woodland. Hunts in areas with low, sparse vegetation that allows good visibility and mobility. Multiple underground dens are used throughout the year. Den usually has multiple entrances. Sometimes uses pipes or culverts as den sites. Mates in winter; four to seven young are born in February or March.	P	Suitable habitat is present within the BSA. There are six previously recorded occurrences within a 1-mile radius of the BSA; no additional occurrences have been recorded within a 5-mile radius of the BSA (CDFG 2008).
<i>Taxidea taxus</i> American badger	CSC	Stout-bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open	P	Suitable habitat is present within the BSA. There has been one previously recorded occurrence

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
		grassland, cropland, deserts, savanna, and shrubland communities. Badgers have large home ranges and spend inactive periods in underground burrows. The mating period for this species occurs from mid- to late-summer with young born between March and April.		within a 1-mile radius of the BSA; no additional occurrences have been recorded within a 5-mile radius of the BSA (CDFG 2008).
<i>Dipodomys nitratoides nitratoides</i> Tipton kangaroo rat	FE SE; SLC	This species occupies saltbrush scrub and sink scrub communities in the Tulare Lake Basin of the southern San Joaquin Valley. This species inhabits soft friable soils, which do not seasonally flood. Generally, this species digs burrows in elevated soil mounds at the bases of shrubs.	A	Project is outside of species range. Suitable habitat is not present within the BSA; soils within the BSA are heavily compacted; extremely limited scrub species within BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Dipodomys ingens</i> Giant kangaroo rat	FE SE; SLC	This species inhabits valley (annual) grasslands on the western side of the San Joaquin Valley. Marginal habitat includes alkali scrub. This species requires level terrain and sandy loam soils for burrowing.	A	Project is outside of species range. Suitable habitat is not present within the BSA; soils within the BSA are heavily compacted; extremely limited scrub species within BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Perognathus inornatus</i> San Joaquin pocket mouse	SLC	This species is endemic to California. This species is typically found in dry, open, grassy or weedy ground. Especially arid annual grasslands, savanna, and desert-shrub associations with sandy washes or finely textured soil. Found in low densities in grassland-blue oak savannas up to 1500 ft. in elevation on the east side of the San Joaquin Valley. Also occurs in alkali sink associations on the floor of the Tulare Basin. This species requires friable soils for burrowing and nesting. Burrows are often at the bases of shrubs.	P	Suitable habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).

Scientific Name Common Name	Status	General Habitat Description	Habitat Present/ Absent	Comments
<i>Onychomys torridus tularensis</i> Tulare grasshopper mouse	CSC	This species inhabits hot, arid valleys and scrub deserts in the southern San Joaquin Valley. This species' diet is primarily composed of insects; although, they are also known to eat mice, frogs and seeds. This species' breeding period occurs during spring and summer with litters born from May through July.	P	Suitable habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Ammospermophilus nelsoni</i> Nelson's antelope squirrel	ST	This species is found in the western San Joaquin Valley usually among sparsely vegetated loam soils at an elevation of approximately 200-1,200 feet. This species either digs burrows or uses kangaroo rat burrows for refuge and nesting. This species requires widely scattered shrubs, forbs, and grasses in broken terrain with gullies and washes present in its habitat.	A	Project is outside of species range. Suitable habitat is not present within the BSA; soils within the BSA are heavily compacted. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).
<i>Sorex ornatus relictus</i> Buena Vista lake shrew	FE CSC	This species inhabits marshlands and riparian areas and is generally found in the Tulare basin. This species prefers moist soils and uses stumps, logs, and various litter for cover and refuge. Very small, reduced range in the southern San Joaquin Valley, California; only a few extant occurrences known. Most of its former wetland habitat has been drained, converted to agriculture, or has dried up because of water diversion. Potentially threatened by increasing ecosystem concentrations of selenium.	A	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2008).

Code Designations

Federal status	State status
FE = Listed as endangered under the Endangered Species Act	SE = Listed as endangered under the California Endangered Species Act
FT = Listed as threatened under the Endangered Species Act	ST = Listed as threatened under the California Endangered Species Act
FC = Candidate for listing (threatened or endangered) under Endangered Species Act	CSC = Species of Concern as identified by the CDFG
MNBMC = Migratory Nongame Bird of Management Concern, protected under the Migratory Bird Treaty Act	CFP = Listed as fully protected under CDFG code
	Other
	SLC = Species of Local or Regional Concern or conservation significance, as identified in the MBHCP (City of Bakersfield 1994)
Habitat description: Habitat description information adapted from CNDDDB (CDFG 2008) and www.natureserve.org	

Appendix G Comments and Responses

This appendix contains the comments received on the Draft Environmental Impact Report/Environmental Assessment during the public circulation and comment period from September 1, 2010 to October 15, 2010. Included are the comments received at a public hearing held on September 15, 2010 at Highland High School in the City of Bakersfield.

A public notice announcing the availability of the Draft Environmental Impact Report/Environmental Assessment was published in *The Bakersfield Californian* on September 1–2, 2010 and September 8, 2010. Letters of invitation, dated August 31, 2010, were mailed to 983 local property owners and appropriate government officials, agency representatives, and local school officials.

The table below identifies the comments received on the Draft Environmental Impact Report/Environmental Assessment. The comments are presented in that order in this appendix. A Caltrans response follows each comment presented.

Comment Letter #	Name	Affiliation	Date of Letter
1	Scott Morgan	State Clearinghouse	October 19, 2010
2	David Warner	San Joaquin Valley Air Pollution Control District	October 5, 2010
3	Jeffrey R. Single	California Department of Fish and Game	October 5, 2010
4	Dave Singleton	Native American Heritage Commission	September 27, 2010
5	Donna Miranda-Drbegay	Tubatulabals of Kern County	October 13, 2010
6	A. Chatfield	Resident	September 9, 2010
7	Ray Wallace	Resident	September 15, 2010
8	Judy Colin	Resident	September 15, 2010
9	Dennis Fox	Resident	September 15, 2010
10	Kevin Thomas	Resident	September 15, 2010
11	Vince Maciorski	Resident	September 15, 2010
12	Jessica Brownfield	Resident	September 15, 2010
13	Scott Faulkenburg	Resident	September 15, 2010
14	Kathy Gallego	Resident	September 15, 2010
15	September 15, 2010 Public Hearing Transcript		
	Henry Gallego	Resident	
	Henry Christiansen	Resident	
	Thomas Scott Belden	Resident	
	Kevin Thomas	Resident	
	Diane Greer	Resident	
	Scott Faulkenburg	Resident	
	Dennis Fox	Resident	

Letter 1



Arnold Schwarzenegger
Governor

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



Cathleen Cox
Acting Director

October 19, 2010

Richard Putler
California Department of Transportation, District 6
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726-5428

Subject: Morning Drive / State Route 178 Interchange Project
SCH#: 2010071050

Dear Richard Putler:

The State Clearinghouse submitted the above named Draft EIR 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 October 15, 2010, 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.

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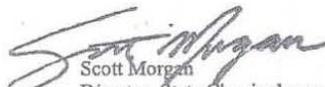
Please note that Section 21104(c) of the California Public Resources Code states that:

"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,


Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

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# 2010071050
Project Title Morning Drive / State Route 178 Interchange Project
Lead Agency Caltrans #6

Type EIR Draft EIR
Description Caltrans, in cooperation with the City of Bakersfield, proposes to construct a new interchange along State Route 178 from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive in Bakersfield, CA. The project is located in the northwestern portion of the City of Bakersfield, within central Kern County

Lead Agency Contact

Name Richard Putler
Agency California Department of Transportation, District 6
Phone 559-243-8300 **Fax**
email
Address 2015 E. Shields Avenue, Suite 100
City Fresno, **State** CA **Zip** 93726-5428

Project Location

County Kern
City Bakersfield
Region
Lat / Long 35° 23' 48" N / 118° 54' 50" W
Cross Streets Morning Dr/SR 178
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways SR 178, 184
Airports No
Railways No
Waterways No
Schools Thorner ES and Highland
Land Use

Project Issues Air Quality; Biological Resources; Cumulative Effects; Noise; Landuse; Public Services; Growth Inducing; Toxic/Hazardous; Traffic/Circulation; Other Issues; Water Quality; Aesthetic/Visual

Reviewing Agencies Resources Agency; 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); Department of Toxic Substances Control; Native American Heritage Commission

Date Received 09/01/2010 **Start of Review** 09/01/2010 **End of Review** 10/15/2010

Letter 1—Response to Comment from the State Clearinghouse

Response to comment #1: The State Clearinghouse letter acknowledges that Caltrans has complied with review requirements for draft environmental documents, per the California Environmental Quality Act.

Letter 2



October 5, 2010

Kirsten Helton
Department of Transportation,
South Valley Environmental Analysis Branch
District 6, Central Region
2015 East Shields Avenue, Suite 100
Fresno, CA 93726

Project: Draft EIR/EA – State Route 178 from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive

District CEQA Reference No: 20100763

Dear Ms. Helton:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the project referenced above consisting of constructing a new interchange along State Route 178. The project would also include the widening for State Route 178 and Morning Drive located in the city of Bakersfield, CA. The District offers the following comments:

1. An emission analysis quantifying project related emissions is not included in the discussion on air quality in the Draft Environmental Impact Report (DEIR). Therefore the District can not accurately assess the project's impact on air quality. For purposes of full disclosure of potential impacts, the District recommends that the DEIR be amended to incorporate an air quality analysis.

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The District recommends the air quality analysis include emissions generated by all construction activities, including those from any demolition of existing structures, and on- and off-road equipment exhaust emissions. The project would be considered to have a significant impact on air quality if emissions would exceed the District's thresholds of significance of 10 tons per year for ROG and NOx and 15 tons per year for PM10.

2. The DEIR doesn't clearly state what the findings on air quality are for this project. The District recommends clarifying the impact on air quality by clearly stating the level of significance and by showing the pre-project emissions and the post-project emissions after mitigations from an air quality analysis as mentioned in comment 1

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Executive Director/Air Pollution Control Officer

- above. The District also recommends adding the "Air Quality Study Report" that was referred to on page 79 as an appendix to the DEIR or at a minimum present the results of the report.
3. The DEIR referenced the 2003 PM10 Plan for conformity finding on page 86. The District would like to point out that there is a 2006 PM10 Plan and a 2007 Maintenance Plan. If the project is in the 2009 Interim Federal Transportation Improvement Plan, it would be appropriate to conclude that the project would conform with the current PM10 Plan. If not, the District recommends that the finding for conformity be revised appropriately.
 4. Although project emission may fall below the District's thresholds of significance, to further reduce the impact of construction emissions the District recommends incorporating, as a condition of project approval, a requirement that off-road construction equipment used on site achieve fleet average emissions equal to or less than the Tier II emissions standard of 4.8 NOx g/hp-hr. This can be achieved through any combination of uncontrolled engines and engines complying with Tier II and above engine standards.
 5. As stated above, an emissions analysis was not included in the discussion on air quality. The DEIR states compliance with Rule 9510 – Indirect Source Review would be implemented to reduce air quality impacts resulting from construction activities. Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first building permit. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at: <http://www.valleyair.org/ISR/ISRHome.htm>.
 6. The proposed project may be subject to District Rules and Regulations, including: Regulation VIII (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance Office at (559) 230-5888. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm.
 7. The District recommends that a copy of the District's comments be provided to the project proponent.

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District CEQA Reference No. 20100763

Page 3 of 3

If you have any questions or require further information, please call David McDonough at (559) 230-5920.

Sincerely,

David Warner
Director of Permit Services



for, Arnaud Marjollet
Permit Services Manager
DW:dm

Letter 2—Response to Comments from the San Joaquin Valley Air Pollution Control District

Response to comment #1: The Morning Drive/State Route 178 Interchange Project Air Quality Report (Air Quality Report) provides an emission analysis of the project’s impact and has been provided to the District with the Draft Environmental Impact Report/Environmental Assessment (see Section 2.2.4 Summary of Construction Impacts). This report will satisfy the requirements of the San Joaquin Valley Air Pollution Control District (District) for quantifying project emissions, including those associated with construction.

The District has thresholds of 10 tons per year for ROG and NO_x and 15 tons per year for PM₁₀. Any project that would exceed these thresholds would be considered to have a significant impact. Page 64 of the Air Quality Report identifies construction emissions of 10.8 tons for NO_x and 43.4 tons of PM₁₀. Both of these pollutants would exceed the District’s thresholds and would require the implementation of the mitigation identified in Section 2.2.4 of the Environmental Impact Report/Environmental Assessment, Avoidance, Minimization, and/or Mitigation Measures.

The Air Quality Report states that the project would comply with District Rule 9510 and Regulation VIII to mitigate construction emissions. Rule 9510 requires reduction of 20 percent of total NO_x emissions and reduction of 45 percent of total PM₁₀ exhaust emissions from construction equipment greater than 50 horsepower (Rule 9510 Section 6.1.1). In addition, payment of Off-site Emission Reduction Fees for construction activities (Rule 9510 Section 7) would also serve to mitigate construction emissions. These measures have been identified as mitigation in the Avoidance, Minimization and/or Mitigation Measures in the Environmental Impact Report/Environmental Assessment and would be effective in mitigating project construction emissions to less than significant.

Response to comment #2: Section 2.2.4 of the Environmental Impact Report/Environmental Assessment states that construction of the proposed project would result in the temporary generation of emissions resulting from site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions generated by construction were projected at 10.8 tons of oxides of nitrogen and 43.4 tons of PM₁₀. Section 2.2.4 of the Environmental Impact Report/Environmental Assessment stated that the project would have to meet mitigation measures required by San Joaquin Valley Air Pollution Control District Rule 9510 (Section 6.1) to reduce air quality

impacts resulting from construction activities. Also noted in Section 2.2.4, the project would not result in any long-term operational impacts.

Response to comment #3: Information has been updated in Section 2.2.4 to include conformity with both the San Joaquin Valley Air Pollution Control District's 2007 PM₁₀ Maintenance Plan and the 2008 PM_{2.5} Plan.

Response to comment #4: The proposed project must comply with Section 6.1.1 of Rule 9510, which addresses the issue of reducing construction emissions. Specifically, compliance with the provisions of Section 6.1.1 of Rule 9510 requires projects to mitigate 20 percent of total NO_x emissions and 45 percent of total PM₁₀ exhaust emissions from construction equipment greater than 50 horsepower. This can be achieved by using less-polluting construction equipment that employs add-on controls, cleaner fuels, or newer equipment. The exact construction equipment fleet mix would be determined upon selection of the construction contractor.

Response to comment #5: Compliance with District Rule 9510 is identified as an Avoidance, Minimization and/or Mitigation Measure in the Environmental Impact Report/Environmental Assessment. The project will be required to comply with District Rule 9510 as a mitigation measure. This is identified on page 67 of the Air Quality Report as part of the Construction Mitigation Measures.

Response to comment #6: Regulation VIII is identified as an Avoidance, Minimization and/or Mitigation Measure in Section 2.2.4 of the Environmental Impact Report/Environmental Assessment. The project would be required to comply with these rules and regulations that are identified as construction mitigation measures on page 67 of the Air Quality Report. The project would be subject to District Rules and Regulations including Regulation VIII (Fugitive PM₁₀ Prohibitions), Rule 4102 (Nuisance), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

Response to comment #7: The comments received have been acknowledged and are included as part of the project record.

Letter 3



State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
<http://www.dfg.ca.gov>

ARNOLD SCHWARZENEGGER, Governor
JOHN McCAMMAN, Director



October 5, 2010

Kirsten Halton
Senior Environmental Planner
California Department of Transportation (Caltrans)
Southern Valley Environmental Analysis Branch
2015 East Shields Avenue, Suite 100
Fresno, California 93726

Subject: Draft Environmental Impact Report
Morning Drive – State Route 178 Interchange Project
8-KER-178 PM R8.9-R9.2
EA 06-0C9400 Project ID 06-0000-0041
SCH No. 2010071050

Dear Ms. Halton:

The Department of Fish and Game (DFG) has reviewed the Draft Environmental Impact Report (DEIR)/Environmental Assessment prepared for the above Project. This Project is part of the Thomas Road Improvement Program (TRIP). Caltrans, in cooperation with the City of Bakersfield, proposes to build a new Interchange on State Route (SR) 178 from 0.65 miles west of Morning Drive to 1.2 miles east of Morning Drive with the following features:

- SR 178 would be built as a four-lane freeway from the newly built Fairfax Road/SR 178 interchange about 0.65 miles west of Morning Drive to 1.2 miles east of the existing Morning Drive/SR 178 intersection.
- Auxiliary lanes would be built on both eastbound and westbound SR 178 between the new Morning Drive interchange and the Fairfax Drive Interchange to the west.
- Morning Drive would be realigned and widened to a six-lane divided roadway from 0.3 miles south of SR 178 north to Auburn Street, and widened to a four-lane roadway from Auburn Street north to Panorama Drive.
- Morning Drive would cross over SR 178 with a new overcrossing structure including three southbound lanes and three northbound lanes, bike lanes and a median to allow for dual left-turn lanes.
- Improvements that comply with the Americans with Disabilities Act (ADA).
- Bicycle lanes and sidewalks along both sides of Morning Drive through the Project area.
- Sound-walls would be built along the north side of SR 178 where feasible.

Conserving California's Wildlife Since 1870

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- Landscaping similar to that of the adjacent projects would be added.
- Retaining walls would be built at several locations along the on- and off-ramps.
- Three basins would be built to retain runoff of water from the Project.

Three alternatives are being considered: two build alternatives and the No-build Alternative. Alternative 1 is a partial cloverleaf interchange and Alternative 2 is a spread diamond interchange.

Our specific comments follow.

DEPARTMENT JURISDICTION

Trustee Agency Authority: DFG is a Trustee Agency with responsibility under the California Environmental Quality Act (CEQA) for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, DFG 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 a Trustee Agency for fish and wildlife resources, DFG is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 (commencing with Section 21000) of the Public Resources Code).

Responsible Agency Authority: DFG has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered, pursuant to Fish and Game Code Section 2081. If the Project could result in the "take" of any species listed as threatened or endangered under the California Endangered Species Act (CESA), DFG may need to issue an Incidental Take Permit for the Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Section 21001(C), 21083, Guidelines Section 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080. The Project has the potential to reduce the number or restrict the range of endangered, rare, or threatened species (as defined in Section 15380 of CEQA), including: Blunt-nosed leopard lizard (*Gambelia sila*), State and Federally endangered and State fully protected; San Joaquin kit fox (*Vulpes macrotis mutica*), State threatened and Federally endangered; San Joaquin adobe Sunburst (*Pseudobehnia peirsonii*), State endangered and Federally threatened; Bakerfield smallscale (*Atriplex fufarensis*), State endangered; and Bakerfield cactus (*Opuntia basilaris* var. *trileasei*), State and Federally endangered.

Other Rare Species: Species of plants and animals need not be officially listed by the State as Endangered, Rare, or Threatened (E, R, or T) to be considered E, R, or T under CEQA. If a species can be shown to meet the criteria for E, R, or T, as specified in the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15380), it should be fully considered

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in the environmental analysis for the Project. The Project has the potential to reduce the number or restrict the range of the Western burrowing owl (*Athene cunicularia hypugaea*), American badger (*Taxidea taxus*), San Joaquin pocket mouse (*Perognathus inornatus inornatus*), Tulare grasshopper mouse (*Onychomys leucogaster tularensis*), Vasek's clarkia (*Clarkia temblorensis vaseki* ssp. *californiensis*), CNPS 1.B, and round-leaved filaree (*Erodium macrophyllum* var. *macrophyllum*), CNPS 1.B.

Fully Protected Species: DFG has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish pursuant to Fish and Game Code Sections 3511, 4700, 5050, and 5515. "Take" of any fully protected species is prohibited and DFG cannot authorize their "take" for development. The blunt-nosed leopard lizard is a fully protected species that is known to occur in the Project area vicinity. Additional comments regarding potential Project-related impacts to this species follow.

Stream/Lake Alteration (1602) Notification: Pursuant to Fish and Game Code Sections 1600 et seq., it is unlawful for any person to divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream or lake designated by DFG without first submitting plans to DFG for approval. If DFG determines that the Project may substantially and adversely affect fish or wildlife resources, then a Streambed Alteration Agreement would be required.

Bird Protection: DFG also has jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized "take" of birds. Sections of the Fish and Game Code that protect birds, their eggs, and nests include Sections 3503 (regarding unlawful "take," possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding "take," possession, or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful "take" or possession of any migratory nongame bird).

PROJECT RECOMMENDATIONS

Blunt-nosed Leopard Lizard (BNLL): This species could be present within the Project site. Because BNLL is fully protected and, therefore, no "take" incidental or otherwise can be authorized by DFG, protocol-level surveys must be conducted prior to any ground-disturbing activities in all areas of suitable habitat. Suitable habitat includes all grassland and shrub scrub habitat that contains required habitat elements, such as small mammal burrows. These surveys, the parameters of which were designed to optimize detectability, must be conducted to reasonably assure DFG that "take" of this fully protected species will not occur as a result of disturbance associated with Project implementation. In the event that this species is detected during protocol-level surveys, consultation with DFG is warranted to discuss how to implement the Project and avoid "take." Page 125 of the DEIR states that the proposed Project Impact Area (PIA) was absent of small mammal burrows when field surveys were done. This conflicts with the information given on page 118 which states that "Because species-specific surveys have not been conducted, these species [San Joaquin pocket mouse and Tulare Grasshopper mouse] are assumed to be present within the biological study area [BSA] until protocol-level surveys determine otherwise." Also page 116 states that there is suitable nesting and foraging habitat for western burrowing owls is present in the annual grassland habitat found within the BSA.

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Burrowing owls require burrows to nest in, so if there is nesting habitat, then there must be ground squirrel burrows in addition to mouse size burrows. There may be a lack of kangaroo rat burrows, but that does not preclude the possible presence of BNLL. The DEIR on page 130 states that focused pre-construction surveys will be conducted for BNLL within 60 days prior to the onset of ground-breaking actions. Pre-construction surveys are not adequate to detect this species, especially if these surveys are conducted when the species is dormant or inactive above-ground.

Page 131 states that initial surface-disturbing actions that could occur during the active BNLL season would be monitored. Surface-disturbing actions in potentially suitable habitat would be scheduled during the active season (approximately April 15 to October 15), when air temperatures are between 77 and 95 degrees Fahrenheit to maximize the lizard's ability to escape from slow-moving equipment and minimize the risk of accidental entombment of burrows. Surveying 60 days before April 15 would be while BNLL are still dormant. Protocol-level surveys, not pre-construction surveys, should be conducted in all areas with potential habitat for the reasons stated above.

San Joaquin Kit Fox (SJKF): Page 126 of the DEIR states that results from surveys and existing kit fox information suggest that SJKF occur within and surrounding the Project area. Page 128 under Avoidance, Minimization, and/or Mitigation Measures states that a one-time mitigation fee will be paid for affected habitat. The mitigation fee would apply to the 107.44 acres of permanently disturbed grassland for Alternative 1 or the 105.44 acres of permanently disturbed grassland for Alternative 2. It does not say anything about Temporary Impacts which should also be addressed. It also does not specify that the Metro Bakersfield Habitat Conservation Plan (MBHCP) would be the recipient of the mitigation fee, but DFG has been aware of Caltrans' intent to mitigate in this fashion for quite some time. DFG has advised Caltrans that they need to contact the MBHCP Board of Directors and confirm that the TRIP Projects can use the MBHCP for mitigation. Because the MBHCP will sunset in 2014 and the TRIP projects will be continuing well beyond this date, DFG is concerned this option may not be feasible to meet the entire mitigation obligation and is therefore requesting Caltrans to demonstrate how the mitigation for this Project will be met.

Nesting Birds and Raptors: Trees and shrubs within the Project area can provide nesting habitat for songbirds and/or raptors. Any tree or shrub removal should occur during the non-breeding season (mid-September through January). If construction activities or tree removal must occur during the breeding season (February through mid-September) surveys for active nests should be conducted by a qualified biologist no more than 30 days prior to the start of construction. A minimum no-disturbance buffer of 250 feet (500 feet for non-listed raptors) should be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

Burrowing Owl (BUOW): Burrowing owl burrows and BUOW are present in the Project area vicinity. If any Project-related ground-disturbing activities will occur during the BUOW nesting season (approximately February 1 through August 31), implementation of avoidance measures is

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required. DFG's Staff Report on Burrowing Owl Mitigation (CDFG 1995) recommends that impacts to occupied burrows be avoided by implementation of a no-construction buffer zone of a minimum distance of 250 feet, unless a qualified biologist approved by DFG verifies through non-invasive methods that either: 1) the 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. Failure to implement this buffer zone could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure. Impacts of this nature are violations of Fish and Game Code Sections 3503, 3503.5, 3513, and the Federal Migratory Bird Treaty Act (MBTA).

DFG's Staff Report on Burrowing Owl Mitigation (CDFG 1995) also recommends that a minimum of 6.4 acres of foraging habitat per pair or unpaired resident burrowing owl should be acquired and permanently protected to offset the loss of foraging and burrow habitat. This mitigation may be addressed through the lands secured by participation in the MBHCP, depending upon how much acreage is secured and how many burrowing owls would be impacted by the proposed Project.

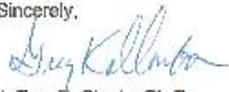
Plant Species: DFG recommends that repeated floristic surveys for rare, threatened, and endangered plants and natural communities be conducted by a qualified botanist multiple times during the appropriate floristic period(s) in order to adequately assess the potential Project-related impacts to listed plant species (DFG, 2000; USFWS, 2000). Page 126 of the DEIR states neither alternative to the proposed Project would cause direct "take" (removal) of Bakersfield cactus. The cactus individuals observed within the BSA are about 90 feet from the PIA of either alternative. To further protect the cactus page 129 proposes silt fencing would be placed around sensitive cacti or plants under a biologist's supervision, in order to ensure that cacti or plants are not disturbed during project construction activities. Fencing would be placed with an appropriate buffer (no less than 15 feet from an individual cactus or plant) to ensure no impacts to the cacti or plants occur during construction activities. In addition, signs would be posted to publicize the sensitive nature of the area. Prior to construction activities, a qualified biologist would conduct a pre-construction plant survey to ensure no special status plants would be directly affected by the Project. The contractor would place stormwater drainages and culverts in an area that would not adversely affect the area within or surrounding known location of special status plant species.

The proposed buffer for plants is acceptable to DFG's Botanist. We request that if any new plants are discovered during the pre-construction survey within the PIA that would require transplanting that DFG be notified immediately so that our Botanist, Ellen Cypher, can be consulted regarding the transplanting. She also has concerns that the wording regarding the stormwater drainage is a little vague. The local special status plants are unlikely to survive inundation, and the sandy soils erode very easily so it is critical that stormwater run off not be directed toward these sensitive areas or upslope of these areas which would result in the water ultimately running down the slope and potentially causing impacts.

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We appreciate the opportunity to comment on this Project and for your willingness to involve DFG in the development of this Project. If you have any questions regarding these issues please contact Laura Peterson-Diaz, Environmental Scientist, at the address provided on this letterhead, by e-mail at lpdiaz@dfg.ca.gov, or by telephone at (559) 243-4017, extension 225.

Sincerely,


for Jeffrey R. Single, Ph.D.
Regional Manager

cc: Zachary Parker
Department of Transportation, District 6
2015 East Shields Avenue, Suite 100
Fresno, California 93726

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

State Clearinghouse
Office of Planning and Research
Post Office Box 3044
Sacramento, California 95812-3044

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Literature Cited

CDFG, 1995. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. <http://www.dfg.ca.gov/wildlife/nongame/docs/burowlmit.pdf>

DFG, 2000. Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities. California Department of Fish and Game. May, 2000. <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/guidepft.pdf>

Letter 3—Response to Comments from the California Department of Fish and Game

Response to comment #1: Based on review of the project area conditions documented in the Morning Drive/State Route 178 Natural Environment Study and identified in the draft environmental impact report/environmental assessment, the project area presents marginal habitat due to the area’s highly compacted soils and extent of disturbance (see Section 2.3.3 of the Final Environmental Impact Report/Environmental Assessment).

“Take” of blunt-nosed leopard lizard is not expected. However, the environmental impact report/environmental assessment does assume that blunt-nosed leopard lizard habitat could be affected by the project and identifies mitigation measures associated with the payment of mitigation fees for coverage under the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) (Appendix H), preconstruction surveys (consistent with California Department of Fish and Game 2004 protocol guidelines), and avoidance and monitoring of construction activities (see Section 2.3.3 of the Final Environmental Impact Report/Environmental Assessment). While discussions in Section 2.3.3 of the Environmental Impact Report/Environmental Assessment note the potential to affect the western burrowing owl, San Joaquin pocket mouse and Tulare grasshopper mouse, this does not specifically conflict with the determination of marginal habitat or lack of observed small mammal burrows identified.

Response to comment #2: In addition to preconstruction surveys, Section 2.3.3 of the Environmental Impact Report/Environmental Assessment identified other actions to minimize potential impacts to the blunt-nosed leopard lizard. These included avoiding burrows that may be used by the blunt-nosed leopard lizard to the greatest extent practicable; monitoring initial surface disturbing actions that occur during the active blunt-nosed leopard lizard season; and surveying any trenches that are open during the active season to prevent inadvertent entrapment of blunt-nosed leopard lizards during construction. If blunt-nosed leopard lizards are found in the project area during preconstruction surveys, flash fencing would be installed and maintained throughout construction to minimize impacts to this species.

Response to comment #3: Surveys for the blunt-nosed leopard lizard, consistent with California Department of Fish and Game 2004 protocol guidelines, would be done in the spring and fall seasons before construction. As noted in response #1 above, the Environmental Impact Report/Environmental Assessment identified presence of marginal blunt-nosed leopard lizard habitat and would address impacts through participation in the Metropolitan Bakersfield Habitat Conservation Plan and construction measures. Section

2.3.3 Avoidance, Minimization, and/or Mitigation Measures for the blunt-nosed leopard lizard have been revised to match the measures identified in the U.S. Fish and Wildlife Service Biological Opinion for the project.

Response to comment #4: Permanent and temporary impacts to the San Joaquin kit fox are addressed and differentiated in the Biological Assessment. Likewise, permanent impacts to the San Joaquin kit fox (107.44 acres of annual grasslands) are addressed in Section 2.3.3 of the Environmental Impact Report/Environmental Assessment. Section 2.3.3 Avoidance, Minimization, and/or Mitigation Measures for the San Joaquin kit fox have been revised to match the measures identified in the U.S. Fish and Wildlife Service Biological Opinion for the project, which include measures to address temporary (construction) impacts.

Response to comment #5: The City of Bakersfield has secured participation for all of the TRIP projects, including the proposed project, in the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The MBHCP Trust Administrator has indicated by letter that the City would use the Metropolitan Bakersfield Habitat Conservation Plan for compensatory mitigation for each TRIP project (Ortiz 2010) (Appendix H). The amount of required mitigation in acreage is determined for each project by the resource agencies and the City. Corresponding acreage credits from the MBHCP Trust Group would be requested by the City. In addition, the City would pay the appropriate fee amount to the Trust Group for the acreage credits, and the Trust Group would acquire the required acreage amounts to mitigate for impacts to the San Joaquin kit fox associated with the proposed project. The U.S. Fish and Wildlife Service Biological Opinion for the project identifies participation in the Metropolitan Bakersfield Habitat Conservation Plan as a measure to address impacts.

Response to comment #6: Impacts to nesting habitat were addressed in Section 2.3.2, Animal Species, which identified that the project area contained no trees or tall shrubs or nests. However, raptors and migratory birds may use the annual grasslands in the project area as foraging habitat. The Environmental Impact Report/Environmental Assessment identified mitigation through preconstruction surveys for active nests of raptors and migratory birds within and in the vicinity of (no less than 150 feet outside the area of construction activities) the construction area no more than 30 days before ground disturbance or tree removal (see Section 2.3.2 of the Environmental Impact Report/Environmental Assessment). Likewise, mitigation would apply if active nests were found during preconstruction surveys. This would occur through restricting construction activities as necessary to avoid disturbance of the nest until it is abandoned

or a biologist deems disturbance potential to be minimal (in consultation with the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game). Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 250 feet around the nest) or alteration of the construction schedule.

Response to comment #7: The environmental impact report/environmental assessment prepared for the project identifies avoidance, minimization, and/or mitigation measures to address potential impacts to the burrowing owl (though the CNDDDB 2008 or field surveys did not identify any burrowing owls present in the project area). The actions specified in Section 2.3.2 of the environmental impact report/environmental assessment to offset impacts to the burrowing owl are consistent with, and similar to, measures identified in the California Department of Fish and Game's staff report on burrowing owl mitigation. In addition, participation in the Metropolitan Bakersfield Habitat Conservation Plan would address United States Fish and Wildlife Service and California Department of Fish and Game concerns about potential habitat loss through the payment of fees and acquisition of habitat.

Response to comment #8: Section 2.3.3 Threatened and Endangered Species identifies that surveys were completed and measures are included that require preconstruction surveys to take place and other actions to address impacts consistent with the measures identified in the Biological Opinion for the project.

As noted in response to comment #5, the City of Bakersfield has permission to allow the TRIP projects to participate in the Metropolitan Bakersfield Habitat Conservation Plan (Appendix H). Participation in the MBHCP would serve as mitigation for loss of Bakersfield cactus (though no loss is expected from the project).

Final design of the drainage facilities would ensure that drainage discharge is not directed at known locations of special-status plant species.

Suggested measures for rare plants associated with buffering, and preconstruction surveys, are included in changes made to Section 2.3.3 Avoidance, Minimization, and/or Mitigation Measures, consistent with the Biological Opinion.

If special-status plant species are found during preconstruction surveys, Caltrans would notify the United States Fish and Wildlife Service and California Department of Fish and Game.

Letter 4

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net



September 27, 2010

Mr. Richard Putler
CALIFORNIA DEPARTMENT OF TRANSPORTATION
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

Re: SCH#2010071050; CEQA Notice of Completion: draft Environmental Impact Report (DEIR) for the Morning Drive/State Route 178 Interchange Project; located in the City of Bakersfield; Kern County, California.

Dear Mr. Putler:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 for the protection and preservation of California's Native American Cultural Resources. (Also see Environmental Protection Information Center v. Johnson (1985) 170 Cal App. 3rd 604). The California Environmental Quality Act (CEQA - CA Public Resources Code §21000-21177, amendment effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance. The lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect. State law also addresses Native American Religious Expression in Public Resources Code §5097.9.

The Native American Heritage Commission did perform a Sacred Lands File (SLF) search in the NAHC SLF Inventory, established by the Legislature pursuant to Public Resources Code §5097.94(a) and Native American Cultural Resources were not identified within one-half mile radius of the 'area of potential effect (APE)'. Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the culturally affiliated tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Also, the NAHC recommends that a Native American Monitor or Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the 'Initial Study' and in other phases of the environmental planning processes.

Furthermore the NAHC recommends that you contact the California Historic Resources Information System (CHRIS) of the Office of Historic Preservation (OHP), for archaeological data. (916) 653-7278.

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Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f] *et seq.*), 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes*. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e).

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of 'historic properties of religious and cultural significance' may also be protected under Section 304 of the NHPA or at the Secretary of the Interior's discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C. 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

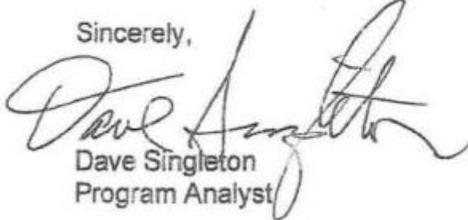
CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC

Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or

medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,



Dave Singleton
Program Analyst

Attachment: List of Culturally Affiliated Native American Contacts

Cc: State Clearinghouse

Native American Contacts
Kern County
September 27, 2010

Santa Rosa Rancheria
Rueben Barrios, Chairperson
P.O. Box 8
Lemoore , CA 93245 Tache
(559) 924-1278 Tachi
(559) 924-3583 Fax Yokut

Kawaiisu Tribe of Tejon Reservation
David Laughinghorse Robinson
PO Box 1547 Kawaiisu
Kernville , CA 93238
(661) 664-3098 - work
(661) 664-7747 - home
horse.robinson@gmail.com

Tule River Indian Tribe
Ryan Garfield, Chairperson
P.O. Box 589 Yokuts
Porterville , CA 93258
chairman@tulerivertribe-nsn.
(559) 781-4271
(559) 781-4610 FAX

Chumash Council of Bakersfield
Arianne Garcia, Chairperson
P.O. Box 902 Chumash
Bakersfield , CA 93302
chumashtribe@sbcglobal.
(661) 836-0486
(661) 836-0487

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez
981 N. Virginia Yowlumne
Covina , CA 91722 Kitanemuk
(626) 339-6785

Kern Valley Indian Council
Robert Robinson, Historic Preservation Officer
P.O. Box 401 Tubatulabal
Weldon , CA 93283 Kawaiisu
brobinson@twvisp.com Koso
(760) 378-4575 (Home) Yokuts
(760) 549-2131 (Work)

Tejon Indian Tribe
Kathy Morgan, Chairperson
2234 4th Street Yowlumne
Wasco , CA 93280 Kitanemuk
kmorgan@bak.rr.com
661-758-2303

Tubatulabals of Kern Valley
Donna Begay, Tribal Chairwoman
P.O. Box 226 Tubatulabal
Lake Isabella, CA 93240
drbegay@aol.com
(760) 379-4590
(760) 379-4592 FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.

This list is only applicable for contacting local Native Americans for consultation purposes with regard to cultural resources impact by the proposed SCH#2010071050; CEQA Notice of Completion; Morning Drive/State Route 178 Interchange Project; located in the City of Bakersfield; Kern County, California for which a draft Environmental Impact Report (DEIR) is being circulated for consideration. The Lead Agency is California Department of Transportation.

Letter 4—Response to Comments from the Native American Heritage Commission

Response to comment #1: The Native American Heritage Commission performed a Sacred Lands File search for the proposed project on June 21, 2007. No Native American cultural resources were identified within a one-half mile radius of the Area of Potential Effects. The Native American Heritage Commission’s findings of the Sacred Lands File search are acknowledged and included in the project record.

Response to comment #2: On September 25, 2007, TRIP Program Environmental Manager David Clark contacted in writing the culturally affiliated tribes and interested Native American individuals on the list provided by the Native American Heritage Commission as part of preparation of the Archaeological Survey Report. The appropriate contacts have been made, and any responses received are included as part of the project record and analysis.

Response to comment #3: The California Historic Resources Information System (CHRIS) of the State Office of Historic Preservation was contacted for archaeological data for the project area. A search for archaeological and historic records was completed at the Southern San Joaquin Valley Information Center at California State University, Bakersfield by archaeologist Sherri Gust on December 16, 2008. Information received from CHRIS was used in preparing both the Historic Property Survey Report and Archaeological Survey Report for the proposed project. Chapter 4 identifies coordination that has occurred with Native American groups.

Letter 5

From: DRBEGAY
Sent: 10/13/2010 05:24 PM EDT
To: Kirsten Helton
Cc: Marta Frausto
Subject: HW178 - Morning Drive: EIR draft

Hello Kirsten:

At this time, the Tubatulabals of Kern Valley do not have any major concerns with the proposed interchange project. Thanks for the CD. Just for your consideration - the letter on the CD had font that was hard to read - may use Times Roman and/or Arial font.

1

Morning Drive/State Route 178
Interchange Project
On State Route 178 from 0.65 mile west of Morning Drive to 1.2 miles east of Morning Drive KERN COUNTY, CALIFORNIA DISTRICT 6 - KER - 178 (PM R6.9/T9.2) EA
06-0C9400 Project ID 06-0000-0041
SCH#: 2010071050
Draft Environmental Impact Report/
Environmental Assessment

Page 1

Letter 5—Response to Comments from Donna Miranda-Drbegay

Response to comment #1: Thank you for participating in the public review process. No concerns were expressed by the Tubatulabals of Kern Valley regarding the project. Your comment is acknowledged and included in the project record.

Letter 6

----- Original Message -----
From: [achatfield@bak.rr.com]
Sent: 09/09/2010 03:24 PM MST
To: Kirsten Helton
Subject: State Route 178/Morning Drive Interchange

It was with pleasure I read the public notice in The Bakersfield Californian of the plans for starting the process of building an interchange at Morning Drive and State Route 178. This is the right time to start the planning as there are no homes or businesses in the area of the planned construction. waiting until a later date would greatly increase the cost of the project. This is a good way to spend the taxpayer's money. I hope the project can move along smoothly. A Chatfield

1

Letter 6—Response to Comments from A. Chatfield

Response to comment #1: Your support for the project moving forward and agreement with the timing of planning for the project are noted.

Letter 7



Public Hearing

NAME: Ray Wallace
ADDRESS: 6112 Prague CITY: BIKELD ZIP: 93306
REPRESENTING: Self

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print):

I certainly agree with the expansion of
FWY 178 east to Lanteris. The existing
Two lane highway with steep embankments
is a traffic hazard.

1

My recommendation is to continue
expansion of Morning Drive northward to
Paladino and southward to Niles Street
This would provide one continuous
alignment of Hwy 184 from Paladino
to Weedpatch Hwy.

2

Closing response date: October 15, 2010

Letter 7—Response to Comments from Ray Wallace

Response to comment #1: Your support for the expansion of State Route 178 and the opinion that the existing two-lane highway with steep embankments is a traffic hazard have been noted. Your support and opinion are acknowledged and included in the project record.

Response to comment #2: The City plans to extend Morning Drive as identified in the General Plan Circulation Element. Morning Drive is shown as an “arterial” aligning north to south from north of State Route 178 to south of State Route 58. As future planned development occurs, individual projects are typically required to pay fees or construct roadway and infrastructure improvements to serve new growth areas. So, future development would facilitate the extension of Morning Drive north to Paladino Drive and south to Niles Street.

Letter 8



Public Hearing

NAME: JUDY COLIN
ADDRESS: 6401 VIENNA R CITY: BAKERSFIELD ZIP: 93306
REPRESENTING: _____

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print): _____

NO HOWING
CONCERNED ABOUT TRAFFIC LIGHTS
CONTROLLING TRAFFIC EXITING
MASTERSON ONTO HWY 178

1

Closing response date: October 15, 2010

Letter 8—Response to Comments from Judy Colin

Response to comment #1: This concern does not relate to the Morning Drive/State Route 178 Interchange project and is beyond the limits of this project. However, regarding the installation of a traffic light to control traffic exiting Masterson Street onto State Route 178, the General Plan Circulation Element contains policies that address safety and placement of traffic signals. Your concern about placing a traffic signal at the intersection of Masterson Street and State Route 178 has been acknowledged and is included in the project record. This intersection is outside the limits of this project, but is addressed as part of the State Route 178 Widening project (a project separate from the Morning Drive/State Route 178 Interchange project). The comment is included in the project record.

Letter 9



Public Hearing

NAME: Dennis Fox
 ADDRESS: 918 Blossom CITY: BKSFhd ZIP: 93306
 REPRESENTING: _____

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
 Kirsten Helton
 Southern Valley Analysis Branch
 2015 E. Shields Avenue, Suite 100
 Fresno, CA 93726

I would like the following comments filed in the record (please print):

- This project will promote development to the rocky soils in 1
- the east of town & may save the heritage soils to the west.
- The bypass possibilities will aid air quality somewhat. 2
- Consider landscaping with endangered plants as mitigation 3
- Use terrain to its natural advantage. Unlike Fairfax do not 4
- remove hill and then dig Rauls Ravine again.
- Concurrent with project grade an off ramp on Caltrans prop east of Orwell 5
- to mall for a slight traffic improvement and remembering that it is not
- Orwell that ends Well. This, a minor raising of service level that is cost effective? 6
- This will eventually hopefully necessitate widening Morning from 178
- to the touch stop area off 55
- 1B looks somewhat bad 7

Closing response date: October 15, 2010

Letter 9—Response to Comments from Dennis Fox

Response to comment #1: Your comment expresses the opinion that the project would promote development on rocky soils east of the city and may save heritage soils to the west. Your opinion has been acknowledged and is included in the project record.

As described in Section 2.1.1 and 2.1.2 of the environmental impact report/environmental assessment, the project area is designated and approved for residential and commercial development under the Metropolitan Bakersfield General Plan. The project does not propose or promote this planned and approved growth in the area.

Response to comment #2: The Morning Drive/State Route 178 Interchange Project Air Quality Report noted that the project would reduce congestion and delay and improve the flow of traffic. Projects that improve roadway speeds and/or reduce delay are generally expected to reduce potential for increases in carbon monoxide concentrations as noted in Section 2.2.4 of the environmental impact report/environmental assessment. Likewise, long-term operation of the project is expected to offset any temporary increase in greenhouse gas emissions occurring during the construction period. Therefore, the Air Quality Report provides support for the opinion that the project would aid air quality.

Response to comment #3: You suggest using endangered plants for landscaping the project as possible mitigation. Caltrans landscape architects considered this suggestion and concluded that placing endangered plant species in the operational right-of-way would not be feasible. Use of endangered plant species would hamper maintenance activities and future work in the project area.

Response to comment #4: You suggest that the project use the terrain surrounding the project to its advantage, unlike the work done at Fairfax Road. The design takes into account and uses the existing terrain to the extent possible.

Response to comment #5: You suggest grading an off-ramp on Caltrans property east of Oswell to the mall for a slight traffic improvement. Your suggestion has been acknowledged. It is not feasible to build an off-ramp at this location as part of the project, as the facility is outside of the project limits.

Response to comment #6: The Bakersfield General Plan Circulation Element identifies future improvements to the city's roadway network. The widening of Morning Drive from State Route 178 to State Route 58 is included as an improvement in the Circulation Element as Morning Drive is identified as an arterial for this segment. All ultimate improvements to Morning Drive are planned by the City.

Response to comment #7: Your comment shows support of Alternative 1 Option B as the best configuration of the interchange. Caltrans acknowledges your opinion regarding Alternative 1 Option B, and the comment is included in the project record.

Letter 10



Public Hearing

NAME: KEVIN THOMAS
ADDRESS: 5201 LYRA CT CITY: BILFIA ZIP: 93306
REPRESENTING: SELF

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print): _____

CONCERNED WITH INCREASED TRAFFIC NOISE BECAUSE
OF MY PROPERTY LINE RUNNING ALONG MORNING DR
(BACK YARD). WOULD LIKE CONSIDERATION OF A
SOUND WALL TO BE CONSTRUCTED OR AT LEAST
NOTIFIED OF OPTIONS (HEIGHT, MATERIAL, ETC.)

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Closing response date: October 15, 2010

Letter 10—Response to Comments from Kevin Thomas

Response to comment #1: The Morning Drive/State Route 178 Interchange Project Noise Study Report prepared for the project determined that the dominant noise source for receivers R3, R3A, and R4, which includes your home, would be traffic on Morning Drive. Because your backyard is next to Morning Drive, your house would be subject to increased noise levels from traffic along Morning Drive.

The Noise Abatement Decision Report found that a reduction of 5 dB could be achieved at only a narrow strip on the east side of the house, adjacent to Morning Drive. To achieve a minimum 5-dB reduction, a 14-foot-high soundwall would be required. The Noise Abatement Decision Report explained whether a soundwall of this height would be desirable. Putting a soundwall there would create a narrow space between the soundwall and façade of the home.

In addition, several mature trees would need to be removed to accommodate construction of a soundwall at this location. Using the reasonable allowance cost versus estimated construction cost criteria identified in the Noise Abatement Decision Report, soundwall #2 was not considered feasible. However, this soundwall would be considered further in the final design (Plans Specifications & Estimates [PS&E]) phase of the project to determine if a reasonable soundwall configuration or other funding sources could be identified.

Discussions would also be held with affected property owners about their desire to have a soundwall built next to their property.

Letter 11



Public Hearing

NAME: VINCE MACIORSKI
ADDRESS: 6400 VIENNA PL CITY: BAK ZIP: 93306
REPRESENTING: SELF

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print): THE NEW E/B
178 FREEWAY NARROWS TO 2 LANES (1 LANE
EACH WAY) JUST PRIOR TO THE SIGNAL
LIGHT AT CANTERIA DR. WHAT WILL THE
MITIGATION BE FOR E/B TRAFFIC SLOWING
PRIOR TO THE CANTERIA SIGNAL?

1

Closing response date: October 15, 2010

Letter 11—Response to Comments from Vince Maciorski

Response to comment #1: Eastbound traffic on State Route 178 to the Canteria Drive signal may experience delays because the road narrows to two lanes. You ask about possible mitigation to address traffic at the Canteria Drive signal. Caltrans standard advanced warning signs indicate the end of the freeway for eastbound traffic and notify motorists of the approaching traffic signal. Standard design transition rates would be used for narrowing the lanes down from two lanes to one lane. Your inquiry about mitigation for possible impacts at the Canteria Drive signal on State Route 178 has been acknowledged by Caltrans and will be considered in the final design phase.

Letter 12



Public Hearing

NAME: JESSICA BROWNFIELD

ADDRESS: 3309 SHIELDS RANCH CITY: BAKERSFIELD ZIP: 93306

REPRESENTING: N/A

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print): Plan 1A

seems like the best idea.

making the right lane on Fairfax S. Bound
between Auburn Oaks and Auburn a right
turn lane onto Auburn would be great.
Traffic gets held up for people going
to the schools in the morning. This
way traffic to the schools and traffic
to the Freeway have their own lanes.

1

2

Closing response date: October 15, 2010

Letter 12—Response to Comments from Jessica Brownfield

Response to comment #1: You have expressed support for Alternative 1 Option A as the best configuration for the interchange. Caltrans acknowledges your support for Alternative 1 Option A, and the comment is included in the project record.

Response to comment #2: You suggest making the right lane on Fairfax Road southbound between Auburn Oaks Drive and Auburn Street a right-turn lane onto Auburn Street. Both Fairfax Road and Auburn Street are roadways under the City’s jurisdiction. This suggestion does not relate directly to the proposed interchange at Morning Drive and State Route 178 and is outside of the scope of this project. However, Caltrans acknowledges your suggestion of adding a right-turn lane onto Auburn Street, and the comment is included in the project record and may be considered at a later date by the City as appropriate.

Letter 13



Public Hearing

NAME: Scott Faulkenburg
ADDRESS: 6308 Wate Creek Ln CITY: Bakersfield ZIP: 93306
REPRESENTING: _____

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

I would like the following comments filed in the record (please print): _____

Bike Lanes need to be incorporated into the project.
Morning Drive has always been a key access point to
the bluffs, the bike path to Fairfax & the bike path to
CAI Mank Hart Park. Thorner Elementary is also
accessed by children on bikes via Morning Drive.
A bike path, separate from the road, would be
preferable. Without bicycle access, another key
recreation area would be wasted.

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2

Closing response date: October 15, 2010

Letter 13—Response to Comments from Scott Faulkenburg

Response to comment #1: Bicycle lanes are included as part of project design. Your comment about including bike lanes is included in the project record. The alternative selected as the preferred alternative is the most compatible for bike use.

Response to comment #2: Caltrans acknowledges your suggestion regarding the separation of the bike path from the road. However, the Metropolitan Bakersfield General Plan designates the portion of Morning Drive within the project limits as a six-lane arterial roadway with a Class II bike lane (dedicated striped and signed lane for bicycle use along the roadway). The project has been designed consistent with this description and includes Class II bike lanes. Section 2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities of the environmental impact report/environmental assessment provides a further discussion of these facilities.

Letter 14



Public Hearing

NAME: Kathy Gallego

ADDRESS: 10920 Pitts ^{AVE} CITY: Bakersfield ZIP: CA, 93306

REPRESENTING: people who don't want to be in a car accident

Do you wish to be added to the project mailing list? YES NO

Please drop comments in the Comment Box or

Mail to: California Department of Transportation
Kirsten Helton
Southern Valley Analysis Branch
2015 E. Shields Avenue, Suite 1000
Fresno, CA 93726

I would like the following comments filed in the record (please print): please put a stop light at 178 & Masterson. There have been lots of accidents! That intersection is busy with Cesar Chavez busses and school parents, people going home to Los Angeles via 178, Niles & Morning Dr to hwy 58. There is lots of new housing out here, but no extra roads! The intersection of 178 & Masterson is so hard to cross over (going from Masterson to Niles st.) The Chevron Mini Mart has LOTS of traffic also. This is a very busy intersection, how many accidents do you need before you put in the light. Thank you!

Closing response date: October 15, 2010

Letter 14—Response to comment from Kathy Gallego

Response to comment #1: Your concerns about the absence of traffic lights controlling traffic exiting Masterson Street onto State Route 178 and the safety issues due to large the volume of traffic making it difficult to cross the intersection of Masterson Street and State Route 178 have been acknowledged and are included in the project record. This intersection is outside the limits of the Morning Drive/State Route 178 project, but is addressed as part of the State Route 178 Widening project, which is a separate project.

Letter 15

1 TRANSCRIPT OF MORNING DRIVE/STATE ROUTE 178
2 INTERCHANGE PROJECT
3 OPEN HOUSE/COMMENTS
4 BAKERSFIELD, CALIFORNIA
5 SEPTEMBER 15, 2010
6 4:00 P.M.
7 --o0o--
8 HENRY GALLEGO
9 10920 Pitts Avenue
10 Bakersfield, California 93306
11 (661) 871-2491
12 4:31 p.m.
13 --o0o--
14 MR. GALLEGO: My address is 10920 Pitts,
15 P-i-t-t-s, Avenue, 93306. Phone number, (661) 871-2491.
16 Basically I've been a resident out in this area,
17 Pitts, 25 years. And my concern is the intersection of
18 Niles, 178, and Masterson.
19 What we need, prior to this project beginning, is
20 a temporary stoplight -- because I've already talked to
21 the engineers about what they plan to do with the
22 Masterson and Niles interchange. But temporary -- you
23 have a year to year and a half, at best, that -- all the
24 school buses go to this interchange, and they turn heading
25 west onto 178.

1

3

Sylvia Mendez & Associates - (661) 631-2904

1 I have lived here for many years. Many
2 accidents -- and they're all recorded -- and deaths right
3 at that interchange. They do not propose to do
4 anything -- when you're dumping all this road access
5 coming from six lanes down to four lanes and hitting that
6 intersection -- until they do a tie-in from Canteria over
7 to what I think they call Bedford on the other side, which
8 is behind the old Mesa Marin -- but that is a year to a
9 year and a half after they do this project, or during the
10 course of this project.

11 Meantime, we have school children and all the
12 residents in the area that come through this intersection.
13 And it's a very blind intersection. But we just need a
14 temporary light, at best. We're not asking for all future
15 changes to be made. I realize there's a lot of political
16 funds and everything with Federal funding, State funding,
17 and City to do this.

18 But we need that, you know, to protect the
19 children and the people that live in the area. I'm not
20 talking about esthetics and things like other people are
21 complaining about. I'm talking about something that's
22 necessary for the safety of people now, before they begin
23 the project, a temporary light. And then that way, you
24 can slow traffic down. You know, everybody will make that
25 intersection hopefully as safe as possible. That's my

4

Sylvia Mendez & Associates - (661) 631-2904

1 concern. That's all I have.

2 (Off the record.)

3 HENRY CHRISTIANSEN

4 5106 Lyra Court

5 Bakersfield, California 93306

6 (661) 871-8961

7 4:47 p.m.

8 --o0o--

9 MR. CHRISTIANSEN: Larry Christiansen, 5106 Lyra
10 Court, 93306. 871-8961.

11 The comments that she said tonight to make was --
12 when I get on the internet, and I was looking at maps --
13 and they're probably Caltrans maps -- they seem like
14 they're outdated, you know. And they're not -- they're so
15 vague that they're practically useless.

16 What was in the paper, or that little note that
17 they sent out, was a lot more detailed than what's there.
18 So particularly I think they're just outdated. So
19 anything they can do that will provide more access to some
20 of the plans once they make decisions, it would be very
21 helpful.

22 (Off the record.)

23 THOMAS SCOTT BELDEN

24 5107 Lyra Court

25 Bakersfield, California 93306

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Sylvia Mendez & Associates - (661) 631-2904

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(661) 395-1000

5:21 p.m.

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MR. BELDEN: My name is Thomas Scott Belden, address is 5107 Lyra Court, Bakersfield, California. And that address is identified as Receptor R1A in the Environmental Impact Report, Environmental Assessment that was prepared by Caltrans.

The two issues that I have with the proposed EIR, Environmental Assessments are the necessities of the project and the mitigation measures to address the obvious increase in noise to the existing residents.

First, with respect to the purpose and need, there's no present need and likely will not be such a need for well beyond the five-year planning period for this project. The identified present purpose is to reduce traffic delays and delay on Highway 178.

There are several references in the Environmental Assessment to the Fairfax over-crossing being under construction. And it appears that at least one traffic survey is over one year old.

The purpose of an EA is to address current conditions. And it appears that these conditions, including traffic, accident rates, and development have been assessed using old information. Examples are, the

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Sylvia Mendez & Associates - (661) 631-2904

1 August 2009 Traffic Report, references to developments as
2 being active, which were also from reports in 2009, and
3 accident studies from 2006.

4 Many of the traffic issues identified in the EA
5 have been addressed by the Fairfax interchange and the
6 elimination of a stoplight that was formerly there. For
7 example, the accident data from 2006 would be mitigated
8 and resolved through that interchange.

9 Unlike the conditions that existed before the
10 Fairfax exchange was built, no evidence of accidents,
11 delays, et cetera, after the completion of that project,
12 are contained in the Environmental Assessment. In
13 summary, the environment has changed and the EAR has not
14 addressed that.

15 I live at 5107 Lyra, which is basically at the
16 corner of Morning and Panorama. It's relatively easy to
17 get on and off of 178 from Morning Drive. The table at
18 2.3 reflects that the intersection currently meets the
19 standard in almost all areas. And it's unknown whether
20 since August 2009 the D that was reflected on Table 2.3
21 would become a C based upon the Fairfax interchange.

22 The accident summary doesn't look at the Morning
23 area alone. It also includes Canteria, Fairfax, and
24 Morning. And based upon my experience of living there
25 since 2004, most accidents took place on Fairfax. And

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Sylvia Mendez & Associates - (661) 631-2904

1 that has probably been resolved due to the Morning -- or
2 the Fairfax interchange. So the EIR needs to be updated
3 and should, when considering the purpose or need for the
4 project, also reflect current data.

5 With respect to the Future Plan Development,
6 again, it looks like old information is being used. The
7 properties -- the projects and properties that were under
8 construction previously, many of them are in foreclosure,
9 owned by banks; and even if owned by the developers, the
10 projects are at a standstill.

11 Table 2.1 on Page 30 shows no recorded phases.
12 The Canyons is mentioned in several places throughout the
13 EA as an active project. According to an August 18th
14 story in the Bakersfield Californian, the loans against
15 the Canyon projects have been in default for over two
16 years indicating that that project is not going forward
17 and even the lender for that project is in a liquidation
18 bankruptcy.

19 There's no likely developments in that area for
20 years. And the likelihood of any need being present there
21 by 2015 or even 2020 as predicted simply -- that's not
22 going to happen. That information and that possible need
23 has changed dramatically since August of 2008.

24 The EIR is required to consider current status,
25 and it looks like a lot of status is old. In light of

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1 that, the No-Build Alternative should be considered.

12

2 Given current construction rates, current
3 development rates, there is not the adverse impacts that
4 are described in the report that might happen by 2015 or
5 later. They simply are not going to happen. And the
6 taxpayers would save 52 million dollars.

7 With respect to if there is a decision to do
8 Alternative 1 or Alternative 2, the issue of noise
9 abatement has not been sufficiently considered. I live at
10 the southeast corner, or property, in the Morningstar
11 Development. The west -- or excuse me -- the east side of
12 my property abuts Morning Drive, and the back is a wooden
13 fence that runs parallel to 178.

13

14 Page 95 of the EI states that noise abatement
15 measures that are determined to be reasonable and feasible
16 at the time of final design are going to be incorporated
17 into the project plans.

18 Both NEPA and CEQA require consideration of noise
19 abatements. And the EA, in numerous places, references
20 the fact that there will be an environmental impact in
21 that there will be a substantial increase in noise for
22 various residences including mine and the other houses
23 that are adjacent to Morning Drive.

24 Page 100 of the EA admits that there will be a
25 substantial increase. Page 139 references that the noise

9

Sylvia Mendez & Associates - (661) 631-2904

1 level could go to 71 decibels which is far in excess of
2 that presently and that deemed to not be of significant
3 impact.

4 Page 105 of the EA states that the total cost
5 allowance calculated in accordance with Caltrans Traffic
6 Noise Analysis Protocol is 180,000 for Alternative 1 and
7 Alternative 2. The current estimate of the cost of the
8 wall, which I believe is described as NB-3 is \$180,000.
9 The current estimated cost is \$204,000, which is more than
10 the cost allowance; therefore, it appears that the
11 decision to do the noise barrier is not considered
12 reasonable.

13 So basically it appears that because of a \$24,000
14 discrepancy, the wall idea was simply disregarded. And
15 that must be considered in light of the fact that since
16 this is a 52 million dollar project, \$24,000 should not be
17 viewed as something that should just simply be disregarded
18 out of hand.

19 According to Figure 2.2-6 of the decibel level
20 that is likely to be reached would be the same as a vacuum
21 cleaner ten feet away and to not spend an extra \$24,000 to
22 mitigate that potential noise is not reasonable.

23 So based upon the Environmental Assessment
24 itself, there is a significant impact. And, in fact, in
25 Appendix A, the noise is the only place where a potential

10

14

Sylvia Mendez & Associates - (661) 631-2904

1 significant impact is found. And that's on Page 175 of
2 the appendix.

3 So as a homeowner adjacent to Morning, I would
4 request that Caltrans consider the noise wall, NB-3, and
5 that noise wall should be instituted. It should -- at a
6 minimum, it should extend past the property line to where
7 Auburn joins Morning or wrap around the back because the
8 backyard area is protected only by a wooden fence and not
9 a six-foot barrier as is presently there.

10 So, in summary, the project is not needed now.
11 The projected growth and approved project data is old and
12 not reflective -- and is reflective of a complete shutdown
13 of development activity. So the data needs to be updated.

14 There is an admitted potentially significant
15 impact in terms of noise to many residents along Morning
16 Drive or otherwise on Lyra Court. The cost to mitigate
17 that impact is estimated at a mere 24,000, more than the
18 projected allotment amount.

19 Caltrans should not consider that to be
20 unreasonable in the context of this 52 million dollar
21 project. So Noise Barrier-3, either as proposed or
22 extended out to the Auburn/Morning intersection, should be
23 constructed so that the residents along Morning Drive are
24 not adversely impacted and that impact not mitigated.

25 We thank you for the consideration of this issue.

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Sylvia Mendez & Associates - (661) 631-2904

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(Off the record.)

KEVIN THOMAS

5201 Lyra Court

Bakersfield, California 93306

(661) 747-3018

5:45 p.m.

--o0o--

MR. THOMAS: My name is Kevin Thomas. I live at 5201 Lyra Court, Bakersfield, 93306. Contact Number, 747-3018.

I have concerns with the increased traffic flow along Morning Drive with the project and would like to be notified of options of a sound wall. Height, construction, esthetics, et cetera. That's it. Okay.

(Off the record.)

DIANE GREER

(661) 706-1669

5:56 p.m.

--o0o--

MS. GREER: Diane Greer. Phone Number, (661) 706-1669.

My only comment would be a preference, Number 1A. B, I understand, they say is better for pedestrians because you have to stop. But when the traffic gets too -- there's too much traffic there, you're going to end

12

17

18

Sylvia Mendez & Associates - (661) 631-2904

1 up with a big long line going onto the freeway from
2 stopping. That's my only reason for that.

3 (Off the record.)

4 SCOTT FAULKENBURG

5 6308 Wolf Creek Drive

6 Bakersfield, California 93306

7 (661) 345-8263

8 6:46 p.m.

9 --o0o--

10 MR. FAULKENBURG: Scott Faulkenburg,
11 F-a-u-l-k-e-n-b-u-r-g. Phone Number, (661) 345-8263. My
12 address is 6308 Wolf Creek Drive, 93306.

13 I want to stress the importance of bicycle
14 accesses, either a bike path or a bike lane along the
15 Morning Drive route. First of all, you have the school --
16 you have the school that's accessed via bicycle, children
17 in the morning. And then Morning Drive is also the key
18 access point to the bike path that goes down to Fairfax
19 all the way out and it joins up with the Kern River bike
20 trail and then it also connects with the bike path that
21 goes down to CALM which goes out to Ming Lake. And then
22 on the other side, it goes all the way out to Hart Park.
23 That, and Morning Drive is also accessed by people
24 mountain biking in the hills. And I would hate to lose
25 that access due to safety issues.

13

19

Sylvia Mendez & Associates - (661) 631-2904

1 (Off the record.)

2 DENNIS FOX

3 7:05 p.m.

4 --o0o--

5 MR. FOX: Dennis Fox, F-o-x.

6 First thing, this project will increase housing
7 on the rocky, nasty bluff soils, which is a great benefit
8 if they could keep them from building on the heritage
9 soils so we can have some people that can make some money
10 off of ag in this county on the other side of the valley.

11 The next one is: This project will allow trucks
12 to come in off of Seventh Standard to 99 to 178 to get off
13 on 184 and go down to the truck stops at 58, about two or
14 three miles. So they should be planning for widening or
15 connecting 184 to 58. And it wouldn't affect much. It's
16 better than the parking lot on Rosedale.

17 And further mitigation, I think they ought to
18 have a kit fox artificial den put in at the sumps,
19 especially the one they just finished and connected to the
20 golf course, access for foxes to the golf course.

21 What I was thinking of, instead of landscaping
22 with ice plant, instead of using the wild flowers grown in
23 central Oregon where it's nice, if they'd get something
24 from around here and plant the endangered plants on the
25 off-ramp. They will have to buy gloves. You take the

14

20

21

22

23

Sylvia Mendez & Associates - (661) 631-2904

1 pads from a cactus, and you stick it in the ground. Big
2 deal.

3 First thing is, I like -- probably 1B looks about
4 the best, but I've got to see the 3D version. It would be
5 best if they do this the opposite of the Oklahoma
6 engineering on Fairfax. Fairfax had a hill. And rather
7 than put a bridge over it, they took the hill away, put
8 the overpass at grade. You know, it already had -- and
9 then dug the freeway down 15 feet which is now known as
10 Rojas' Ravine. Took two years to do it. It was kind of
11 an expense. But it was mainly from poor planning,
12 allowing a minimart on your off-ramp or on-ramp.

13 I would also -- to alleviate the problem -- and
14 it would just concur, so you're not doing anything really
15 special. On the Caltrans properties west of Oswell at the
16 sump put an off-ramp when they're grading. When they get
17 around to paving, also pave that. So they have an
18 off-ramp to the mall. Whole operation is probably 25
19 yards or something. It would up the service level because
20 it's next to Oswell. And it's not Oswell that ends well.
21 You're going to have to widen it. That's about it.

22 (Off the record.)

23 (Open House/Comments concluded at 7:11 p.m.)

24

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24

25

15

Sylvia Mendez & Associates - (661) 631-2904

Letter 15—Response to Comments Made to the Court Reporter at the Public Hearing on September 15, 2010

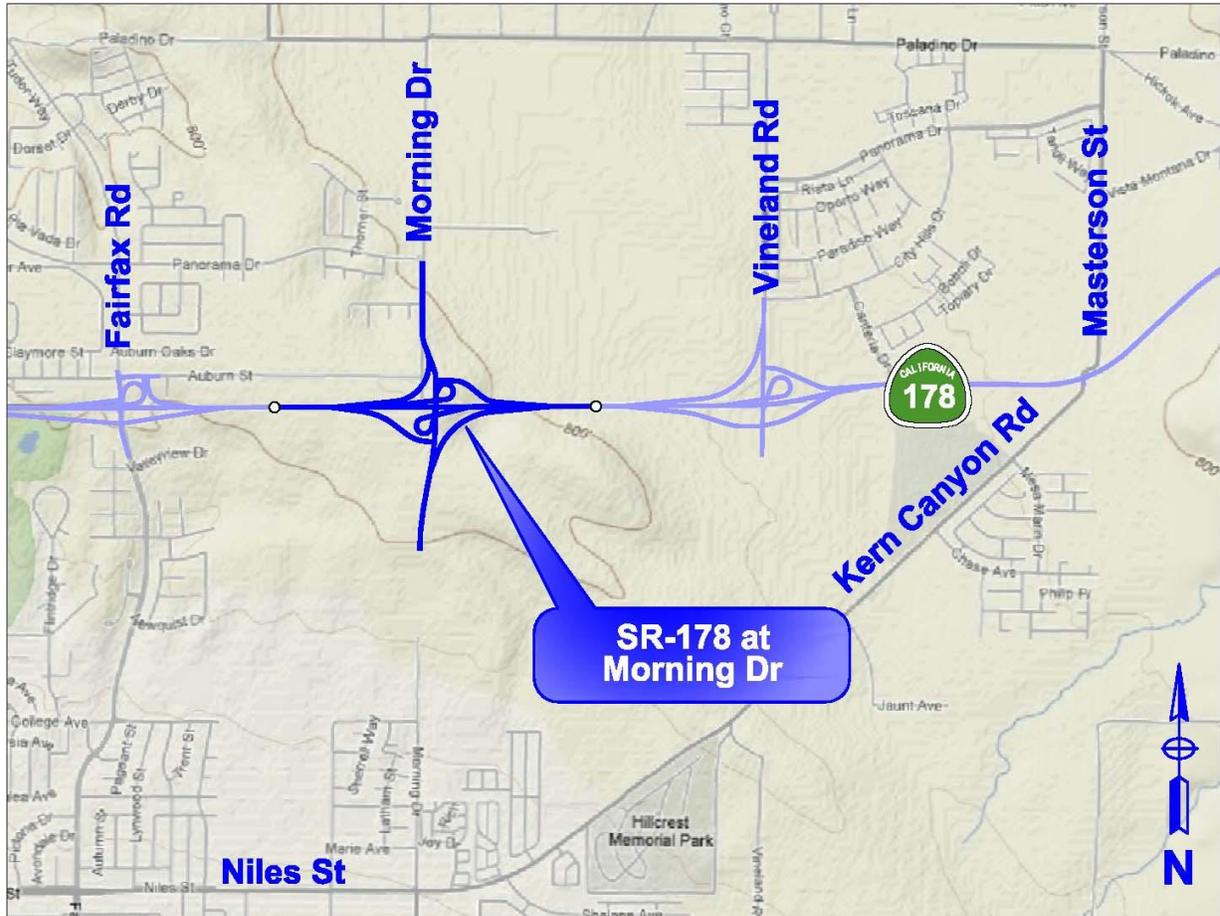
Response to comment #1 (Mr. Gallego): Your request for a temporary stoplight to be installed at the intersection of Niles Street, State Route 178 and Masterson Street before construction of the proposed project is outside the scope of this project (see map in Response to Comment #3). Nevertheless, Caltrans acknowledges your request for a temporary stop light at the intersection of Niles Street, State Route 178 and Masterson Street, and your comment is included in the project record. Your request has been forwarded to the City of Bakersfield for consideration.

Response to comment #2 (Mr. Gallego): You expressed concern about safety and accidents that have occurred at the intersection of Niles Street, State Route 178 and Masterson Street. This issue is not directly related to the Morning Drive/State Route 178 Interchange Project and is outside the scope of this project. Nevertheless, Caltrans acknowledges your concern about safety at the intersection of Niles Street, State Route 178 and Masterson Street, and your comment is included in the project record.

Response to comment #3 (Mr. Christiansen): Caltrans has prepared various maps that show details of the proposed project. A map of the project is provided on the TRIP website at the following link:

http://www.bakersfieldfreeways.us/project_SR178_morning_drive.html.

For your convenience, the map is provided on the next page. In addition, various documents with maps of the project details (including the Final Environmental Impact Report/Environmental Assessment and the Project Study Report Exhibit) are available for download from the TRIP website or available in hard copy at the TRIP offices at 900 Truxtun Avenue, Suite 201, Bakersfield, CA 93301.



Project Map from the Thomas Roads Improvement Program Web Site

Response to comment #4 (Mr. Christiansen): Your request for further access to project plans once decisions have been made has been heard. Caltrans will continue to provide updates through the TRIP website: <http://www.bakersfieldfreeways.us/> or at the TRIP offices at 900 Truxtun Avenue, Suite 201, Bakersfield, CA 93301.

You are encouraged to check the website regularly for updates on the progress of the project, including plans and reports.

Response to comment #5 (Mr. Belden): You stated that your property is identified as Receptor R1A in the Environmental Impact Report/Environmental Assessment. This identification as the property owner of Receptor R1A has been acknowledged and is included in the project record.

Response to comment #6 (Mr. Belden): The need for the proposed project is described in Section 1.2 Purpose and Need in the Environmental Impact Report/Environmental Assessment. The purpose of the project is to do the following:

- Relieve traffic congestion and reduce traffic delay along State Route 178.
- Provide efficient access between State Route 178 and Morning Drive and accommodate planned growth in adjacent developing areas.
- Accommodate the planned extension of Morning Drive south of the proposed interchange.
- Support federal, state, regional, and local plans and policies that identify the need for improving State Route 178.

As noted in Section 2.1.2 Growth of the Environmental Impact Report/Environmental Assessment and in the Morning Drive/State Route 178 Interchange Project Community Impact Assessment Report (page 47), development activity in the city has substantially slowed, with 6,563 total building permits issued in 2009 compared to 13,621 in 2005 (2010 had 6,299 total building permits issued based on the City of Bakersfield Building Permit Summary for December 2010). While current economic conditions may not support the proposed project, future growth would necessitate the need for the interchange at Morning Drive and State Route 178.

Response to comment #7 (Mr. Belden): The analysis in the Environmental Impact Report/Environmental Assessment is based on data available at the time the document was written. While conditions are not static, it is not possible or necessary to continually update data based on current conditions. The traffic analysis included in the Environmental Impact Report/Environmental Assessment was deemed adequate and was based on adequate data. Your comment about the age of information is included in the document and in the project record.

Response to comment #8 (Mr. Belden): The Environmental Impact Report/Environmental Assessment now includes the most recent accident data through July 31, 2009 (see Table 2.5).

Response to comment #9 (Mr. Belden): You asked if the “D” standard in Table 2.3 of the Environmental Impact Report/Environmental Assessment would become a “C” now that the Fairfax Road interchange is completed. The Fairfax Road interchange project was assumed to be completed in the Traffic Operations Report prepared for the Morning Drive/State Route 178 Interchange Project. This does not change the conclusions provided in Table 2.3.

Response to comment #10 (Mr. Belden): You state that most accidents have taken place on Fairfax Road and were resolved with completion of the Fairfax Road interchange. And you asked that the Environmental Impact Report/Environmental Assessment be updated

to provide information on accidents following operation of the Fairfax Road interchange. As noted in response to comment #7, the data and analysis used to evaluate changes in traffic and safety conditions from the project were determined to be adequate, so no updated analysis is necessary. However, the Environmental Impact Report/Environmental Assessment now includes updated traffic accident data through 2009 (see Table 2.5).

Response to comment #11 (Mr. Belden): You have stated that you feel that the assumptions about future development appear to be based on old information and that development is at a standstill, including The Canyons project, which is mentioned in the Environmental Impact Report/Environmental Assessment. Caltrans acknowledges the current economic conditions that have resulted in a substantial reduction in development activities. However, the proposed project has been planned in light of ultimate growth projected for the city over a 20-year design life, as noted in the Purpose and Need discussion of the Environmental Impact Report/Environmental Assessment. While the project might not be necessary under current conditions, it would be needed to accommodate future growth that would eventually happen as the economy improves and development projects become active again.

Response to comment #12 (Mr. Belden): The No-Build Alternative is identified in the Environmental Impact Report/Environmental Assessment. As shown in Table 1.3, Comparison of Alternatives, the No-Build Alternative would result in no cost compared to \$52.5 million to \$54.5 million for the proposed project. While the No-Build Alternative would save money in the near term, the project is identified and planned to accommodate future growth in the City of Bakersfield. Caltrans acknowledges your concerns about the cost of the project, and your comment is included in the project record.

Response to comment #13 (Mr. Belden): Noise was examined in the Noise Study Report prepared for the proposed project in June 2010. The Noise Study Report identified land uses and sensitive receptors, particularly areas of frequent human use that would benefit from reduced noise levels. In addition, a Noise Abatement Decision Report was prepared for the project to estimate the construction cost for the feasible noise abatement measures identified in the Noise Study Report.

The Noise Abatement Decision Report identified the need for a 12-foot-high soundwall to achieve at least a 5-dB reduction immediately next to the existing retaining wall running along these properties on the east side of the property lines. As observed, noise was the only significant impact identified in the Environmental Impact Report/Environmental

Assessment because the current estimated cost of a soundwall to mitigate noise impacts based on the engineer's estimate is \$204,000. This amount exceeds the total cost allowance and is not considered reasonable. However, the possibility of building a soundwall and using other funding options would be analyzed further through the final design (Plans, Specifications and Estimate) phase of the project.

Response to comment #14 (Mr. Belden): Caltrans has analyzed the inclusion of a soundwall as part of the project design. You asked that the soundwall (NB-3) be extended past the property line to where Auburn Street joins Morning Drive or wrap around the back. The Noise Abatement Decision Report identified the need for a 12-foot high soundwall to achieve at least a 5-dB reduction immediately next to the existing retaining wall running along the properties on the east side of the property lines. However, as noted in the Environmental Impact Report/Environmental Assessment, NB-3 was identified in the Noise Abatement Decision Report not to meet the reasonableness criteria for Caltrans Traffic Noise Analysis Protocol. The total cost allowance, calculated in accordance with the Caltrans' Traffic Noise Analysis Protocol, is \$180,000 for both Alternative 1 and Alternative 2. The current estimated cost of the wall, according to the engineer's estimate is \$204,000, which is more than the total cost allowance. Therefore, this noise barrier is not considered reasonable.

While the noise barrier is more than the total cost allowance, the potential for construction of this noise barrier would be considered again during the project design and engineering phase due to public interest and the low cost difference between the wall cost estimate and cost allowance (engineer cost estimate of \$204,000 versus the cost allowance of \$180,000) to determine if the wall could be designed for less than the initial estimate and/or non-federal funding sources could be found to cover the difference. Meetings would be held with all affected property owners to confirm their input on these improvements. The extent of the wall would be based primarily on the noise analysis once the final profile of Morning Drive has been designed.

Response to comment #15 (Mr. Belden): Refer to response #11. It is acknowledged that current economic conditions have substantially impaired development activities. However, the proposed project has been designed to accommodate planned, ultimate growth projected for the city as noted in the Purpose and Need discussion of the Environmental Impact Report/Environmental Assessment. While the project may not appear necessary under current conditions, it would be needed for future growth that would occur as the economy improves.

Response to comment #16 (Mr. Belden): Refer to response #14. The estimated cost to build soundwall NB-3 was \$204,000, which exceeded the allotment of \$180,000 by \$24,000. The excess over the allotment would not be reimbursable to Caltrans with federal funding sources. Federal rules (23 Code of Federal Regulations 772) require that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document.

The Caltrans Traffic Noise Analysis Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. The reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. This *reasonable allowance* is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance, the determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the determination is that the abatement is not reasonable.

Other factors affecting construction of a soundwall along Morning Drive include the need for all property owners to be in agreement. The possibility of building a soundwall as well as other funding options would be analyzed further during the Plans, Specifications and Estimate phase of the project and discussed with individual property owners.

Response to comment #17 (Mr. Thomas): Updates on the project would continue to be provided through the TRIP website: <http://www.bakersfieldfreeways.us/> and at TRIP offices at 900 Truxtun Avenue, Suite 201, Bakersfield, CA 93301. Members of the public are encouraged to check the website regularly for updates on the project, including plans and reports. The most current information on the effects of increased traffic necessitating a soundwall is documented in the Noise Study Report, Noise Abatement Decision Report and the Environmental Impact Report/Environmental Assessment. Further consideration of the possibility of building a soundwall would be analyzed during the Plans, Specifications and Estimate phase and discussed with individual property owners.

Response to comment #18 (Ms. Greer): Your support for Alternative 1 Option A as the best configuration for the interchange has been acknowledged, and your comment is included in the project record.

Response to comment #19 (Mr. Faulkenburg): As noted in the environmental impact report/environmental assessment (Section 2.1.1.2 and Section 2.1.5) the Specific Parks and Trails Plan Map for Northeast Bakersfield (approved by the City of Bakersfield on

October 22, 2003 and last revised September 9, 2009) includes a master plan for a bicycle circulation system in this area of the city. The project design includes bicycle lanes and sidewalks along both sides of Morning Drive through the project area and bicycle detection loops at intersections controlled by traffic signals.

Response to comment #20: (Mr. Fox): Your opinion that the project would promote development on rocky soils east of the city and may save heritage soils to the west has been acknowledged and is included in the project record.

Response to comment #21: (Mr. Fox): The City plans to extend Morning Drive as identified in the City of Bakersfield General Plan Circulation Element. Morning Drive is shown as an arterial in the project area.

Response to comment #22: (Mr. Fox): Caltrans acknowledges your suggestion that artificial dens be provided in the sumps, especially the sump that was recently completed and connected to the golf course, to allow kit foxes access to the golf course. As discussed in the Environmental Impact Report/Environmental Assessment (Section 2.3.3), the project would comply with requirements in accordance with U.S. Fish and Wildlife Service's Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to Ground Disturbance (U.S. Fish and Wildlife Service 1999) and the Metropolitan Bakersfield Habitat Conservation Plan (City of Bakersfield and Kern County 1994). Caltrans would also implement a Sump Habitat Improvement Program (includes the consideration of dens) in compliance with the Draft Thomas Roads Improvement Program San Joaquin Kit Fox Life History, Effects Analysis, Mitigation Strategy and Implementation Plan to avoid cumulative impacts to the San Joaquin kit fox.

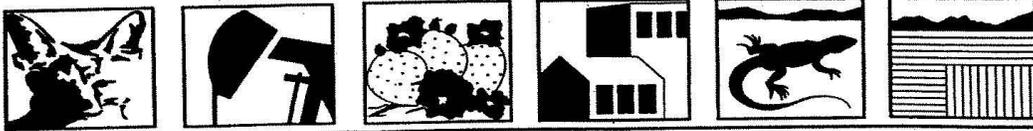
Response to comment #23: (Mr. Fox): Caltrans landscape architects considered your suggestion to use endangered plants for landscaping the project as a possible mitigation measure and concluded that placing endangered plant species in the operational right-of-way would not be feasible. Use of endangered plant species would hamper maintenance activities and future work in the project area.

Response to comment #24: (Mr. Fox): You suggested that the project use the terrain surrounding the project to its advantage, unlike Fairfax Road, and noted a preference for Alternative 1B. The design has taken into account the existing terrain to the extent possible. Alternative 1 Design Option B has been selected as the preferred alternative.

Response to comment #25: (Mr. Fox): Caltrans acknowledges your suggestion that an off-ramp be graded on Caltrans property east of Oswell to the mall for a slight traffic

improvement and that this off-ramp be installed concurrent with the proposed project. It is not feasible to build an off-ramp at this location because this location is outside of the project limits and such a project would be outside of the scope of the proposed project. Oswell Street is more than a mile west of the project limits.

Appendix H Metropolitan Bakersfield Habitat Conservation Plan Letter



METROPOLITAN BAKERSFIELD HABITAT CONSERVATION PLAN

August 30, 2010

Mr. Raul Rojas, Director of Public Works
City of Bakersfield
1600 Truxtun Avenue
Bakersfield, CA 93301

Re: MBHCP as Mitigation for Thomas Roads Improvement Program (TRIP) Projects

Dear Mr. Rojas:

We understand from our discussions with you that the City of Bakersfield (City) in cooperation with Caltrans is consulting with the US Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) for potential impacts to San Joaquin kit fox and other sensitive species by TRIP roadway projects and improvements which occur within the boundaries of the MBHCP. We also understand that the City desires to continue to use the MBHCP for each of the TRIP projects including: 24th Street Improvements, Rosedale Highway Widening, Hageman Road Flyover, SR 178/Morning Drive Interchange, SR 178 Widening, and Centennial Corridor/SR 58 Connector.

We agree that the City will use the MBHCP for compensatory mitigation for each project. As the amount of required mitigation in acreage is determined for each project by the resource agencies and the City, the City will request corresponding acreage credits from the MBHCP Trust Group. The City will pay the appropriate fee amount to the Trust Group for the acreage credits and the Trust Group will then acquire the required acreage amounts.

On behalf of the Trust Group Board, we welcome the opportunity to assist the City and Caltrans in completing TRIP projects and fulfilling your mitigation requirements. Please note that this letter supersedes our previous correspondence dated August 3, 2010. Feel free to contact me if you have further questions.

Sincerely,

Martin Ortiz
MBHCP Trust Administrator

cc

1715 Chester Avenue, Bakersfield CA 93301

Appendix I Federal Highway Administration Air Quality Conformity Letter



U.S. Department
of Transportation
**Federal Highway
Administration**

Federal Highway Administration
California Division
January 19, 2011

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008 (fax)

File# Morning Drive/SR 178
Interchange Project

Mr. Malcolm Dougherty, District Director
California Department of Transportation
District 6
P. O. Box 12616
Fresno, CA 93778-2616

Attention: Abdul Chafi

Dear Mr. Dougherty:

SUBJECT: Project Level Conformity Determination for the Morning Drive/State Route 178
Interchange Project, MPO ID#KER050106

The California Department of Transportation (Caltrans) provided a complete request/submittal on January 5, 2011 to the Federal Highway Administration (FHWA) for a project level conformity determination for the Morning Drive/State Route 178 Interchange Project, MPO ID#KER050106. The project is in an area that is designated Nonattainment or Maintenance for Ozone, CO, and Particulate Matter (PM₁₀, PM_{2.5}).

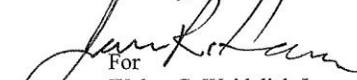
The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the currently conforming Kern Council of Governments' (KCOG) 2011 RTP and 2011 TIP. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

As required by 40 CFR 93.116 and 93.123, the localized PM_{2.5} and PM₁₀ analyses are included in the documentation. The analyses demonstrate that the project will not create any new violations of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the Morning Drive/State Route 178 Interchange Project, MPO ID#KER050106 conforms with the SIP in accordance with 40 CFR Part 93.

If you have any questions pertaining to this conformity finding, please contact Joseph Vaughn, at (916) 498-5346.

Sincerely,


For
Walter C. Waidelich Jr.
Division Administrator



cc: (email)
Joseph Vaughn, FHWA
Mike Brady, Caltrans
Abdul Chafi, Caltrans
Ken Ramero, Caltrans

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:
81420-2010-F-0865-1

AUG 18 2011

Mr. Zachary Parker
Branch Chief, Central Region Biology
California Department of Transportation, District 6
855 M Street, Suite 200
Fresno, California 93721

Subject: Biological Opinion for the Morning Drive/State Route 178 Interchange Project (part of the Thomas Roads Improvement Program (TRIP)), City of Bakersfield, Kern County, California (California Department of Transportation EA 06-0C9400, 06-KER-178 PM R6.7/T9.2)

Dear Mr. Parker:

This is the U.S. Fish and Wildlife Service's (Service) response to the California Department of Transportation's (Caltrans) request for initiation of formal consultation on the proposed Morning Drive/State Route 178 Interchange Project (project) in Kern County, California. Under the provisions of the July 1, 2007, Pilot Program Memorandum of Understanding between the Federal Highway Administration (FHWA) and Caltrans, FHWA assigned, and Caltrans assumed, FHWA's responsibilities under the National Environmental Policy Act as well as its responsibilities for environmental review, consultation, and coordination under other Federal environmental laws.

This project is part of the larger Thomas Roads Improvement Program (TRIP), a collection of six road improvement projects designed to meet the long-term transportation needs of the greater City of Bakersfield (City) area; five future projects are currently in various stages of environmental planning and review. Your letter, dated November 9, 2010, was received in this office on November 19, 2010. At issue are potential effects to the federally-endangered San Joaquin kit fox (*Vulpes macrotis mutica*), the endangered blunt-nosed leopard lizard (*Gambelia sila*), the endangered Bakersfield cactus (*Opuntia basilaris* var. *treleasei*), the threatened San Joaquin adobe sunburst (*Pseudobahia peirsonii*), the endangered California jewelflower (*Caulanthus californicus*), and the endangered San Joaquin woolly-threads (*Monolopia congdonii*). This document represents the Service's biological opinion on the effects of the proposed project on these listed species. This document has been prepared in accordance with

section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*) (Act).

The findings and recommendations of this biological opinion (BO) are based on: (1) Caltrans' letter of request for formal consultation, dated November 9, 2010; (2) Caltrans' biological assessment (BA), entitled *Morning Drive/State Route 178 Interchange*, prepared by the consultants PMC and AECOM; (3) the accompanying *Draft Thomas Roads Improvement Program Mitigation for Cumulative Effects to the San Joaquin Kit Fox* (Draft Sump Habitat Program (SHP) Plan) dated September 2, 2010, which outlines the conceptual framework for the proposed SHP and which will continue to be updated over the course of five future TRIP projects; (4) the comprehensive *Draft Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan* (Draft Implementation Plan) dated February 2010; (5) the records from discussion and planning meetings held in person on September 10, 2009, March 11, 2010, May 11, 2010, July 14, 2010, August 18, 2010, and June 22, 2011, amongst Caltrans, the Service, the California Department of Fish and Game (CDFG), Parsons/TRIP, and AECOM; (6) ongoing electronic mail (e-mail) correspondence and telephone exchanges between the Service, Caltrans, AECOM, and the CDFG; and (7) other information available to the Service.

The Service has reviewed the proposed project and concurs with Caltrans' determinations that the project is likely to adversely affect the San Joaquin kit fox and blunt-nosed leopard lizard.

After reviewing the BA and other information sources, the Service concurs with Caltrans' determinations that the proposed project is not likely to adversely affect the Bakersfield cactus, San Joaquin adobe sunburst, California jewelflower, and San Joaquin woolly-threads given the results of botanical surveys, the distance of known occurrences from the project area, and implementation of appropriate and effective conservation measures.

Although there is potentially suitable habitat present within the project footprint for all four listed plant species, it is unlikely to be currently occupied, based on the results of protocol-level surveys conducted in March and May of 2008 and again in April and June of 2009 in accordance with the CDFG's 2000 *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. Surveys were conducted by walking 30 foot (ft.) transects of the project footprint and an associated 25 ft. buffer.

According to the California Natural Diversity Database (CNDDB; CDFG, 2011), there are four previously recorded, historical occurrences of the Bakersfield cactus within a two-mile radius of the intersection of Morning Drive and State Route (SR) 178, and 15 total previous observations within the Oil Center United States Geological Survey (USGS) 7.5'- quadrangle in which the project area is located. During the March 2008 rare plant surveys, 29 locations for Bakersfield cactus populations were identified outside of the project footprint's direct impact area and also outside of the temporary construction buffer zone (defined as a 25 ft. radius around the footprint). All 29 Bakersfield cactus populations are situated within a 0.23 ac area southwest of the intersection of Morning Drive and SR 178. No adverse effects to the species are likely to

occur given their distance from proposed construction activities and implementation of proposed avoidance measures.

According to the CNDDDB (2011), there are no previously recorded occurrences of the San Joaquin adobe sunburst within a two mile radius of the Morning Drive/SR 178 intersection, nor are there any occurrences within the Oil Center quadrangle; there is one historical observation of the California jewelflower (now extirpated) within the Oil Center quadrangle, and one historical, possibly extirpated occurrence of the San Joaquin woolly-threads within the same quadrangle. No observations of the San Joaquin adobe sunburst, California jewelflower, or San Joaquin woolly-threads were made during the 2008 and 2009 surveys. It should be noted that site access was partially restricted during both years. Property access was denied to one parcel situated at the western edge of the project, located south of SR 178. Additionally, one parcel to the northwest of the Morning Drive/SR 178 intersection was not surveyed, and four parcels located at the eastern end of SR 178, north of the highway, were not surveyed. However, only a portion of the westernmost parcel falls within the proposed project footprint; the remaining parcels are situated outside the area of anticipated direct effects.

While we believe none of these plant species are present in the action area, the project proponents will follow the conservation measures below. In the unlikely event any of these four species are encountered during project implementation, Caltrans will initiate formal consultation.

1. A Service- and CDFG-approved biologist will conduct preconstruction protocol-level plant surveys during the appropriate blooming periods for each of the four species prior to project groundbreaking within all portions of the project footprint and the temporary construction zone, as well as within the six parcels that originally had restricted access. The intention will be to discover any changes in or new additions to the floristic composition on the project site. If individuals are found, Caltrans will notify the Service and the CDFG and propose further appropriate measures that will ensure none are adversely affected.
2. Areas adjacent to the project construction area containing the known Bakersfield cactus populations will be designated as environmentally sensitive areas (ESA) and avoided by a minimum of 15 ft. from individual cacti to ensure no adverse effects to the plants occur during construction. Signs will also be posted identifying the areas.
 - a. If other listed plant species are found, silt fencing is one potential measure to ensure that plants are not disturbed during construction activities. Fencing will be placed at the limit of temporary disturbance, but no less than 15 ft. from individual plants.
3. Service- and CDFG-approved biologists will regularly inspect and verify field conditions to ensure that species and sensitive habitats outside construction areas are not affected. These individuals will coordinate with the Resident Engineer to stop any activity that has the potential to affect a special status species.

4. A worker environmental awareness program (WEAP) will be established and implemented prior to construction. The WEAP will be presented by a Service- and CDFG-approved biologist and will cover the distribution of listed and other special-status species, the general behavior and ecology of these species, their sensitivity to human activities, their legal protection, the penalties for violation of State and Federal laws, reporting requirements, compensation measures, and measures to implement in the event that a species is found during construction. A fact sheet with all this information will be prepared and distributed. The WEAP will be presented to all construction employees who will receive formal, approved training prior to working on-site. Upon completion of the WEAP, employees will sign a form stating that they attended and understood all protection measures. Forms will be filed with Caltrans and the City and made available to the Service and the CDFG upon request.
5. Storm-water drainages and culverts will not be placed in areas within or surrounding known locations of special-status plant species.
6. Preventative measures against the spread of noxious weeds will be implemented:
 - a. Restoration of disturbed areas will be undertaken as soon as possible following the completion of construction.
 - b. Fertilizer will not be applied to restored areas with known weed infestations since nutrients may enhance weed growth.
 - c. Straw bales used for sediment barriers or mulch will be qualified as weed-free.
 - d. Post-construction monitoring and treatment of weed infestation within the action area will be undertaken as needed.

This concludes the Service's consideration of the project's impacts to the Bakersfield cactus, San Joaquin adobe sunburst, California jewelflower, and San Joaquin woolly-threads. If substantial changes are made to the proposed project or if new information is presented to the Service, these determinations may be re-evaluated and reinitiation of consultation recommended. The remainder of this BO will address the concerns of the proposed project upon the blunt-nosed leopard lizard and San Joaquin kit fox.

Consultation History

September 10, 2009. A meeting was held at the Sacramento Fish and Wildlife Office (SFWO) amongst the Service, Caltrans, AECOM, Parsons/TRIP, the CDFG, and the City (involved agencies), with the latter two parties joining via conference call to discuss the early July 2009, *Draft Thomas Roads Improvement Program San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy* (2009 Draft Strategy Plan).

October 7, 2009. The Service sent a concurrence letter approving the conceptual framework for the San Joaquin kit fox compensation strategy plan outlined in the 2009 Draft Strategy Plan.

February 26, 2010. The Service received two hard copies of the Draft Implementation Plan.

March 11, 2010. The involved agencies met at the CDFG office in Fresno to discuss the 2010 Draft Implementation Plan; topics included an overview of the plan, potential issues with the Metro-Bakersfield Habitat Conservation Plan (MBHCP) expiration date, SHP funding matters, and additions needed for the upcoming BA. A follow-up meeting in which action items would be assessed was planned for April or May.

April 12, 2010. AECOM e-mailed the Service and the CDFG to ask for advice on what to use as a template for developing a long term management plan for the SHP. AECOM planned to use the US Army Corps of Engineers' (Corps) template but was open to suggestions. The Service replied on April 13 to say it was fine with AECOM using the Corps' template, and provided a management plan outline illustrating what the Service would expect to see in a potential management plan.

May 5, 2010. An informal conference call was held between AECOM and the Service to discuss recent developments that would be covered in the upcoming meeting that the Service would be unable to attend: Parsons/TRIP had successfully presented the six projects to the MBHCP Trust Group; the real estate meeting between AECOM and the City resulted in the discovery that four of the 19 easements on the sumps were owned outright by the City, four were owned by the City but with deed restrictions, and 11 were not owned by the City but still held easements. AECOM also inquired what the Service would look for in the upcoming BA, e.g. assurances from the City in the form of a commitment letter that a Service-approved management plan and easements were underway prior to groundbreaking; references to individual sumps and the overall SHP in the 2010 Draft Implementation Plan.

May 11, 2010. The involved agencies met at the CDFG office in Fresno to discuss the SHP.

July 14, 2010. A meeting was held at the SFWO amongst all the involved agencies. Parties agreed on the content of the project BA regarding avoidance and minimization measures and a general description of the SHP, compensation, eventual inclusion of a third chapter in the Draft Implementation Plan describing the finalized SHP in detail, endowment/easement updates, and schedules.

July 19, 2010. The Service received a copy of the Notice of Preparation of a Draft Environmental Impact Report (EIR) from Caltrans for the project requesting participation in the preparation and review of the document. A project description, two location maps, and a description of potential environmental effects were included.

August 18, 2010. A meeting was held at the CDFG's Fresno office amongst the involved agencies to discuss the latest developments in compliance, BA preparation, and the SHP. Major topics included the review of action items from the previous July 14 meeting; TRIP eligibility for

participation in the MBHCP; information in the BA; further details concerning the SHP (e.g. easement and program management, endowments, and sump selection); and new action items.

September 7, 2010. The Service received a letter from Caltrans of the Notice of Availability of the Draft EIR/Environmental Assessment (EA) and an announcement for a public hearing for the project. Included with the letter was a copy of the Draft EIR/EA.

September 15, 2010. The CDFG contacted the Service with information concerning language in accordance with the California Endangered Species Act (CESA) that the CDFG would like to see included in the project BO so that it would be able to issue a Consistency Determination (CD) and avoid undertaking a lengthier 2081 Incidental Take Permit process. The Service responded to discuss.

September 22, 2010. AECOM telephoned the Service to set up a time for a conference call between the Service, AECOM, Caltrans, and the City to discuss whether TRIP could pay its compensation fees to the MBHCP in advance of projects, possibly using a memorandum of understanding (MOU) which would need Service, CDFG, and MBHCP approval. The notion of paying fees in advance would enable coverage for all six projects prior to the MBHCP's expiration in 2014 and would give the MBHCP time to acquire land earlier.

September 30, 2010. A conference call was held amongst the Service, AECOM, Parsons/TRIP, and Caltrans to discuss MBHCP compensation fees for the six TRIP projects in advance of the 2014 MBHCP expiration. Although the construction schedule for at least one project is not anticipated to begin until after 2014, it still could be compensated for prior to the expiration date. In a revised September 1, 2010 letter which included details of all six projects and compensation ratios, a blanket concurrence from the MBHCP Trust Group to use the MBHCP was given to the City and Caltrans. The MBHCP was comfortable with the proposal. The Service suggested that an MOU with all parties involved could be implemented for paying fees in advance; such a document would need to identify how the total credit balance would operate and be debited from project to project. The Service agreed to send an MOU template to AECOM to discuss prior to AECOM's talks with the CDFG.

October 22, 2010. An internal Service meeting was set up to discuss the need for an MOU/memorandum of agreement (MOA) between the Service, Caltrans and the City regarding MBHCP compensation. It was expressed that not using a MOU/MOA would be more appropriate since the Service should not commit to anything on a pre-decisional basis. It would be preferable to have an agreement between the City and Caltrans and the MBHCP Trust Group. Projects would still need to be assessed on an individual basis with the understanding that acreages/impacts might change once BAs were assessed by the Service and the CDFG. Also, a positive/negative balance of credits at the end of all the TRIP projects could complicate matters; thus the City and Caltrans would need to have an accurate assessment up front for all impacts.

November 19, 2010. The Service received a letter from Caltrans requesting initiation of formal consultation for the current project. A BA was also included in the initiation package.

December 8, 2010. The Service e-mailed Caltrans to request a copy of the Draft SHP Plan intended to accompany the initiation letter and BA. Caltrans e-mailed a copy and stated this would later be incorporated into a third chapter in the Draft Implementation Plan.

January 4, 2011. Via telephone, AECOM and the Service discussed several issues surrounding the CDFG's approach to a CD and the operation of CESA language in the terms and conditions of a BO. The Service stated it would likely be unable to meet the CDFG's requests concerning the type of language the CDFG wished to see in the project BO. AECOM responded that Caltrans intended to find out whether a CD was still necessary.

January 6, 2011. The Service informed AECOM of comments from an internal Service telephone discussion regarding the issue of including CESA-relevant language in the BO. It was noted that the Service likely would be unable to enforce the type of language/measures for which the CDFG was asking as Terms and Conditions of the BO.

January 20, 2011. The Service e-mailed Caltrans and AECOM with questions, clarifications, and comments regarding the BA, and further inquired how to integrate aspects of the Draft SHP Plan, the 2010 Draft Implementation Plan, and meeting records. The Service also provided them with an update on what the SFWO had concluded regarding the concerns with CDs, CESA language, and BOs: the Service stated it would not include the CDFG's conditions in the Terms and Conditions of its BOs; however, the CDFG's conditions could be included in the project description and conservation measures. The Service does not have the authority to use the type of language the CDFG is looking for (e.g. fiscal assurances, letters of credit) as terms and conditions to minimize incidental take.

January 25, 2011. E-mails were exchanged between AECOM, the CDFG, and the Endangered Species Recovery Program (ESRP) concerning fence design for the SHP. The CDFG was concerned that the proposed 8x8 inch gaps were too big and would allow in predator species to the sump locations. The CDFG suggested that 4x6 inch or 5x5 inch gaps would be more appropriate. The ESRP responded that 4x6 inch openings would be fine, but 6x6 inch openings would be better for the San Joaquin kit fox and would still exclude predators. AECOM noted that the gap design objective for the sumps was different from that for the road design modifications (keeping predators out versus maintaining movement and permeability).

February 28, 2011. In a telephone call with the Service, Caltrans noted that full protocol-level blunt-nosed leopard lizard preconstruction surveys were currently being conducted for the project. Caltrans later e-mailed the Service the responses and comments developed by both Caltrans and AECOM to the questions posed by the Service on January 20 in regards to information in the BA and other related documents.

March 14, 2011. The Service e-mailed Caltrans with additional follow-up questions regarding the BA and several of the responses in the February 28 e-mail.

March 21, 2011. The Service telephoned Caltrans with several further questions. Caltrans also informed the Service that following a meeting with the CDFG to discuss project matters, Caltrans had decided not to pursue a 2081 Incidental Take Permit with the CDFG.

March 30, 2011. The Service e-mailed an excerpt of the draft BO to Caltrans and the CDFG for review and comments. The CDFG responded with several comments.

June 22, 2011. A meeting was held at the Service's Sacramento Office and attended by the Service, AECOM, Parsons/TRIP, the City of Bakersfield, and Caltrans. Updates were discussed regarding the status of the TRIP projects, the SHP, conservation easements and endowments, future work products, and possible additional funding support for the TRIP projects.

July 1, 2011. AECOM e-mailed draft notes from the meeting on June 22 for circulation and comment. Topics covered updates for the TRIP program, the SHP, conservation easements and a summary of the sump title report evaluation and encumbrances, endowments and third-party oversight, future work products, and funding/staff to support TRIP projects.

BIOLOGICAL OPINION

Description of the Proposed Action

Caltrans, in cooperation with the City, proposes to construct a new interchange along SR 178 at the intersection of Morning Drive in the City of Bakersfield, California. Caltrans plans to convert the existing two-lane SR 178 highway with passing lanes to a six-lane freeway from 0.65 mile west of Morning Drive (connecting to the SR 178 at Fairfax Road interchange project currently under construction), to 1.2 miles east of Morning Drive, where it will then taper for 0.2 mile to a four-lane conventional highway at the eastern end of the project limits near the Canteria Drive intersection. It also proposes to realign a segment of Morning Drive crossing over SR 178 using a new overcrossing structure, and converting it to a six-lane divided roadway from 0.45 mile north to 0.3 mile south of SR 178.

SR 178 carries traffic from SR 99 in the Bakersfield area east through the southern Sierra Nevada Mountains and connects rural and developing areas east of Bakersfield to the downtown area. Morning Drive is a two-lane arterial roadway that extends north from SR 178 and turns east approximately 0.5 mile north of Eagle Ridge Street. It provides access to existing residential areas north of SR 178. Currently Morning Drive is stop-controlled at the "T" intersection with SR 178. At the Morning Drive/SR 178 intersection, SR 178 has two eastbound lanes, one eastbound left-turn lane, and two westbound lanes; SR 178 narrows to one lane in each direction within 0.5 mile east of the intersection.

Design features and construction activities of the proposed project include:

- *Lane Configuration:* Six ramps are proposed for the intersection of SR 178 and Morning Drive: slip on-ramps in the northwest and southeast corners, spread diamond off-ramps in the northeast and southwest corners, and loop on-ramps in the northeast and southwest

corners that align at right angles with Morning Drive. Off-ramp intersections will have traffic signals.

- *Design Speeds:* For the SR 178 freeway portion (PM R7.2 to R8.8), a speed of 75 miles per hour (mph) is proposed; for the highway portion (PM R8.8 to R9.1), a speed of 60 mph is proposed.
- *Sidewalks and Bicycle Lanes:* Provisions are included for bicycle lanes and sidewalks along Morning Drive to accommodate pedestrians and bicyclists throughout the project area.
- *Landscaping:* Landscaping is proposed for placement along the SR 178 corridor and Morning Drive. For further details concerning this design feature please see page 14, #9 under the *Proposed Conservation Measures for Listed Species* heading for the San Joaquin kit fox.
- *Nonstandard Features:* One mandatory interchange spacing design exception is proposed. Interchanges are subject to the urban interchange spacing requirement of one mile in accordance with the Highway Design Manual (HDM 501.3). However, due to existing space constraints from adjacent development, the spacing will be less than one mile between the proposed Morning Drive/SR 178 Interchange and the Fairfax/SR 178 Interchange to the west which is currently under construction. The resulting design exception was approved by Caltrans on December 12, 2006.
- *Right of Way:* Approximately 60 acres (ac) of new right-of-way (ROW) are required to provide sufficient areas for the realignment of Morning Drive, construction of the SR 178 roadway and ramps, as well as side slope and drainage catchment areas. Approximately five ac of temporary easements are required for construction.
- *Utility Impacts:* Communication, fiber optic, cable television, and electrical poles and lines will be relocated near the proposed westbound on- and off-ramps adjacent to the existing alignment of Morning Drive. An underground oil pipeline, which runs north of SR 178 from east of Morning Drive close to Canteria Drive, will also be relocated.
- *Drainage:* The proposed design features will maintain existing drainage patterns, but will increase surface water runoff due to an increase in impervious surfaces, and require on-site storm water treatment through implementation of best management practices (BMPs). Additional drainage needs will be addressed with basins, ditches, and curb and gutter improvements. Two detention basins and one retention basin are proposed to handle the net increase in total runoff resulting from the project; they are also proposed to store and infiltrate surface runoff from the project area. The first detention basin will be 2.5 ac and located at the eastern end of the project site, south of SR 178. The second detention basin will be 1.0 ac and located at the western end of the project, south of SR 178. The retention basin will be 0.50 ac and located at the northern end of the project site, to the east of Morning Drive between Panorama Drive and Morningstar Avenue.

- Approximately 10.6 ac of ROW acquisition and 8.0 ac of drainage easements will be required to accommodate the basins and other drainage facilities.
- *Traffic Control:* The existing travel lanes will be maintained during construction. When the proposed work activity overlaps or is adjacent to the currently occupied travel lanes, the contractor will implement a lane shift or detour to provide the same number of existing lanes throughout construction. The contractor will follow and implement the Traffic Management Plan and the Stage Construction/Traffic Handling plans.

Scheduling

According to Caltrans' tentative project schedule, construction is expected to begin in early 2012 and will proceed continuously through a two year period until activity finishes at the end of 2013. No night work is anticipated to occur.

Construction Staging and Site Access

Potential construction staging areas have been identified on the north side of SR 178 east of the proposed interchange. The contractor may choose to negotiate rights with local property owners for use of vacant parcels adjacent to the site. Areas will be approved by a Service- and CDFG-approved biologist (agency-approved biologist) prior to use.

Borrow Sites/Fill Material

No borrow sites or fill material from off-site, outside the project area are needed or proposed for usage during construction. Only fill from land within the new ROW will be utilized for activities.

The purpose of the project is to improve traffic capacity and enhance mobility to accommodate future traffic demand in the Bakersfield region and surrounding developing areas. At the Morning Drive/SR 178 intersection, existing and forecasted traffic levels illustrate the need for improvements to circulation. Some of this traffic increase is due in part to rapid growth in the Bakersfield area as well as the extension of Morning Drive from SR 178 south to connect with the segment currently ending north of Niles Street/Kern Canyon Road. In order to accommodate immediate traffic concerns through 2015, the project proposes the aforementioned construction plans. In order to accommodate the design year traffic forecasts for 2035, future construction will be planned.

Proposed Avoidance and Minimization Measures

According to the BA, the Draft SHP Plan, the Draft Implementation Plan, as well as further discussion with Caltrans biologists and consultants, Caltrans, in coordination with the City, proposes to implement the following guidelines to minimize or avoid impacts to listed species that are known and/or have the potential to occur within the vicinity of the project area:

Construction Guidelines

1. Chemicals, lubricants, and petroleum products will be closely monitored and precautions will be used. All equipment will be maintained to prevent leaks of fluids,

such as gasoline, oils, or solvents. If any spills occur, cleanup will take place immediately.

2. Any sensitive sites, such as the two swales located adjacent to construction activities, will be designated as environmentally sensitive areas (ESAs) to prevent accidental construction-related effects.
3. Trees, shrubs, and other vegetation will be removed prior to the nesting season of migratory birds.
4. Other than the swales located outside the project footprint, no other water features are present in the project area and so effects to water quality will be avoided. Even so, the contractor will at all times adhere to the *State of California, Department of Transportation Standard Specifications* for avoidance of water pollution (Section 7-1.01G; July 1, 2008). These measures include detailed recommendations for keeping heavy machinery out of the water, limiting the amount of material (excavated or construction materials) that enter the waterway, and maintaining flows at all times. Temporary measures may include, but are not limited to, the use of sediment basins, hay bales, and downstream silt catchment.
5. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared prior to construction to reduce or eliminate any water quality reductions that might occur as a result of the project.
6. Staging and refueling areas for equipment will be located a minimum of 150 ft away from any active stream channel. If equipment has to be washed, washing will occur where water cannot flow into a stream channel.
7. Soil exposure will be minimized through the use of BMPs, ground cover, and stabilization practices. Exposed dust-producing surfaces will be sprinkled daily with water until wet while avoiding producing runoff.
 - a. The contractor will conduct maintenance of erosion and sediment control measures as needed. Inspectors will be on-site daily to monitor the need for these types of activities. All such measures will be removed after the area is stabilized or as directed by the resident engineer.

Proposed Conservation Measures for Listed Species

An agency-approved biologist shall have oversight over implementation of all the measures described in this biological opinion and he/she shall have the authority to stop project activities, through communication with the Caltrans Resident Engineer, if any of the requirements associated with these measures are not being fulfilled. Any stop work requests due to take of listed species shall be communicated to the Service and the CDFG within one day.

- Blunt-nosed leopard lizard:
 1. Protocol-level surveys will be conducted throughout the action area, as well as within the six parcels previously un-surveyed because of access restrictions, during the season prior to construction. Preconstruction surveys will also be conducted within 60 days prior to the onset of ground-breaking to identify species presence and/or significant habitat features. Day time line transect surveys consistent with the CDFG's 2004 protocol guidelines will be employed and will include areas of surface disturbance, appropriate buffers, access routes, and cross-country travel routes.
 2. If the blunt-nosed leopard lizard is located within the action area (during preconstruction surveys or during construction activities), Caltrans will notify the Service and the CDFG and will install exclusionary fencing around the observation site. All blunt-nosed leopard lizards will be allowed to leave the area without harassment.
 - a. An agency-approved biologist will stop construction activity in the vicinity of the blunt-nosed leopard lizard, monitor the area, and allow the blunt-nosed leopard lizard to leave on its own. The biologist will stay in the area for the remainder of the workday to ensure the blunt-nosed leopard lizard is not harmed and that it leaves the site and does not return. If the blunt-nosed leopard lizard does not leave of its own accord within one working day, the Service and the CDFG will be consulted further.
 - b. To prevent inadvertent entrapment of the blunt-nosed leopard lizard during construction, any open trenches and holes will be surveyed in the morning and late afternoon hours in order to identify any individuals that may have fallen in. Escape ramps or other such methods enabling the blunt-nosed leopard lizard to escape from trenches will be utilized.
 - c. Only an agency-approved biologist with a valid take permit pursuant to Section 10(a)(1)(A) of the Act, will have the authority to capture and/or relocate any blunt-nosed leopard lizards encountered in the action area.
 3. Plastic mono-filament netting (erosion control matting) or similar material will not be used on-site because the blunt-nosed leopard lizard may become entangled or trapped in it. Acceptable alternatives (i.e., coconut coir matting or tactified hydroseeding compounds) will be used.

4. A WEAP for construction personnel will be required before construction begins. It will provide workers with information on their responsibilities with regard to listed and fully protected species, including: locations of environmentally sensitive areas, exclusion zones, timing constraints, and communication with agency-approved biologists.
 5. Burrows that have the potential to be occupied by the blunt-nosed leopard lizard will be avoided by a minimum of 250 ft.
 6. A qualified biological consultant will be contracted to conduct the construction monitoring requirements. The consultant will submit a natural resource protection plan that will describe monitoring methods and timing. Initial construction disturbance is expected to occur in suitable blunt-nosed leopard lizard habitat between April and October; monitoring will also take place throughout this period. By scheduling initial disturbance activities during the period between approximately April 15 and September 15, when the air temperature is most suitable for the species, this will maximize the blunt-nosed leopard lizard's ability to maneuver away from construction equipment/vehicles and will minimize the risk of accidental entombment in burrows.
- San Joaquin kit fox:
 1. Caltrans will include Special Provisions that include the avoidance and minimization measures of this biological opinion in the contractor bid package during solicitation for bid information.
 2. No less than 30 days but no more than 60 days prior to road construction, an agency-approved biologist will conduct preconstruction surveys for San Joaquin kit fox dens within 200 ft. of the construction footprint, inclusive of utility relocations. A letter report and map of known and potential San Joaquin kit fox dens will be submitted to the Service and the CDFG. Repeat clearance surveys will be conducted no more than 14 days before construction or after any delays in construction of over two weeks. Any new San Joaquin kit fox dens identified in the interim will be reported to the Service and the CDFG in a letter report and map. If no new San Joaquin kit fox dens are observed, an internal record will be kept that includes the survey date, the agency-approved biologist, and general survey findings. Records will be submitted to the Service and the CDFG upon request.
 3. Disturbance to all San Joaquin kit fox dens will be avoided to the maximum extent possible. If dens or potential dens are identified within the footprint during the 60-day or 14-day preconstruction surveys, Caltrans will request to monitor and excavate those dens that are expected to be affected by the

project. Active dens will not be excavated during the natal season (approximately January 1 - June 14). The agency-approved biologist will monitor potential dens for three consecutive nights and submit monitoring results in a letter report to the Service and the CDFG, and will also oversee the excavation of dens with no San Joaquin kit fox use following approval by the Service and the CDFG.

- a. Dens found within 200 ft. of project construction but which will not be affected by construction activities, will be monitored and buffered by an exclusion zone as measured outwards from the entrance or cluster of entrances: potential or atypical dens will be protected with a 50 ft. radius buffer, and known dens will be protected with a 100 ft. buffer.
 - b. If natal/pupping dens are discovered within the action area or within 200 ft. of the action area, Caltrans will immediately notify the Service and CDFG.
4. Caltrans and the City will adhere to the standard construction and operational requirements described in the Service's revised January 2011 *Standard Measures for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance Construction and Operation Requirements* (Standard Measures).
 5. The agency-approved biologist will conduct a WEAP for all construction crews prior to ground-disturbing activities, with the purpose of informing all crew members of the potential for the San Joaquin kit fox to occur on-site and the effects on the species by construction activities. The training will be repeated to all new crew members and annually to all crew members working in San Joaquin kit fox habitat. Crew members will sign an attendance sheet and confirm that they understand the protection measures and construction restrictions. Training materials and records of attendees will be submitted to the Service and the CDFG.
 6. The agency-approved biologist will monitor road construction activities once per day and will verify that construction complies with the measures laid out in this biological opinion, as well as in the construction and operation requirements described in the revised 2011 Standard Measures. The agency-approved biologist will maintain a log of daily monitoring notes that can be summarized and transmitted to the Service and the CDFG by request.
 7. Permeable fencing will be installed along the proposed ROW of the Morning Drive/SR 178 interchange in all locations where permanent new fencing is required. One or a combination of three design options may be adopted to provide the San Joaquin kit fox with passage and movement opportunities:

- a. Elevate the bottom of the fence five inches above ground to allow unobstructed movement by the San Joaquin kit fox under the fence.
 - b. Install ground-level 8 x 8 inch wide gaps no more than 100 ft apart along the length of the fence to allow for San Joaquin kit fox movement at regular intervals along the ROW.
 - c. Install fencing with a minimum mesh size of 3.5 x 7 inches, preferably 5 x 12 inches, to allow unlimited movement through the fence.
8. Curbed medians may be included in the project design to address public safety. If they become necessary, their height will be no greater than 10 inches. Ten-inch curbed medians will remain un-vegetated so as not to obstruct the visual field of the San Joaquin kit fox near the roadway. Curbed medians less than 10 inches in height and which require landscaping either will be planted with low-level vegetation (i.e. less than six inches) or be frequently mowed to prevent overgrowth and provide an unobstructed line of sight.
9. Landscaping will be designed in conjunction with the curbed median design in order to allow unobstructed visibility to the San Joaquin kit fox and to maintain and/or enhance opportunities for movement across the roadway. Three alternative strategies are proposed: 1) select plants that do not exceed six inches tall at maturity; 2) maintain vegetation height so that it does not exceed six inches; and/or 3) create gaps of no less than four ft wide every 12 ft in areas landscaped with trees and shrubs.
10. If taller median barriers are deemed necessary for the purposes of public safety during later planning stages, Caltrans-designed modified type 60/S wildlife passageways will be incorporated into the barrier design. These openings will have a 9-inch radius and will be spaced every 150 ft to allow for San Joaquin kit fox passage. Maintaining permeability will reduce the potential to disrupt north-south San Joaquin kit fox movement and connectivity in the project area.
11. Existing north-south drainage culverts will be maintained and enhanced, with potential for the installation of a new culvert to provide additional opportunities for San Joaquin kit fox movement. Grating at each entrance may be necessary for public safety and for predator exclusion. Caltrans proposes hinged iron grates with a 6 x 6 inch mesh. Escape dens are proposed for installation in all culverts with the exception of the two 60 inch culverts identified in 'd' below since they have the potential to both compromise

drainage function and harm the San Joaquin kit fox in the event of large water flows:

- a. An east-west culvert is under consideration for the Morning Drive overpass south of SR 178, with a minimum recommended diameter of 48-60 inches.
 - b. An existing 24-inch diameter drainage culvert west of Morning Drive will be retained as is. The widening of this culvert was considered, but ultimately Caltrans determined it to be infeasible and cost prohibitive. However, the entrance will be made more accessible to the San Joaquin kit fox.
 - c. An existing 30-inch diameter drainage culvert immediately east of Morning Drive will be replaced with a 36-inch diameter culvert and will be open for the San Joaquin kit fox to access.
 - d. Two 60-inch diameter culverts between Vineland Road and Canteria Drive either will be retained or replaced.
12. Warning signs will be installed between Morning Drive and Vineland Road, in particular, at intersections and along segments of road surrounded by open space that will alert east- and west-bound drivers to potential San Joaquin kit fox presence. The need for signage at additional intersections will continue to be evaluated as project designs advance. Proposed signage will follow current FHWA guidelines or other Caltrans-recommended guidelines.
13. An agency-approved biologist will monitor San Joaquin kit fox use of those culverts that are included in the project design modifications. Monitoring will occur for two-week periods at quarterly intervals for three years following the completion of construction. The agency-approved biologist will use track plates at culvert entrances and where feasible, camera stations. Caltrans will prepare and submit an annual letter report to the Service and the CDFG documenting the results of this monitoring at the crossing structures.
- a. An inspection of those culverts included in the project design modifications will occur once annually during April - May for the aforementioned three year period in order to verify that culvert access is not impeded by debris.

The MBHCP Trust Group provided a letter to the City, dated December 3, 2010, in which it approved the ongoing use of the MBHCP for proposed compensation obligations for this project and the remaining five TRIP projects; it also permitted payment to occur on an individual project basis after the approval of the final environmental document (FED) for each project. The City

will pay the appropriate fee amount to the Trust Group and the Trust Group will acquire the required acreage amounts to be protected in perpetuity.

14. The City will compensate for the permanent loss of 86.65 acres (ac) and temporary disturbance to 13.35 ac of non-native grassland habitat suitable for both the blunt-nosed leopard lizard and San Joaquin kit fox by funding the purchase of 274.64 ac (using a 3:1 compensation ratio for permanent effects and 1.1:1 compensation ratio for temporary effects) through the MBHCP.
 - a. Prior to construction, the limits of impacted habitat acreage will be verified and delineated on a map submitted for approval to the Service and the CDFG. This will be done prior to its submittal to the City of Bakersfield Planning Department for fee payment.
 - b. All areas temporarily disturbed by project activities will be restored following the completion of construction.

The SHP will provide long-term habitat conservation for the urban San Joaquin kit fox population in the metro-Bakersfield area by focusing on sumps (i.e. stormwater drainage basins) as known and functional habitat for the species. The City, in coordination with Caltrans, proposes to utilize the SHP to compensate for collective effects to the San Joaquin kit fox engendered by this and five future TRIP road improvement projects. The SHP's conservation goals include measures addressing the installation of artificial dens in selected sumps, the enhancement of San Joaquin kit fox habitat by controlling vegetation in and around dens, the increase in San Joaquin kit fox accessibility to sumps through fence/gate openings (with proposed dimensions of 6 x 6 inches to exclude predators like coyotes (*Canis latrans*) and medium- to large-sized dogs), and the reduction in the potential for impacts to the San Joaquin kit fox associated with regular maintenance activities and predator access. The City provided a letter of commitment to the Service, dated August 10, 2010, fully supporting and providing assurance of the implementation and management of the SHP and its conservation efforts.

15. The current conceptual framework for the SHP at the time of this consultation is described in the September 2010 Draft SHP Plan, which addresses five core conservation measures in detail that are integral to the implementation and success of the SHP: 1) the selection of sumps that maintain San Joaquin kit fox accessibility and/or habitat (i.e. those of high/medium conservation priority based on the relative potential for minimizing both project-level and program-level effects); 2) the installation and maintenance of San Joaquin kit fox enhancement features (i.e. fence/gate gaps, artificial dens, conservation zones, signs, and enhancement maintenance and repair); 3) the management of sump vegetation compatible with San Joaquin kit fox presence and/or use (i.e. performance of routine maintenance outside the San Joaquin kit fox natal season and the use of hand tools in conservation zones and new active dens); 4) the biological monitoring and reporting of results (i.e. pre-maintenance

surveys; den monitoring and supervised den excavation; environmental awareness training; maintenance monitoring; annual enhancement inspection; annual San Joaquin kit fox sump use monitoring; and annual reporting); and 5) the provision of long-term conservation assurances (i.e. individual conservation easements for each sump; a perpetual non-wasting endowment for management, maintenance, and monitoring costs associated with ongoing implementation; and an agency-approved Long-Term Management Plan. The proposed easement and endowment holder(s) must be Service-approved third party organizations). Further details in regards to these five core measures can be found in the latest version of the Draft SHP Plan.

- a. The SHP will continue to be refined through an ongoing collaborative consultation process among Caltrans, the City, the Service, and the CDFG over the course of the six TRIP projects. The Draft SHP Plan will therefore also continue to be modified over this period until a final document is developed.
- b. The finalized SHP will be established and implemented following the approval of the FED for the last of the six TRIP projects. Caltrans will fully fund the SHP within one year of this approval. Caltrans and the City will share responsibility for the SHP; Caltrans will adhere to the proposed avoidance and minimization measures and terms and conditions of this BO and will be responsible for the overall implementation of the SHP, while the City will be responsible for enhancing sumps and conducting long term management of the SHP.

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The action area for this project includes the project footprint, which consists of the existing hardscape segments of Morning Drive and SR 178, new ROW acquisitions (60 ac) in order to provide land for construction, and non-native grassland habitat. All areas to be permanently lost (86.65 ac) as a result of roadway widening, road realignment, construction of new intersection ramps and detention/retention basins, are included within the footprint. The action area also includes a 25 ft. temporary construction zone around the footprint (13.35 ac) that will be temporarily affected due to utility relocations, its use as a temporary easement site for work activities (5 ac), and the staging of equipment and materials. Additionally, the action area includes the unspecified borrow location(s) located within the proposed new ROW from which fill material will be obtained; the land acreage proposed as compensation area for the habitat affected on-site, which will be preserved through fee purchase via the MBHCP; and the sump locations identified for project-specific enhancement and preservation as part of the overall SHP.

Analytical Framework for the Jeopardy/No Jeopardy Determination

In accordance with policy and regulation, the following analysis relies on four components to support the jeopardy/no jeopardy determination for the blunt-nosed leopard lizard and San Joaquin kit fox: (1) the *Status of the Species*, which evaluates the species' range-wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of all of the species in the action area, the factors responsible for that condition, and the role of the action area in the species' survival and recovery; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy/no jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species' current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the blunt-nosed leopard lizard and San Joaquin kit fox in the wild.

The following analysis places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the action area in meeting those needs as the context for evaluating the significance of the effects of the proposed Federal action, combined with cumulative effects, for purposes of making the jeopardy/no jeopardy determination. In short, a non-jeopardy determination is warranted if the proposed action is consistent with maintaining the role of habitat and the species' populations in the action area for the survival and recovery of these two species.

Status of the Species

Blunt-nosed Leopard Lizard

The blunt-nosed leopard lizard was federally listed as endangered on March 11, 1967 (32 FR 4001) and was listed by the State of California as endangered on June 27, 1971. A recovery plan for the blunt-nosed leopard lizard was first prepared in 1980 (Service, 1980), revised in 1985, and then superseded by the Service's 1998 Recovery Plan (Service, 1998). The recovery strategy requires that the Service (1) determine appropriate habitat management and compatible land uses for the blunt-nosed leopard lizard; (2) protect additional habitat for the species in key portions of its range; and (3) gather additional data on population responses to environmental variation at representative sites in their existing geographic range (Service, 1998).

The blunt-nosed leopard lizard was distributed historically throughout the San Joaquin Valley and adjacent interior foothills and plains, extending from central Stanislaus County south to extreme northeastern Santa Barbara County. Today its distribution is limited to scattered parcels of undeveloped land, with the greatest concentrations occurring on the west side of the valley

floor and in the foothills of the Transverse Range. The blunt-nosed leopard lizard prefers open, sparsely vegetated areas of low topographic relief and inhabits Valley Sink Scrub, Valley Saltbush Scrub, valley/plain grasslands, and foothill grasslands vegetation communities (Service, 1998). The blunt-nosed leopard lizard occurs in scattered sites in the San Joaquin Valley and in adjacent foothills at elevations of 100 to 2400 ft. on alkali flats, large washes, arroyos, canyons, and low foothills (Stebbins, 1985).

The blunt-nosed leopard lizard is carnivorous and is an opportunistic forager of grasshoppers, cicadas, and small lizards; it is also an aggressive and territorial species. Eggs are laid in excavated chambers at the end of rodent burrows. Females produce one clutch of 2-6 eggs per year and young emerge in August.

While the adult blunt-nosed leopard lizard often seeks safety in burrows constructed by mammals such as kangaroo rats for overwintering and aestivation, immature blunt-nosed leopard lizards use rock piles, trash piles, and brush. Adult individuals hibernate during the colder months of winter, and are less active in the hotter months of late summer. Adults are active above ground from about March or April through September when temperatures are between 75 and 95 degrees Fahrenheit. Hatchlings are active until mid-October or November, depending on weather.

In Kern County, the blunt-nosed leopard lizard currently occupies scattered parcels of undeveloped land and the margins of developed land on the Valley floor, and occurs in the foothills of the Coast Range. While the blunt-nosed leopard lizard can occupy grassland with short vegetation structure, it prefers lands with scattered shrubs and sparse grass/forb cover.

Blunt-nosed leopard lizard habitat has been significantly reduced, degraded, and fragmented by roads, agricultural and urban development, petroleum and mineral extraction, oil development, livestock grazing, row crop cultivation, pesticide application, and off-road vehicle use (Service, 1998). Habitat disturbance, destruction, and fragmentation continue as the greatest threats to blunt-nosed leopard lizard populations. Mortality occurs when animals are killed in their burrows during construction, killed by vehicle traffic, drowned in oil, or fall into excavated areas from which they are unable to escape. Displaced blunt-nosed leopard lizards may be unable to survive in adjacent habitat if it is already occupied or unsuitable for colonization. Livestock grazing can result in habitat modification through the removal of herbaceous vegetation and shrub cover and destruction of rodent burrows used by the blunt-nosed leopard lizard for shelter. Unlike cultivation of row crops, which precludes use by the blunt-nosed leopard lizard, light or moderate grazing may be beneficial. The use of pesticides may indirectly and directly affect the blunt-nosed leopard lizard. The insecticide malathion has been used since 1969 to control the beet leafhopper, and its use may reduce insect prey populations. Fumigants such as methyl bromide are used to control ground squirrels (*Spermophilus beecheyi*). Because the blunt-nosed leopard lizard often inhabits ground squirrel burrows, they may be inadvertently poisoned.

In regards to more recent studies, the Bureau of Land Management (BLM) has conducted surveys and compiled observational data from BLM lands in western Kern, Kings, and Fresno

Counties, including a 5- to 10-year research study in the Lokern Area, in conjunction with the USGS-Biological Research Division, to evaluate the effects of cattle grazing on the blunt-nosed leopard lizard, the giant kangaroo rat (*Dipodomys ingens*), the San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), other small mammals, and the Kern mallow (*Eremalche kernensis*).

Extant populations of blunt-nosed leopard lizards are known from the Carrizo Plain, Elk Hills, around Taft, and at various other locations around Kern County (Service, 1998). The McKittrick Valley area is included in one of several larger areas given highest priority for habitat protection for the blunt-nosed leopard lizard. The Lokern and Elk Hills areas have also been targeted for habitat protection for the species (Service, 1998).

There has never been a comprehensive survey of the entire historical range of the blunt-nosed leopard lizard, and therefore less is known about this animal's distribution than other species, eg. kangaroo rats (Service, 1998).

In the southern San Joaquin Valley, extant populations of blunt-nosed leopard lizards are known to occur. According to the CNDDDB (2011), there are four recorded occurrences of blunt-nosed leopard lizards within the USGS Oil Center 7.5- minute quadrangle that covers the action area, and one occurrence in the neighboring Rio Bravo Ranch quadrangle immediately to the east; the most recent of these observations date from 2004 and 2006. These occurrences are located within approximately 2.5 miles north, east, and south of the Morning Drive/SR 178 intersection; however, none of these five occurrences fall within the boundaries of the action area.

The status of population clusters of blunt-nosed leopard lizards around metro-Bakersfield has been, and continues to be affected by past and present Federal, State, private, and other human activities and natural factors. Primary causes of the decline of the blunt-nosed leopard lizard have been attributed to the modification and alteration of land stemming from urban construction, off-road vehicle use, and transportation infrastructure, among other activities (Service, 1998). A separate Federal project that has previously completed formal consultation with the Service concerning effects to the San Joaquin kit fox and which is located directly adjacent to the current project's action area is the SR 178 Fairfax Road Interchange Project (Service File number 1-1-03-F-0008).

Additionally, the presence of low-density single family homes, an apartment complex, a church located north of SR 178, the former Mesa Marin Raceway, the City-owned baseball recreation center currently under construction which is located at the easternmost part of the action area to the south of SR 178, and new residential and commercial developments being constructed to the north of the western boundary of the action area, may all have had past and continuing effects on the blunt-nosed leopard lizard through habitat disturbance and loss.

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 diet of the San Joaquin kit fox varies geographically, seasonally, and annually, based on temporal and spatial variation in abundance of potential prey. The diets and habitats selected by coyotes and San Joaquin 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 San Joaquin kit foxes may result in San Joaquin kit fox mortalities.

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 San Joaquin kit fox is often associated with open grasslands, which form large contiguous blocks within the eastern portions of the range of the animal. The San Joaquin kit fox also utilizes oak savanna and some types of agriculture (i.e. orchards and alfalfa), although the long-term suitability of these habitats is unknown (Jensen, 1972; Service, 1998). Orchards sometimes support prey species if the grounds are not manicured; however, denning potential is typically low and the San Joaquin kit fox can be more susceptible to coyote predation within orchards (Orloff, 2002). Alfalfa fields provide an excellent prey base (Woodbridge, 1987), and berms adjacent to alfalfa fields sometimes provide good denning habitat (Orloff, 2002). The San Joaquin kit fox often dens adjacent to, and forages within, agricultural areas (Bell, 1994; Scott-Graham, 1994). Although agricultural areas are not traditional San Joaquin kit fox habitat and are often highly fragmented, they can offer sufficient prey resources and denning potential to support small numbers of San Joaquin 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). Pups appear above ground at about age three to four weeks, and are weaned at age six to eight weeks. Adult San Joaquin kit fox reproductive rates vary annually with environmental conditions, particularly food availability. Although some yearling female San Joaquin kit foxes will produce young, most do not reproduce until two years old (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 the rearing of the following year's litter of pups (Spiegel and Tom, 1996). Young San Joaquin kit foxes begin to forage for themselves at about four to five months old (Koopman *et al.*, 2000; Morell, 1972).

Movements and Habitat Use

Although most young San Joaquin kit foxes disperse less than five miles (Scrivner *et al.*, 1987b), dispersal distances of up to 76.3 mi 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 four to 32 months (Cypher, 2000). Some individuals delay dispersal and may inherit their natal home range.

San Joaquin 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 San Joaquin kit fox dens have been observed on a variety of soil types (Service, 1998). Some studies have suggested that where hardpan layers predominate, San Joaquin kit foxes create their dens by enlarging the burrows of California ground squirrels or badgers (*Taxidea taxus*) (Jensen, 1972; Morrell, 1972; Orloff *et al.*, 1986). In parts of their range, particularly in the foothills, San Joaquin kit foxes often use ground squirrel burrows for dens (Orloff *et al.*, 1986). San Joaquin kit fox dens are commonly located on flat terrain or on the lower slopes of hills. Natal and pupping dens are generally found in flatter terrain. Common locations for dens include washes, drainages, and roadside berms. San Joaquin kit foxes also commonly den in human-made structures such as culverts and pipes (O'Farrell, 1983; Spiegel and Tom, 1996).

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 situated in the same location as ancestral breeding sites (O'Farrell, 1983). 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 San Joaquin 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).

Dens are used by San Joaquin kit foxes for temperature regulation, shelter from adverse environmental conditions, and escape from predators. A San Joaquin 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). San Joaquin 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. San Joaquin kit foxes tend to use dens that are located in the same general area, and clusters of dens can be surrounded by hundreds of acres of similar habitat devoid of other dens (Egoscue, 1962).

The San Joaquin kit fox is primarily nocturnal, although individuals are occasionally observed resting or playing (mostly pups) near their dens during the day (Grinnell *et al.*, 1937). 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 mi and are greatest during the breeding season (Cypher, 2000).

Density estimates vary greatly throughout its range, and have been reported as high as 3.11 per square mile in optimal habitats in good years (Service, 1998). San Joaquin kit fox home ranges vary in size from approximately one to 12 square mi (Spiegel and Tom, 1996; Service, 1998). Knapp (1978) estimated that a home range in agricultural areas is approximately one square mi. Individual home ranges overlap considerably, at least outside the core activity areas (Morrell, 1972; Spiegel, 1996).

Historical and Current Range

Historically, this species occurred in several San Joaquin Valley native plant communities, from southern Kern County north to San Joaquin and Stanislaus Counties. 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 currently inhabit some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin Counties on the west, and near La Grange, Stanislaus County on the east side of the Valley, and some of the larger scattered islands of natural land on the Valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced Counties.

Reasons for Decline and Threats to Survival

The distribution and abundance of the San Joaquin kit fox have 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 the San Joaquin kit fox are described in further detail.

Loss of Habitat: Less than 20 percent of the habitat within the historical range of the San Joaquin 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, the San Joaquin kit fox occurred throughout California's Central Valley and adjacent foothills. By the 1930s, the range of the San Joaquin 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.

This rate of loss accelerated following the completion of the Central Valley Project (CVP) and the State Water Project, which diverted and imported new water supplies for irrigated agriculture (Service, 1995). Approximately 1.97 million ac of habitat, or about 66,000 ac per year, were converted in the San Joaquin region between 1950 and 1980. Kern County was one of the top land converters. By 1979, only approximately 370,000 ac out of a total of approximately 8.5 million ac on the San Joaquin Valley floor remained as non-developed land (Williams, 1985).

Extensive habitat destruction and fragmentation have contributed to smaller, more isolated populations of the San Joaquin kit fox. 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 re-colonization 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).

Habitat loss, modification, and fragmentation due to construction of infrastructure: Construction of infrastructure projects continues to result in the direct loss and indirect modification of remaining San Joaquin kit fox habitat throughout its range. Paved roads, canals, reservoirs, water banks, sound walls, and similar facilities present both permanent losses of habitat and potential barriers to San Joaquin kit fox movement that fragments habitat.

Road construction in the San Joaquin Valley has resulted in the loss of San Joaquin kit fox habitat since listing. The Service does not have data to show the historic and current loss of San Joaquin kit fox habitat range-wide resulting directly from road construction. However, rough calculations of the acreage of land lost to road development indicate that by 2003, over 7,000 ac of land had been transferred to Caltrans' jurisdiction, including 590 ac in Kings County, 1,065 ac in Merced County, and 2,020 ac in Fresno County (K. Hau, Caltrans, pers. comm., as cited in Bjurlin and Cypher, 2003).

Habitat loss and modification due to other factors: In the San Joaquin and associated valleys, and in the border foothill areas, conversion of natural habitat to intensive agriculture continues to be the primary cause of habitat loss for the species (Cypher *et al.*, 2007). Loss and modification of habitat to urban development also continues to be a threat to the San Joaquin kit fox throughout its range. Development along the San Joaquin Valley periphery continues to restrict both core habitat and movement corridors for the species. At the time that the San Joaquin kit fox was federally listed, extraction of petroleum products (crude oil, propane, natural gas, etc.) was not considered to be a threat to the San Joaquin kit fox, as most of the petroleum-producing land was still relatively undisturbed (Jensen, 1972). Currently, however, oil extraction and gravel mining may pose both direct and indirect risks to the San Joaquin kit fox. A number of

large-scale solar development projects also threaten San Joaquin kit fox population clusters since they are currently proposed for construction in prime habitat.

Competition with Other Canids: Several species prey upon the San Joaquin kit fox. Predators (such as coyotes, bobcats (*Lynx rufus*), non-native red foxes, badgers, and golden eagles (*Aquila chrysaetos*)) will kill the San Joaquin kit fox. Badgers, coyotes, and red foxes also may compete for den sites (Service, 1998). The diets and habitats selected by coyotes and San Joaquin 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).

Coyotes occur in most areas with abundant populations of San Joaquin 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 San Joaquin kit foxes by killing them. Coyote-related deaths of adult San Joaquin kit 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).

Land-use changes also contributed to the expansion of non-native red foxes into areas inhabited by the San Joaquin kit fox. Historically, the geographic range of the red fox did not overlap with that of the San Joaquin kit fox. By the 1970s, however, introduced and escaped red foxes had established breeding populations in many areas inhabited by the San Joaquin kit fox (Lewis *et al.*, 1993). The increased abundance and distribution of non-native red foxes will also likely adversely affect the status of the San Joaquin kit fox because they are closer morphologically and taxonomically, and likely have higher dietary overlap than coyotes, potentially resulting in more intense competition for resources.

Reduction in prey availability: The San Joaquin kit fox has strongly been linked ecologically to kangaroo rats, with San Joaquin kit fox densities and population stability highest in areas with abundant kangaroo rat numbers (Spiegel *et al.*, 1996; Cypher *et al.* 2000; Cypher, 2006; see also Bean and White, 2000). Abundance of prey species, particularly abundance of kangaroo rats, has been linked with successful recruitment of young San Joaquin kit foxes and increases in San Joaquin kit fox population numbers (White and Ralls, 1993; Cypher *et al.* 2000; Bidlack, 2007; L. Saslaw, BLM, pers. comm. 2008, 2009).

Conversely, prey scarcity has been a primary factor contributing to decreased reproductive success during droughts (White and Ralls, 1993), or to extirpation of San Joaquin kit foxes in specific localities (Williams, *in litt.*, 2007). Early studies suggested that kangaroo rats were a preferred food for the San Joaquin kit fox throughout the range (Laughrin, 1970), and that San Joaquin kit fox densities were lower in areas like those near Bakersfield where plant associations changed and abundant ground squirrels replaced kangaroo rats (Jensen, 1972). Additional studies have shown that the San Joaquin kit fox subsists primarily on ground squirrels in some

portions of their range, including areas around Bakersfield, and in valleys within the inner Coast Range (Balestreri, 1981; Orloff *et al.* 1986; Cypher and Warrick, 1993), while they may subsist on a variety of native and nonnative species in disturbed areas or areas near to agriculture, and often also rely upon insect prey during portions of the year (Spiegel *et al.*, 1996; Cypher and Brown, 2006).

Disease: Wildlife diseases do not appear to be a primary mortality factor consistently limiting San Joaquin kit fox populations throughout their range (McCue and O'Farrell, 1988; Standley and McCue, 1992). However, documented cases in the 1990s in central California saw a high incidence of wildlife rabies cases (Schultz and Barrett, 1991), and high seroprevalences of canine distemper virus and canine parvovirus (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.

Pesticides and Rodenticides: Pesticides and rodenticides pose a threat to the San Joaquin kit fox through direct or secondary poisoning. Mortality can result if a San Joaquin kit fox ingests rodenticide in a bait application, or if it eats a rodent that has consumed the bait. Even sub-lethal doses of rodenticides may lead to death by impairing its ability to escape predators or to find food. Pesticides and rodenticides may also indirectly affect the survival of the San Joaquin kit fox by reducing the abundances of its staple prey species.

Those San Joaquin 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. They may be affected through direct contact with sprays and treated soils, or through consumption of contaminated prey. Data from the CDFG Pesticide Investigations Unit (CDFG, 1999) indicate that acephate, aldicarb, azinphos methyl, bendiocarb, carbofuran, chlorpyrifos, endosulfan, s-fenvalerate, naled, parathion, permethrin, phorate, and trifluralin are used within one mile of San Joaquin kit fox habitat. A wide variety of crops, 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.

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 certain chemicals would likely jeopardize the continued existence of the San Joaquin kit fox.

Vehicular Mortality: Injury and mortality to the San Joaquin kit fox occurs when attempting to cross roads. The majority of strikes likely occur at night when the animals are most active. Such hits are usually fatal for an animal the size of a San Joaquin kit fox. If vehicle strikes are sufficiently frequent in a given locality, this could result in reduced San Joaquin kit fox abundance. The death of San Joaquin kit foxes during the December through March breeding season could also 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.

Vehicle strikes appear to occur most frequently where roads transverse areas where San Joaquin 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 number of strikes likely increases with road size, traffic volume, and average speed (Clevenger and Waltho, 1999). Another factor influencing mortality, but for which little data are 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 the San Joaquin kit fox have been well documented, and such strikes occur throughout the range of the species. Sources of San Joaquin kit fox mortality were examined during the period 1980-1995 at the NPR 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 nine percent, were struck and killed by vehicles. During this same period, 184 juvenile (less than one year old) San Joaquin kit foxes were monitored. Of these, 142 were recovered dead and 11, or eight percent, were killed by vehicles. For both adults and juveniles, vehicle strikes accounted for less than 10 percent of all San Joaquin kit fox deaths in most years. In one study by Bjurlin *et al.* (2005), of 156 San Joaquin kit foxes that were monitored from 1997 to 2004, approximately 48% of mortalities were attributed to vehicle strikes. However, in some years, vehicles accounted for about 20 percent of deaths (predators, primarily coyotes and bobcats, were the primary source of mortality at the NPR).

Morrell (1970) acknowledged that there is some bias deriving from the fact that road-killed San Joaquin kit 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 San Joaquin kit fox survival and recovery.

Barrier Effects: Roads can constitute barriers to San Joaquin kit fox movements, dispersal, and gene flow. Movements and dispersal corridors are critical to San Joaquin kit fox population dynamics, particularly because the species currently persists as metapopulations. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition during years when San Joaquin kit fox abundance is high, as well as for facilitating the re-colonization of areas in which 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.

Recovery Status

A recovery plan approved in 1983 proposed interim objectives for halting the decline of the San Joaquin kit fox and increasing population sizes above 1981 levels (Service, 1983). Conservation efforts subsequent to the 1983 recovery plan have included habitat acquisition by the BLM, the CDFG, the California Energy Commission, the Bureau of Reclamation, the Service, and the Nature Conservancy. Purchases most significant to conservation efforts were the acquisitions in the Carrizo Plain, Ciervo-Panoche Natural Area, and the Lokern Natural Area. Other lands have been acquired as compensation for land conversions, both temporary and permanent.

An updated recovery plan covering upland species of the San Joaquin Valley, including the San Joaquin kit fox, was written in 1998. The primary goal of the recovery strategy for the San Joaquin kit fox 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, movement corridors between these populations must be preserved and maintained. In the northern range, from the Ciervo-Panoche in Fresno County northward, San Joaquin 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. Satellite populations are found in the urban Bakersfield area, Porterville/ Lake Success area, Creighton Ranch/Pixley Wildlife Refuge, Allensworth Ecological Reserve, Semitropic/Kern 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.

The recovery criteria for the San Joaquin kit fox include site-specific objectives for habitat protection in each of the identified core and satellite areas (Service, 1998, page 188). In the Carrizo Plains Natural Area (including BLM, CDFG, The Nature Conservancy, and private lands) in San Luis Obispo County, the protection level was set at 100 percent of existing potential habitat. In western Kern County (including BLM, CDFG, Kern County Water Agency, California Department of Water Resources, US Department of Energy, Center for Natural Lands Management, and private lands) the protection level was set at 90 percent of the existing potential habitat, and at the Ciervo-Panoche Natural Area (including BLM, CDFG, and private lands) in Fresno and San Benito Counties, the protection level was set at 90 percent of the existing potential habitat. For the proposed satellite populations, the protection level was set at 80 percent of the existing potential habitat. The term "potential habitat" is not defined in the Recovery Plan; however, the Service expects that to achieve recovery, habitat must include components, such as appropriate physical conditions, vegetative structure, and community structure needed by the San Joaquin kit fox.

The first downlisting criterion, to secure and protect the three core populations and satellite populations from incompatible uses, has not yet been achieved. Service files indicate that, although lands have been protected in many of the satellite areas through use of Habitat

Conservation Plans (HCPs), conservation banks, etc., no satellite areas are sufficiently secured from incompatible uses. The second recovery criterion requires that all protected lands identified as important to the San Joaquin kit fox's continued survival have management plans that include survival of the San Joaquin kit fox as a management objective. This has not yet been achieved. The third recovery criterion stipulates that in the specified recovery areas, the three core areas have stable or increasing populations through one precipitation cycle and that there is population interchange between one or more core populations and the satellite populations. This recovery criterion has not been achieved either.

According to the CNDDDB (2011) there are 22 documented sightings of the San Joaquin kit fox within the USGS Oil Center 7.5- minute quadrangle, which covers the project's action area. One of these occurrences was observed within the action area, while 12 of the observations were sighted within three miles of the Morning Drive/SR 178 intersection, with most San Joaquin kit fox activity congregating to the east, west-southwest, and north of the action area. The most recent of these observations date from 2006 and 2007. The status of the metro-Bakersfield satellite population has been, and continues to be, affected by past and present Federal, State, private, and other human activities and natural factors. Habitat loss and degradation from urbanization and transportation infrastructure are substantial (Service, 1998). As an area where the San Joaquin kit fox has adapted to the urban environment, traffic-related incidents have been and will continue to be the primary source of mortality in Bakersfield (Cypher, 2000; Bjurlin *et al.*, 2005). Other dangers posed by the urban environment of the metro-Bakersfield action area and its vicinity include predation from domestic dogs and entanglement in playing field equipment like soccer nets.

Environmental Baseline

Blunt-nosed leopard lizard

The existing conditions of the action area consist of highly compacted soils and areas of high disturbance; numerous dirt roads and paths exist throughout the action area, contributing to its disturbed nature. During four field surveys conducted by Caltrans' consultant, PMC, on March 27, 2008, May 7, 2008, April 9 & 10, 2009, and June 22 & 23, 2009, to evaluate special-status plant and animal species with the potential to occur in or near the proposed interchange footprint, no blunt-nosed leopard lizards were positively identified; nor were any small mammal burrows observed which could be used by the blunt-nosed leopard lizard. Further protocol-level surveys were commenced in April 2011. The Service anticipates that the blunt-nosed leopard lizard is still reasonably certain to occur within the proposed interchange footprint based on the biology and ecology of the species, the presence of suitable foraging habitat necessary for life cycle functioning, and known occurrences in proximity to the proposed interchange. Sumps identified for management in the SMP are located in developed areas within the City of Bakersfield and are unlikely to provide habitat for blunt-nosed leopard lizard because suitable dispersal habitat is lacking between the sumps and extant populations.

San Joaquin kit fox

The largest extant populations of San Joaquin kit fox are found in western Kern County on and around the Elk Hills NPR and Buena Vista Valley, and in the Carrizo Plain Natural Area of San Luis Obispo County to the immediate west (Service, 1998); these are part of the Western Kern and Carrizo core populations, as identified for recovery purposes. The urban Bakersfield population is the only substantial population of San Joaquin kit foxes known to occur outside the core areas (Cypher and Warrick, 1993; Cypher *et al.*, 2000) and comprises one of the satellite populations identified for recovery purposes. Individuals are known to be present in the action area. The action area provides suitable denning habitat for the San Joaquin kit fox and the proposed interchange footprint is located in a likely north-south movement corridor for the species.

The San Joaquin kit fox has been previously documented throughout the Morning Drive/SR 178 study area, highlighting that this alignment has been, and remains a suitable location for denning and movement, particularly given the northerly and southerly spread of recorded observations. Data provided in the San Joaquin kit fox database maintained by the City's Planning Department show that dens have been previously identified north of the action area at the intersection of Vineland Road and Paladino Drive. Several surveying methodologies were employed by Caltrans' consultants, AECOM and Paul Pruett and Associates, in the spring and summer of 2008 and 2009 to obtain current data on the presence of the San Joaquin kit fox in the action area. Surveys in 2008 identified seven potential San Joaquin kit fox dens, two presumed active dens, two incidences of San Joaquin kit fox sign, and one San Joaquin kit fox carcass within 500 ft. of the proposed alignment. Six of the potential dens were clustered around the intersection of Morning Drive/SR 178. One of the dens presumed to be active was located in the road embankment of SR 178 just west of an abandoned baseball field. The remaining potential den, and the second of the presumed active dens, and the single carcass were identified in the road embankment of SR 178 at the abandoned baseball field just south of SR 178. Most of these potential dens and the kit fox signs (i.e. scat) were found in the sloping nonnative annual grassland habitat on both the north and south sides of SR 178. San Joaquin kit fox are either known or are expected to use sumps identified in the SMP for denning. Survey results and existing San Joaquin kit fox records suggest that the species is found throughout the action area and surrounding locales. They are likely to use this area to den in the sloping grassland terrain and/or to move across SR 178 using the local roadways such as Canteria Drive, Morning Drive, existing culverts, and opportunistic crossings across the open grasslands bisected by SR 178.

The San Joaquin kit fox is thus evidenced in the action area based on the biology and ecology of the species; known occurrences both in the action area and in proximity to the action area; and the presence of suitable open space habitat for denning and movement, including slightly above grade segments of SR 178 and road embankments. The presence of six existing subterranean culverts also provides north-south undercrossing options for the species.

Effects of the Proposed Action

Habitat Loss and Degradation

A total of 86.65 ac of annual non-native grassland habitat will be permanently lost through the construction of six new on- and off-ramps for the proposed intersection and the Morning Drive overcrossing structure above SR 178; the widening of a segment of SR 178 to a six-lane freeway; the realignment of Morning Drive and its subsequent conversion to a six-lane divided roadway; the construction of side slope and drainage detention and retention basins; and the relocation of some utilities. Additionally, a total of 13.35 ac of annual non-native grassland will serve to buffer the project footprint; it will also function as a 25 ft temporary construction zone and will be temporarily disturbed due to the relocation of other utilities, the utilization of the area as temporary easement sites for work activities (5 ac), and the staging and lay-down of equipment. This affected habitat consists of open grassland space suitable for both the blunt-nosed leopard lizard and San Joaquin kit fox to inhabit and utilize for shelter, escape cover, foraging, breeding, and other life cycle needs.

To help offset the loss of this habitat, Caltrans proposes, through participation in the MBHCP, to purchase compensation acreage that is of commensurate or higher quality to the habitat lost due to project construction, ensuring that the species can continue to breed, feed, shelter, and meet all their life cycle functions. The MBHCP's goal is to acquire, preserve, and enhance large, contiguous native habitats that support listed and sensitive species like the blunt-nosed leopard lizard and San Joaquin kit fox. Caltrans, in coordination with the City, is also developing the SHP, a comprehensive and extensive conservation plan to help address habitat loss and effects to the San Joaquin kit fox. The SHP intends to address collective construction effects deriving from this project and five future projects in the metro-Bakersfield area by protecting and enhancing sumps through easement holdings as a crucial habitat type for the urban Bakersfield San Joaquin kit fox population. Caltrans' compensation measures will help lead to preservation and enhancement of suitable blunt-nosed leopard lizard and San Joaquin kit fox habitat and will contribute to protecting and managing the habitat for the conservation of the species in perpetuity. These lands will also help maintain the geographic distribution of the species and will contribute to the recovery of the species by increasing the amount of habitat that is secure from development threats.

Displacement and Entombment

The risk of crushing and entombing the blunt-nosed leopard lizard and San Joaquin kit fox in their burrows and dens (both natural and man-made) during groundbreaking activities and major construction, is a likely effect. Sizeable road widening, realignment, and assembly activities using heavy machinery and equipment as in this case run the risk of burying or permanently displacing individuals, which can end up influencing local population abundance and distribution. Destruction of shelters could also affect blunt-nosed leopard lizard and San Joaquin kit fox survival by reducing the number and distribution of escape refuges from predators. To help counteract these effects, Caltrans proposes to conduct preconstruction surveys for both species. Active dens or burrows found within the project footprint will be fenced or buffered and

avoided; if construction activity cannot be avoided at these sites, Caltrans proposes to monitor them and to work with the Service and the CDFG on the safest way to excavate and collapse them while they are not in use. The action area has a low level of current human development and so there remain considerable open expanses of natural land available to the species; but even so, infrastructure that does exist on-site, i.e. the abandoned baseball diamond, contains items such as piles of debris, discarded sheds, and friable soils that can be conducive to San Joaquin kit fox denning. Consequently, Caltrans proposes to check equipment and cover holes, trenches, and piping in order to both discourage the species from using man-made materials and structures as shelter, and to locate any inadvertently trapped individuals.

Road Mortality, Wildlife Crossing Viability, and Barrier Effects

The efficacy of wildlife passageway structures and crossings in facilitating safe travel routes and preventing injury or mortality due to vehicle collisions remains an issue of ongoing discussion; many variables influence the value of such designs and whether species will utilize them. Such factors include the specific location in which a structure will be built based on wildlife habitat linkage and connectivity needs; the size and type of crossing structure design appropriate to the species and project needs; the degree of naturalness exhibited by the structure; the mode of approach species have towards a structure (e.g. presence of vegetation and line of sight); the materials used in the bottom of a crossing structure; and placement of fencing and types used (Ruediger & DiGiorgio, 2007).

San Joaquin kit fox injury and mortality are very likely to occur when individuals attempt to cross SR 178 and roads like Morning Drive. The types of roads found in the action area combined with current traffic levels and the need to accommodate future increases in traffic levels, all lead to the potential for increased vehicle strikes. Bjurlin *et al.* (2005) reported that the vehicular-based mortality of the San Joaquin kit fox occurred most frequently on major arterial roads with relatively high traffic volumes. Those with four or more lanes accounted for approximately 71% of the total, with collector roads, local roads, and highways accounting for less of the total. Strikes also occur most frequently in locations where the San Joaquin kit fox is abundant and at intersections, descriptions which are applicable to the current project. The majority of strikes likely occur at night when the species is most active. Driver visibility is also lower at night, increasing the potential for hits.

Effective wildlife crossings must simultaneously address multiple road and landscape variables. Caltrans has discussed at length various methods of on-site project design modifications with the ESRP, the Service, the CDFG, and the City in order to effectively reach measures believed to present the greatest value to the species in the context of the project. The primary objectives of these modifications are to maintain San Joaquin kit fox movement, to provide opportunities for the San Joaquin kit fox to cross the roadways, and to reduce the potential for an increase in vehicular injury and mortality. The installation of permeable fencing along the ROW of SR 178 and Morning Drive will reduce the potential for obstruction to current San Joaquin kit fox crossings north and south of the highway and intersection. Specific utilization of culverts by the San Joaquin kit fox is ambiguous at best. On the one hand, some research indicates that strategies involving crossing structures and exclusionary fencing are unlikely to benefit the San

Joaquin kit fox in some instances (Cypher *et al.*, 2009). On the other hand, culvert usage has been documented by the ESRP, with Cypher (2000) reporting that culvert use was positively correlated with increasing culvert size. Ultimately, Caltrans' emphasis on culvert widening enhancements, rather than on the creation of new structures, will facilitate more effective opportunities for the San Joaquin kit fox and other wildlife to cross the roadways safely and at more appropriate locations. Caltrans' post-construction culvert monitoring will contribute to our understanding of how useful these under-crossings become in conveying the San Joaquin kit fox away from the direct risk of vehicle hits.

Trash, Debris, and Borrow Site

Since there is no specifically proposed disposal plan for trash and debris on the project site, we anticipate adverse effects resulting from predation, since abandoned trash items would likely attract predators such as coyotes and bobcats, and scavengers like raccoons, which would prey opportunistically upon the species. There is also the possibility that both species could get caught in erosion netting, while stockpiled debris left behind could end up polluting habitat.

Caltrans does not yet know specific fill details but potential fill locations will be identified on-site within the proposed new ROW, and so will fall within the established project footprint. Effects from construction equipment utilized for digging and removing earth will result and will cause disturbance to and displacement of habitat suitable for both species.

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.

The Service is not aware of any non-Federal actions currently planned in the Morning Drive/SR 178 action area that would directly remove or further disturb blunt-nosed leopard lizard and San Joaquin kit fox habitat.

Conclusion

Conservation measures set forth for implementation before, during, and following project work; project design modifications; and the SHP plan intended to address the additive effects resulting from this and future projects in the metro-Bakersfield area, will all serve to minimize project effects and the level of take associated with the blunt-nosed leopard lizard and San Joaquin kit fox. Effects and take level also will be minimal in regards to the wider subpopulations of blunt-nosed leopard lizards and San Joaquin kit foxes present within the action area, within the wider metro-Bakersfield region, and within Kern County at large. After reviewing the current status of the blunt-nosed leopard lizard and San Joaquin kit fox, the environmental baseline for the action area for each species, the effects of the proposed Morning Drive/State Route 178 Interchange Project on both species, 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 blunt-nosed leopard lizard and San Joaquin kit fox.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation 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 Caltrans so that they become binding conditions of project authorization for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this Incidental Take Statement. If Caltrans (1) fails 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

Blunt-nosed leopard lizard

The Service anticipates that incidental take of the blunt-nosed leopard lizard will be difficult to quantify due to the animal's small size, its tendency to escape underground into burrows, its response to the effects of specific seasonal and weather conditions, and its activity patterns; these all serve to preclude the discovery of injured or dead individuals, and to make the observation of live individuals unlikely. It is therefore difficult to quantify an exact number of blunt-nosed leopard lizards that will be taken as a result of the proposed action, so in instances when specific take calculations are problematic to produce, the Service may estimate take in regards to the number of acres of permanently lost or degraded habitat as a result of the project action, since this reflects a significant adverse biological effect to the species. Therefore, the Service anticipates take incidental to this project as all blunt-nosed leopard lizards inhabiting, using, or moving through 100 ac of suitable habitat that will be permanently lost and temporarily disturbed. Upon implementation of the *Reasonable and Prudent Measures, Terms and Conditions*, and the *Proposed Avoidance and Minimization Measures* considered herein,

incidental take within this acreage in the forms of harm and harassment, as well as injury and mortality (an indeterminable but likely very small level), due to roadway widening, realignment, and associated construction activities leading to habitat loss and disturbance, displacement, entombment in burrows, entanglement in erosion netting, and trash pollution, will become exempt from the prohibitions described under section 9 of the Act.

San Joaquin kit fox

The Service anticipates that incidental take of the San Joaquin kit fox will be difficult to quantify for the following reasons: when not foraging, mating, or otherwise being active on the surface, the San Joaquin kit fox inhabits dens, making detection problematic; it may range over a large territory; it is primarily active at night; and it is an intelligent but shy animal likely to avoid human presence. It is difficult to quantify an exact number of San Joaquin kit foxes that will be taken as a result of the proposed action, so in instances when specific take calculations are problematic to produce, the Service may estimate take in regards to the number of acres of permanently lost or degraded habitat as a result of the project action, since this reflects a significant adverse biological effect to the species. Therefore, the Service anticipates take incidental to this project as all San Joaquin kit foxes inhabiting, using, or moving through 100 ac of suitable habitat that will be permanently lost and temporarily disturbed. A small number of San Joaquin kit fox dens could be destroyed by the SMP, but these would be offset by the installation of artificial dens, and improved access to denning habitat and security from predators at sumps. Upon implementation of the *Reasonable and Prudent Measures, Terms and Conditions*, and the *Proposed Avoidance and Minimization Measures* considered herein, incidental take within this acreage, and at sumps identified in the SMP, in the forms of harm and harassment due to roadway widening, realignment, and associated construction activities leading to habitat loss and disturbance, and in the forms of injury and mortality (an indeterminable, but likely small level) due to entombment in dens, vehicular strikes, and increased predation resulting from lack of trash disposal, will become exempt from the prohibitions described under section 9 of the Act.

Effect of the Take

In the accompanying biological opinion, the Service has determined that this level of anticipated take is not likely to jeopardize the continued existence of the blunt-nosed leopard lizard and San Joaquin kit fox.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the effects of the proposed action on the blunt-nosed leopard lizard and San Joaquin kit fox.

1. All of the conservation measures proposed in the BA, the Draft SHP Plan, the *Project Description*, and as supplemented and modified below, must be fully implemented.

2. Trash must be handled in a manner so as to minimize the potential for take of the blunt-nosed leopard lizard and San Joaquin kit fox.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans, as well as any contractor acting on its behalf, must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These Terms and Conditions are nondiscretionary.

The following Terms and Conditions implement Reasonable and Prudent Measure one:

1. Caltrans shall be responsible for implementing all measures described in this biological opinion. Terms and conditions that apply to contractor activities shall be conditioned in contracts for the work.
2. On a monthly basis Caltrans shall monitor and document the amount of habitat lost during construction to ensure that the amount of habitat lost does not exceed the amount of take anticipated in this biological opinion. Caltrans shall notify the Service when the take limit is reached and shall reinitiate consultation if the limit will be exceeded.
3. Following project completion, any and all construction debris/stockpiled materials from the project site shall be removed.

The following Term and Condition implements Reasonable and Prudent Measure two:

1. To minimize both habitat pollution and opportunistic predatory effects to the blunt-nosed leopard lizard and San Joaquin kit fox, Caltrans shall condition contracts with contractors to require that trash, litter, and debris be removed daily from project areas and disposed of off-site so as not to attract predators and scavengers.

Reporting Requirements

1. Before construction starts on this project, the Service shall be provided with the final documents related to protection of conservation acres, including but not limited to, fee payment of compensation acreage. Proof of recorded easement and perpetual non-wasting endowment holdings for each sump included in the SHP have long-term conservation assurances in place, and do not need to be provided to the Service prior to construction of this project. Easement and endowment documentation, as part of the SHP, will be in place following the approval of the FED for the last of the six TRIP projects. Caltrans will fully fund the SHP within one year of that approval.

2. A post-construction report detailing compliance with the project design criteria and proposed conservation measures 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. The report shall include: (1) dates of project groundbreaking and completion; (2) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the blunt-nosed leopard lizard and San Joaquin kit fox, if any; (5) occurrences of incidental take of the blunt-nosed leopard lizard and San Joaquin kit fox; and, (6) any other pertinent information.
3. New sightings of the blunt-nosed leopard lizard and San Joaquin kit fox or any other sensitive animal species shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location in which the animals were observed also should be provided to the Service.

Disposition of Individuals Taken

In the case of injured and/or dead blunt-nosed leopard lizards and San Joaquin kit foxes, the Service shall be notified of events within one day and the animals shall only be handled by an agency-approved, permitted biologist. Injured blunt-nosed leopard lizards and San Joaquin kit foxes shall be cared for by a licensed veterinarian or other qualified person. In the case of a dead animal, the individual animal shall be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or until the Service takes custody of the specimen. Caltrans must report to the Service within one calendar day any information about take or suspected take of federally-listed species not exempted in this opinion. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal. The Service contacts are Mr. Daniel Russell, Deputy Assistant Field Supervisor, Endangered Species Program, Sacramento, at (916) 414-6600 and Mr. Daniel Crum, the Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 414-6660. The CDFG contact is the Fresno Office at (559) 243-4017.

Any contractor or employee who, during routine operations and maintenance activities inadvertently kills or injures a listed wildlife species must immediately report the incident to his representative at his contracting/employment firm and to Caltrans. This representative must contact the Service within one calendar day in the case of a federally-listed species and contact the CDFG in the case of a dead or injured State-listed species.

CONSERVATION RECOMMENDATIONS

Conservation recommendations are suggestions of the Service regarding discretionary measures to minimize or avoid further adverse effects of a proposed action on listed, proposed, or candidate species or on designated critical habitat, or regarding the development of new information. They may also serve as suggestions on how action agencies can assist species

conservation in furtherance of their responsibilities under section 7(a)(1) of the Act, or recommend studies improving an understanding of a species' biology or ecology. Wherever possible, conservation recommendations should be tied to tasks identified in recovery plans. The Service is providing you with the following conservation recommendations:

1. It is recommended that Caltrans continue to include culverts, tunnels, or other undercrossing structures at regular intervals along roads and highways, and particularly in core and satellite population lands to allow for the safe passage of the San Joaquin kit fox. It is also recommended to include passageway structure designs appropriate for smaller species such as the blunt-nosed leopard lizard. Such crossing structures would create safe dispersal corridors for multiple wildlife species, and would help reduce road mortalities and enhance public safety. It would be beneficial to the Service for Caltrans to include photos, plans, and other information in its biological assessments concerning the incorporation of wildlife passageway designs into future projects.
2. It is recommended that Caltrans continue to assist the Service in the implementation of recovery efforts for the blunt-nosed leopard lizard and San Joaquin kit fox.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

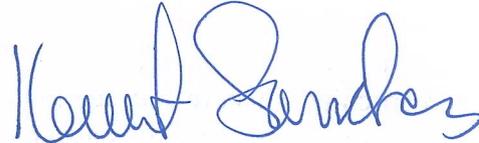
This concludes the Service's review of the proposed Morning Drive/SR 178 Interchange Project, as outlined in your November 9, 2010 letter. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been 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 an extent not considered in this biological opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

Mr. Zachary Parker

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Please contact Jen Schofield, Fish and Wildlife Biologist, or Thomas Leeman, San Joaquin Valley Division Chief, at the letterhead address or at (916) 414-6600 if you have any questions regarding this letter on the proposed Morning Drive/SR 178 Interchange Project.

Sincerely,



Fed

Susan K. Moore
Field Supervisor

cc:

Ms. Annee Ferranti, CDFG, Fresno, California

Ms. Kirsten Helton, Caltrans District 6, Fresno, California

Mr. David Clark, Parsons Corporation/TRIP, Bakersfield, California

Ms. Cindy Davis and Mr. Leo Edson, AECOM, Sacramento, California

Literature Cited

- Balestreri, A.N. 1981. *Status of the San Joaquin kit fox at Camp Roberts, California, 1981*. U.S. Department of the Army, Engineering, Environmental, and Natural Resources Office. California Polytechnic State University, San Luis Obispo, CA, 30 pp.
- Bean, E. and P.J. White. 2000. *Estimation of the abundance of San Joaquin kit foxes on the Carrizo Plain National Monument using distance sampling*. Report submitted to U. S. Fish and Wildlife Service, Sacramento, CA, 12 pp.
- Bell, H. M. 1994. *Analysis of habitat characteristics of San Joaquin kit fox in its northern range*. Master Thesis. California State University Hayward, California.
- Bidlack, A. 2007. *Mesocarnivore responses to changes in habitat and resource availability in California*. Ph.D. Dissertation. University of California, Berkeley, CA.
- Bjurlin, C.D., and B.L. Cypher. 2003. *Effects of roads on San Joaquin kit foxes: a review and Synthesis of existing data*. Pages 397-406 In: Proceedings of the 2003 International Conference on Ecology and Transportation, Eds. C.L. Irwin, P. Garrett, and K.P. McDermott. Center for Transportation and the Environment, North Carolina State University, Raleigh, NC.
- Bjurlin, C.D., B.L. Cypher, C.M. Wingert, and C.L. Van Horn Job. 2005. *Urban roads and the endangered San Joaquin kit fox*. California State University-Stanislaus, Endangered Species Recovery Program, Fresno, CA.
- (CDFG) California Department of Fish and Game. 1999. *Exposure of non-target wildlife to anticoagulant rodenticides in California*. Robert C. Hosea. California Department of Fish and Game Pesticide Investigations Unit. Rancho Cordova, California.
- Clevenger, A.P. and N. Waltho. 1999. Dry culvert use and design considerations for small- and medium-sized mammal movement across a major transportation corridor. Pages 263-178 in G. L. Evink, P. Garrett, and D. Zeigler (eds.). Proceedings of the third international conference on wildlife ecology and transportation. FL-ER-73-99, Florida Department of Transportation. Tallahassee, Florida.
- (CNDDDB) California Department of Fish and Game, Natural Diversity Data Base. 2011. Element occurrence reports for *Opuntia basilaris* var. *treleasei*, *Pseudobahia peirsonii*, *Caulanthus californicus*, *Monolopia congdonii*, *Gambelia sila*, and *Vulpes macrotis mutica*. Unpublished cumulative data. Biogeographic Data Branch. RareFind 4. Government Version - April 5, 2011.
- Cypher, B.L. 2000. *Effects of roads on San Joaquin kit foxes: A review and synthesis of existing data*. Endangered Species Recovery Program, California State University, Fresno, California.

- Cypher, B.L. 2006. *Kit fox conservation in the San Luis Drainage Study Unit*. Unpublished report to the U.S. Bureau of Reclamation South-Central California Area Office. California State University, Stanislaus, Endangered Species Recovery Program. Fresno, California.
- Cypher, B.L., and A.D. Brown. 2006. *Demography and ecology of endangered San Joaquin kit foxes at the Bena Landfill, Kern County, California*. California State University-Stanislaus, Endangered Species Recovery Program, Turlock, CA, 17 pp.
- Cypher, B.L., and J.H. Scrivner. 1992. *Coyote control to protect endangered San Joaquin kit foxes at the Naval Petroleum Reserves, California*. Proceedings of the Vertebrate Pest Conference, 15: 42-47.
- Cypher, B.L., and K.A. Spencer. 1998. *Competitive interactions between coyotes and San Joaquin kit foxes*. Journal of Mammalogy 79: 204-214.
- Cypher, B.L., and G.D. Warrick. 1993. *Use of human-derived food items by urban kit foxes*. 1993 Transactions of the Western Section of The Wildlife Society 29:34-37.
- Cypher, B.L., C.D. Bjurlin, and J.L. Nelson. 2009. *Effects of Roads on Endangered San Joaquin Kit Foxes*. The Journal of Wildlife Management. 73(6): 885-893.
- Cypher, B.L., H.O. Clark, P.A. Kelley, C. Van Horn Job, G.D. Warrick, and D.F. Williams. 2001. *Interspecific interactions among wild canids: Implications for the conservation of endangered San Joaquin kit foxes*. Endangered Species Update, School of Natural Resources and Environmental. University of Michigan, Vol. 18 No. 4, pp. 171-174.
- Cypher, B. L., S. E. Phillips, and P. A. Kelly. 2007. *Habitat suitability and potential corridors for San Joaquin kit fox in the San Luis Unit, Fresno, Kings, and Merced Counties, California*. Prepared for the U.S. Bureau of Reclamation, South-Central California Area Office, and the U.S. Fish and Wildlife Service, Endangered Species Program, Fresno, California.
- Cypher, B.L., G.D. Warrick, M.R.M. Otten, T.P. O'Farrell, W.H. Berry, E.C. Harris, T.T. Kato, P.M. McCue, J.H. Scrivner, and B.W. Zoellick. 2000. *Population dynamics of San Joaquin kit foxes at the Naval Petroleum Reserve in California*. Wildlife Monographs 145. 43 pp.
- Egoscue, H.J. 1962. *Ecology and life history of the kit fox in Tooele County, Utah*. Ecology 43: 481-497.
- Forman, R.T.T. 2000. *Estimate of the Area Affected Ecologically by the Road System in the United States*. Conservation Biology 14(1): 31-35.

- Forman, R.T.T. & Deblinger. 1998. *The ecological road-effect zone for transportation planning, and a Massachusetts highway example*. Pages 78-96 in G.L. Evink, P. Garrett, D. Zeigler, and J. Berry, editors. Proceedings of the international conference on wildlife ecology and transportation. Publication FL-ER-69-98. Florida Department of Transportation, Tallahassee.
- Frankham, R., and K. Ralls. 1998. *Inbreeding leads to extinction*. Nature 241: 441-442.
- Grinnell, J., J.S. Dixon, and J.M. Linsdale. 1937. *Fur-bearing mammals of California*. Volume 2. University of California Press. Berkeley, California.
- Jensen, C.C. 1972. *San Joaquin kit fox distribution*. Unpublished Report, U.S. Fish and Wildlife Service, Sacramento, California. 18 pp.
- Knapp, D.K. 1978. *Effects of agricultural development in Kern County, California, on the San Joaquin kit fox in 1977*. Final Report Project E-1-1, Jov V-1.21, California Department of Fish and Game, Non-Game Wildlife Investigations, Sacramento, California.
- Koopman, M.E., B.L. Cypher, and J.H. Scrivner. 2000. *Dispersal patterns of San Joaquin kit foxes (Vulpes macrotis mutica)*. Journal of Mammalogy 81: 213-222.
- Lande, R. 1988. *Genetics and demography in biological conservation*. Science 241:1455-1460.
- Laughrin, L. 1970. *San Joaquin kit fox, its distribution and abundance*. Wildlife Management Branch Administrative Report 70-2. California Department of Fish and Game, Sacramento, California.
- Lewis, J.C., K.L. Sallee, and R.T. Golightly, Jr. 1993. *Introduced red fox in California*. Rep. 93-10, California Department of Fish and Game, Nongame Bird and Mammal Section, Sacramento, California. 70 pp.
- McCue, P.M., and T.P. O'Farrell. 1988. *Serological survey for selected diseases in the endangered San Joaquin kit fox (Vulpes macrotis mutica)*. Journal of Wildlife Disease 24: 274-281.
- Morrell, S.H. 1970. *Life history study of the San Joaquin kit fox*. California Department of Fish and Game, Federal Aid in Wildlife Restoration project W-54R-2. Sacramento, California.
- _____. 1972. *Life History of the San Joaquin kit fox*. California Department of Fish and Game, 58: 162-174.

- _____. 1975. *San Joaquin kit fox distribution and abundance in 1975*. California Department of Fish and Game, Wildlife Management Branch Administrative Report No. 75-3, in fulfillment of contracts W-54-R-7-1 with the Service and Contract 3904 with the California Department of Food and Agriculture.
- O'Farrell, T.P. 1983. *San Joaquin Kit Fox Recovery Plan*. U.S. Fish and Wildlife Service, Sacramento, California.
- O'Farrell, T. P., and P. McCue. 1981. *Inventory of San Joaquin kit fox on Bureau of Land Management lands in the western San Joaquin Valley*. Final report. EG&G. U. S. Department of Energy, Goleta, California. EGG-1183-2416.
- O'Farrell, T. P., T. Kato, P. McCue, and M. L. Sauls. 1980. *Inventory of San Joaquin kit fox on Bureau of Land Management lands in southern and southwestern San Joaquin Valley*. Final Report. EG&G, U. S. Department of Energy, Goleta, California. EGG 1183-2400.
- Orloff, S.G. 2002. Chapter 9: Medium to Large Mammals. Pages 337 – 383 In J. E. Vollmar (editor), *Wildlife and rare plant ecology of Eastern Merced County's vernal pool grasslands*. Vollmar Consulting, Berkeley, CA.
- Orloff, S.G., F. Hall, and L. Spiegel. 1986. *Distribution and habitat requirements of the San Joaquin kit fox in the northern extreme of their range*. Transactions of the Western Section of the Wildlife Society 22:60-70.
- Ralls, K., P.J. White, J. Cochram, and D.B. Siniff. 1990. *Kit fox – coyote relationships in the Carrizo Plain Natural Area*. Annual report to the U. S. Fish and Wildlife Service. Department of Zoological Research, Smithsonian Institution, Washington, D.C.
- Ruediger, B. and M. DiGiorgio. 2007. *Safe Passage: A User's Guide to developing effective highway crossings for carnivores and other wildlife*. The Southern Rockies Ecosystem Project (SREP). 19 pp.
- Saccheri, I., M. Kuussaari, M. Kankare, P. Vikman, W. Fortelius, and I. Hanski. 1998. *Inbreeding and extinction in a butterfly population*. Nature 392: 491-494.
- Schultz, L.J., and L.R. Barrett. 1991. *Controlling rabies in California 1990*. California Vet 45: 36-40.
- Scott-Graham, E. 1994. *American Farmland Trust: A proposal for incentive-driven habitat creation and enhancement on farmlands in the San Joaquin Valley under the Federal Endangered Species Act*. Draft Rep., Visalia, California, 34 pp.
- Scrivner, J.H., T.P. O'Farrell, and T.T. Kato. 1987b. *Dispersal of San Joaquin kit fox, *Vulpes macrotis mutica*, on Naval Petroleum Reserve #1, Kern County, California*. Report No. EGG 10282-2190, EG&G Energy Measurements, Goleta, California. 32 pp.

Scrivner, J.H., T.P. O'Farrell, and K.L. Hammer. 1993. *Summary and evaluation of the kit fox relocation program, Naval Petroleum Reserve #1, Kern County, California*. U.S. Department of Energy Topical Report, EG&G/EM Santa Barbara Operations Report No. EGG 10282-2168. 26 pages.

(Service) U.S. Fish and Wildlife Service. 1967. *Endangered and threatened wildlife and plants; determination of endangered status for the blunt-nosed leopard lizard: final rule*. Federal Register 32(48): 4001. http://ecos.fws.gov/docs/federal_register/fr18.pdf.

_____. 1980. *Blunt-nosed leopard lizard recovery plan*. Portland, Oregon. 319 pp.

_____. 1983. *The San Joaquin Kit Fox Recovery Plan*. Prepared by Dr. Thomas O'Farrell under interagency contract DE-ACOB-76NV01183 with the U.S. Department of Energy for U.S. Fish and Wildlife Service, Portland, OR 90 pp.

_____. 1993. *Effects of 16 vertebrate control agents on threatened and endangered species*. Biological Opinion, Washington, D.C. 172 pp.

_____. 1995. *Biological opinion for interim water renewal contracts, Central Valley, California, with the Bureau of Reclamation, Sacramento, California*. Sacramento, California, 160 pp.

_____. 1998. *Recovery Plan for Upland Species of the San Joaquin Valley, California*. Portland, Oregon. 319 pp. http://ecos.fws.gov/docs/recovery_plans/1998/980930a.pdf

Spencer, K.A., W.H. Berry, W.G. Standley, and T.P. O'Farrell. 1992. *Reproduction of the San Joaquin kit fox on Camp Roberts Army National Guard Training Site, California*. U.S. Department of Energy Topical Report No. EGG 10617-2154.

Spiegel, L. K. 1996. *Studies of San Joaquin kit fox in undeveloped and oil-developed areas: an overview*. Pages 1-14 in: *Studies of the San Joaquin kit fox in undeveloped and oil-developed areas*, California Energy Commission, Environmental Protection Office, Sacramento, CA.

Spiegel, L. K. 1996. *Characteristics of San Joaquin kit fox dens at oil-developed and undeveloped sites in southwestern Kern County, California*. Pages 15-38 in: *Studies of the San Joaquin kit fox in undeveloped and oil-developed areas*, California Energy Commission, Environmental Protection Office, Sacramento, CA.

Spiegel, L.K., and J. Tom. 1996. *Reproduction of San Joaquin kit fox in undeveloped and oil-developed habitats of Kern County, California*. Pages 53-69, in L.K. Spiegel (ed.). *Studies of the San Joaquin kit fox in undeveloped and oil-developed areas*. California Energy Commission, Sacramento, California.

- Spiegel, L. K., T. C. Dao, and M. Bradbury. 1996. *Spatial ecology and habitat use of San Joaquin kit foxes in undeveloped and oil-developed lands of Kern County, California*. Pages 93-114 in: Studies of the San Joaquin kit fox in undeveloped and oil-developed areas, California Energy Commission, Environmental Protection Office, Sacramento, California.
- Standley, W.G., and P.M. McCue. 1992. *Blood characteristics of San Joaquin kit fox (Vulpes velox macrotis) at Camp Roberts Army National Guard Training Site, California*. U.S. Dept. of Energy Topical Rep., EG&G/EM Santa Barbara Operations Report No. EGG 10617-2160.
- Stebbins, R.C. 1985. *A field guide to western reptiles and amphibians*. Second edition. Houghton Mifflin Company, Boston, Massachusetts. 336 pp.
- Trombulak, S.C. and C.A. Frissell. 2000. *Review of ecological effects of roads on terrestrial and aquatic communities*. Conservation Biology 14(1): 18-30.
- Warrick, G.D., and B.L. Cypher. 1998. *Factors affecting the spatial distribution of San Joaquin kit foxes*. J. Wildlife Management, 62: 707-717.
- White, P.J., and R.A. Garrott. 1997. *Factors regulating kit fox populations*. Canadian Journal of Zoology 75: 1982-1988.
- White, P.J., and K. Ralls. 1993. *Reproduction and spacing patterns of kit foxes relative to changing prey availability*. Journal of Wildlife Management 57: 861-867.
- White, P.J., K. Ralls, and C.A. Vanderbilt-White. 1995. *Overlap in habitat and food use between coyotes and San Joaquin kit foxes*. Southwestern Naturalist 40: 342-349.
- Williams, D.F. 1985. *A review of the population status of the Tipton kangaroo rat, Dipodomys nitratooides nitratooides*. U.S. Fish and Wildlife Service, Sacramento, California. 44 pp.
- Woodbridge, B. B. 1987. *Swainson's hawk and grazing*. Calif. Proc. Ann. Meet. Raptor Research Foundation. Boise, Idaho.

In Litteris

- Williams, P. 2007. Electronic mail from Refuge Biologist, Kern National Wildlife Refuge Complex, Delano, California to J. Terry, Biologist, San Joaquin Valley Branch, Endangered Species Division, SFWO, USFWS, Sacramento, CA.

Personal Communications

Hau, K. 2003. California Department of Transportation.

Saslaw, L. 2008, 2009. Field Manager, U.S. Bureau of Land Management. Bakersfield, CA. Provided information on issues pertaining to the San Joaquin kit fox on BLM lands, including Carrizo Plains National Monument. 2007, October 7 and 16, 2008, January 5, 2009, February 4, 2009.

Appendix K List of Technical Studies that are Bound Separately

The following technical studies were prepared to support this environmental document:

- Air Quality Study Report
- Biological Assessment
- Community Impact Assessment
- Historic Property Survey Report/Archaeological Survey Report
- Hydrology, Water Quality, Storm Water Runoff Assessment Report
- Initial Site Assessment
- Natural Environment Study
- Noise Abatement Decision Report
- Noise Study Report
- Paleontology Identification and Evaluation Report and Preliminary Mitigation Plan
- Traffic Operations Report
- Visual Impact Assessment