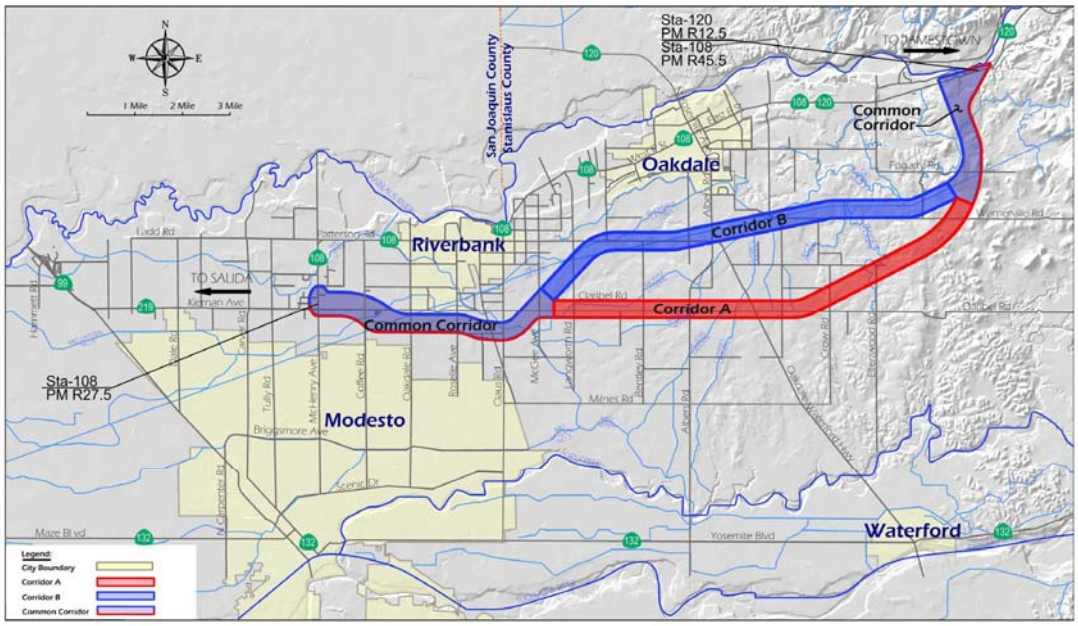
North County Corridor State Route 108 East Route Adoption Project

Stanislaus County, California

State Route 108 (PM R27.5/R45.5) to State Route 120 (PM R10.5/R12.5)

10-0S8000

Draft Environmental Impact Report



Prepared by the

State of California Department of Transportation

and

North County Corridor Transportation Expressway Authority

September 2009

General Information about this Document

What's in this document?

The California Department of Transportation (Caltrans) has prepared this Environmental Impact Report (EIR), which examines the proposal to adopt a wide corridor from which a future alignment for State Route 108 will be chosen to replacement for the existing State Route 108 in Stanislaus County, California. This document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by construction of a future State Route 108 alignment within the alternative corridors, and the proposed avoidance, minimization, and/or mitigation measures that could potential be required.

What should you do?

- Please read this Environmental Impact Report. Additional copies of this document as well as the technical studies are available for review at the following locations:
  - Caltrans District 10, 1976 Martin Luther King, Jr. Boulevard, Stockton 95206
  - Stanislaus Council of Governments, 900 H Street, #D, Modesto 95354
  - Salida Regional Library, 4835 Sisk Road, Salida 95368
  - Stanislaus County Public Works, 1010 10th Street, Modesto 95354
  - Modesto Public Works, 1010 10th Street, Modesto 95354
  - Modesto Library, 1500 I Street, Modesto 95354
  - Oakdale City Hall, 280 North 3rd Avenue, Oakdale 95361
  - Oakdale Library, 151 1st Street, Oakdale 95361
  - Oakdale Public Works, 455 South 5th Avenue, Oakdale 95361
  - Riverbank City Clerk, 6707 3rd Street, Riverbank 95367
  - Riverbank Public Library, 3442 Santa Fe Street, Riverbank 95367
  - Riverbank Community Development Department, 6717 3rd Street, Riverbank 95367

- Attend one of the public hearings scheduled for October 13 (Gene Bianchi Community Center in Oakdale) and October 22 (Riverbank Community Center)

- We welcome your comments. If you have any concerns regarding the proposed project, please attend the public hearing and/or send your written comments to Caltrans by the deadline. Submit via U.S. mail to:

  Gail Miller, Senior Environmental Planner
  California Department of Transportation
  2015 E. Shields Avenue, Suite 100
  Fresno, CA 93726

  Submit comments via email to: gail_miller@dot.ca.gov

- Submit comments by the deadline: November 6, 2009.

What happens next?

After comments are received from the public and reviewing agencies, Caltrans, may 1) give environmental approval to the proposed project, 2) do additional environmental studies, or 3) abandon the project. If the project is given environmental approval then the California Transportation Commission will adopt a new corridor for State Route 108,

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please contact the Caltrans District 10 Public Affairs Office at (209) 948-7977 or use the California Relay Service: 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

SCH# 2008102069
10-STA-108-SR 108 (PM R27.5/R45.5) to SR 120 (PM R10.5/R12.5)
10-0S8000

Adoption of a wide corridor beginning at State Route 108 (McHenry Avenue) and continuing east in a corridor south of the cities of Riverbank and Oakdale to a location on State Route 120

Stanislaus County, California

State Route 108 (PM R27.5/R45.5) to State Route 120 (PM R10.5/R12.5)

DRAFT ENVIRONMENTAL IMPACT REPORT

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

THE STATE OF CALIFORNIA
Department of Transportation
North County Corridor Transportation Expressway Authority

9/17/09
Date of Approval

Ross Chittenden
District Director
District 10
California Department of Transportation

Summary

Overview of Project Area

The California Department of Transportation (Caltrans), in cooperation with the North County Corridor (NCC) Transportation Expressway Authority (Authority), proposes to adopt a wide corridor from which a future freeway alignment will be chosen in which to build a replacement for the existing State Route 108. The route adoption is the first step in selecting a preferred corridor; circulation of this Environmental Impact Report will result in broad environmental clearance enabling the California Transportation Commission to approve the route adoption and designate the facility as an interregional route.

The project area lies in northern Stanislaus County. Within the project area, State Route 108 is a conventional highway that runs from its western end in downtown Modesto northward and then eastward until it meets and joins State Route 120 east of the city of Oakdale.

Purpose and Need

The purpose of the proposed project is to designate a corridor to accommodate a future east-west freeway/expressway, which would do the following:

- Improve regional network circulation
- Relieve existing traffic congestion
- Reduce traffic delay
- Accommodate future traffic
- Benefit commerce
- Enhance traffic safety

The existing transportation system in Northern Stanislaus County, including State Route 108, is a network of traditional highways, freeway (State Route 99), arterial roadways and local streets that serve a combination of interregional, regional and local traffic. Traffic is highly congested during peak hours, and traffic congestion is expected to increase as development in the region continues. The existing network lacks a high-capacity transportation facility to serve interregional and regional traffic moving through the project area.

Proposed Action

Three alternatives are being considered: two corridor alternatives and a No-Action Alternative. The two corridors being proposed—Corridor A (southern) and Corridor B (northern)—are shown in Figures 1-1 and 1-2. Both corridors would lie entirely within

unincorporated portions of Stanislaus County and would extend roughly 18 miles from a spot on State Route 108/McHenry Avenue west of the city of Riverbank in the vicinity of the intersection of State Route 219 (Kiernan Avenue) to a spot on State Route 120/108 about 6 miles east of Oakdale.

Corridors A and B share a common roughly 2,000-foot-wide corridor between State Route 108 (McHenry Avenue) and McGee Avenue on the west end, a 2,000-foot-wide corridor southeast of Oakdale in the vicinity of Warnerville Road and the Hetch Hetchy Aqueduct sweeping north to a spot on State Route 108/120 about 6 miles east of Oakdale.

Corridor A

Corridor A would begin at the intersection of State Route 108 (McHenry Avenue) west of the city of Riverbank near State Route 219 (Kiernan Avenue). Corridor A would head east crossing the Mid Main Canal, and then turn east-southeasterly to cross Coffee Road. Bypassing the city of Riverbank, the corridor would parallel the south side of Claribel Road across Oakdale Road, Roselle Avenue, Claus Road, and Langworth Road. Continuing in an easterly alignment, the corridor would then cross Bentley Road, Albers Road, the Union Pacific Railroad, the Oakdale-Waterford Highway, and Crow Road. Then it would turn northeasterly, crossing Ellenwood Road, Warnerville Road, the Hetch Hetchy Aqueduct, and the Sierra Railroad, and then sweep north to a spot on State Route 108/120 about 6 miles east of Oakdale.

Corridor B

Like Corridor A, Corridor B begins on State Route 108 (McHenry Avenue) west of the city of Riverbank near State Route 219 (Kiernan Avenue). It then follows the same alignment as Corridor A easterly to just west of McGee Road. There, the alignment differs from Corridor A. Corridor B heads east-northeasterly, crossing Langworth Road south of its intersection with Patterson Road. At Patterson Road, the alignment turns easterly, running parallel to the north side of Patterson Road, and begins to turn more northerly across Albers Road. At Warnerville Road, the alignment parallels the road and, like the Corridor A alignment, sweeps north to connect to State Route 108/120.

Project Impacts

While selection if either corridor would not result in an impact, the future construction of a new State Route 108 alignment could. The following table summarizes the results from the environmental studies and shows the potential impacts within each corridor. The only way to fairly evaluate the potential impact of the two corridors is to present the impacts of the full 2000 foot wide path however; the final impacts will be much less since the footprint of the

highway will be only a fraction (approximately 300 feet) of the corridor. It should be noted that no impacts to any resources or individuals would result from this action. All future projects will evaluate those impacts on a project-by-project basis. This analysis is strictly for planning purposes.

Summary of Major Potential Impacts from Alternatives

Potential Impact		Corridor Alternative A	Corridor Alternative B	No-Action Alternative
Land Use	**Consistency with Stanislaus County and cities of Modesto, Riverbank, and Oakdale General Plan circulation elements**	Generally consistent but amendments would be required.	Generally consistent but amendments would be required.	Inconsistent – plans assume an east-west expressway or expanded roadway.
	Consistency with State and County Transportation Improvement Plans	Generally consistent	Generally consistent	Not consistent
Growth		Potential to influence location and timing of growth	Potential to influence location and timing of growth	No impact
Farmlands		4,617 acres of farmland within corridor	4,594 acres of farmland within corridor	No impact
Community Character and Cohesion		Potential to define urban growth limits	Potential to define urban growth limits	No impact
Relocations	**Nonresidential displacements**	79	47	No impact
	Residential displacements	209	219	No impact
Utilities		Crossings of irrigation district canals and Hetch Hetchy Aqueduct would have potential for future construction impacts	Crossings of irrigation district canals and Hetch Hetchy Aqueduct would have potential for future construction impacts	No impact
Emergency Services		No impact	No impact	No impact
Traffic and Transportation/ Pedestrian and Bicycle Facilities		The project would improve conditions for vehicles and provide connections for transit and non-motorized travel	The project would improve conditions for vehicles and provide connections for transit and non-motorized travel	Unacceptable traffic levels of service at numerous locations without the project

Potential Impact	Corridor Alternative A	Corridor Alternative B	No-Action Alternative
Visual/Aesthetics	Conversion of views of pastureland, foothills and river valley would have visual impacts; vehicular light and glare would be introduced	Conversion of views of pastureland, foothills and river valley would have visual impacts; vehicular light and glare would be introduced	No impact
Cultural Resources	50 parcels have structures requiring historic evaluation; potential for archaeological resources to be present	40 parcels have structures requiring historic evaluation; potential for archaeological resources to be present	No impact
Hydrology and Floodplain	Increased paved surface area; no impact to regulated floodplain	Increased paved surface area; no impact to regulated floodplain	No impact
Water Quality and Storm Water Runoff	Canal crossings would require storm water management; no stream crossings	Canal crossings would require storm water management; 1 stream crossing	No impact
Geology/Soils/Seismic/Topography	Design of a future facility would avoid impacts	Design of a future facility would avoid impacts	No impact
Paleontology	Potential resources exist; construction mitigation plan would be required	Potential resources exist; construction mitigation plan would be required	No impact
Hazardous Wastes/Materials	4 sites within project area would require further analysis as part of any specific alignment studies	4 sites within project area would require further analysis as part of any specific alignment studies	No impact
Air Quality and Energy	Congestion relief via the future roadway would help to reduce idling times, acceleration, and braking, which are contributors to air pollution	Congestion relief via the future roadway would help to reduce idling times, acceleration, and braking, which are contributors to air pollution	No impact
Noise and Vibration	Potential for increases in noise levels would require consideration of noise abatement	Potential for increases in noise levels would require consideration of noise abatement	No impact

Potential Impact	Corridor Alternative A	Corridor Alternative B	No-Action Alternative
Natural Communities	Riparian and oak woodland communities would be affected. Mapping of sensitive natural communities would be required in any future alignment studies.	Riparian and oak woodland communities would be affected. Mapping of sensitive natural communities would be required in any future alignment studies	No impact
Wetlands and Other Waters	Wetlands and other waters exist in the corridor; delineation of wetlands would be required in any future alignment studies	Wetlands and other waters exist in the corridor; delineation of wetlands would be required in any future alignment studies	No impact
Plant Species	7 special-status plant species have potential to be present in the corridor; surveys would be required in any future alignment studies	7 special-status plant species have potential to be present in the corridor; surveys would be required in any future alignment studies	No impact
Wildlife Species	25 special-status wildlife species have potential to occur in the corridor; surveys would be required in any future alignment studies	25 special-status wildlife species have potential to occur in the corridor; surveys would be required in any future alignment studies	No impact
Threatened and Endangered Species	10 plant species and 10 wildlife species have potential to occur in the corridor; surveys would be required in any future alignment studies	10 plant species and 10 wildlife species have potential to occur in the corridor; surveys would be required in any future alignment studies	No impact
Invasive Species	Potential for 138 species to occur in the corridor; construction controls would be required for any future construction	Potential for 138 species to occur in the corridor; construction controls would be required for any future construction	No impact

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
EIR	Environmental Impact Report
ESA	Environmentally sensitive area
KP	kilometer post
NEPA	National Environmental Policy Act
NCC	North County Corridor
PM	post mile
StanCOG	Stanislaus Council of Governments
U.S.	United States

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans), in cooperation with the North County Corridor (NCC) Transportation Expressway Authority (Authority), proposes to adopt a wide corridor from which a future freeway alignment will be chosen as a new State Route 108 to replace the existing State Route 108. The route adoption is the first step in selecting a preferred corridor and entails broad environmental clearance for the California Transportation Commission to approve the freeway Route Adoption and designate the facility as an interregional route in northern Stanislaus County. Figure 1-1 shows the location of the proposed corridor area.

After the California Transportation Commission has approved the route adoption and when funding is available, Caltrans would conduct additional environmental studies to identify a roadway alignment within the selected corridor. This analysis would be presented in a future environmental document describing why the alignment is being proposed, alternatives considered, the existing environment that could be affected, the potential impacts from each alternative analyzed, and any proposed avoidance, minimization and/or mitigation measures.

Two action alternatives are being proposed: Corridor A (southern) and Corridor B (northern). Both corridors would lie entirely within unincorporated portions of Stanislaus County and would extend about 18 miles from a spot on State Route 108/McHenry Avenue west of the city of Riverbank in the vicinity of the intersection of State Route 219 (Kiernan Avenue) to a spot on State Route 120/108 about 6 miles east of the city of Oakdale (see Figure 1-2).

The 2007 *Stanislaus County Regional Transportation Plan* (Stanislaus County, 2004) includes 41 million dollars for construction of a four-lane expressway from Modesto City limits to east of Oakdale via State Route 108 or Claribel opened to traffic in the 2025 year. Conceptual-level cost estimates to build a roadway within either of the wide corridors are between $600 million and $800 million (based on 2009 costs) and $1.3 billion and $1.5 billion (based on 2030 costs). The additional funding needed would come from the State Transportation Improvement Program, local development impact fees, regional transportation impact fees, and the reprogrammed Oakdale Bypass State Project funds. Based upon the current fiscal environment full funding for the construction of a new State Route 108 is not anticipated prior to the year 2030.

Project Background

Existing State Route 108 begins in downtown Modesto at the junction of State Route 99 and State Route 132, overlapping State Route 132. After several blocks eastward, State Route 108 reaches McHenry Avenue, which it follows north out of the city. From Modesto, State Route 108 runs north along McHenry Avenue for about 7 miles before turning eastward on Patterson Road. The route passes through the city of Riverbank on Patterson Road, Callander Avenue and Atchison Street, following the Stanislaus River east-northeast.

After following the river for about 10 miles, State Route 108 passes through downtown Oakdale using West F and East F streets. At the center of downtown Oakdale, State Route 120 joins State Route 108 from the north, and both routes overlap northeasterly before leaving the project limits. Figure 1-3 shows the existing road's location within the region's roadway network.

In 2008, a Feasibility Study and a Preliminary Design Report were initiated by the Stanislaus Council of Governments in cooperation with cities of Modesto, Riverbank and Oakdale, and Stanislaus County. The Feasibility Study analyzed the need for a future high-capacity/high-speed east-west freeway/expressway and identified possible corridors alignments. The Preliminary Design Report provided more comprehensive information on the design of the future roadway. Based on findings in these reports, it was determined that the study limits for the new east/west freeway/expressway would be about 25 miles long and begin at State Route 99 and the Hammett Road interchange near the Salida community, run south of the cities of Riverbank and Oakdale to a spot on State Route 120/108 about 6 miles east of Oakdale.

Since completion of the Feasibility Study and the Preliminary Design Report, the western limits of the project were reduced because the portion west of McHenry that connected to State Route 99 has not been identified in Stanislaus County's general plan or the Regional Transportation Plan. The project limits now begin from a spot on State Route 108/McHenry west of the city of Riverbank near the intersection of State Route 219 (Kiernan Avenue) connecting to a spot on State Route 120/108 about 6 miles east of Oakdale.

Once the new roadway is built, it would be designated as State Route 108 and the old State Route 108 roadway within the project limits would be relinquished to city and county control, where appropriate.

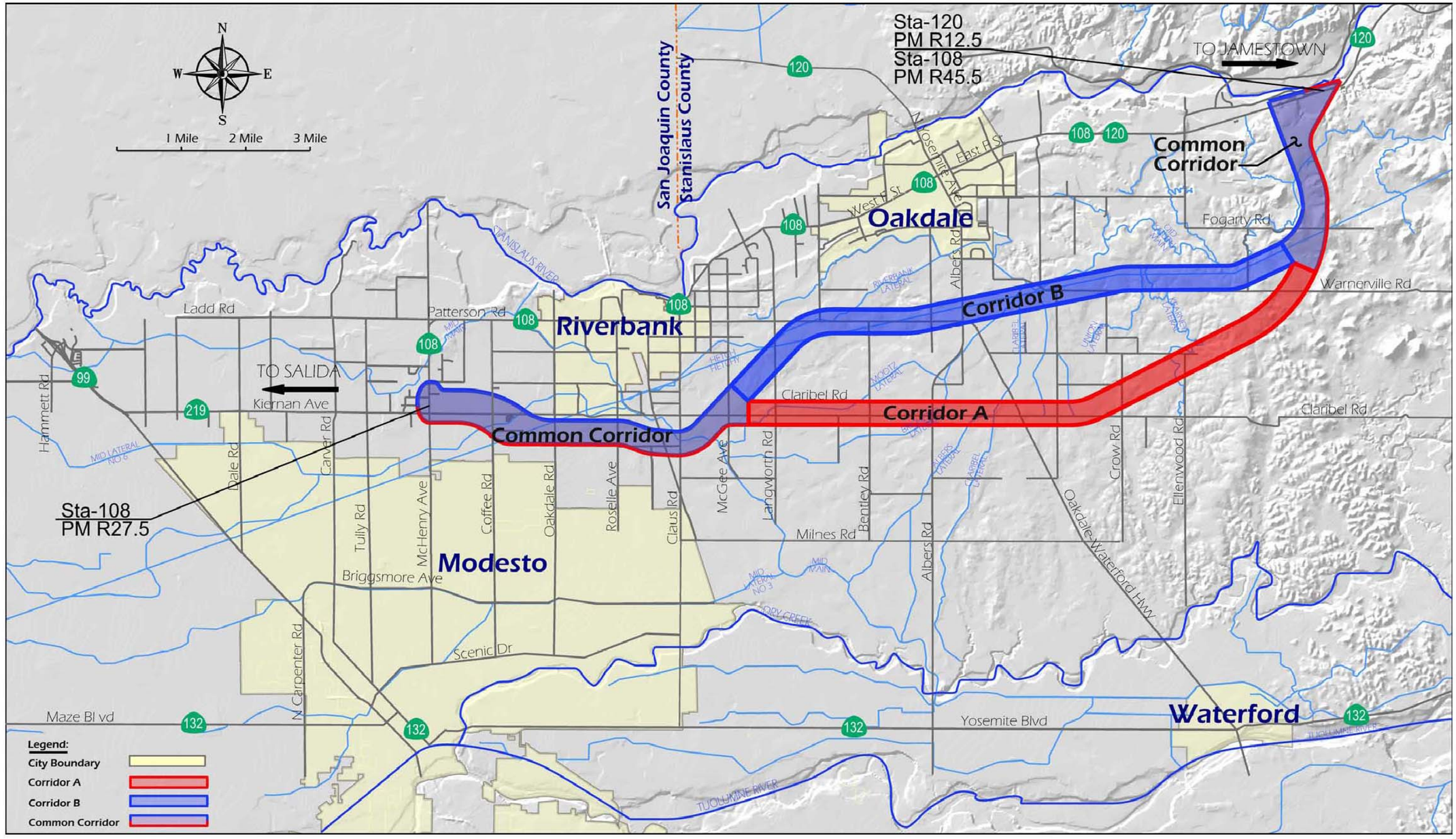


Figure 1-1. Location Map

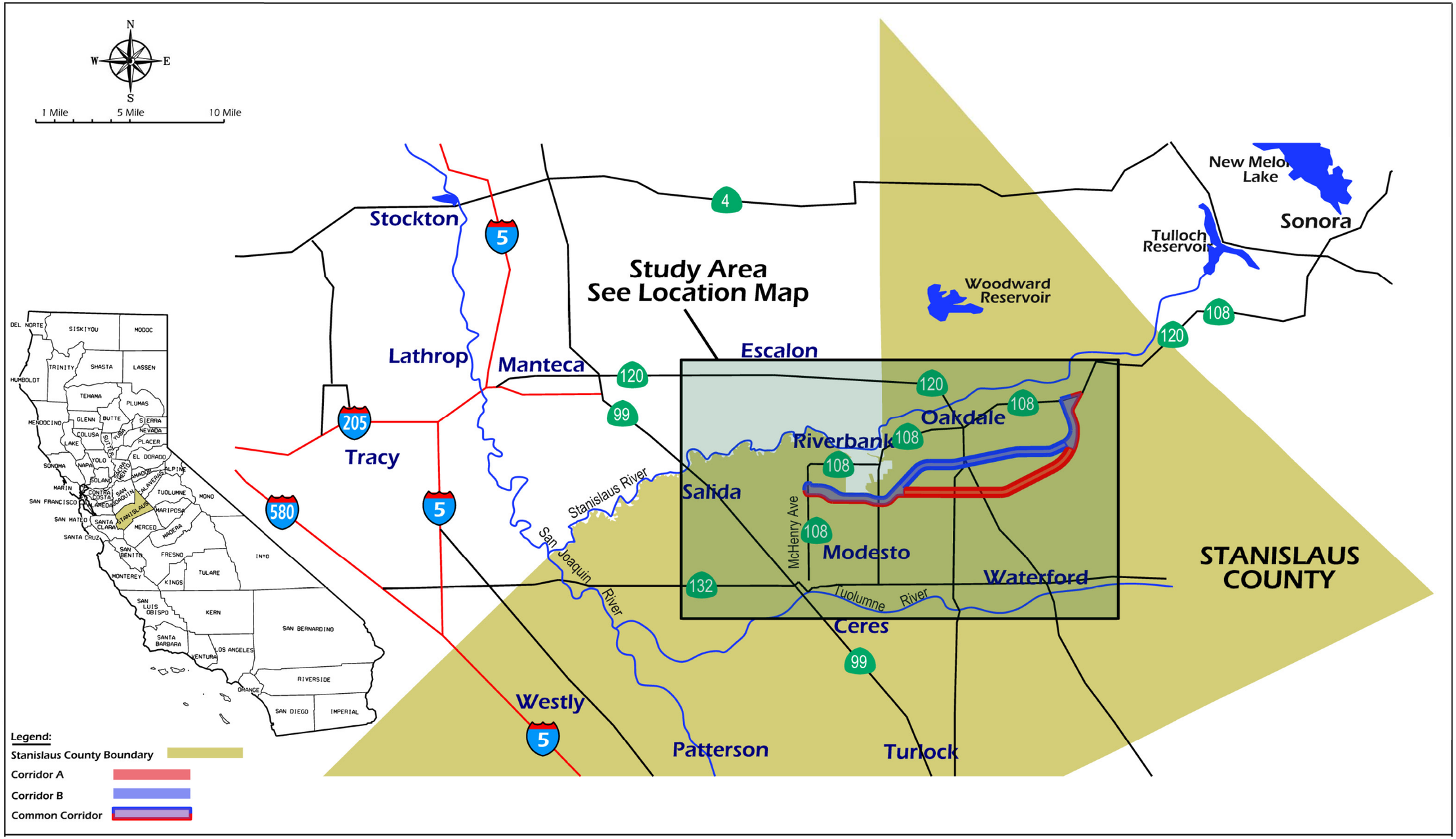


Figure 1-2. Vicinty Map

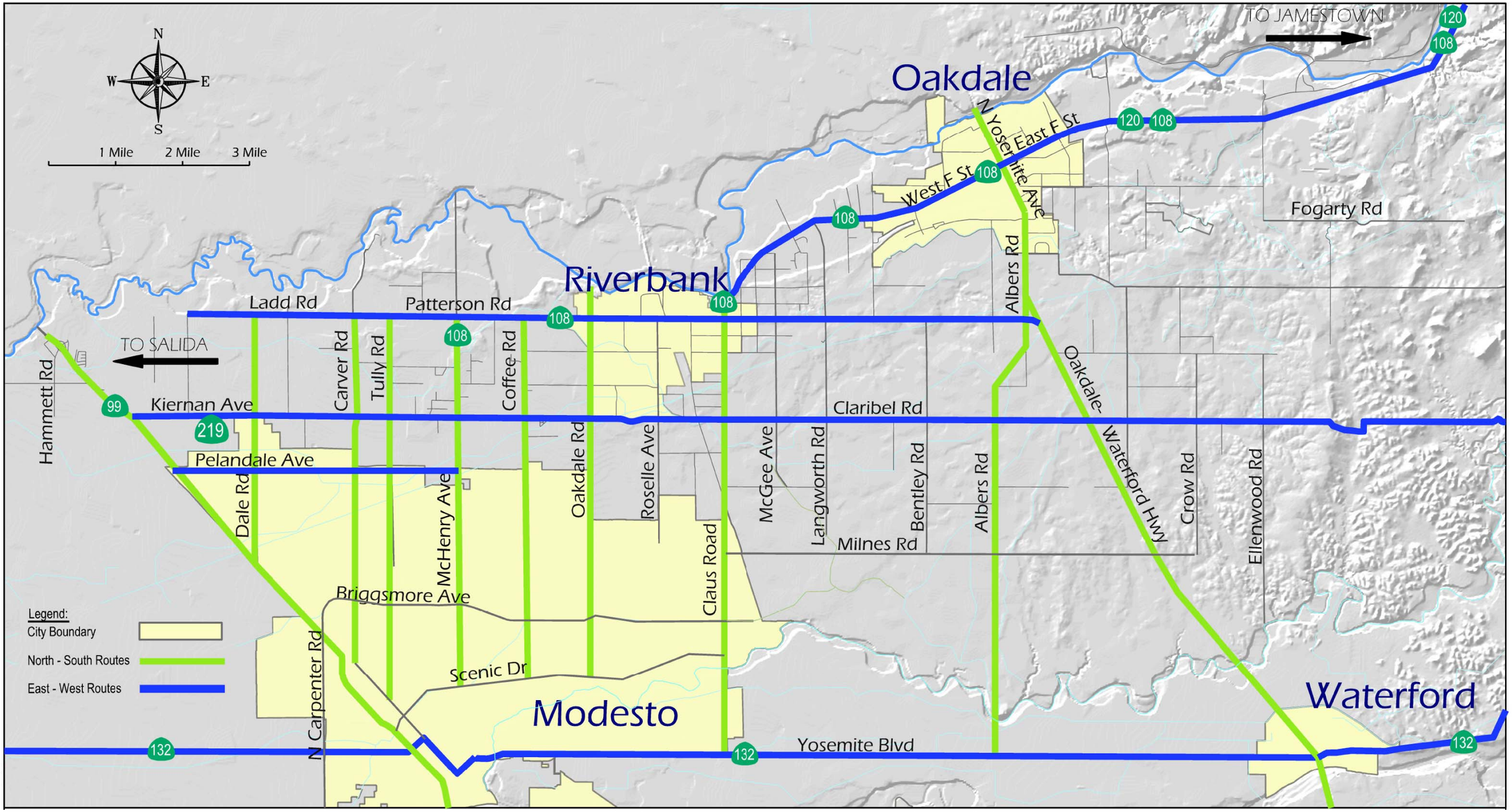


Figure 1-3. Regional Transportation Network in the Study Area

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to designate a corridor to accommodate a future east-west freeway/expressway, which would do the following:

- Improve regional network circulation
- Relieve existing traffic congestion
- Reduce traffic delay
- Accommodate future traffic
- Benefit commerce
- Enhance traffic safety

1.2.2 Need

Improve Regional Network Circulation

Accommodating Regional Growth and Promoting Balanced Traffic Circulation

Continued growth in Stanislaus County, its communities, and its surroundings, coupled with increasing travel needs through northern Stanislaus County for improved access to and around the growing urbanized cities of Modesto, Riverbank, and Oakdale, has resulted in the need for a future unencumbered east-west roadway from west of Riverbank to east of Oakdale. See projected growth rates for the county in Table 1-1.

Table 1-1. Projected Population Growth in Northern Stanislaus County

City/County	1990[1]	2000[1]	Current Estimate (2009)	Projected 2010[2]	Projected 2030
Modesto	164,746	188,861	210,088	268,660	411,788
Riverbank	8,591	15,826	21,805	24,627	37,747
Oakdale	11,978	15,503	19,608	33,582	51,474
Stanislaus County	370,522	446,997	526,383	559,708	857,893

1 - CA Department of Finance, Table E-4, Estimates for city, county and state, with 1990 and 2000 Census.
2 - CA Department of Finance, Table P-1, Population projections by race/ethnicity for CA and its counties, 2000-2050; (assumes Modesto is 48%, Riverbank is 4.4% and Oakdale is 6% of county population)

Traffic analyses evaluated existing and future (2030) operations using the Stanislaus Council of Governments' (StanCOG's) 2007 Regional Transportation Plan (StanCOG, 2007) travel demand model as the main traffic evaluation tool. Traffic model assumptions were consistent with the traffic analysis assumptions used for the *Stanislaus County General Plan* (Stanislaus County, 2008) with few exceptions.

Average daily traffic volumes in 2008 on existing State Route 108 range from 15,200 vehicles along the McHenry Avenue portion of State Route 108 to 20,600 vehicles on State Route 108 in downtown Oakdale (see Table 1-2 and Figure 1-4). Future 2030 daily traffic volumes are projected to increase. Figure 1-5 shows projected 2030 No-Action daily traffic volumes in the transportation study area.

Table 1-2. Average Daily Traffic Volumes at Representative Locations

Volumes	State Route 108 – McHenry Segment North of Modesto	State Route 108 – Vicinity of Riverbank (Ladd/Patterson Road)	State Route 108 – Downtown Oakdale
Existing	15,200	17,600	20,600
2030 No-Action	20,000	18,300	22,000
Source: Transportation System Planning Analysis Reports for the North County Corridor project, June 2009			

In addition to State Route 108 within the project area, existing arterial roadways within the traffic study area will experience substantial increases in traffic volumes. Traffic volumes on Claribel Road east of Roselle Avenue will increase from 14,600 vehicles (existing) to 48,500 vehicles (2030 No-Action) (see Figures 1-4 and 1-5), indicating increasing demand for traffic capacity on east-west routes.

From the data presented (slight volume increases on State Route 108 to 2030 and tripling of volumes on Claribel Road), the following conclusions were drawn:

- Existing and future traffic on existing State Route 108 is capacity-constrained and is therefore hampering travel times, contributing to travel delays, and contributing to undesirable traffic redistribution on the network.
- Existing State Route 108 is serving and will continue to serve mostly commuter and local traffic, and not the through travel it was intended to serve; this is the result of capacity constraints, local and commuter traffic competition, and uncontrolled access on existing State Route 108.
- Through travel that should be using State Route 108 as intended is being shifted onto alternative routes such as Claribel Road and Pelandale Avenue.

Based on the regional countywide traffic model, average daily traffic volumes are projected to increase through 2030; accordingly, additional mobility capacity (beyond that provided by the existing and future planned regional transportation network) will be needed to effectively improve east-west travel. Projected growth in the region will continue to constrain east-west travel, plus tax the capacity of the region's roadway network (particularly existing State Route 108) and add to poor traffic circulation.

Relieve Existing Traffic Congestion

Existing State Route 108 functions as a "main street" through much of the project limits; it does not serve as a direct route from the McHenry Avenue (State Route 108)/Claribel Road (State Route 219) intersection to State Route 120 east of Oakdale. Motorists on the route must make 90-degree left- or right-turns at three intersections with traffic signals within the project limits. The route runs through the centers of Riverbank and Oakdale, overlying portions of the local roadway network and leading to road capacity competition between local traffic and traffic passing through these communities (see Figure 1-3).

On State Route 108 between the intersections of State Route 108/McHenry Avenue and State Route 108/Lancaster Road, motorists are hindered by 83 public street intersections and many private driveways that have direct access onto State Route 108. The uncontrolled access has made existing State Route 108 ineffective as a major east-west route. The route is highly congested during peak travel times, and these conditions are expected to worsen as traffic volumes increase.

Many of the intersections have traffic signals or stop signs. During periods of high traffic volumes, motorists must wait at the intersections, causing further delay. Slower-moving trucks add to the congested traffic conditions.

These conditions, contributable to uncontrolled access, are expected to worsen through the design year. The action of route adoption would permit further analysis of new mobility solutions that would better serve the region's projected growth and the state's intent and need for improved east-west mobility.

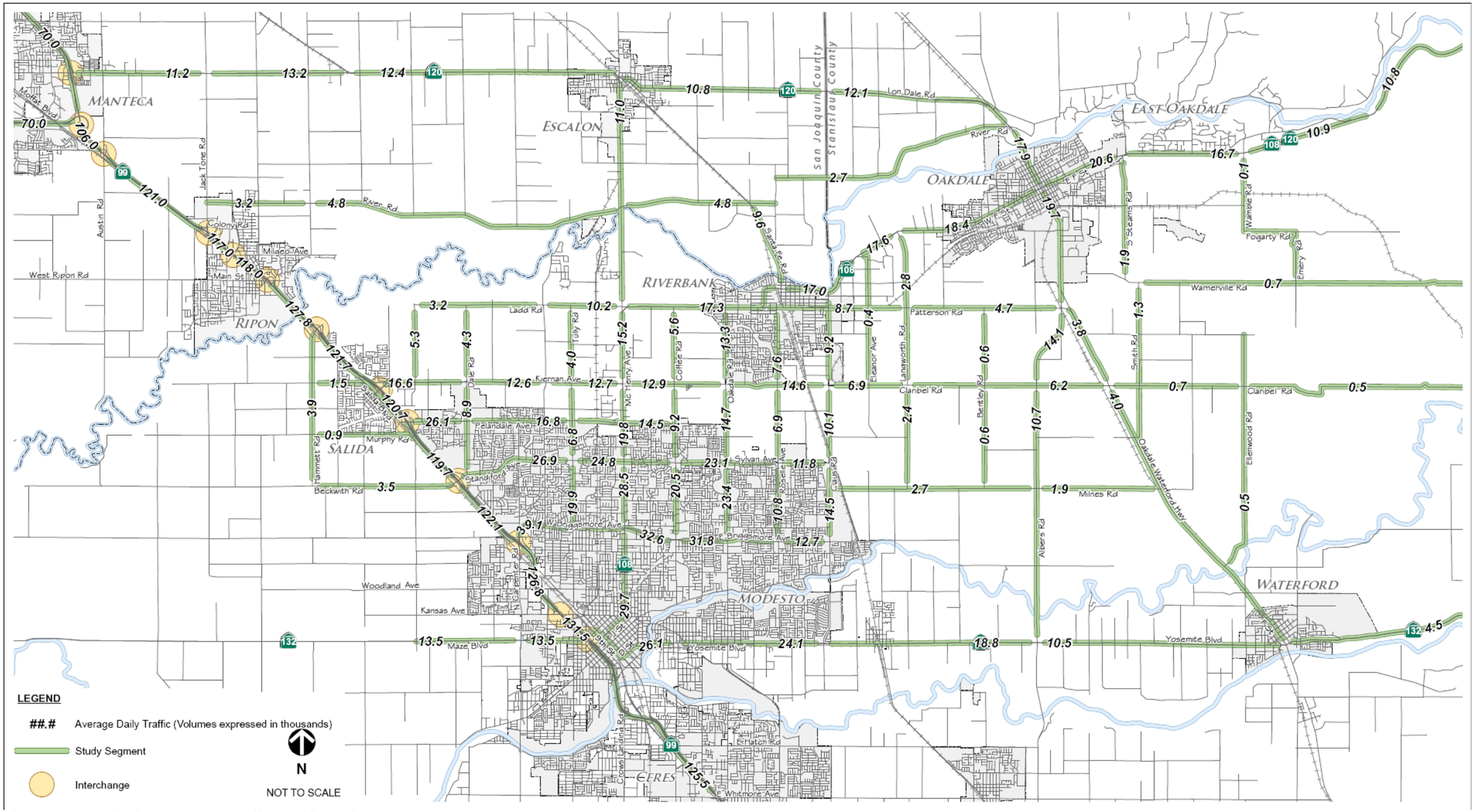


Figure 1-4. Existing Average Daily Traffic Volumes

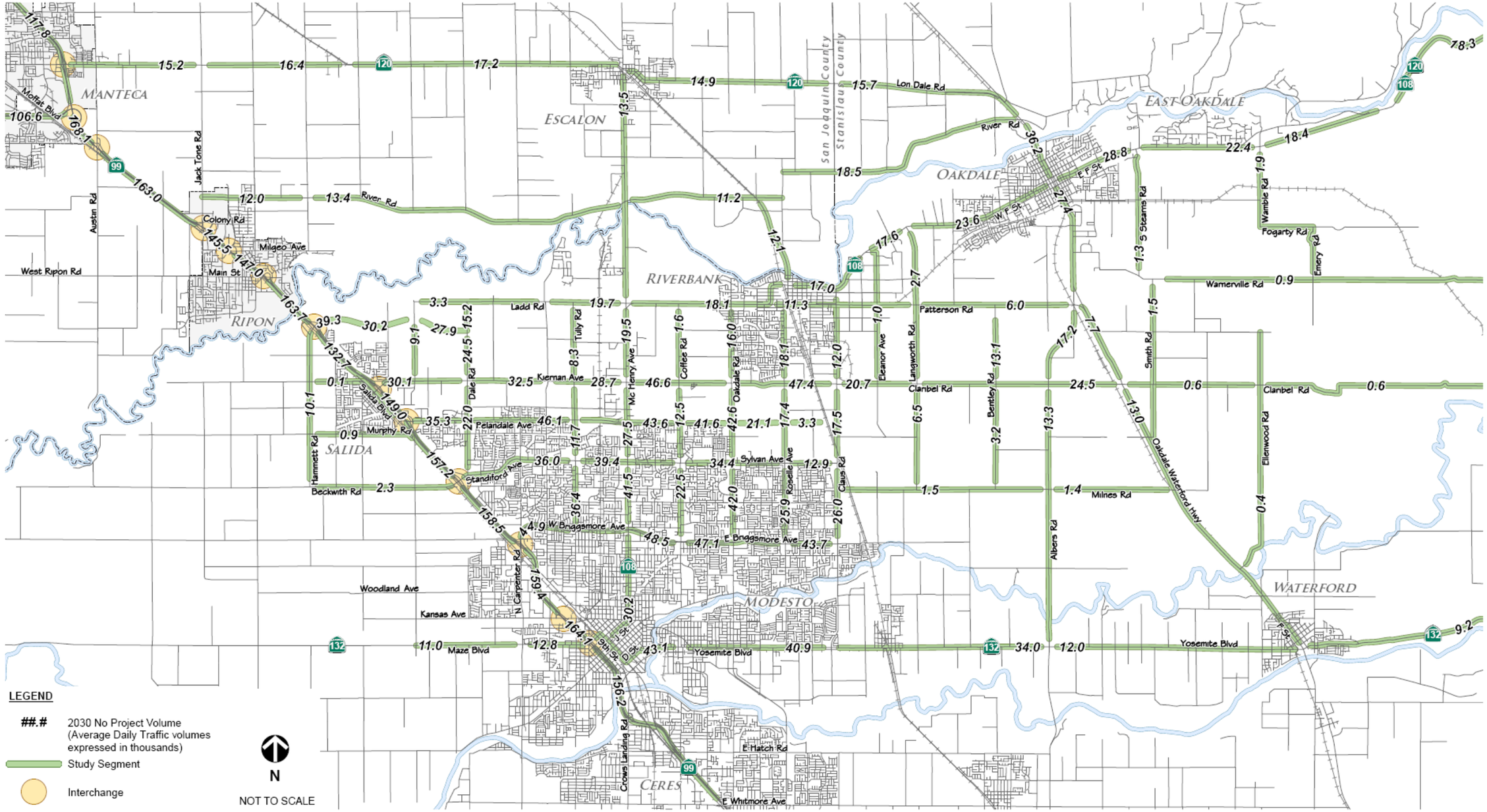


Figure 1-5. Year 2030 No-Action Daily Traffic Volume

A look at the region's existing east-west road network indicates the limitations of the network to meet the region's mobility needs:

- Ladd Road/Patterson Road (State Route 108) is mostly a two-lane roadway except within the city of Riverbank; it is the subject of this study.
- Kiernan Avenue/Claribel Road connects to State Route 99 and extends east through the study area. Development exists within the area and is planned up to McHenry Avenue.
- Pelandale Avenue connects to State Route 99, extending as far east as Oakdale Road, and is well developed along the corridor already.

For north-south travelers, travel is restricted by the Stanislaus River, a natural barrier. Crossings occur at McHenry Avenue, Santa Fe Avenue/First Avenue, and State Route 120. Other north-south travel occurs on the routes below:

- State Route 99 is the main roadway for the movement of goods north and south.
- McHenry Avenue (State Route 108 south of Ladd Road/Patterson Road; J6 north of Ladd Road/Patterson Road) provides regional mobility north to south, but to a lesser extent than State Route 99 does.
- South of the river, north-south travel occurs on Dale Road, Carver Road, Tully Road, Coffee Road, Oakdale Road, Claus Road, and Albers Road (J14).
- The Oakdale-Waterford Highway (J9) connects Albers Road (and the city of Oakdale) to the city of Waterford (at State Route 132) and other points south.

Transportation planners use the term "level of service" to describe a roadway's performance based on average delay per vehicle. Level of service ranges from level of service A, which indicates free flow or excellent conditions with short delays, to level of service F, which indicates congestion or overloaded conditions with extremely long delays. Figure 1-6 illustrates level of service conditions.

Level of service is an effective measure to compare the quality of traffic performance over time and against alternative scenarios. As a baseline for comparison, level of service in the region's roadway network was determined for existing, 2030, and 2050 conditions. Existing and future level of service within the project area is shown in Figures 1-7, 1-8, and 1-9.

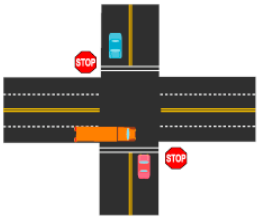
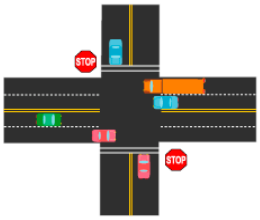
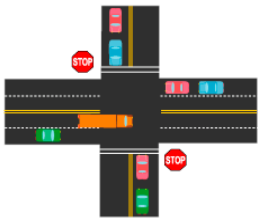
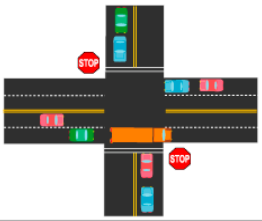
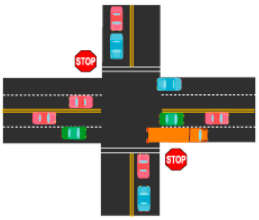
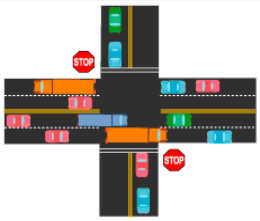
Level of Service	Flow Conditions	Delay per Vehicle (seconds)	Technical Descriptions
A		≤10	Very short delays
B		11-15	Short delays
C		16-25	Minimal delays
D		26-35	Minimal delays
E		36-50	Significant delays
F		>50	Considerable delays

Figure 1-6. Level of Service for Two-Way Stop Intersections

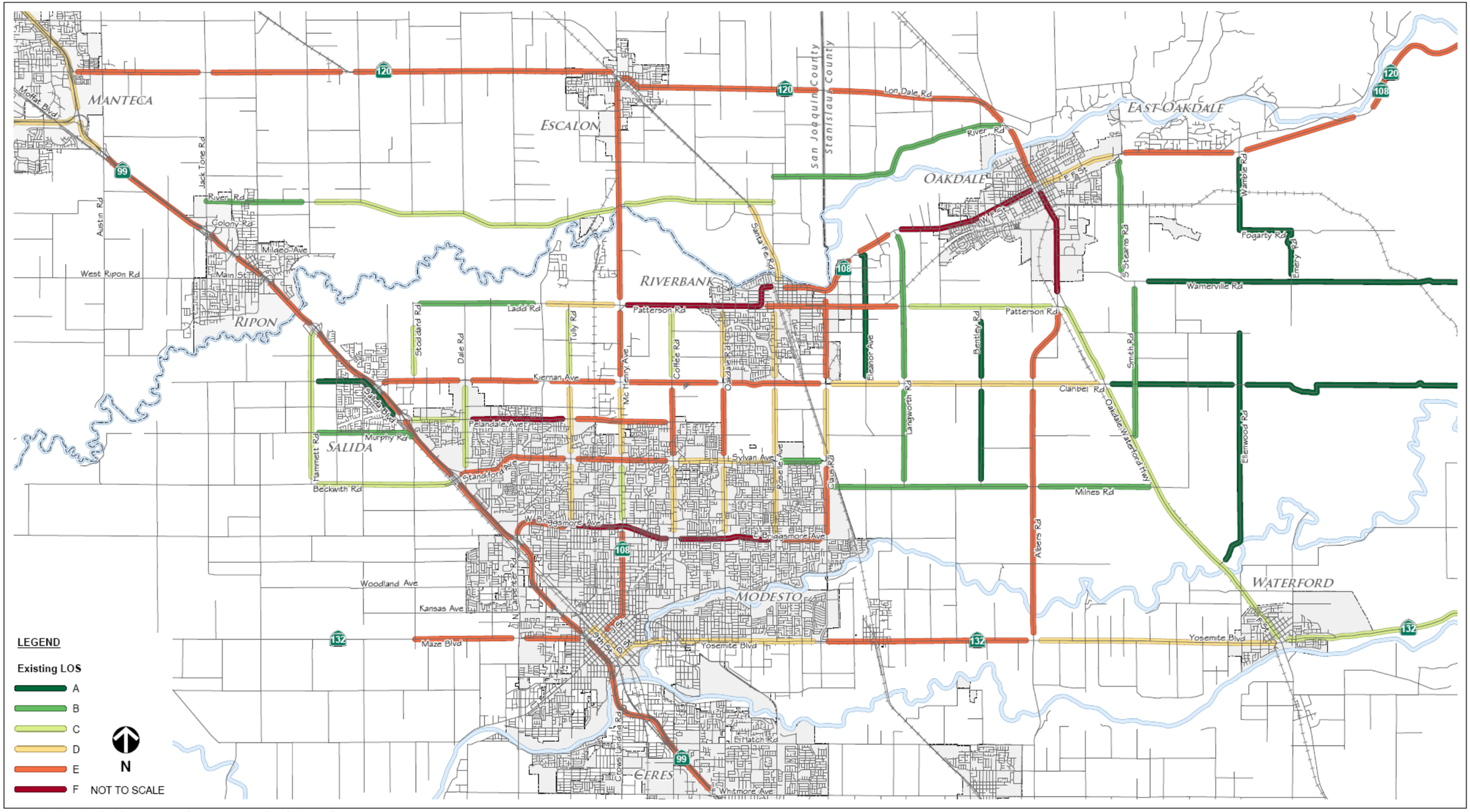


Figure 1-7. Existing Roadway Level of Service

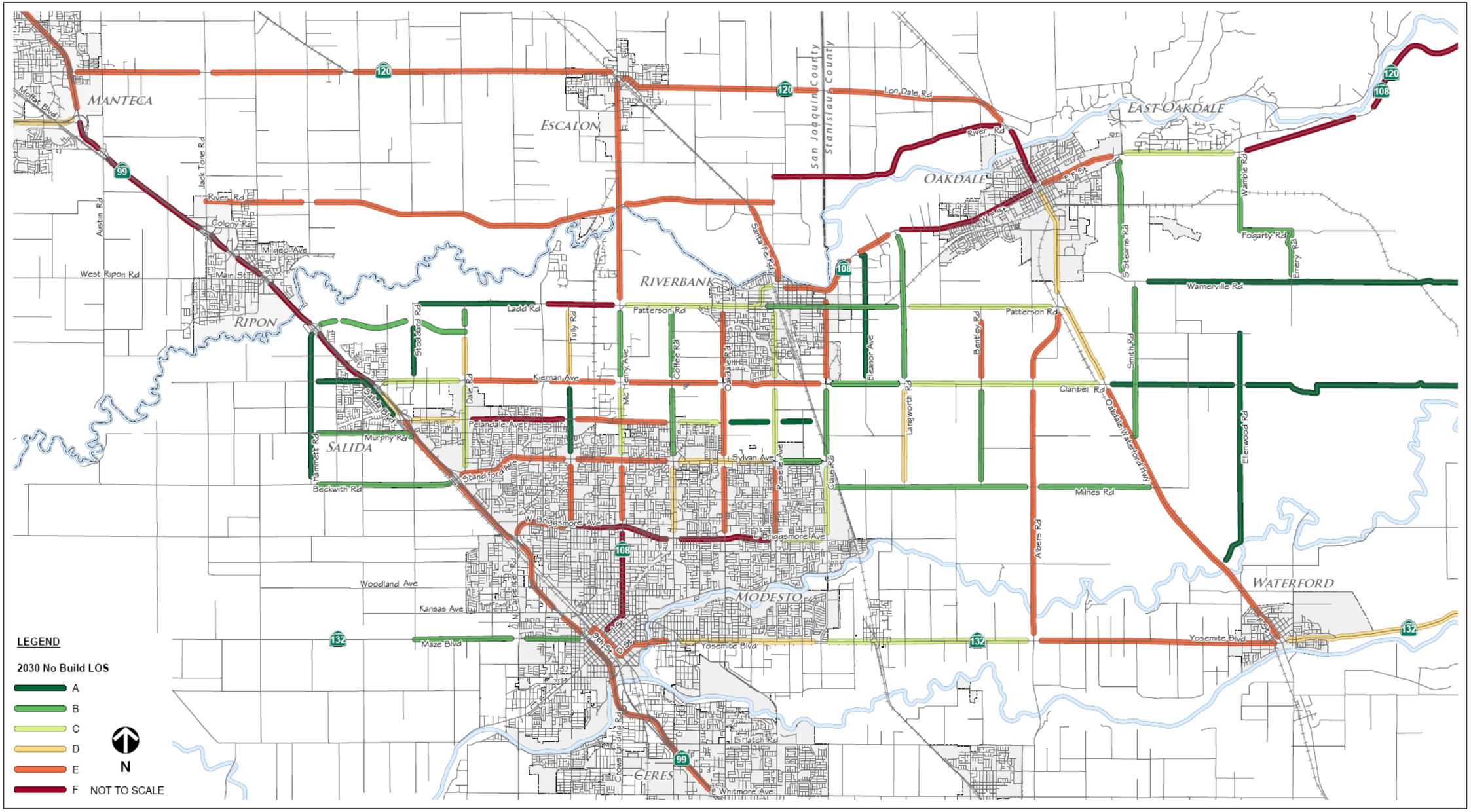


Figure 1-8. Year 2030 No-Action Level of Service

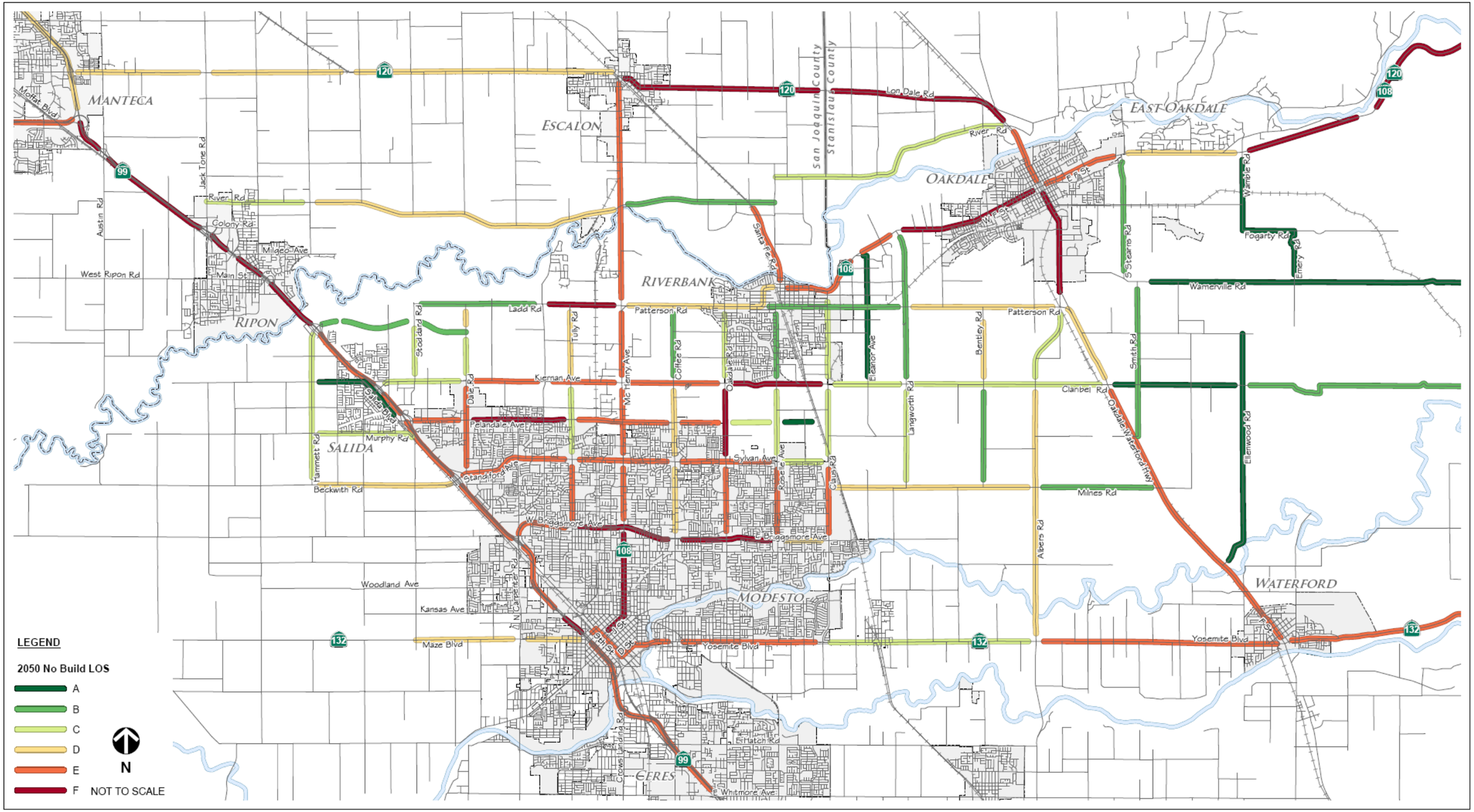


Figure 1-9. Year 2050 No-Action Level of Service

Trends at critical locations such as State Route 108 on McHenry Avenue in Riverbank and through downtown Oakdale indicate deteriorating level of service, which means deteriorating access to, through, and around the growing cities of Modesto, Riverbank, and Oakdale. Traffic volume increases (see Table 1-2) and worsening level of service indicate increasing congestion and travel barriers to efficient east-west travel through the project area.

Table 1-3 lists projected 2030 and 2050 level of service at select locations in the region's roadway network.

Table 1-3. No-Action Alternative Projected Level of Service – Year 2030 and 2050

Location	2008 Level of Service	2030 Level of Service	2050 Level of Service
Kiernan Avenue between Carver Road and McHenry Avenue	E	E	E
Claribel Road between McHenry Avenue and Oakland Road	E	E	E
Claribel Road between Oakland Road and Claus Road	E	E	F
Langworth Road between Milnes Road and Claribel Road	B	D	N/A
Claus Road between Claribel Road and Patterson Road	D	E	C
Bentley Road between Claribel Road and Patterson Road	D	E	D
State Route 108 between McHenry Avenue and Roselle Avenue	E	C	D
State Route 120/108 west of Wamble Road	E	C	D
State Route 120/108 east of Wamble Road	D	F	F
Source: Transportation System Planning Analysis Reports for the North County Corridor project, June 2009			

Existing State Route 108 is operating poorly and its performance is projected to worsen through 2030 and 2050. Level of service, particularly at intersections, shows the effects of local traffic, reducing the effectiveness of and increasing the travel delay for traffic passing through the project area.

Reduce Traffic Delay

Table 1-4 shows data for travel times on selected routes through the project area in 2030 and 2050. Under the No-Action condition, travel times are projected to worsen on all sections.

Table 1-4. Travel Times[1]

Route	2008 Existing	Year 2030					Year 2050				
		No Action	Corridor A	%[2] Change	Corridor B	% Change	No Action	Corridor A	% Change	Corridor B	% Change
Between Hammett I/C and County border	N/A	50.5	45.3	-10.1%	42.1	-16.5%	64.5	55.9	-13.3%	53.8	-16.6%
Between Kiernan I/C[3] and County border	42.0	51.1	43.4	-15.1%	40.6	-20.6%	66.0	55.0	-16.6%	51.5	-21.9%
Between Pelandale I/C and County border	44.0	52.1	45.5	-12.7%	41.9	-19.7%	67.2	55.9	-16.9%	60.4	-10.1%
Between Standiford I/C and County border	42.0	53.0	45.2	-14.7%	43.0	-18.9%	70.3	64.5	-8.3%	63.0	-10.4%
Between Briggsmore I/C and County border	43.0	55.3	48.3	-12.6%	45.6	-17.5%	71.3	62.4	-12.5%	65.0	-8.9%
Between downtown Modesto and County border	44.0	56.2	46.3	-17.6%	42.9	-23.8%	72.0	57.2	-20.5%	59.1	-17.9%

1. Travel time in minutes between various State Route 99 interchanges and the Stanislaus County/Tuolumne County border
2. % = percent
3. I/C = interchange

Source: Transportation System Planning Analysis Reports for the North County Corridor project, June 2009

Table 1-5 shows data relating to daily vehicle hours of delay. Vehicle hours of delay is a general indicator of traffic congestion. Under the No-Action condition, vehicle hours of delay are expected to increase nearly 500% through 2050. This increase is considered an unacceptable condition.

Table 1-5. Daily Vehicle Hours of Delay

Year	No-Action	Corridor A	Corridor B
2008	16,754	12,796	13,109
2030	42,095	38,365	38,373
2050	94,769	87,399	88,890

Source: Transportation System Planning Analysis Reports for the North County Corridor project, June 2009

Accommodate Future Traffic

Based on average daily traffic counts, level of service, travel time and vehicle hours of delay as performance measures, and traffic analyses, State Route 108 is not serving the east-west mobility needs of the region. Existing through traffic must share the road network with local traffic, reducing system capacity and performance and thus the ability of the transportation

network to accommodate future traffic volume increases. During peak traffic hours, State Route 108 and the surrounding roadway network are congested, leading to more delay.

The roadway currently functions as a "main street" through the cities of Modesto, Riverbank, and Oakdale. State Route 108 is serving and will continue to serve mostly commuter and local traffic, and not the through travel it was intended to serve; this is the result of capacity constraints, local and commuter traffic competition, and uncontrolled access on existing State Route 108. Through travel that should be using State Route 108 as intended is being shifted onto alternative routes such as Claribel Road and Pelandale Avenue (neither road was designed for nor intended to be used for regional travel).

Benefit Commerce

Stanislaus County is an important food-processing region. Poultry, dairy, and vegetable products from the county are processed and distributed throughout the world every day. Goods movement is the result of production activities within and outside of the region, and movement takes place within a complex system of routes, modes, terminals, and warehouse facilities. The state has recognized the importance of agricultural goods movement in Central Valley areas such as Stanislaus County. The State of California's *Goods Movement Action Plan* identifies four high-priority gateway regions in California that are necessary to support the continued growth of the California economy. The Central Valley region, which includes State Route 99 and Interstate 5 and important east-west corridors that go through Stanislaus County, is one of these high-priority regions.

Traffic congestion and operational conflicts between trucks and passenger vehicles have been identified as key issues that need to be addressed to maintain efficient goods movement. The high percentage of trucks on the roads in the study area reflects the high demand for goods movement through the area. Existing truck traffic on study area roadways ranges from 8% to more than 20% of average annual daily traffic volumes (see Figure 2-11). These truck volumes within the study area are an indication of the level of goods movement within the study area and the importance of accommodating truck traffic to support economic growth and development.

More than 90 interstate truck lines and 100 contract carriers operate in the Stanislaus region. These operators, distributed throughout the region, rely on the regional system of state highways, expressways, and major arterials to move supplies and products to the main lines of the highway freight system (State Route 99, Interstate 5, State Route 108, and 132).

Trains also provide an economical way of transporting bulk goods. The Stanislaus region is served by two transcontinental railroad systems: the Union Pacific and the Burlington Northern Santa Fe Railway. The region also has two local railroad systems: the Modesto and Empire Traction Company and the Sierra Railroad. The Burlington Northern Santa Fe Railway operates a multi-modal transportation station in Riverbank. The Port of Stockton, 30 miles north of Stanislaus County, provides deep-water access to the Pacific Ocean. Rail and truck transport to and from the port is available.

Within the study area, the major north-south freight rail line shares a route serviced by passenger rail (described later in this chapter); the major east-west line begins in Riverbank and runs east parallel to segments of Patterson Road and State Route 108/120. At-grade crossings for the east-west rail line are provided at the following study roadway segments: Claus Road, Langworth Road, Yosemite Avenue, Stearns Road, Wamble Road, and Warnerville Road.

East-west mobility and access to transportation systems are key requirements of business and industry for job creation and retention, movement of goods and services, and economic stability and growth. Restrictions on east-west mobility are expected to continue to constrain economically beneficial farm-to-market, recreational, and other commerce-related travel. The increasing traffic congestion and resulting travel delays summarized above will continue to hinder the efficient use of the region's roadway network for commerce. The region's commerce will continue to experience reduced travel times, increasing vehicle operating costs for travelers on State Route 108 and reducing the economic benefit to California's commerce, particularly for agricultural production areas in the valley and foothills and the processing centers in urban areas such as Modesto.

Enhance Traffic Safety

Accident data for existing State Route 108 indicates a recent history of accident rates exceeding the statewide average for similar facilities (see Table 1-6). A total of 514 accidents with two fatalities was reported on State Route 108 between McHenry Avenue and Yosemite Avenue during the three-year period from 2005 to 2008. A total of 176 accidents with no fatalities was reported on State Route 120/108 between Yosemite Avenue and Lancaster Road during that period.

The overall accident rate on State Route 108 between McHenry Avenue and Yosemite Avenue is about 35% higher than the statewide average, while the overall accident rate on State Route 108/120 between Yosemite Avenue and Lancaster Road is about 16% higher than the statewide average. Most of the accidents (54%) on State Route 108 between

McHenry Avenue and Yosemite Avenue were rear-end accidents, as were a large fraction of accidents (32%) on State Route 108/State Route 120 between Yosemite Avenue and Lancaster Road.

Table 1-6. Existing State Route 108 Accident Histories

Facility	Number of Accidents			Accident Rate (accidents/million vehicle miles)					
				Actual			State Average		
	Total	Fatal	Fatal + Injury	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
State Route 108—McHenry Avenue to Yosemite Avenue	514	2	200	0.008	**0.83**	**2.12**	0.025	0.60	1.57
State Route 108/State Route 120—Yosemite Avenue to just east of Lancaster Road	176	0	74	0.000	**0.57**	**1.36**	0.023	0.49	1.17

Note: Bold text denotes locations that exceed the statewide average.
Source: Caltrans District 10 TASAS data between 6/1/2005 and 5/31/2008.

1.3 Alternatives

1.3.1 Corridor Alternatives

Two corridors—Corridor A and Corridor B—have been identified to accommodate the North County Corridor State Route 108 East (see Figure 1-2 and corridor alignment maps in Appendix B). Preliminary assessments of each corridor determined that multiple physical alignments for a new roadway are feasible within either corridor.

1.3.1.1 Common Design Features

Corridors A and B share a common roughly 2,000-foot-wide corridor between State Route 108 (McHenry Avenue) and McGee Avenue on the west end, a 2,000-foot-wide corridor southeast of Oakdale near Warnerville Road, and the Hetch Hetchy Aqueduct, sweeping north to a spot on State Route 108/120 about 6 miles east of Oakdale. Figure 1-10 provides a hypothetical depiction of how the future roadway would be situated within either Corridor A or B.

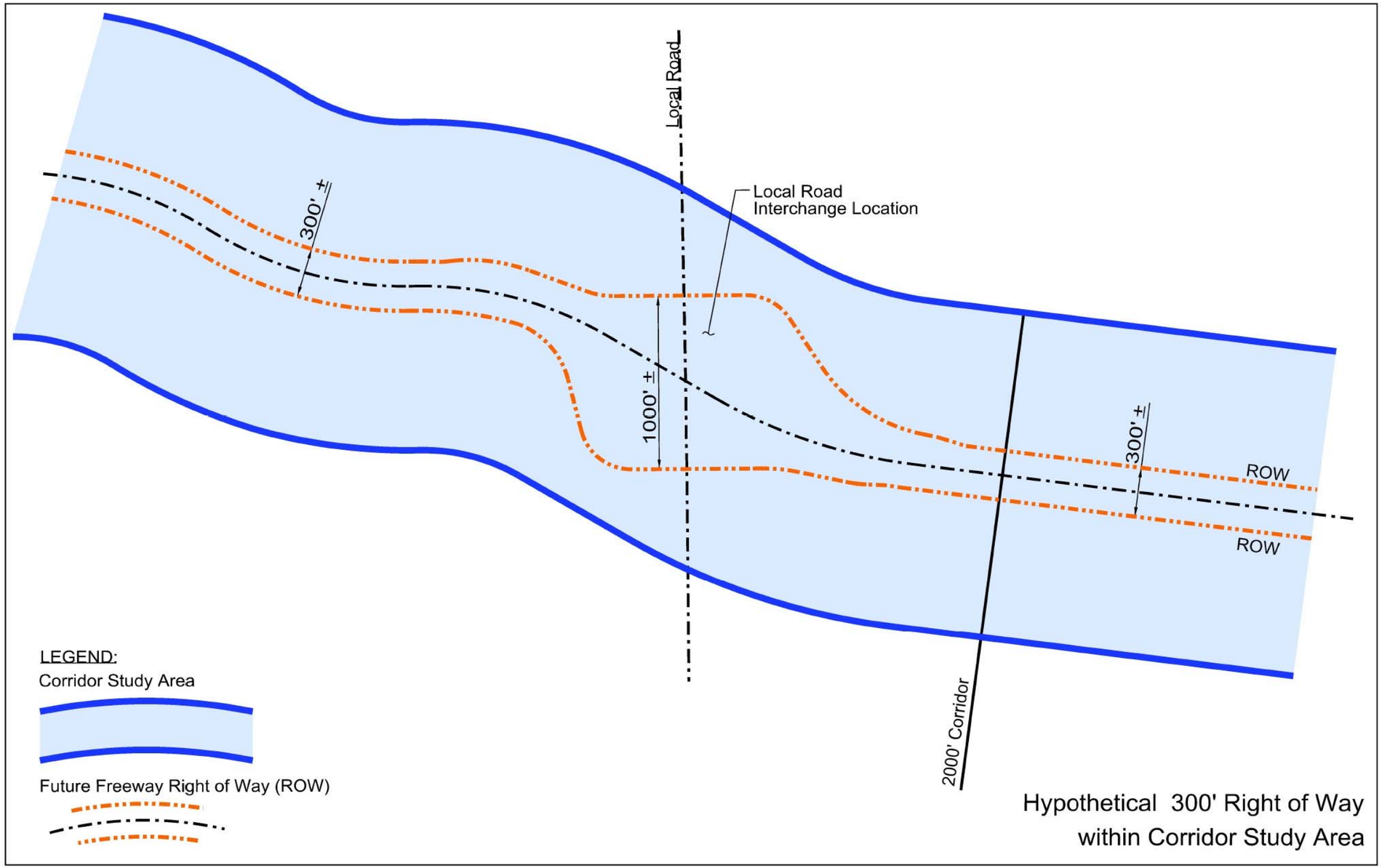


Figure 1-10. Potential Layout of the Furture Roadway under the Action Alternatives

1.3.1.2 Unique Alignment Features

Corridor A

Corridor A begins on State Route 108/McHenry Avenue west of the city of Riverbank near the intersection of State Route 219 (Kiernan Avenue). Corridor A heads east, crossing the Mid Main Canal, and then turns east-southeasterly to go south across Coffee Road. Bypassing the city of Riverbank, the corridor parallels the south side of Claribel Road across Oakdale Road, Roselle Avenue, Claus Road, and Langworth Road. Continuing easterly, the corridor crosses Bentley Road, Albers Road, the Union Pacific Railroad, the Oakdale-Waterford Highway, and Crow Road. There, it turns northeasterly, crossing Ellenwood Road, Warnerville Road, the Hetch Hetchy Aqueduct, and the Sierra Railroad, and then sweeping north to a spot on State Route 108/120 about 6 miles east of Oakdale. The alignment is shown in detail in Appendix B.

Corridor B

Like Corridor A, Corridor B also begins at the intersection of State Route 219 (Kiernan Avenue) and existing State Route 108 (McHenry Avenue). It then follows the same alignment as Corridor A easterly to just west of McGee Road. There, the alignment differs. Corridor B heads east-northeasterly, crossing Langworth Road south of its intersection with Patterson Road. At Patterson Road, the alignment turns easterly, running parallel to the north side of Patterson Road, and begins to turn more northerly across Albers Road. At Warnerville Road, the alignment parallels the road, and, like the Corridor A alignment, sweeps north to connect to State Route 108/120. The alignment is shown in detail in Appendix B.

No-Action Alternative

The No-Action Alternative is a no-project alternative. Under this alternative, the following outcomes are expected. As described in this chapter's Purpose and Need section, traffic volumes are projected to increase. The No-Action Alternative would not alleviate the projected increases in traffic volumes and related increases in congestion, vehicle miles traveled and vehicle hours of delays. The poor level of services documented in 2008 would continue to occur through 2030 and into 2050. Under this alternative, the current levels of traffic accidents as reported from 2005 to 2008 on existing State Route 108 are expected to continue in the future. For these reasons, the No-Action Alternative would not meet the purpose and need of the proposed action.

1.3.1.3 Comparison of Alternatives

Corridors A and B would each provide potential transportation benefits compared to the No-Action Alternative. Corridors A and B would redistribute future traffic compared to the No-

Action Alternative, but would not worsen traffic operations by degrading operations on roadway segments experiencing level of service D (No-Action scenario).

Regional measures of effectiveness show minor differences between Corridors A and B when compared to the No-Action Alternative. Corridor A would result in a slightly greater reduction than Corridor B in daily vehicle hours of delay in both 2030 and 2050. Daily vehicle hours of travel would be reduced under both Corridor A and B compared to the No-Action Alternative, with Corridor A showing slightly greater reductions than Corridor B.

Travel time reductions would result from both of the corridors when compared to the No-Action Alternative. Corridor B would have greater travel time savings than Corridor A would, particularly in 2030.

An analysis of the average daily traffic, level of service, travel times, and vehicle hours of delay of the two corridors is as follows:

- Existing State Route 108 is capacity-constrained; volumes through the city of Oakdale would drop between 2% and 26%, and State Route 108 traffic volumes through the city of Riverbank are not anticipated to drop as a result of a new roadway.
- North County Corridor State Route 108 East would carry as many as 76,000 average daily traffic vehicles, depending on location, and would improve access to and around the growing cities of Modesto, Riverbank, and Oakdale through 2030 and into 2050.
- Both 2030 and 2050 forecasts for either corridor demonstrate that, when compared against the No-Action Alternative, a desirable redistribution of traffic volumes occurred on the region's roadway network:
    - Corridors A and B would result in a general reduction of traffic on existing State Route 108 from McHenry Avenue to east of the city of Oakdale.
    - East-west traffic volumes on Pelandale Avenue and Kiernan Avenue between State Route 99 and Tully Road (a distance of about 3.5 miles) would drop by about 5% and 55%, respectively, supporting the conclusion that through traffic is currently using other non-state route east-west routes.
    - Traffic volumes on Claribel Road east of Roselle Avenue would drop by about 30,000 average daily traffic vehicles with a new east-west roadway in place.
    - Traffic volumes on several north-south roadways would increase slightly due to traffic shifting from parallel roadways to the new project.

Modeling results revealed that each corridor would operate at level of service C or better (with one exception where level of service would drop to level of service D in 2030). In 2050, the roadway would operate slightly below, but for the most part at level of service C or better. Level of service under either corridor alternative would be substantially improved when compared to the No-Action condition.

The conclusions drawn from the level of service analysis include:

- Either corridor would provide a major east-west roadway unencumbered by local and commuter traffic, with improved access to and around the growing cities of Modesto, Riverbank, and Oakdale through 2030 and into 2050, and would function at acceptable levels into the future.
- The major roadways, including State Route 99, State Route 108, and State Route 219, in the existing regional roadway network are operating at level of service D or worse, and conditions are expected to worsen through 2030 to 2050.
- Both Corridors A and B would pull enough east-west traffic from the existing network to result in "full letter" level of service improvements on many roadway segments in the network and specifically for other noted east-west routes.

To assess the effects of the project on daily travel times, Corridors A and B were modeled for 2030 and 2050 conditions and compared against the No-Action Alternative for those same years (see Table 1-4). Under any scenario, representative travel times within the study area are expected to increase from 2030 to 2050; however, substantial travel time-savings are experienced with both corridors when compared against the No-Action Alternative in 2030 and in 2050 for the selected routes.

To assess vehicle hours of delay, Corridors A and B were modeled for 2008, 2030 and 2050 conditions and compared against the No-Action condition for those same years (see Table 1-5). Under any scenario, vehicle hours of delay within the study area is expected to increase from 150% to 200% in 2030. The increase in vehicle hours of delay indicates that travel through the corridor will be hindered by the mix of through and local traffic, and delays would be exacerbated by the existing "main street" attributes of State Route 108 described earlier in the chapter. In addition, Corridor A or Corridor B would be a direct route for east-west traffic, and either would reduce vehicle hours of delay on the region's roadway network when compared against the No-Action condition; vehicle hours of delay savings represent about a 9% reduction in 2030 and about an 8% reduction in 2050.

Either corridor would serve as a major east-west facility unencumbered by local and commuter traffic with improved access to and around the growing cities of Modesto, Riverbank, and Oakdale through 2030 and into 2050. The proposed roadway would lead to improvements in traffic operations through the region by avoiding the highly congested existing State Route 108 through the cities of Oakdale and Riverbank. East-west traffic would experience reduced travel times and delays and provide a faster and more reliable travel route between the agricultural production areas in the valley and foothills regions and the processing centers in urban areas such as Modesto.

Designation of either Corridor A or Corridor B as the future State Route 108 East corridor would not have direct impacts on the physical environment, although the potential exists for indirect effects resulting from the construction of a roadway in an alignment within either of the corridors. These indirect effects would not occur under the No-Action Alternative.

The potential indirect effects for both corridors are similar. Corridor A would potentially require more business displacements, but slightly fewer residential displacements. Corridor A also has more parcels requiring evaluation for historic potential, indicating greater potential for impacts to historic resources. Corridor B would require one stream crossing, which would not be required under Corridor A, raising the potential for effects to regulated U.S. Army Corps of Engineers Waters of the United States. There is also potential for federally and state-regulated threatened and endangered species habitats to exist within both corridors, although surveys would be required to determine if one corridor contains more sensitive habitats than another.

After the public circulation period, all comments will be considered, and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with the California Environmental Quality Act, Caltrans will certify that the project complies with the act, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered before project approval.

Caltrans will then file a Notice of Determination with the State Clearinghouse that will 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.

1.3.2 Alternatives Considered But Eliminated from Further Discussion

A range of corridors and improvement concepts that would satisfy the project purpose and need were considered in identifying corridors to study in detail in this document. Past studies were reviewed, project team concepts were brought forward, and public input on alternatives was considered (see also Chapter 4 for further discussion regarding public input). Through this process, several physical alignment alternatives, such as constructing the new State Route 108 East on Claribel Road, were suggested by pubic workshop participants for a new roadway. Physical alignment alternatives that could be within the 2,000-foot-wide corridors are by default considered at a program level within the corridors studied in this EIR. The alignment alternatives would be subject to detailed analyses as part of any future project-specific California Environmental Quality Act compliance.

Improve Existing State Route 108

Under this alternative, existing State Route 108 would have been rebuilt to meet the projected traffic needs through the design year. To do this, State Route 108 would have been rebuilt as a multi-lane controlled-access facility. The improvements would have caused substantial impacts on the communities of Oakdale and Riverbank, including major disruptions to daily traffic operations and business operations, plus other community impacts, including expected substantial displacements and relocations of residences and businesses. For these reasons, the alternative was eliminated from further study.

Corridor C

Corridor C would have begun at Salida Expressway and turned northeast to parallel Ladd Road up to Carver Road, where it would have turned southeast toward Tully Road. From this point, the alignment would have followed a similar path to Corridor A before turning south between Coffee Road and Oakdale Road to bypass the city of Riverbank and head toward Claribel Road. At Claribel Road, the corridor would have turned eastward between Claribel Road and Lainview Road as a local frontage road. Corridor C would have been a straight alignment east toward Eleanor Road, and just west of Eleanor Road (similar to Corridor B), Corridor C would have turned northeasterly, paralleling the south side of the Hetch Hetchy Aqueduct. At Emery Road, Corridor C would have crossed the Hetch Hetchy Aqueduct to follow a similar path to Corridor A before connecting to a proposed State Route 120/108 interchange.

Although Corridor C would have had a different western end than what is being considered in this document, the intent of the corridor to accommodate future demand for interregional mobility is the same as that being considered for the proposed roadway beginning at the State Route 108/State Route 219 intersection.

The project team concluded that the reasons presented in the 2008 feasibility report for eliminating Corridor C from the project development process remained valid. Corridor C did not match roadway network patterns or land use patterns presented in the Salida Community Plan; also, the corridor presented a more circuitous alignment that would have underserved local travel and negatively affected travel time savings. Consequently, Corridor C was eliminated from further study.

Corridor D

Corridor D would have been similar to Corridor C along Ladd Road, but it would have turned southeast between Dale Road and Carver Road until Morrill Road, where it would have turned eastward to Claribel Road. At Claribel Road, Corridor D would have been similar to Corridor C in general alignment. Although Corridor D would have had a different western end than what is being considered in this document, the intent of the corridor to accommodate future demand for interregional mobility is the same as that being considered for the proposed roadway beginning at the State Route 108/ 219 intersection.

The project team concluded that the reasons presented in the 2008 feasibility report for eliminating Corridor D from the project development process remained valid. Corridor D did not match roadway network patterns nor land use patterns presented in the Salida Community Plan. Consequently, Corridor D was eliminated from further study.

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

This chapter explains the human, physical, and biological environments in the project area. It describes the existing environment that could be affected by the construction of a future new State Route alignment; the potential impacts that could occur within each of the corridors, and proposed avoidance, minimization, and/or mitigation measures that potential could be required.

As part of the scoping and environmental analysis done 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:

- **Recreation**. Two parks sit within the study area: Stockard Coffee Park and Beyer Park. Both parks are east of the intersection of Pelandale Avenue and McHenry Avenue in Modesto, near Beyer High School. There are no equestrian trails, recreational bikeways, and other recreational trails in the study area. (Community Impact Assessment Technical Memorandum, 2009).
- **Timberlands**. No timberlands occur in the project area. The proposed project would not result in conversion of timberland. (Community Impact Assessment Technical Memorandum, 2009).
- **Wild and Scenic Rivers**. No designated wild and scenic rivers run near the route alignments. (www.rivers.gov)

2.1 Human Environment

2.1.1 Land Use

2.1.1.1 Existing and Future Land Use

Affected Environment

The proposed planning corridors lie in the unincorporated area of Stanislaus County. In various locations, they either encroach on or abut the sphere of influence of the cities of Modesto, Riverbank and Oakdale. A general description of the affected jurisdictions is provided below.

Stanislaus County

Stanislaus County encompasses 1,495 square miles (970,168 acres). It has an estimated population of 525,903 persons (California Department of Finance, 2008): 78% live within nine incorporated cities (Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock and Waterford); the remaining 21% are distributed among 13 recognized communities, individual farms and scattered rural residences. Over the past two decades, the county has grown by roughly 42%, with most of the growth occurring in the incorporated cities.

In 2007, the median household income in Stanislaus County was $50,367, 13.6% less than the state median household income. About 13.5% of residents countywide earn incomes below the state poverty level. Estimates from the State Department of Finance in 2007 indicate the following ethnic breakdown of the county's population:

- White (Anglo): 50.09%
- Hispanic: 39.34%
- Asian: 4.67%
- African American: 2.48%
- Multi-Race: 2.31%
- American Indian: 0.79%
- Pacific Islander: 0.32%

The county is an agricultural center of regional and statewide importance. In 2006, it ranked 6th among all state counties in value of agricultural commodities produced, according to the California Department of Food and Agriculture. About 87% of the total land within the county is classified as agricultural.

Modesto

Modesto, the county's largest city, is 35 square miles in area, with an estimated population of 209,936 (California Department of Finance, 2008). The city is the seat of county government and the main center of trade and commerce. Like most of Northern and Central California, the city has experienced steady growth over the past 20 years, with a 14.6% increase between 1990 and 2000, and a more than 10% increase in population between 2000 and 2008.

In 2007, the city's median household income was estimated at $47,470, which was 21% less than the state median. About 15.5% of Modesto's residents are estimated to earn incomes less than the state poverty level.

Riverbank

Riverbank is just north of Modesto along the southern bank of the Stanislaus River in Stanislaus County. The Stanislaus River, which gives the city its name, forms the boundary between Stanislaus County and San Joaquin County to the north. The city is 3.84 square miles in area and has a population of 21,757 persons (California Department of Finance, 2008). The city nearly doubled in population between 1990 through 2000, and has grown by 37% over the past eight years. Much of this growth was due to a large influx of new residents from the San Francisco Bay area and other job markets seeking affordable single-family housing.

The 2007 estimated median household income in Riverbank was $56,381, about 6% below the state median. An estimated 12.3% of the city's residents earned less than the state poverty level.

For more than 60 years, the city was home to the Riverbank Army Ammunition Base, until the base was closed by the U.S. Base Realignment and Closure Commission in 2005. Over the past five years, Riverbank has become more economically diverse, with development of a regional shopping center in the south area of the city.

Oakdale

Oakdale encompasses about 5.2 square miles in area and has a population of 19,337 (California Department of Finance, 2008). The city has grown steadily over the past 20 years, increasing in population by 29% from 1990 to 2000, and by about 25% from 2000 to 2008, with a typical annual increase of 3%.

In 2007, the median household income in Oakdale was $49,653, which was 13% less than the state median household income, and about 11.3% of residents countywide earned incomes below the state poverty level.

Oakdale's economic base has been supported by a combination of agri-industrial processing, food manufacturing, commercial services to highway travelers entering and leaving recreational areas in the Sierra, and recent development of a large-scale community shopping center in the city's east planning area.

Planning documents and past growth figures from the local agencies and the State Department of Finance (California Department of Finance 2008) were reviewed to understand the current land use and growth considerations of the subject jurisdictions. The following general plans and their associated implementing documents were reviewed:

- Stanislaus County General Plan (Stanislaus County 1997, updated 2007)
- Modesto Urban Area General Plan (City of Modesto 2008)
- Riverbank Draft General Plan 2005-2025 (City of Riverbank 2009)
- Oakdale General Plan 2015 (City of Oakdale 1994, updated 2004)

Interviews, in person and via telephone, were conducted with key planning personnel at each agency, with the intent of learning about current land use and development projects that may be affected by Corridors A and B, and identifying projects to be cumulatively considered in the project-level environmental document. General land use classifications (Extensive Agriculture, Intensive Agriculture, Open Space, Residential, Commercial, Institutional, Industrial, Public and Vacant) for all property within the route corridors came from Stanislaus County Assessor records (database from Jane Highness, Stanislaus County Assessors Office, 2009). Information was grouped according to acreages for each land use classification. This data was then transferred to the project base map to display existing land use.

Figures 2-1 and 2-2 show existing land uses near Corridors A and B. Figures 2-3 and 2-4 show maps with Corridors A and B and the underlying county and city general plan land use designations. A breakdown of the existing land use by acreage is provided in Table 2-1:

Table 2-1. Breakdown of Existing Land Use

Land Use Category	Corridor A (Acres)	Corridor B (Acres)	Common Corridor Areas (Acres)
Extensive AG (Grazing)	221.20	284.94	227.63
Intensive AG (Production)	1804.55	1690.26	1744.32
Open Space	74.78	6.99	0
Residential	102.74	53.98	288.94
Commercial	17.12	0	130.84
Industrial	0	0	12.67
Institutional	0	0	17.76
Public	0	126.5	43.81
Vacant	47.73	36.22	222.37
Other (No Category)	0	0	1
Total:	**2268.12**	**2198.89**	**2689.34**

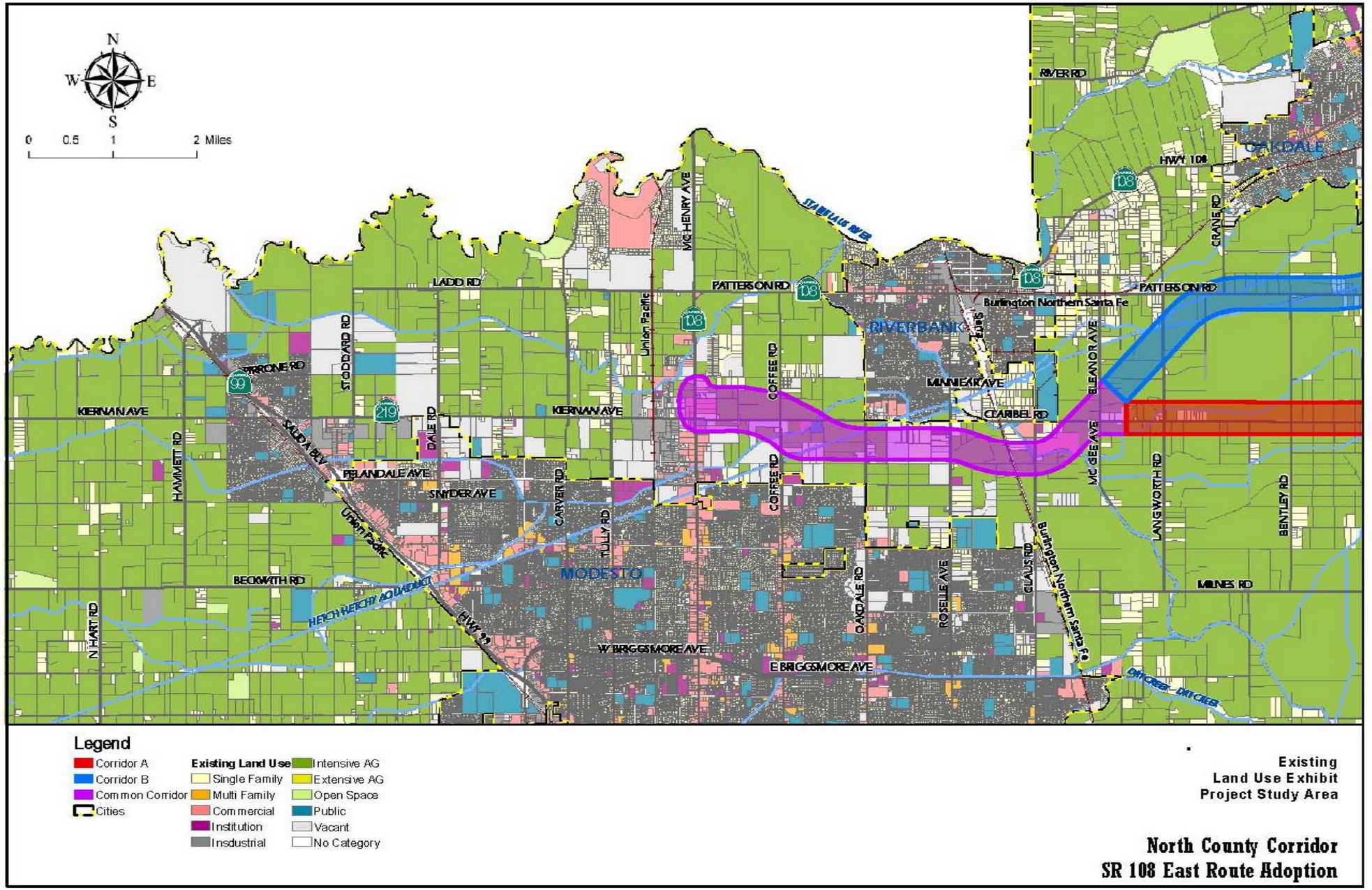


Figure 2-1. Existing Land Use (West)

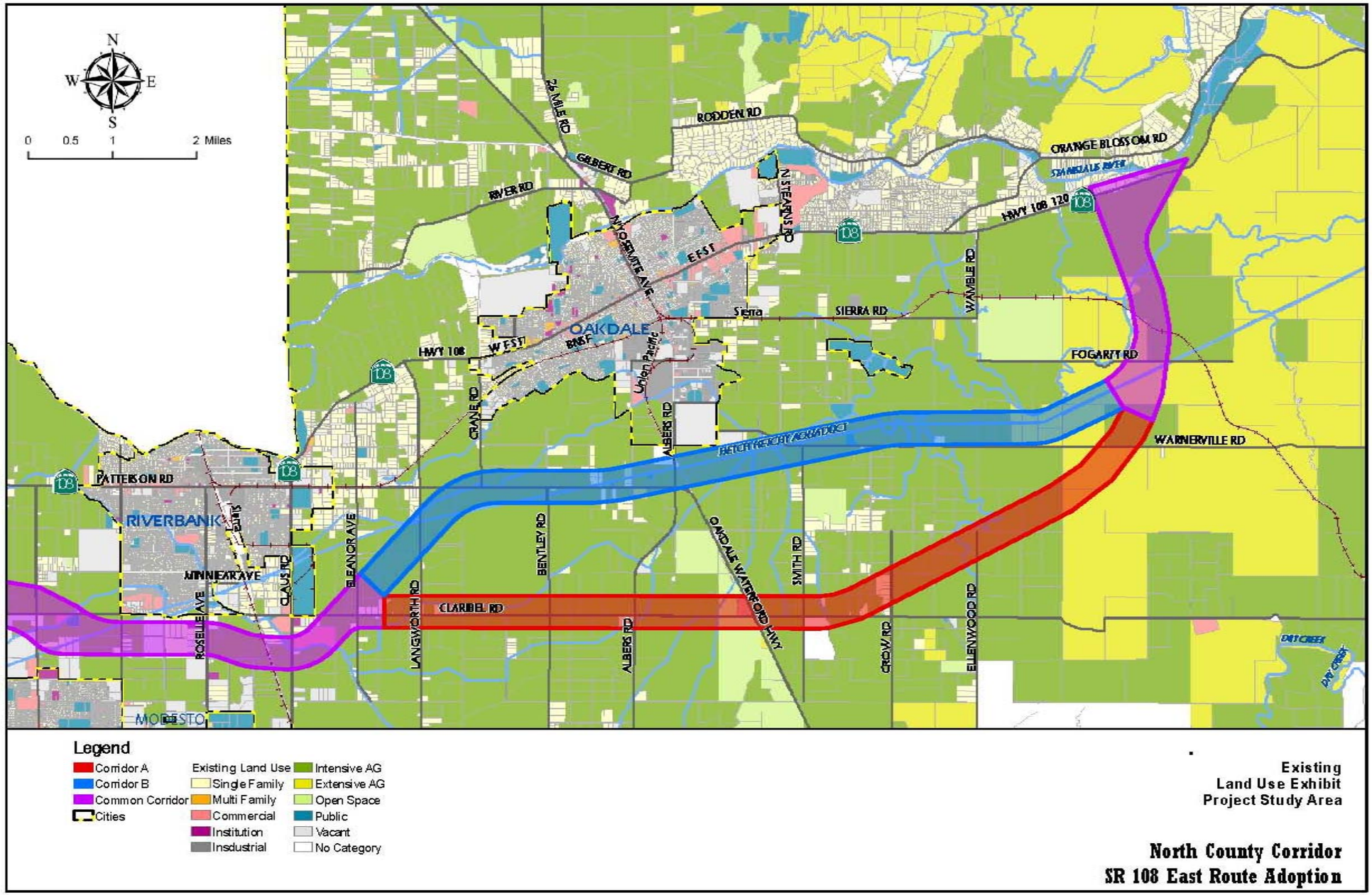


Figure 2-2. Existing Land Use (East)

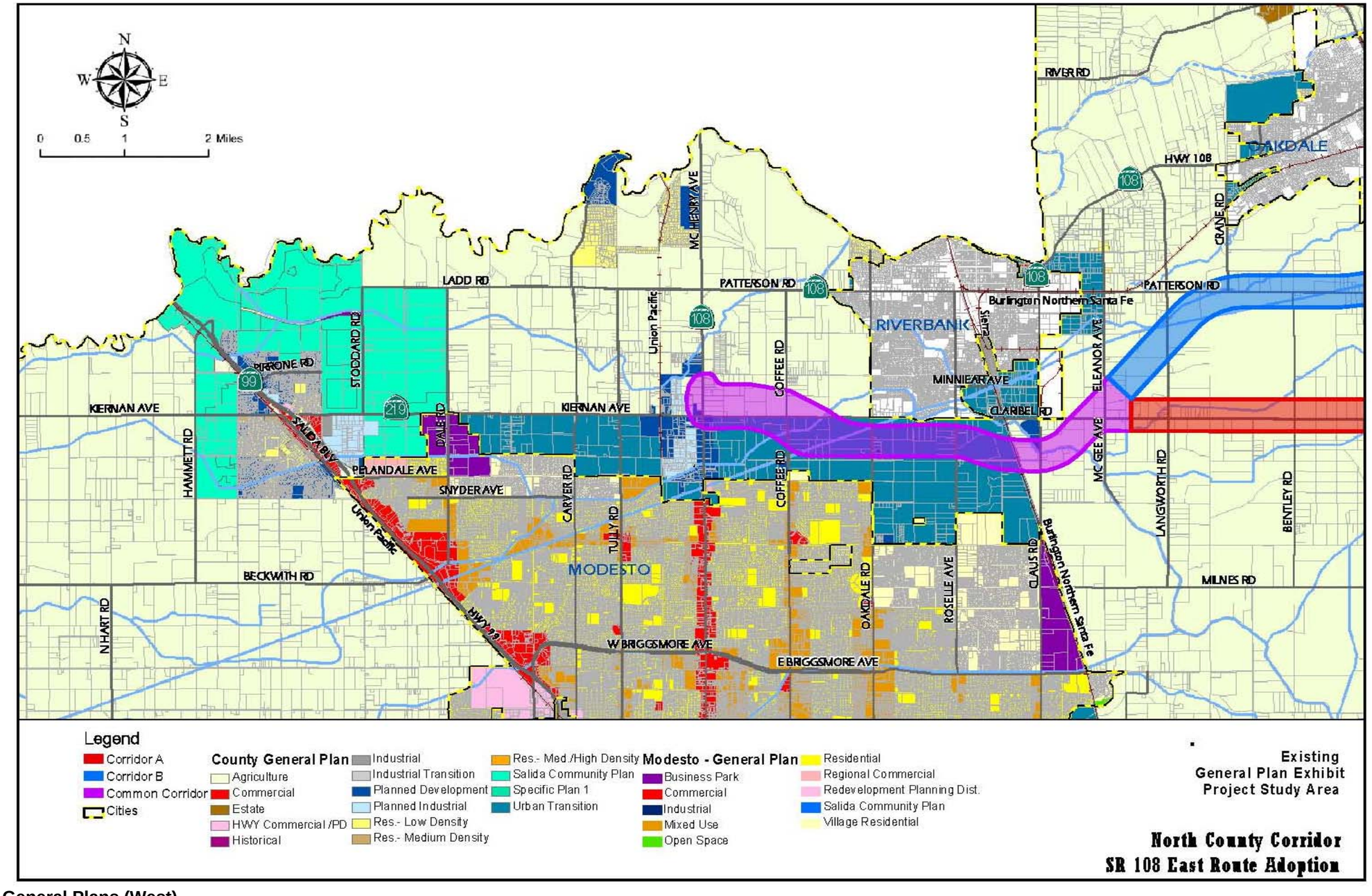


Figure 2-3. General Plans (West)

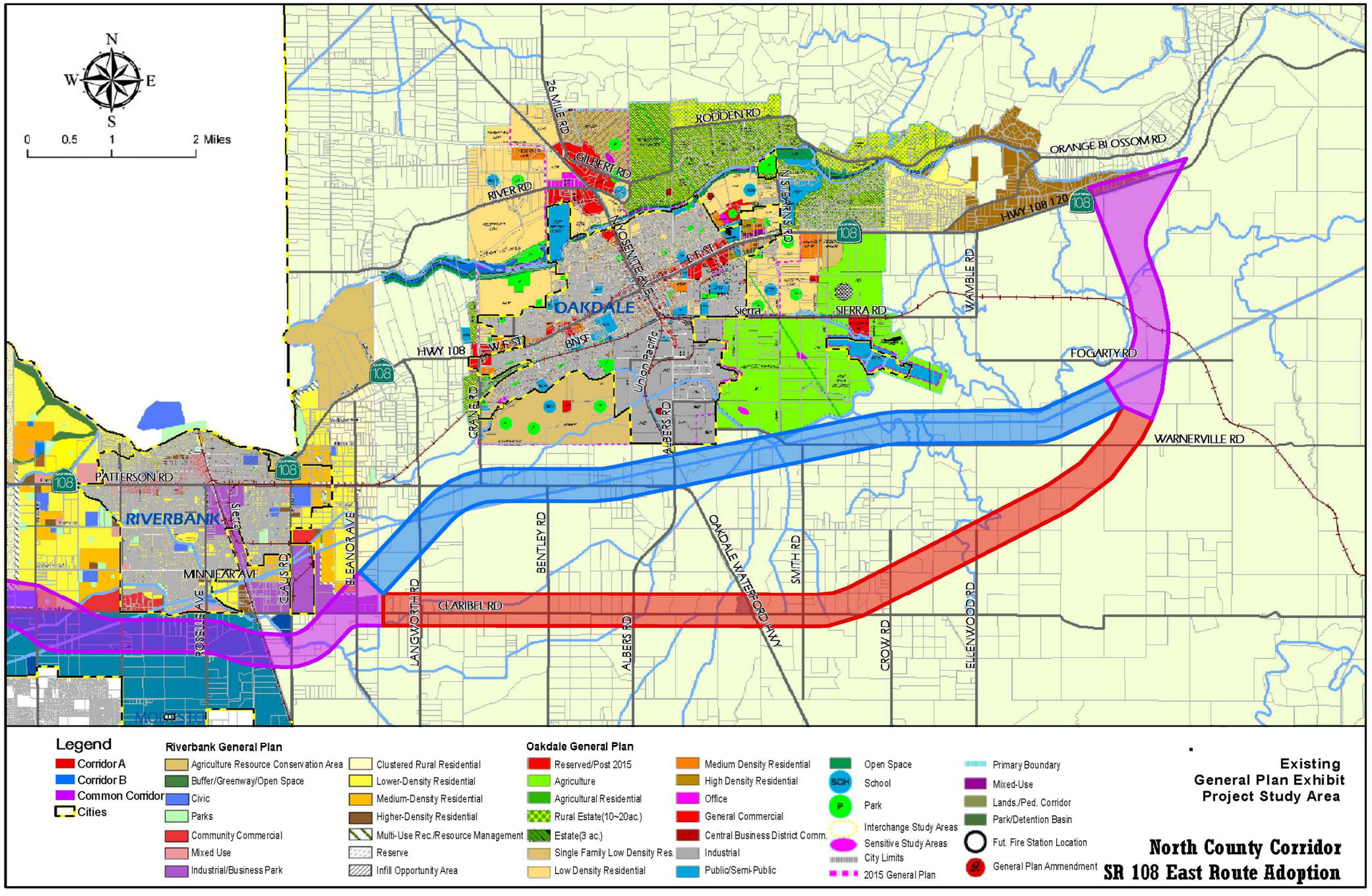


Figure 2-4. General Plans (East)

In addition to the base land use data quantified in the preceding tables, research was done to find out the current and planned development projects in the study area that will likely be developed before construction of the new State Route 108 East. This information would be included in the baseline conditions in the future project-level environmental document for construction and operation of the future roadway. A discussion of the current and planned development projects within the project area is provided below.

Stanislaus County

The main land use in Stanislaus County is agriculture. Agricultural uses range from rural residential farms to large mechanized farms, confined animal facilities, and processing facilities for food and fiber produced in the local market for export beyond the trade area. Some urban uses occur in the 13 unincorporated communities; nine of the 13 have adopted community plans that are included in the general plan. The general plan also designates some non-agricultural uses south of the Modesto sphere of influence (mix of residential and industrial), northeast of the city of Oakdale (rural residential) and west of McHenry Avenue near Kiernan Avenue (industrial).

At the west end, alignment corridors of the North County Corridor State Route 108 East Route Adoption begin at McHenry Avenue (State Route 108). Between McHenry Avenue and the City of Riverbank, the combined route corridors go through established agricultural lands and existing industrial developments on the north and south sides of Kiernan Avenue, east of the Union Pacific Railroad tracks and west of McHenry Avenue (State Route 108). This area is designated Planned Industrial and Planned Development on the county general plan.

Lands south of Kiernan Avenue-Claribel Road between the cities of Modesto and Riverbank (extending to Claus Road) are designated Urban Transition on the general plan. The purpose of the Urban Transition designation is to ensure that land remains in agricultural use until urban development consistent with a city's (or unincorporated community's) general plan designation is approved. Generally, urban development will occur only on annexation to a city, but such development may be appropriate before annexation, provided it is consistent with the land use designation of the general plan of the affected city.

East of Claus Road, between the cities of Riverbank and Oakdale, the alignment corridors pass through lands designated for agriculture on the general plan that contain a mix of rural residential farms, row crops, aggregates processing, confined animal facilities and utilities substations. Corridor A follows the alignment of Claribel Road for about 6.5 miles before heading northeast past Crow Road and continuing to its end at State Route 108/120. Corridor

B heads northeast at Eleanor Avenue and then follows the alignment of Patterson Road for 1.2 miles and the Hetch Hetchy Aqueduct for about 7 miles before heading north-northeast till it meets State Route 108/120. Corridor B passes immediately south of the City of Oakdale and abuts the city's sphere of influence.

According to the County Planning Department, except for the Salida Community Plan expansion, there are no plans for significant urban development in the northern county unincorporated area. In November 2007, Stanislaus County voters passed Measure E, the 30-Year Land Use Restriction Initiative. With its passage, the initiative amended the Land Use Element of Stanislaus County's General Plan by adding Goal 6 and Policy 25 to restrict for a period of 30 years the Board of Supervisors of Stanislaus County from approving the redesignation or rezoning of land in the incorporated area of the county from an agricultural or open space use to a residential use without approval by a majority of voters in the county. The initiative has no effect on growth and general plans of the nine cities in Stanislaus County and will not affect requests by cities to expand their sphere of influence or annexations for residential development. The initiative is in effect until December 31, 2036.

Table 2-2 lists planned projects in the unincorporated northern county area currently in the entitlement process.

Modesto

The City of Modesto updated the General Plan in October 2008. The updated plan (City of Modesto, Urban Area General Plan, October 2008) provides a blueprint for the city's growth through the year 2025 and incorporates numerous policies to advance continued redevelopment in the downtown core. The plan also explains controlled growth at the fringes in what is termed the "Urbanizing Area." In most cases, the Urbanizing Area is within the city's sphere of influence, which is adopted by the County Local Agency Formation Commission and defined by Section 56076 of the State Government Code as a "plan for the probable physical boundaries and service area of a local agency."

The Urbanizing Area is further divided into Comprehensive Planning Districts, which are subareas with assigned general plan land use designations and policies to guide future development. Most of the 20 Comprehensive Planning Districts on the General Plan diagram are located within the sphere, except the Stanislaus River and Salida Community, the Kiernan-Carver North, and the Beckwith-Dakota Comprehensive Planning Districts. However, the Kiernan-Carver North and Beckwith-Dakota Comprehensive Planning Districts are expected to be brought into the sphere during the 2025 General Plan time window. The city has no plans for absorbing the Salida Community or extending farther north.

The North County Corridor State Route 108 East Route Adoption route alignments pass north of Modesto and encroach on portions of the city's sphere between McHenry Avenue (State Route 108) and the shared sphere-City Limit boundary with the City of Riverbank. Future land uses most likely to be affected by the North County Corridor State Route 108 East Route Adoption would be developed in the five Comprehensive Planning Districts that define Modesto's northern sphere (seeTable 2-2).

In addition, two pending Specific Plan proposals near the North County Corridor State Route 108 East Route Adoption would likely be developed within the project design and/or development timeframe. The first is the Woodglen Specific Plan, which proposes developing 533 residential units and a park on 62.8 acres south of Bangs Avenue, between Carver and Tully Roads in the Kiernan-Carver Comprehensive Planning District. The second is the Pelandale-McHenry Specific Plan at the southwest corner of Pelandale Avenue and McHenry Avenue, 1 mile south of the route corridors. The land plan for the 85-acre project consists of 386 residential units, 3.5 acres of commercial uses, and parks and public uses.

Riverbank

Downtown Riverbank lies about 7 miles north-northeast of downtown Modesto. The southern edge of Riverbank's city limits now lies about 1 mile north of the developed area of Modesto, and the cities share a common sphere boundary at Claribel Road.

The city recently updated of its general plan (City of Riverbank, Draft 2005-2025 *General Plan*, January 2009), which was adopted on February 4, 2009. Riverbank's sphere and Planning Area now extends from McHenry Avenue on the west to about 600 feet east of Eleanor Avenue on the east, and from Claribel Road on the south to the Stanislaus River on the north. The plan anticipates Riverbank will now continue or exceed its historic 4.6% annual pace of growth (State of California, Department of Finance, 2008). Based on the assumptions developed during the general plan update, the planning area at year 2025 -out would accommodate a population of approximately 52,500, which is an increase of roughly 140% over the estimated 2008 population (21,757).

Current development in Riverbank leans heavily toward residential activity. The city has 13 active residential projects, many approved during the period of 2002-2007, in various stages of completion (Oakdale Irrigation District, *Programmatic Environmental Impact Report*, January 2007 and interview with J.D. Hightower, City of Riverbank, March 2009). Combined, these projects total approximately 1,360 residential units. The most significant commercial development is the Crossroads Regional Center, a 630,000-square-foot commercial center at the northeast corner of Claribel Road and Oakdale Avenue that is over

60% complete. The Crossroads Regional Center contains the most significant concentration of revenue-generating land uses in the city and is a critical component to the city's long-term economic health.

Pending planning projects and initiatives in the city include the Downtown Specific Plan and the Riverbank Army Ammunition Base Reuse Plan. The Downtown Specific Plan targets a roughly 120-acre area comprising the central blocks between Callander Avenue, Seventh Street, Atchison Street and Patterson Road for revitalization through a strategy of reuse, redevelopment and introduction of higher-intensity mixed use. The plan area includes a 32-acre former cannery site that abuts the Burlington Northern Santa Fe Railroad tracks that bisect the downtown, and presents a unique reuse opportunity for specialty retail, residential and mixed use. The Riverbank Army Ammunition Base reuse plan outlines a strategy for transfer of the 173-acre base property to private ownership and redevelopment with value-added industrial uses.

Table 2-2 contains specific information on planned projects in Riverbank.

Oakdale

Oakdale's General Plan was adopted in 1994, with updates to the Housing element adopted in 2004 (City of Oakdale, 2015 *General Plan*, 1994). The plan sets forth a vision for Oakdale that assumes the city population will double from 14,266 in 1994 to 29,000 by the year 2015. The plan assumes new residential growth through 2015 will occur in all directions around the city, with the most significant identified growth area as the 1,200-plus acres south and west of the existing city. A second growth area was identified north of the Stanislaus River: 700 acres next to the city's wastewater treatment plant. The Circulation element of the 1994 plan incorporated the State Route 120 north bypass – a precursor project to the North County Corridor State Route 108 East Route Adoption – that would have diverted through traffic away from Oakdale via an expressway north of the Stanislaus River. The general plan identified a primary sphere of influence that defined the 20-year land use planning window and a secondary sphere that demarcates a ½-mile greenbelt around the urban area, consistent with Oakdale's desire to avoid being absorbed into the expanding urban areas of Modesto and Riverbank to the west. In 2004, the city designated the remaining growth areas within its sphere as Specific Plan Areas, with priority for development considered on a case-by-case basis for each of the 11 identified areas.

Since adoption of the General Plan, planning and development activity has centered on the preparation, adoption and annexation of three Specific Plans:

1. The 530-acre Bridle Ridge Specific Plan in the southwest quadrant of the city is approved for residential, neighborhood and community commercial, parks, and public uses. Approximately 60% of the residential units have been built (per interview with Danelle Stylos, Director of Community Development), with the school site scheduled for construction in 2010-2011 pending availability of school district funding.

2. In 2006, the city adopted the South Oakdale Industrial Specific Plan and the East F Street Corridor Specific Plan. The South Oakdale Industrial Specific Plan encompasses 500 acres in the south and southeast areas of the city, and envisions development with industrial and estate residential uses. Land use policies in the plan stipulate the creation of a 100-foot-wide agricultural setback buffer at the east, south and west edges of the plan area.

3. The East F Street Corridor Specific Plan establishes a vision for the revitalization of existing residential and lower-end commercial service lands at the eastern entrance to the city along State Route 108/120 (locally identified as F Street) as a mixed-use corridor with an open landscaped character and pedestrian-friendly features. Policies in the plan call for the creation of an enhanced gateway element that would present a high-quality image at the westbound entry to the city. More concise project-level entitlements (such as subdivision maps, site plan reviews, or development agreements) have not been filed on either the South Industrial or the East F Street Corridor Specific Plans.

The city is doing a comprehensive update of its general plan. A consulting team was selected, and work began in early 2009. In 2004, the city designated growth areas within the sphere as Specific Plan Areas, and Specific Plans have been adopted for three areas (Bridle Ridge, East F Street Corridor, and South Industrial Area). The remaining eight Specific Plan Areas will be examined in the general plan update, along with the following key issues:

- Amount of land designated for industrial uses within the planning area, and potential re-designation of excess industrial areas for other types of development;
- Assessment of the remaining Specific Plan areas relative to maturity of the local development market and the absorption of residential and non-residential uses;
- Re-evaluation of planned growth areas north of the city, given the fact that the Oakdale Bypass north of the Stanislaus River has been replaced by the North County Corridor; and
- Consideration of additional growth areas southeast of the city, given the likelihood that construction of the North County Corridor will occur within the timeframe of the updated

general plan. Lands south and southeast of Oakdale have particular environmental sensitivities due to the presence of agricultural lands encumbered with William Act preserves, and constraints due to the flight paths and safety zone buffers of the Oakdale Airport.

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Table 2-2 provides a full listing of projects pending and under construction within the respective jurisdictions.

Table 2-2. Current and Planned Projects in Study Area

Project Name	Jurisdiction	Proposed Use	Status
Hillsborough II Subdivision	Stanislaus County	67 rural residential parcels (20,000-s.f. minimum) on 46.5 acres	Under construction
Lands of Shutz Subdivision	Stanislaus County	8 rural residential parcels (20,000-s.f. minimum) on 30.0 acres	Under construction
Kushar Parcel Map	Stanislaus County	3 rural residential parcels and a remainder on 11.9 acres	Approved
Wilms Ranch	Stanislaus County	49 rural residential parcels ranging in size from 40 to 68 acres on 2,302 acres land	Action pending
Banducci Subdivision	Stanislaus County	4 rural residential parcels on 29.5 acres	Action pending
Kiernan Court Office	Stanislaus County	69,000-s.f. office project on 3.06 acres at terminus of Kiernan Court (Salida)	Action pending
Kiernan-Carver North Comprehensive Planning District	City of Modesto	490-acre planning district designated for up to 460 acres of residential use and 30 acres of office use	General Plan designation only
Kiernan-Carver Comprehensive Planning District	City of Modesto	1,380-acre planning area designated for 570 acres of business park, 80 acres of regional commercial and 730 acres of residential use	Two Specific Plans approved in Comprehensive Planning District (see below)*
*Kiernan Business Park Specific Plan	City of Modesto	578 acres of office, including 1.4 million-s.f. Kaiser Medical Campus; 36 acres of residential/office mixed use	400K s.f. Kaiser Hospital under construction, open mid-2009
*Carver-Bangs Specific Plan	City of Modesto	160 acres of residential, approved for up to 1,000 dwelling units	Approved, no construction
Kiernan-McHenry Comprehensive Planning District	City of Modesto	370 acres designated for business park and 180 acres designated for regional commercial	General Plan designation only
Hetch Hetchy Comprehensive Planning District	City of Modesto	960-acre area planned for up to 830 acres of “village residential” and 130 acres of commercial use	General Plan Designation only
Roselle-Claribel Comprehensive Planning District	City of Modesto	1,290 acres designated residential for up to 8,200 dwelling units, 260 acres of business park and 130 acres of commercial use	One Specific Plan approved in Comprehensive Planning District (see below)*
*Tivoli Specific Plan	City of Modesto	450-acre plan for up to 3,200 residential units, 87 acres of commercial and 44 acres for school and park site	Approved, no construction

Project Name	Jurisdiction	Proposed Use	Status
Crossroads Regional Commercial Center	City of Riverbank	630,000-s.f. commercial center	65% complete
JKB Homes – Sterling Ridge	City of Riverbank	181 residential lots	Under construction
GJ Investments – Eastwood Estates	City of Riverbank	8 single-family lots	Under construction
Morrison – The Heartlands	City of Riverbank	96 single-family lots	Under construction
Elmwood Estates	City of Riverbank	86 single-family lots	Under construction
Florsheim Homes	City of Riverbank	45 single-family lots	Pending
SCM Homes	City of Riverbank	139 cluster housing units	Pending
Marrad Group	City of Riverbank	22 residential units	Pending
JKB Homes	City of Riverbank	16 single-family lots	Pending
Morrison – The Cottages II	City of Riverbank	129 single-family lots	Pending
Brookview Investors	City of Riverbank	54 single-family lots	Pending
Willow Estates	City of Riverbank	57 single-family lots	Pending
White Subdivision	City of Riverbank	79 single-family lots	Pending
Merciadis/Pyun Subdivision	City of Riverbank	155 single-family lots	Pending
Downtown Specific Plan	City of Riverbank	Revitalization plans for 120-acre core of central business district, with retail and office commercial along with residential in a mixed-use format	Plan approved, future projects pending
Southwest Riverbank Plan (Terceira)	City of Riverbank	420-acre site planned for up to 1,100 residential units, park and high school site	Plan in preliminary review, pending formal submittal
Bridle Ridge Specific Plan	City of Oakdale	530-acre planning area, approved for 1,853 residential units, 250,000 s.f. of commercial and 53 acres of schools/ parks and fire station site	Residential is 60% complete; school construction expected 2010-2011
East F Street Corridor Specific Plan	City of Oakdale	180,000-s.f. commercial and up to 659 residential units	Plan approved, no construction
South Oakdale Industrial Specific Plan	City of Oakdale	500-acre plan area zoned for up to 9.288 million square feet of industrial buildings, and 50 acres of rural estate residential	Plan approved, no construction

Environmental Consequences

Consistency with the Stanislaus County General Plan

The Salida Community Plan of the Stanislaus County General Plan describes a new roadway north of Pirrone Road and south of Ladd Road that extends from Highway 99 east to Dale Road (Stanislaus County 2007). The Circulation Element of the general plan identifies portions of a four- to six-lane expressway along Claribel Road from McHenry Avenue on the west to Oakdale-Waterford Highway on the east. Therefore, portions of both action alternatives of the North County Corriaccomdor State Route 108 East Route Adoption

project are consistent with the Stanislaus General Plan. However, the Circulation element does not identify any expressway extending east of the Oakdale-Waterford Highway. If the North County Corridor State Route 108 East Route Adoption were approved, an amendment to the Circulation element and diagram would be required for the project to be deemed consistent with the county's general plan.

Consistency with the Modesto General *Plan*

The Community Services and Facilities element of the Modesto General Plan identifies a six-lane expressway generally aligned to Claribel Road on the northern end of the city's sphere, in a location similar to Corridors A and B.

Consistency with the Riverbank General Plan

The Riverbank General Plan does not directly address the North County Corridor State Route 108 East Route Adoption project. It acknowledges plans to ultimately develop Claribel Avenue as a six- lane expressway. The project is consistent with the circulation assumptions of the general plan, but an amendment to the Circulation element would be required for the project to be deemed consistent with the city's general plan.

Consistency with the Oakdale General Plan

The Oakdale General Plan Circulation element identifies a potential State Route 108 expressway extending west from the Oakdale-Waterford Highway triangle (an area near the intersection with Albers Road) that would serve as a regional connection between Oakdale, Riverbank and Modesto, but identifies no alignment. If the North County Corridor State Route 108 East Route Adoption were approved, an amendment to the Circulation element would be required for the project to be deemed consistent with the city's general plan.

The proposed action is the adoption of a route for a 2,000-foot corridor (2,750-foot-wide in portions of the combined alignment) for a future State Route 108 East, and does not directly involve physical construction (which would be subject to a separate, future environmental review). The future 350- to 400-foot-wide right-of-way would be acquired and developed within the selected corridor. While future development of the planned State Route 108 East may compel local agencies to consider conversion of land from rural to urban uses near the new highway, such impacts are discussed in greater detail in the Growth section of this analysis. Potential impacts of the North County Corridor State Route 108 East Route Adoption under the potential route alternatives (Combined Corridor, Corridor A, Corridor B and the No-Action Alternative) with regard to land use are discussed below.

Very limited impacts are expected to result from adoption of the route corridor. Both Corridors A and B are consistent with the state-adopted 2008 State Transportation Improvement Plan and the Stanislaus Council of Governments' 2007 Regional Transportation Improvement Program. Both Action Alternatives are consistent, in part, with the county's general plan, which includes discussion of an expressway in the same general path along Kiernan Avenue/Claribel Road as Corridors A and B (Stanislaus County 2007). The corridors are more than 1 mile from any of the other current development projects in the unincorporated area, and the project is not expected to affect their development based on their limited size and scope, and the location of the new roadway.

Both Corridors A and B pass close to the northern limits of Modesto's General Plan and the southerly city limits of Riverbank. The proposed roadway would be consistent with the general plans for these two cities in that it is intended to serve areas targeted for future growth; however, an amendment to the Circulation element of the general plans for Stanislaus County and the cities of Modesto, Riverbank and Oakdale would be required for the North County Corridor State Route 108 East Route Adoption to be considered fully consistent with these local plans.

Under the No-Action Alternative, the project benefits of alleviating local traffic congestion, enhancing regional connectivity, and adding the economic benefits of an improved transportation infrastructure needed to attract job-generating land uses would not be realized. Other beneficial consequences of the North County Corridor State Route 108 East Route Adoption, which is intended to facilitate collaborative analysis and planning among the affected jurisdictions to identify and secure the best route alignment for the future State Route 108 East, would also not be realized under the No-Action Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Amendments to the Circulation element of the general plans for Stanislaus County and the cities of Modesto, Riverbank and Oakdale would be required for the North County Corridor State Route 108 East Route Adoption to be considered fully consistent with these local plans.

2.1.2 Growth

Affected Environment

Both Corridors A and B have the potential to accommodate the projected growth as outlined in the 2007 Stanislaus County General Plan. Lands in the planning areas of Modesto, Riverbank and Oakdale that are close to Corridors A and B are all designated for

development on the respective agency general plans, although Corridor A east of McGee Avenue maintains a path south of the planning area for Oakdale.

Lands in the unincorporated county areas next to and within the corridors are designated as Urban Transition, Planned Development or Agriculture. The Urban Transition designation applies to property targeted for eventual annexation and development within an adjacent city. A very limited area of Planned Development land abuts the study corridors at McHenry Avenue (State Route 108) and is largely occupied by existing industrial and commercial uses (including a golf driving range). The planned development adopted for this area limits the extent of urban uses, due to proximity of existing residences and prime agricultural land.

All other unincorporated land adjacent to or within Corridors A and B is designated Agriculture. The County's General Plan has strong agricultural preservation policies aimed at avoiding and/or mitigating the conversion of agricultural lands to residential use, which has been the main source of growth in the county for the past 20 years. Conversion of agricultural land to residential use is also restricted by Measure E, the 30-year land use measure that prohibits conversions unless approved by the majority in a countywide vote.

Both Corridors A and B would increase vehicle traffic in rural areas east of Riverbank and south and east of Oakley that are largely designated for agricultural land uses and encumbered with Williamson Act agriculture preserve contracts. In addition, both Corridors A and B may make the study area more attractive for agricultural processing (such as fresh fruit packing and other value-added processing of commodities used by the county's agricultural community) by providing a high-capacity connection to regional markets and interstate highways.

Environmental Consequences

Once funding is available for the construction of a new State Route 108 within either corridor it would accommodate planned growth in the cities of Modesto, Riverbank and Oakdale. Continued growth will occur with or without the route adoption in Stanislaus County, its communities, and its surroundings. Increasing travel needs through northern Stanislaus County for improved access to and around the growing urbanized cities of Modesto, Riverbank, and Oakdale, has resulted in the need for a future unencumbered east-west roadway from west of Riverbank to east of Oakdale. However, the construction of a new State Route 108 will not occur until development as proposed in local plans has triggered the need for new infrastructure. See projected growth rates for the county in Table 2.2

Table 2.2 Projected Population Growth in Northern Stanislaus County

City/County	1990[1]	2000[1]	Current Estimate (2009)	Projected 2010[2]	Projected 2030
Modesto	164,746	188,861	210,088	268,660	411,788
Riverbank	8,591	15,826	21,805	24,627	37,747
Oakdale	11,978	15,503	19,608	33,582	51,474
Stanislaus County	370,522	446,997	526,383	559,708	857,893

1 - CA Department of Finance, Table E-4, Estimates for city, county and state, with 1990 and 2000 Census.
2 - CA Department of Finance, Table P-1, Population projections by race/ethnicity for CA and its counties, 2000-2050; (assumes Modesto is 48%, Riverbank is 4.4% and Oakdale is 6% of county population)

The future placement of a new alignment for State Route 108 within either corridor would make these areas more accessible to the regional and interstate roads system. Since one of the main goals of the proposed roadway is to relieve congestion and facilitate interregional connectivity, it could be found consistent with the growth plans of the respective cities local plans.

Both Corridors A and B may also increase the study area's attractiveness as a location for agricultural processing (such as packing of fresh fruit and processing of agricultural commodities that used by the county's agricultural community), due to the interregional function of the project. This could result in secondary impacts associated with the physical development of such uses. At present, growth plans and policies within the unincorporated area and adjacent cities do not anticipate directing growth toward the proposed roadway. Any potential for growth inducement, will be considered in future environmental studies required at the design stages of the project, and for future projects reviewed at the local agency level.

Under the No-Action Alternative, the project benefits of alleviating local traffic congestion, enhancing regional connectivity, and providing the economic benefits of an improved transportation infrastructure would not be realized. Other beneficial consequences of the North County Corridor State Route 108 East Route Adoption, which is intended to facilitate collaborative analysis and planning among the affected jurisdictions to identify and secure the best route alignment for the future State Route 108 East, would also not be realized under the No-Action Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Impacts on local growth rates and detrimental effects on local infill development goals can be minimized through implementation of phasing programs that require development in the central city before or concurrent with development at the periphery of the urban area.

Implementation of this measure is the responsibility of future decision-making among the local agencies. The timetable for implementing construction of a future new State Route 108 alignment would be consistent with demand for a transportation facility to serve the projected development enabled by local plans. Need for the any future roadway is based on future development proposed in local plans.

At this stage of the project (route adoption) it would be speculative and infeasible to quantify project contributions to cumulative and indirect impacts created by new development such as air quality, habitat destruction, traffic congestion, aesthetics, and noise. Impacts associated with future actions are subject to the control of local jurisdictions and the responsibility to offset these impacts lies in the decision-making and policies of the local jurisdictions. These potential effects will be analyzed by Caltrans in a future environmental document addressing proposed roadway alignments within a corridor.

2.1.3 Farmlands

Affected Environment

Objectives and policies from the Stanislaus County General Plan Land Use element and Agriculture element, and the General Plans of the cities of Modesto, Riverbank and Oakdale, were reviewed to understand policies regarding agricultural land and farmland preservation.

Geographic Information System information from the State Department of Conservation Farmland Mapping Program was obtained and placed on the project base map. An additional map layer showing properties in Corridors A and B under a William Act preserve contract, obtained from the Stanislaus County Assessor, was added to the farmlands diagram. Acreages for each farmland category were obtained from the map overlay and tabularized.

Agricultural lands within the corridors are shown in Figures 2-5 and 2-6. Acreages of agricultural land within each of the corridors are provided Table 2-3.

Table 2-3. Farmlands within Corridor A, Corridor B and Combined Corridor

Farmland Category	Corridor A (Acres)	Corridor B (Acres)	Common Corridor Areas (Acres)
Prime Farmland	25.56	20.74	775.91
Farmland of Statewide Importance	653.4	429.42	241.47
Unique Farmland	429.18	438.14	438
Farmland of Local Importance	958.06	947.17	499.11
Confined Animal Agriculture	58.65	66.05	7.94
Grazing Land	118.65	318.66	411.77
Total Farmland	**2243.5**	**2220.18**	**2374.20**
Land with Active Williamson Act Preserve Contracts	**2,007.57**	**1,834.58**	**1,289.23**
Percent of Corridor Farmland Encumbered with Williamson Act Preserve Contracts	**89.48%**	**82.63%**	**54.30%**

Environmental Consequences

The proposed action is the adoption of a wide corridor for a future State Route 108 and does not directly involve physical construction, once funding is available for a new State Route 108 farmlands impacts will be addresses a separate future environmental. The construction of a new State Route 108 project could likely contribute to cumulative losses of active farmlands in Stanislaus County. The cumulative, countywide impacts of conversion of agricultural lands is expected to occur over time, as farmland within the sphere of influence of the incorporated cities is annexed and developed with urban uses.

More than 38,000 acres of farmlands sit within the urban planning areas of the incorporated cities, typically at the urban edge of their spheres. The potential conversion of approximately 4,600 acres of farmland to public use would contribute to these cumulative impacts, even with implementation of the avoidance and minimization measure described in the following section.

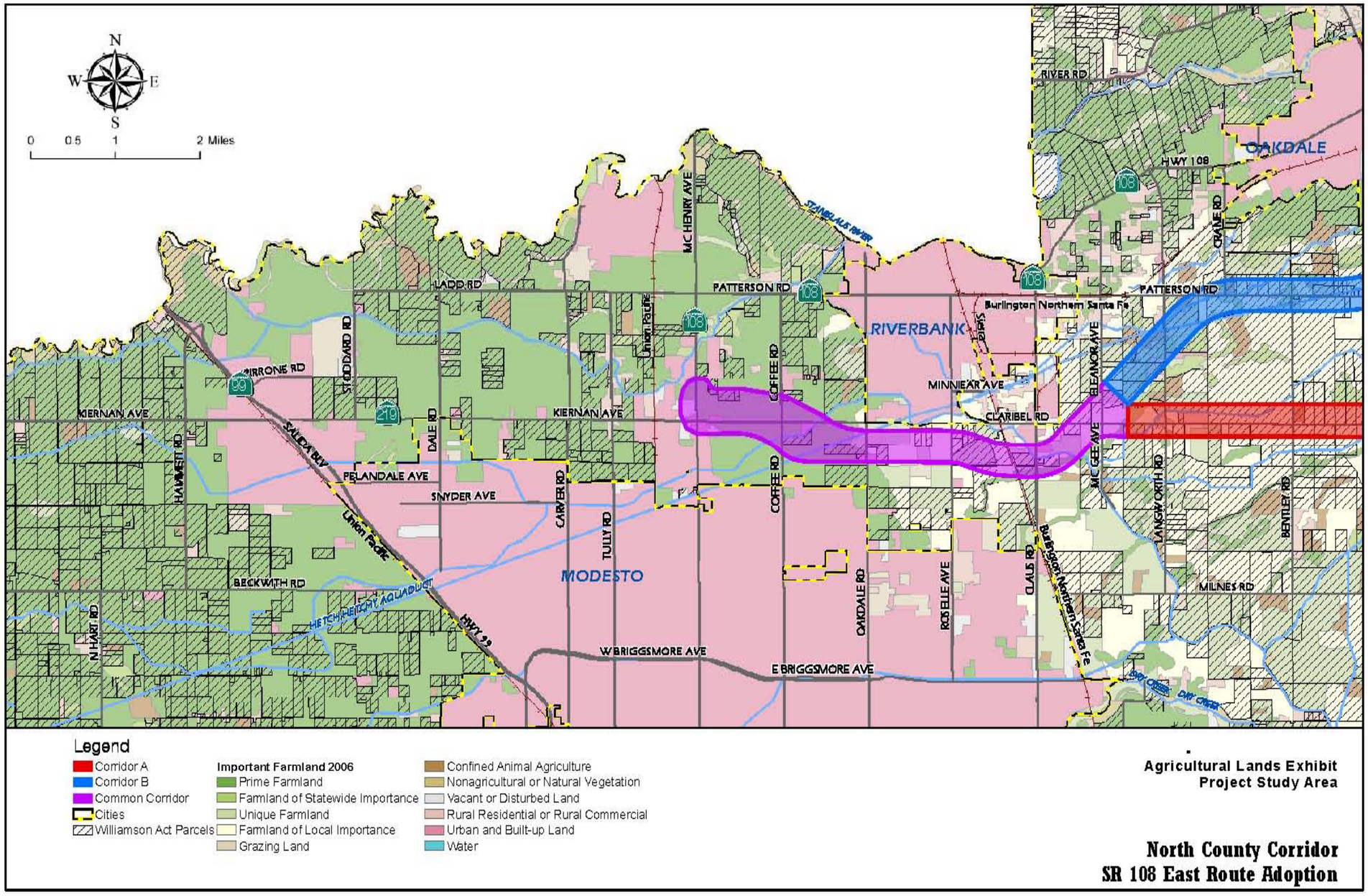


Figure 2-5. Agricultural Lands (West)

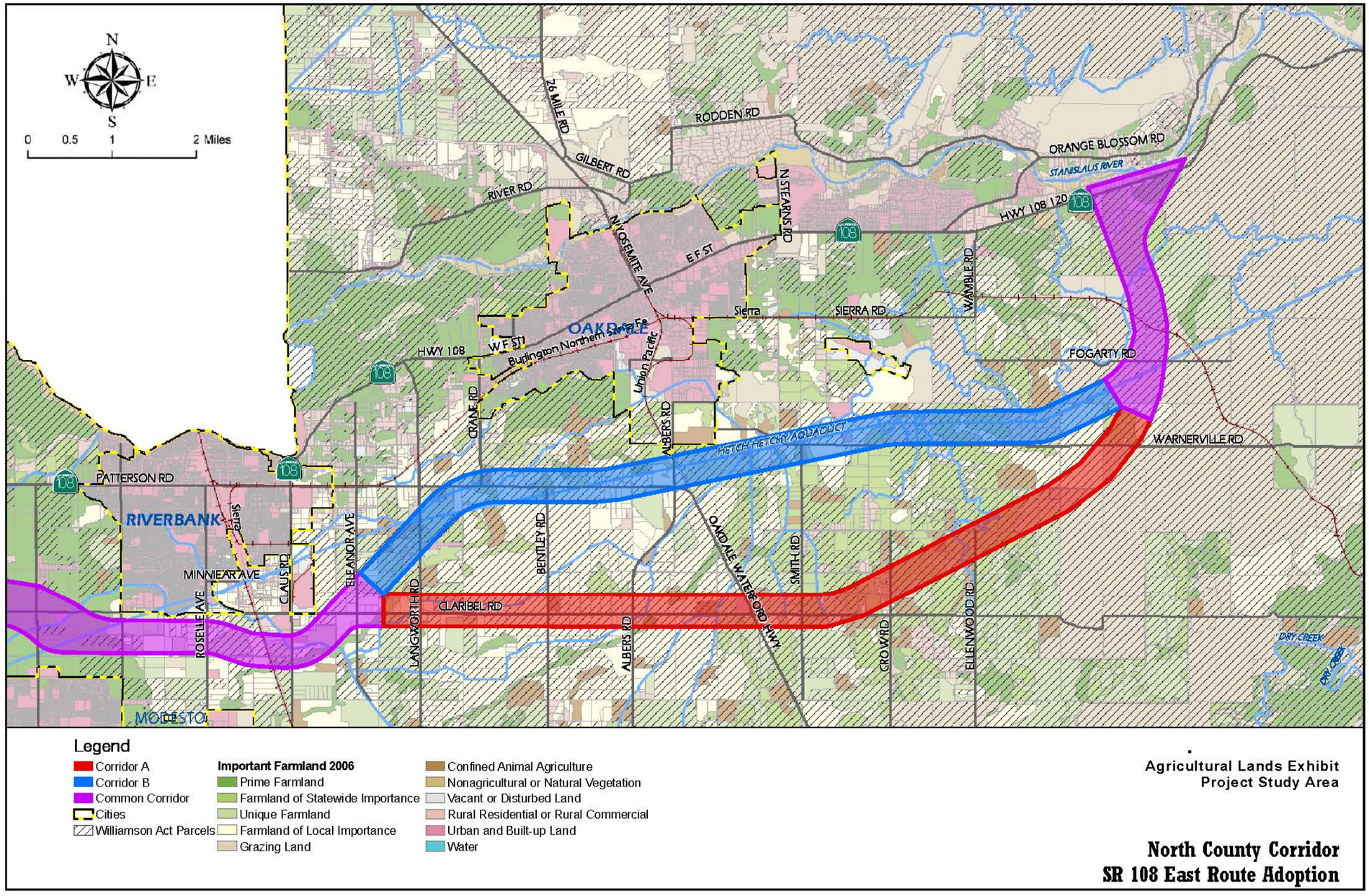


Figure 2-6. Agricultural Lands (East)

Under the No-Action Alternative, potential impacts to farmlands would be avoided, but the project benefits of alleviating local traffic congestion, enhancing regional connectivity, and providing the economic benefits of an improved transportation infrastructure needed to attract job-generating land uses would not be realized. Other beneficial consequences of the North County Corridor State Route 108 East Route Adoption, which is intended to facilitate collaborative analysis and planning among the affected jurisdictions to identify and secure the best route alignment for the future State Route 108 East, would also not be realized under the No-Action Alternative.

The potential conversion of roughly 4,617 to 4,594 acres of farmland to public use would contribute to these cumulative impacts, even with implementation of the avoidance and minimization measure described in the following section.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans would commit in future stages of project design and environmental reviews to minimizing impacts to important farmlands with strategies such as: following section lines wherever possible; leasing back farmland purchased for projects until it is needed for construction, working with landowners to recombine remnant parcels to minimize creation of non-farmable farmland; localized avoidance of farm houses, out buildings, and irrigation systems. Natural Resource Conservation Service farmland site assessments would be carried out for all future projects within the corridor.

2.1.4 Community Impacts

2.1.4.1 Community Character and Cohesion

Affected Environment

The Stanislaus County General Plan recognizes 13 communities throughout the unincorporated area, each with its own designation on the General Plan Land Use Diagram. Most of these communities evolved over time at important crossroads that have historically served as the corridors of commerce (roads and rail) and the economic lifelines between farms and the trade markets that were and still are the destination of their products. Most are residential and exhibit many of the characteristics identified in the Caltrans Environmental Handbook as indicators of community, including long average lengths of residency, high levels of home ownership, and similarity in ethnicity and economic demographics. Neither of the corridor alignments goes through or borders any of the communities identified in the Stanislaus County General Plan.

Community cohesion is the degree to which residents have a "sense of belonging" to their neighborhood or a strong attachment to neighbors, groups or institutions, usually as a result of continued association over time. The impacts of new transportation projects tend to be more disruptive to areas characterized as cohesive communities.

The first step in analyzing community character and cohesion relative to the North County Corridor State Route 108 East Route Adoption was to review the Stanislaus County General Plan Land Use element and the general characteristics of the identified communities in the unincorporated area. As noted above, these communities are predominantly residential areas with limited commercial and industrial lands situated along main transportation corridors such as highways (the Keyes and Salida communities), railroads (the Empire and Westley communities) or waterways (the Grayson and Knights Ferry communities). Input was solicited from the planning and public works departments of the county and the cities of Modesto, Riverbank and Oakdale regarding the presence of established communities. In addition, a high-level examination of the two route corridors was done to determine the presence of defined geographic communities such as large (greater than 50) clusters of residential or commercial buildings and large landmark structures.

The developed areas potentially affected by the corridors would be the Upper McHenry Avenue planned industrial development and the shared sphere of influence between the cities of Modesto and Riverbank. The Upper McHenry Avenue area is developed with a variety of light industrial and commercial uses centered along its intersections with Kiernan Avenue and Pelandale Avenue. The sphere of influence boundary between Modesto and Riverbank straddles a new regional shopping center (the Crossroads Center) in Riverbank to the north and the city of Modesto's Roselle-Claribel Comprehensive Planning District to the south.

While development in the Roselle-Claribel Comprehensive Planning District would likely not occur for 5-10 years (based on the city's capital improvements programming), much of the roads and infrastructure necessary to develop the southern sphere of influence of Riverbank are in place (or have been planned to -out stage). Riverbank officials have also reviewed a preliminary development proposal (the Terceira Property) for 420 acres west of the Crossroads Center, with plans for up to 1,100 residential dwellings and a potential high school. As proposed, the project corridors would avoid the Crossroads shopping center and an existing sports field complex in south Riverbank.

Environmental Consequences

Adoption of the route adoption of a wide corridor will not result in the displacement of any residences. Once funding is available for the construction of a future new State Route 108 within

either corridor it could potentially displace peripheral blocks in some residential areas, neither would directly divide one or more established neighborhoods or communities. Based on input from interviews with planning department staff from Stanislaus County and the cities of Modesto, Riverbank and Oakdale, the corridors would not bisect or border any established or recognized community. Both Corridors A and B would go through the northern limits of the Modesto planning area and the southern limits of the city of Riverbank and continue east through rural, sparsely populated unincorporated areas before diverging northward to re-join Highway 108 east of Oakdale. Construction of a new State Route 108 project has the potential to provide a distinct urban limit at the northern edge of Modesto and at the southern edge of Riverbank. Construction of a new alignment for a new State Route 108 project could change access in an established industrial area (Upper McHenry).

In the No-Action Alternative, the potential impacts on community cohesion and/or isolation would be avoided. The project benefits of alleviating local traffic congestion, enhancing regional connectivity, and providing the economic benefits of an improved transportation infrastructure needed to attract job-generating land uses would not be realized. Other beneficial consequences of the North County Corridor State Route 108 East Route Adoption, which is intended to facilitate collaborative analysis and planning among the affected jurisdictions to identify and secure the best route alignment for the future State Route 108 East, would also not be realized under the No-Action Alternative., Minimization, and/or Mitigation Measures

Adoption of a wide corridor for a future State Route 108 does not directly involve physical. However, the construction of a new State Route 108 alignment be subject to a separate environmental review and would require Caltrans to coordinate with the cities of Modesto and Riverbank, and the County of Stanislaus, along with the Modesto city Schools District, and the Comprehensive Planning District stakeholders, in future project design stages to assure optimal connectivity between the existing and planned neighborhoods, schools, shopping areas, and services in the shared sphere of influence between Modesto and Riverbank.

Specific criteria would consider pedestrian facilities to ensure safe routes to schools and shopping, and surface street connections between interchange locations to assure convenient passage of personal, public transit and emergency response vehicles between the north and south sides of the new State Route 108.

2.1.5 Relocations

Relocation impacts are among the most sensitive of community-related effects associated with transportation improvements because they may involve changing relationships between people

and their homes and neighbors. The forced removal of families from neighborhoods or businesses from their existing locations affects not only the relocated residents, but also the residents who remain in the affected neighborhood and those who live in the new areas where the residents are relocated (California Department of Transportation 1997). While the North County Corridor State Route 108 East Route adoption by the Californian Transportation Commission would involve only the approval of a interregional transportation corridor, the future design of the construction of a new State Route 108 alignment would likely result in the relocation of residents, farms and businesses. These site-specific physical impacts would require analysis at a future stage beyond the current project once a corridor is selected and funding is available

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 would not suffer disproportionate effects 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 U.S.C. 2000d, et seq.). Please see Appendix C for a copy of the Caltrans Title VI Policy Statement.

Affected Environment

Segment maps of the corridors were produced for Corridor A, Corridor B, and the areas where the alignments of each corridor are common (the "Common Corridor"). Each segment was examined for the presence of structures, and a use classification was assigned to those potential affected structures. The use classifications are as follows:

Residential Urban–Residential properties sitting within a conventional urban or suburban context, such as a subdivision or planned development. This classification was also assigned to the two manufactured home parks in Corridors A and B.

Residential Rural–Quantifies individual or multiple homes on agriculturally zoned or designated properties, and large lot residential ("ranchette") parcels in the unincorporated county.

Agricultural–Large buildings on agriculturally zoned or designated properties that are used for agricultural enterprise, such as confined animal facilities.

Industrial–Warehouses, commercial service buildings and large users located within the McHenry Avenue/Kiernan industrial area north of Modesto, the Riverbank Army Ammunition Base, and peripheral developments.

Commercial–All offices and retail buildings within Corridors A and B.

Public/Park–Includes public parks developed with active play structures, and public and quasi-public buildings and structures such as utility stations.

For the purposes of this study, it was presumed that any structure within the 2,000-foot corridor could potentially be removed, depending on the final alignment and design of the State Route 108 East. Avoidance and minimization measures presented later in this section assume the alignment may be adjusted within the Corridors A and B to lessen impacts to existing development.

Environmental Consequences

While selection of either corridor would not result in an impact, once funding is available for the construction of a new State Route 108 alignment it could result in the displacement of urban residences, rural residential farmhouses, manufactured home parks, agricultural production buildings, and commercial buildings at the northwest and southwest corner of McHenry Avenue and Kiernan Avenue. The construction of a new State Route 108 within a corridor would the subject of a future environmental review.

The proposed corridors would have limited impacts to the Kiernan-McHenry industrial corridor, by removing up to three industrial buildings at the southeast corner of the intersection of McHenry Avenue and Claribel Road. Corridors A and B would result in the relocation of two manufactured home parks (one south of Claribel Road and east of Coffee Road, and one at Claus Road and south of Claribel Road) with a combined 95 units. The age and condition of the potentially affected structures vary widely, with rural single-family homes near Crawford Road that were built in the late 1960s and early 1970s and nearby rural homesteads along Coffee Road that were built in 1910. The commercial center at the southwest corner of Kiernan and McHenry Avenues was redeveloped in 2002.

Although the corridors go through the less populated areas of the county (based on 2000 Census maps for persons per acre), in a worst-case scenario, the proposed Corridors A and B could displace up to 95 urban residential buildings, 124 rural residences (Common Corridor plus Corridor B), 37 agriculture buildings (Corridor A), 27 industrial entities (Common Corridor plus Corridor A), and up to 9 commercial uses (Common Corridor), depending on the corridor selected.

In terms of impacts on human beings, based on the estimated average household size in Stanislaus County of 3.06 persons (California Department of Finance 2006), the project could potentially result in the relocation of up to 670 persons. The project could also result in the relocation of up to 266 industrial and commercial employees, based on a generation factor of 14 employees per acre for industrial and service commercial uses (F. Stuart Chapin, Jr. and Edward Kaiser 1979).

The fact that the new State Route 108 East roadway may force the relocation of two mobile home communities would warrant further analysis in future environmental documents for successive stages of the project to determine if the relocation impacts are focused on low-income or minority groups.

The displacements and relocations resulting from construction of the future State Route 108 could result in an increased need for land suitable for residential, commercial, industrial and agricultural uses elsewhere in the unincorporated area or in the nearby cities of Modesto, Riverbank and Oakdale. The general plans for the respective agencies all indicate there is adequate inventory of land available for development of the residential, industrial, commercial and agricultural uses that could potentially be relocated as a result of building the new State Route 108 East. Future environmental impacts resulting from new development to accommodate persons and buildings relocated by the construction of State Route 108 East would be addressed at the local level where they occur.

Table 2-4 indicates that the Common Corridor has the greater potential to displace residential, agricultural, commercial and industrial structures than the Corridor A and Corridor B segments would. The analysis did not consider the impacts to unoccupied agricultural structures where such buildings and improvements could be reasonably relocated on the affected property or would otherwise be relocated along with the residential structure(s) on the property.

Table 2-4. Displacements of Residential and Non-Residential Structures by Land Use and Corridor Alternative

Corridor	Residential (Urban)	Residential (Rural)	Agricultural	Industrial	Commercial	Total Impacted
A	0	54	37	9	0	137
B	0	64	13	1	0	78
Common	95	60	0	18	15	188

New development of replacement uses would have secondary impacts resulting from physical construction and operation of the replacement uses. These secondary impacts would be

reasonably foreseeable, but uncertain as to their timing and extent because of the variable factors of market demand and other growth parameters. Because the timing and scale of secondary growth impacts would be subject to the control of the local jurisdictions and economic factors beyond the direct control of the project proponent, the project proponent would not bear responsibility to fully offset these secondary impacts.

Future decision-making among the local agencies would address the adverse environmental effects relative to construction and/or operation of land uses relocated as a result of the North County Corridor State Route 108 East Route Adoption project.

Avoidance, Minimization, and/or Mitigation Measures

No relocation of residences or businesses would result from the route adoption. The future new State Route 108 would be subject to the following measures that would be included in the subsequent environmental review.

The Caltrans Relocation Assistance Program would reduce impacts as benefits are provided to relocate residences and businesses, reducing the level of impact to below a substantial level. A range of benefits is available; some include finding comparable replacement housing and paying for costs associated with moving. Details are identified at the time property is acquired. The Community Impact Assessment found that there is adequate comparable replacement housing property in Stanislaus County and the cities of Modesto, Riverbank and Oakdale.

With implementation of the Caltrans Relocation Assistance Program, no substantial impact to persons, businesses, or property access would result from construction of the project. All parties would be treated in a fair and equal manner as prescribed by Caltrans policy, the Federal Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (as amended), Title 49–Code of Federal Regulations–Part 24, and Title VI of the Civil Rights Act (42 US Code 2000d, et seq.). See Caltrans' Title VI Policy Statement in Appendix C.

2.1.6 Utilities

Affected Environment

A review of existing plans was done to acquire a general understanding of the extent of potential impacts that Corridors A and B could have on the existing utility corridors and facilities that cross or are located within Corridors A and B. Master plan documents for sewer and storm drainage from the cities of Modesto (City of Modesto 2007) and Riverbank (City of Riverbank 2009) were reviewed for potential conflicts with the State Route 108 East Route Adoption. A

review of mapped information on high voltage electrical transmission lines (California Energy Commission 2005) was also done.

The Public Works Departments of the county and the cities of Modesto, Riverbank and Oakdale, and area utility providers were asked about their concerns and interests with respect to route crossing(s), interruptions to service during construction of the new State Route 108, and potential conflicts between the roadway and established or planned utility corridors that may require adjustments to the route alignment or the relocation of facilities. Direct contacts were made with the cities of Modesto, Riverbank and Oakdale, the Salida Sanitary District, the Moccasin branch office of the San Francisco Water Authority (Hetch Hetchy Aqueduct), Modesto Irrigation District, and the Oakdale Irrigation District. Figure 2-7 and Figure 2-8 show the major utility corridors in relation to Corridors A and B.

The North County Corridor State Route 108 East Route Adoption corridors would lie near existing and planned local utilities within the cities of Modesto, Riverbank and Oakdale. The corridors would cross utility corridors of area and regional-serving agencies including the Modesto Irrigation District (canals, laterals and electrical transmission lines), the Oakdale Irrigation District (canals and laterals) and the San Francisco Public Utilities Commission (Hetch Hetchy Aqueduct and electrical transmission lines).

The northerly limits of existing municipal water, sewer and storm drain facilities in the city of Modesto extend to Pelandale Road, outside Corridors A and B. Master utility plans do not indicate expansions beyond Pelandale Road, but it is reasonable to assume that the city limits and associated main utilities would extend to the city sphere of influence (at Kiernan Avenue-Claribel Road) during the year 2025 General Plan timeframe. Therefore, coordination of the new State Route 108 route alignment would be needed to assure parcels at the north end of the Urbanizing Area would be considered for efficient extension of utilities (see Land Use section 2.1.1 and Growth section 2.1.2).

Portions of the corridors parallel the south limits of Riverbank and service areas along Claribel Road. The city has confirmed the presence of 8-inch water and 8-inch sewer lines on the north side of the Claribel Road right-of-way, which the corridors avoid. While construction of the new State Route 108 may require temporary shutdowns of these lines, substantial impacts to the delivery of water and sewer to the Crossroads Center and surrounding areas of Riverbank are not expected.

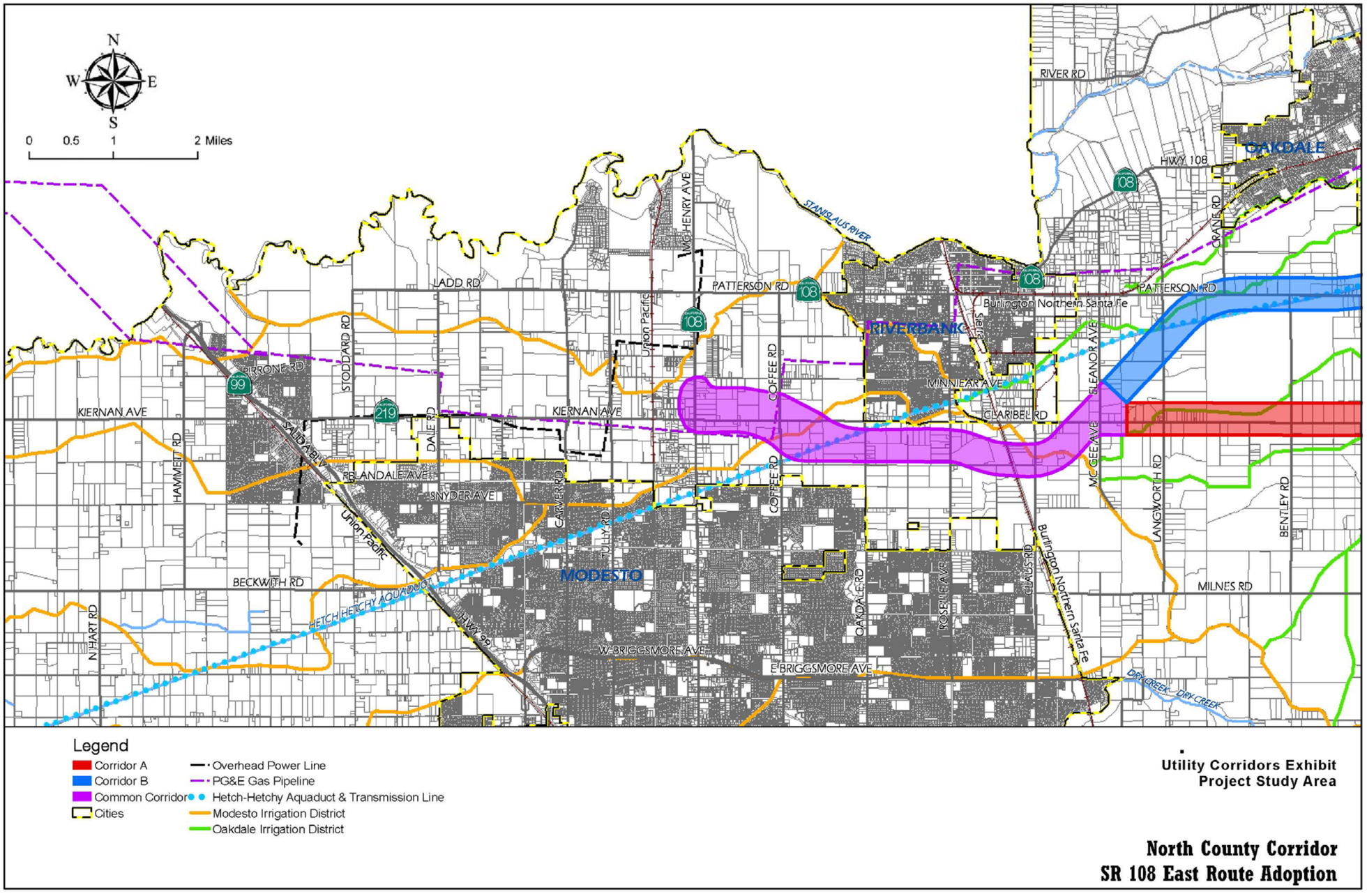


Figure 2-7. Utilities Corridors (West)

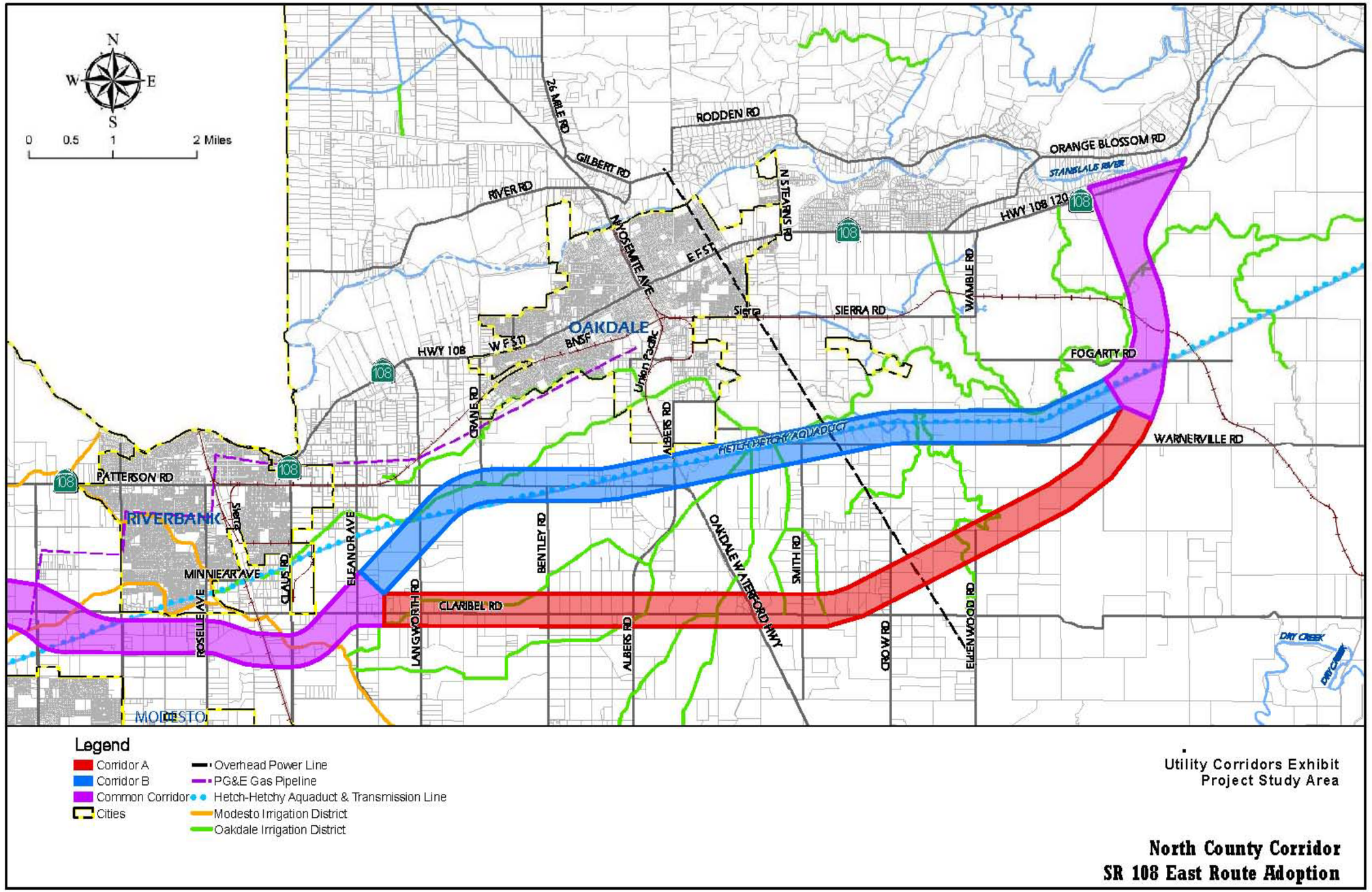


Figure 2-8. Utilities Corridors (East)

Both route corridors cross Modesto Irrigation District and Oakdale Irrigation District facilities in up to seven different locations. Corridor A crosses the Hetch Hetchy Aqueduct and electric transmission corridor at Oakdale Road and at Fogerty Road. Corridor B crosses the Hetch Hetchy corridor at Oakdale Road, Langworth Road, and Bentley Road, and then parallels the corridor for about 7 miles east of Bentley Road to a point one-half mile south of Fogerty Road before crossing the corridor again on a north-northeast alignment. Both route corridors cross an existing Pacific Gas & Electric electrical transmission line that goes north to southeast of Oakdale (Corridor A at a point east of Crow Road and Corridor B east of the intersection of Warnerville and Stoddard Roads).

Environmental Consequences

Selection of a corridor would not affect existing utilities owned by the cities of Modesto or Oakdale. Once funding is available for the construction of a new State Route 108 it may affect the 8-inch sanitary sewer line and 8-inch water line owned by the city of Riverbank that run along the north side of Claribel Road. Both corridors would cross the facilities of the Modesto Irrigation District, the Oakdale Irrigation District, the Hetch Hetchy Aqueduct and Pacific Gas & Electric in numerous locations. Each crossing point would create the potential for interruption to service and premature destruction of facilities. Potential impacts to utilities would be the subject of future environmental review once funding is available.

Conflicts with and destruction of utilities would be avoided under the No-Action Alternative. The No-Action Alternative would also avoid the inconvenience of service interruptions during road construction and the expense of obtaining easements or title to acquire road crossings over or within established utility corridors.

Avoidance, Minimization, and/or Mitigation Measures

Selection of a new State Route 108 alignment shall consider the least invasive alignment with respect to minimizing crossings of existing canals and utility corridors, where appropriate. Advance coordination with utility providers and stakeholders would be a required component of the project planning and design. Temporary facilities may be necessary to avoid prolonged interruptions to vital services such as water and electricity.

2.1.7 Emergency Services

Affected Environment

Service area maps and information from the service providers and the Stanislaus County Office of Emergency Services were reviewed. Meetings were held with the chief of each fire district and a representative from the Stanislaus County Sheriff's Department. Talks focused

on gaining an understanding of existing critical routes for emergency response vehicles, anticipated challenges presented to emergency response during construction, and potential conflicts between the new limited access expressway and the established paths of travel customarily used by the agencies when responding to life-safety calls for service. Figures 2-9 and 2-10 show the service areas of the emergency response providers, with overlays of Corridors A and B.

The Stanislaus Consolidated Fire Protection District was formed in a merger of several rural fire protection districts in the unincorporated areas of northern and central Stanislaus County. The district is responsible for first-response fire suppression and medical assistance in the incorporated city of Riverbank and areas north and east of the city of Modesto.

The district is considered a full urban, rural and remote responder (an "all risk agency"). It observes target response times of 6 to 8 minutes to the limits of the response area and maintains an average response time of 5 minutes throughout its area of responsibility.

The Oakdale Rural Fire District is based in the city of Oakdale. Its response area extends from Langworth Road on the west to beyond the communities of Knights Ferry and Valley Home on the east. The district is considered an "all risk" agency, responding to fire and medical emergencies in urban, rural, and remote destinations. The district observes an "urban" and "rural" response time standard similar to the other agencies.

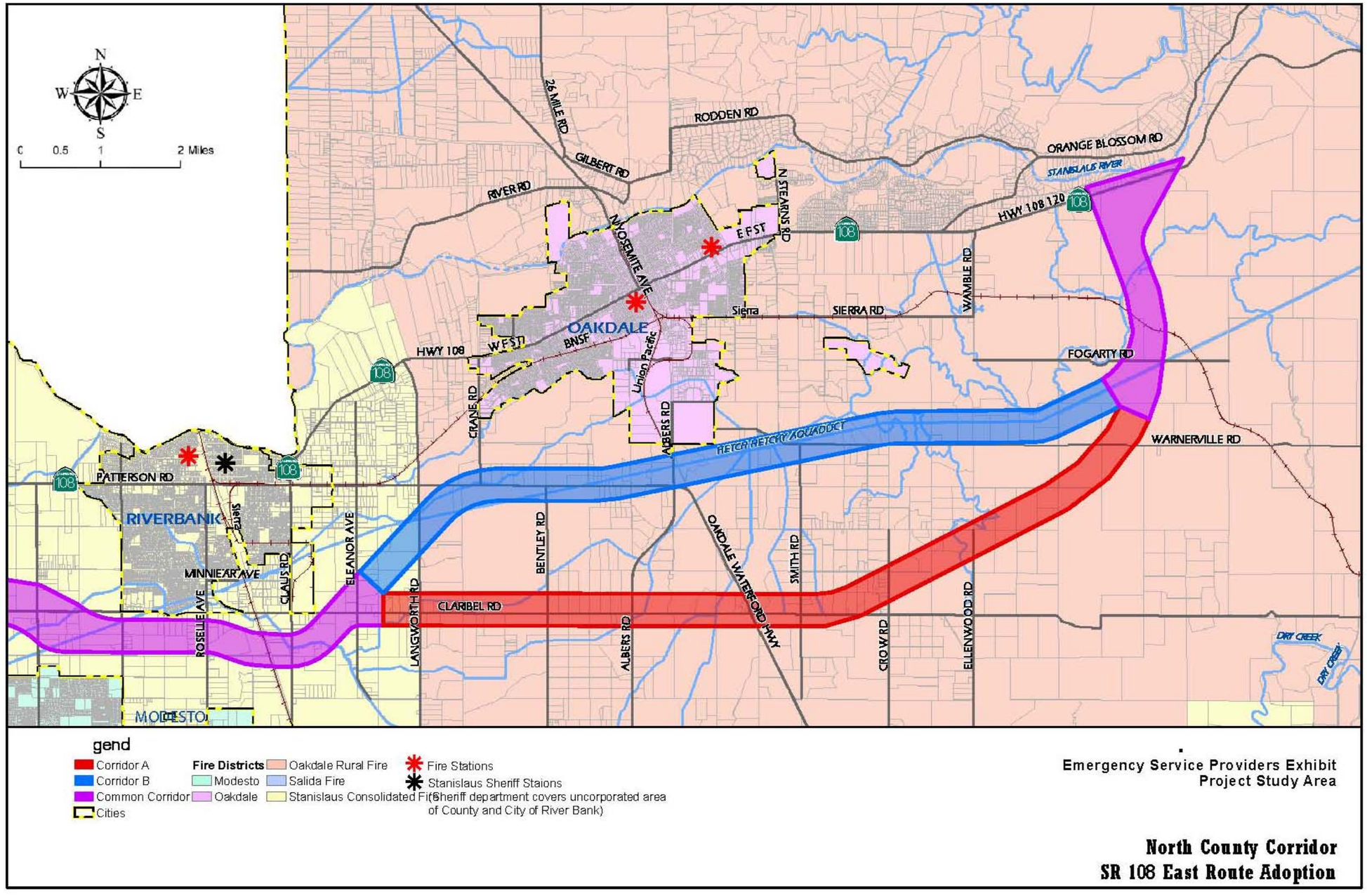


Figure 2-9. Emergency Service Providers (West)

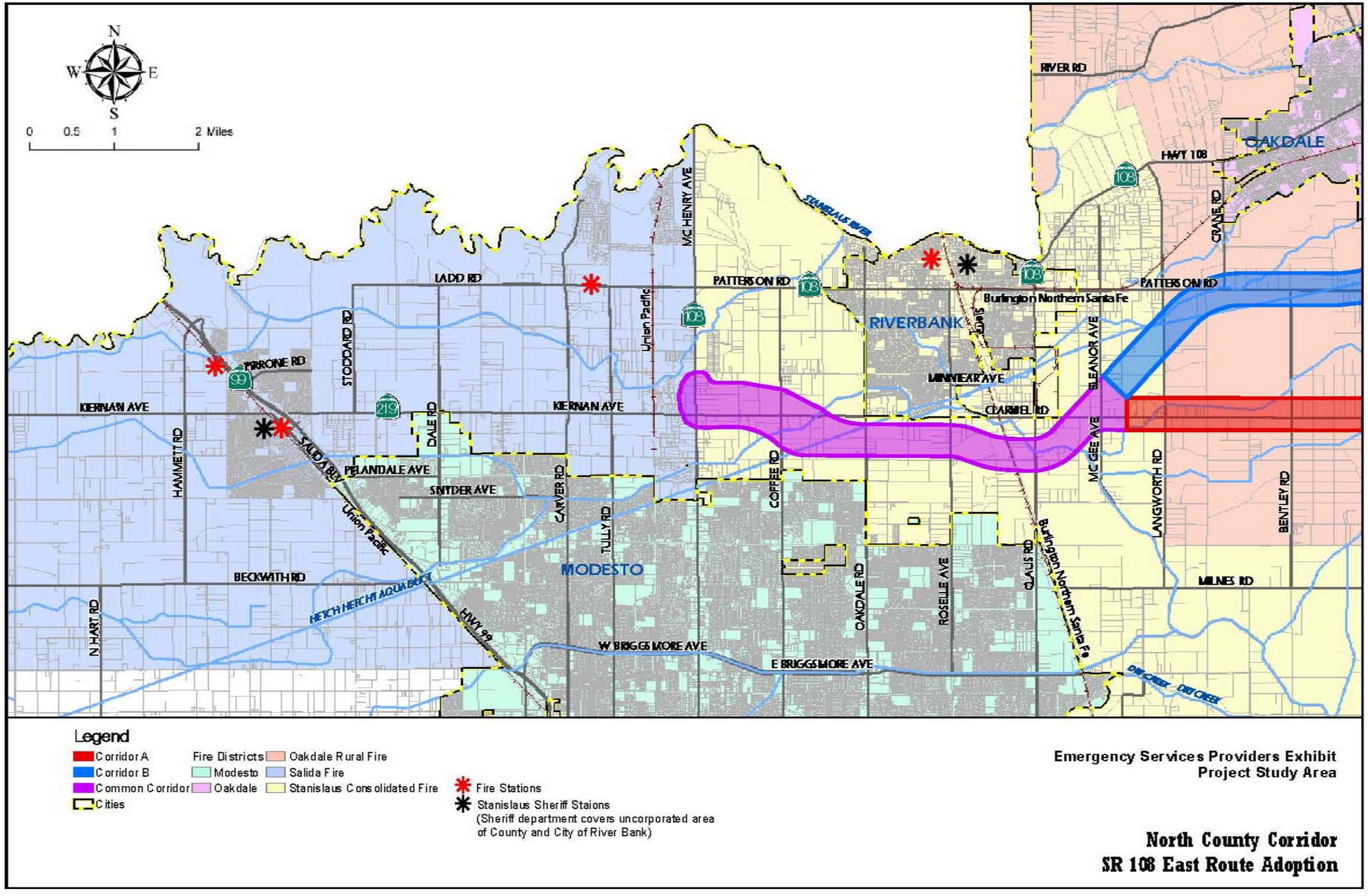


Figure 2-10. Emergency Service Providers (East)

The Stanislaus County Sheriff's Department is the first responder to law enforcement incidents in the unincorporated area. The agency's responsibilities extend the length of the county, including the limits of the North County Corridor State Route 108 East Route Adoption study corridors. The Sheriff's Department does not observe a formal response time standard, but response time to Priority 1 calls (calls involving life-and-death emergencies or violent crimes in progress) in 2008 averaged 9.5 minutes. Response to Priority 2 calls (involving non-violent crimes such as theft or burglary alarms) in 2008 averaged 11.4 minutes.

Environmental Consequences

The proposed action is the adoption of a wide corridor for a future State Route 108, and does not directly involve physical construction. However, once funding is available for the construction of a new alignment for a new State Route 108 project it could likely slow emergency services within the project area because of the loss of surface road connections. Response times could drop with reduced congestion in the local road network and added high-speed capacity on the road network in the region.

All of the agencies interviewed expressed their concern that a limited-access expressway could impede use of the interconnected surface streets for emergency response within their service areas. Although the new State Route 108 may provide a faster and more direct route to the remote locations within the respective jurisdictions, there is a need to maintain multiple paths of travel so that response vehicles are not do not have to maneuver a series of ramps and multiple-turn movements when traveling to emergency calls. Direct and convenient surface road connections between interchanges were cited by all of the agencies as a necessary component of the new roadway.

The No-Action Alternative would avoid the disruption of emergency response created when vehicles are blocked during construction or forced to use a less established, less familiar route of response. However, it is reasonable to conclude that a new State Route 108 would benefit emergency response, by providing a higher speed, direct route with limited interruptions between all of the affected service districts. This benefit would not be realized in the No-Action Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Approval of a future State Route 108 would require coordination with the Stanislaus Consolidated Fire Protection District, the Oakdale Rural Fire District, and the Stanislaus County Sheriff's Department to clarify existing critical emergency response routes, and identify measures in any future project documents (such as an emergency access and traffic

plan) to maintain these paths of travel or develop alternatives that provide equal or superior routes. Once funding is available for a new State Route 108, these measures would be further defined and the subject of a future environmental review.

2.1.8 Traffic and Transportation/Pedestrian and Bicycle Facilities

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

Affected Environment

The project study area is generally bound by State Route 120 to the north, State Route 132 to the south, State Route 99 to the west, and the Oakdale-Waterford Highway to the east. The project study area covers portions of seven jurisdictions, including Stanislaus County, San Joaquin County, and the cities of Modesto, Escalon, Riverbank, Oakdale, and Waterford. The existing road network in the project area includes state freeways, state highways, arterials, collectors, and local streets.

Under the No-Action Alternative, the North County Corridor is not assumed to be in place. However, based on planning documents[1] for the Salida Community Plan, a local expressway using a portion of the same alignment as the North County Corridor would be built from State Route 99 to Dale Road. This infrastructure improvement would occur regardless of whether the project is built or not.

The -out year of the Salida Community Plan is unknown as it depends on many factors; for the purposes of this study, the -out year has been assumed to be 2050. The Salida Community Plan indicates that a four-lane expressway would initially be built and that expansion of the facility would occur whenever adequate new development would occur. For this study's purposes, it is assumed that a 6-lane facility would be in place by 2030, and an 8-lane facility by 2050.

Brief summaries of both Corridor A and Corridor B, are presented below.

[1] *Stanislaus County Overview and Formal Analysis: Proposed County of Stanislaus Salida Area Planning, Road Improvement, Economic Development, and Farmland Protection Initiative* (Salida Community Plan - August 7, 2007).

Corridor A

Corridor A would provide a 4-lane expressway from McHenry Avenue to State Route 120/108 east of Oakdale.

In addition, grade-separated interchanges along the corridor alignment would be at the following locations:

- McHenry Avenue
- Coffee Road
- Oakdale Road
- Roselle Avenue
- Langworth Road
- Bentley Road
- Albers Road
- Claus Road
- Oakdale Waterford Highway

Corridor B

Corridor B would provide the same number of lanes as Corridor A. It would also have grade-separated interchanges at the same intersecting roadways as Corridor A except that Corridor B would have an interchange at McGee Avenue between Claus Road and Langworth Road and no interchange at Oakdale Waterford Highway.

Average daily traffic volumes were compared to daily roadway segment capacities to determine the level of service at each study roadway segment. The following study roadway segments do not meet the level of service standards of the jurisdictions and agencies that control them:

- State Route 99 operates at level of service E between Hatch Road and Austin Road
- State Route 108/120 operates at level of service E between Stearns Road and Kennedy Road
- State Route 108 operates at level of service E or F between McHenry Avenue and Yosemite Avenue

- McHenry Avenue operates at level of service E between Kiernan Avenue and State Route 120 and between State Route 132 and Briggsmore Avenue
- State Route 120 operates at level of service E between State Route 99 and F Street
- State Route 132 operates at level of service E between North Dakota Avenue and State Route 99, as well as between Claus Road and Albers Road
- Kiernan Avenue (State Route 219) operates at level of service E between State Route 99 and McHenry Avenue
- Ladd Road operates at level of service D between Carver Road (west of Tully Road) and McHenry Avenue
- Patterson Road operates at level of service F between Callander Avenue and Langworth Road
- Claribel Road operates at level of service D or E between McHenry Avenue and Langworth Road
- Pelandale Avenue operates at level of service E or F between Dale Road and Coffee Road
- Standiford Avenue operates at level of service E between State Route 99 and Coffee Road
- Briggsmore Avenue operates at level of service E or F between State Route 99 and Claus Road
- Coffee Road operates at level of service E between Sylvan Avenue and Claribel Road
- Oakdale Road operates at level of service D or E between Sylvan Avenue and Patterson Road
- Santa Fe Road operates at level of service D between State Route 108 and River Road
- Roselle Avenue operates at level of service D between Briggsmore Avenue and Patterson Road
- Claus Road operates at level of service E between Briggsmore Avenue and Patterson Road
- Albers Road operates at level of service E or F between State Route 132 and F Street

Traffic Safety

Table 2-4 shows accident data obtained for existing State Route 108 from McHenry Avenue to Yosemite Avenue and for State Route 108/120 from Yosemite Avenue to just east of

Lancaster Road. As this data shows, 514 accidents with two fatalities were reported on State Route 108 between McHenry Avenue and Yosemite Avenue during the three-year period. A total of 176 accidents with no fatalities was reported on State Route 108/120 between Yosemite Avenue and Lancaster Road.

As Table 2-5 shows, both facilities have higher fatal/injury accident rates and overall accident rates than the statewide average for similar facilities. The overall accident rate on State Route 108 between McHenry Avenue and Yosemite Avenue is about 35% higher than the statewide average, while the overall accident rate on State Route 108/120 between Yosemite Avenue and Lancaster Road is about 16% higher than the statewide average.

Table 2-5. Accident History for State Route 108

Facility	Number of Accidents			Accident Rate (Accidents/Million Vehicle Miles)					
				Actual			State Average		
	Total	Fatal	Fatal + Injury	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
State Route 108 (PM 27.618 to PM 38.236)	514	2	200	0.008	0.83	2.12	0.025	0.60	1.57
State Route 108/ 120 (PM 5.116 to PM 10.899)	176	0	74	0.000	0.57	1.36	0.023	0.49	1.17

Note: Shading denotes locations that exceed the statewide average.
Source: Caltrans District 10 Traffic Accident Surveillance and Analysis System data between 6/1/2005 and 5/31/2008.

Goods Movement

Stanislaus County is an important food-processing region. Poultry, dairy, and vegetable products from the county are processed and distributed throughout the world every day. Goods movement is the result of production activities within and outside of the region, and movement takes place within a complex system of routes, modes, terminals, and warehouse facilities.

The state has recognized the importance of agricultural goods movement in Central Valley areas such as Stanislaus County. The State of California's Goods Movement Action Plan identifies four high-priority gateway regions in California that are necessary to support the continued growth of the California economy. The Central Valley region, which includes State Route 99 and Interstate 5 and important east-west corridors that go through Stanislaus County, is one of these high-priority regions. Traffic congestion and operational conflicts between trucks and passenger vehicles have been identified as key issues that need to be addressed to maintain efficient goods movement.

The high percentage of trucks on the roads in the study area, as shown in Figure 2-11, reflects the high demand in the area for goods movement. Over 90 interstate truck lines and 100 contract carriers operate in the Stanislaus region. These operators, distributed throughout the region, rely on the regional system of state highways, expressways, and major arterials to move supplies and product to the backbones of the highway freight system (State Route 99, Interstate 5, and State Route 132).

Trains provide an economical means of transporting bulk goods. The Stanislaus region is served by two transcontinental railroad systems (the Union Pacific and the Burlington Northern Santa Fe Railway) and two local railroad systems (the Modesto and Empire Traction Company and the Sierra Railroad). The Port of Stockton, 30 miles north of Stanislaus County, provides deep-water access to the Pacific Ocean. Rail and truck transport to and from the port is available.

Within the study area, the major north-south freight rail line shares a route serviced by passenger rail (described later in this chapter); the major east-west line begins in the city of Riverbank and runs east parallel to segments of Patterson Road and State Route 108/120. At-grade crossings for the east-west rail line are provided at the following study roadway segments: Claus Road, Langworth Road, Yosemite Avenue, Stearns Road, Wamble Road, and Warnerville Road.

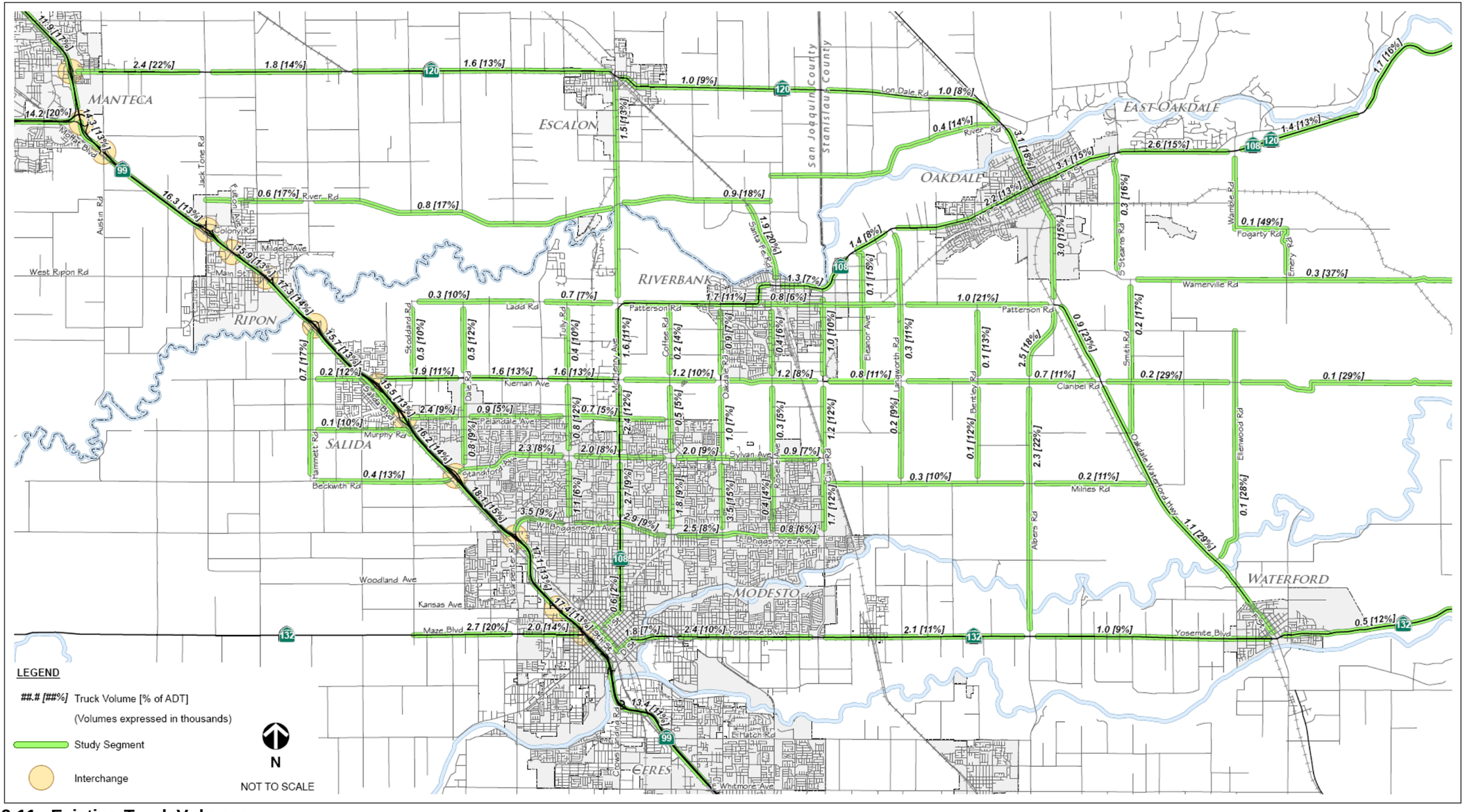


Figure 2-11. Existing Truck Volumes

Transit Services

Various transit services, including bus and passenger rail service, are provided in the project area.

Passenger Bus Service

Bus service to the project area is provided by the following: Stanislaus Regional Transit, operated by Stanislaus County; Modesto Area Express, operated by the City of Modesto; Riverbank-Oakdale Transit Authority, operated by the cities of Riverbank and Oakdale; and the San Joaquin Regional Transit District, an independent transit operating agency based in Stockton.

- Stanislaus Regional Transit is run by Stanislaus County, which operates inter-city and inter-county fixed-route bus services Monday through Saturday. Stanislaus Regional Transit serves the cities of Modesto, Riverbank, Oakdale, Turlock, Patterson, Grayson, Westley, Newman, Gustine, and Merced. Within the project study area, Stanislaus Regional Transit provides fixed-route service between the cities of Modesto, Riverbank, and Oakdale for a fare of $1.25 ($1.00 senior). The existing Stanislaus Regional Transit fixed transit route in the study area is summarized in Table 2-6. Besides fixed-route transit services, Stanislaus Regional Transit also offers Runabout, Shuttle, and Dial-A-Ride services in the developed areas of the county.
- Modesto Area Express is run by the City of Modesto, which operates local and inter-city bus services 358 days a year. Modesto Area Express serves the cities of Modesto and Ceres, as well as the communities of Salida and Empire. Within the study area, Modesto Area Express provides 14 fixed routes; general fares are $1.00 ($0.85 student/$0.50 senior), daily and monthly passes are also available. Table 2-6 shows the existing Modesto Area Express fixed transit routes in the study area. Modesto Area Express also offers Dial-A-Ride service to seniors and persons with disabilities within the city of Modesto.
- Riverbank-Oakdale Transit Authority is run by the cities of Riverbank and Oakdale, which operate local and inter-city trolley services between both cities Monday through Saturday. Riverbank-Oakdale Transit Authority provides three fixed-route services with a fare of $1.00 for the general public and $0.50 for seniors and persons with disabilities. Table 2-6 shows the existing Riverbank-Oakdale Transit Authority fixed trolley routes in the study area. Riverbank-Oakdale Transit Authority also offers a local Dial-A-Ride service to seniors and persons with disabilities.

- San Joaquin Regional Transit District operates local, inter-city, and inter-county bus services in the cities of Stockton, Tracy, Lathrop, Manteca, and Ripon. In the project area, San Joaquin Regional Transit District provides one inter-county route (State Route 96) between the city of Ripon and the city of Modesto Monday through Friday for a $2.00 fare. Table 2-6 shows information on the San Joaquin Regional Transit District State Route 96.

Passenger Rail

Amtrak provides passenger rail service in the project area. The passenger rail line runs north-south along Santa Fe Avenue, Terminal Avenue, and Santa Fe Road. At-grade crossings are provided at the following study roadway segments: State Route 132, Claus Road, Claribel Road, Patterson Road, and River Road. In the project area, an Amtrak commuter station is located in Modesto near the intersection of Briggsmore Avenue and Santa Fe Avenue. Transit access to and from the station is provided by Modesto Area Express. Amtrak currently provides six daily round trips, with four trains between Bakersfield and the Bay Area and two trains between Bakersfield and Sacramento.

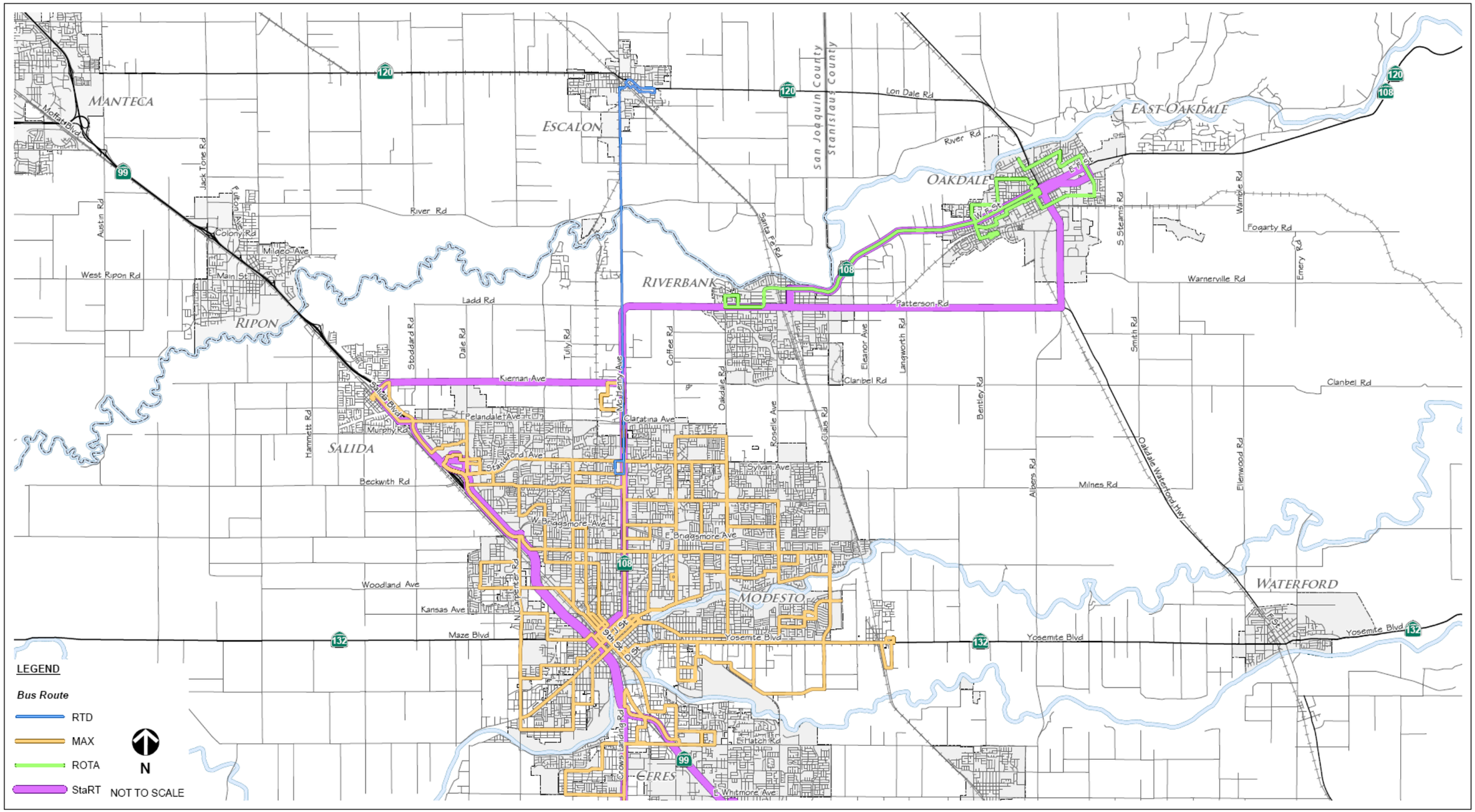


Figure 2-12. Existing Transit System

Table 2-6. Existing Bus Routes in Project Study Area

Operator	Route	Service Area	Approximate Frequency		
			Peak Period	Off-Peak	Week-end
Stanislaus Regional Transit	60	Modesto, Riverbank, and Oakdale	45 min	120 min	120 min
Modesto Area Express	22	McHenry Avenue, Standiford Avenue, Vintage Faire Mall, Downtown Modesto	30 min	30 min	60 min
	24	Sylvan Avenue, Coffee Road, Oakdale Road, Roselle Avenue, McHenry Avenue, Downtown Modesto	60 min	60 min	60 min
	25	Sisk Road, Orangeburg Avenue, Claus Road, Vintage Faire Mall, Central Valley Plaza, Downtown Modesto	30 min	30 min	60 min
	27	Kiernan Avenue, McHenry Avenue, Briggsmore Avenue, Downtown Modesto	60 min	60 min	60 min
	28	Sisk Road, Pelandale Avenue, Dale Road	30 min	30 min	60 min
	30	Standiford Avenue, Carver Road, Vintage Faire Mall, Downtown Modesto	30 min	30 min	30 min
	31	Dale Road, Pelandale Avenue, Tully Road, Downtown Modesto	30 min	30 min	60 min
	32	Coffee Road, Downtown Modesto	30 min	30 min	60 min
	34	McHenry Avenue, Sylvan Avenue, Coffee Road, Oakdale Road, Downtown Modesto	60 min	60 min	60 min
	36	Sisk Road, Carpenter Road, Vintage Faire Mall, Central Valley Plaza, Downtown Modesto	60 min	60 min	60 min
	37	Sylvan Avenue, Oakdale Road, Yosemite Boulevard (State Route 132), Vintage Faire Mall, Downtown Modesto	60 min	60 min	60 min
	38	Yosemite Boulevard (State Route 132) and Downtown Modesto	30 min	30 min	30 min
	39	Yosemite Blvd (State Route 132) and Downtown Modesto	90 min	150 min	N/A
	41	State Route 99, Vintage Faire Mall, Downtown Modesto	30 min	30 min	60 min
Riverbank-Oakdale Transit Authority	Riverbank Trolley	City of Riverbank	60 min	60 min	60 min
	Oakdale Trolley	City of Oakdale	60 min	60 min	60 min
	Express Trolley	Cities of Riverbank and Oakdale	60 min	60 min	60 min
San Joaquin Regional Transit District	96	City of Ripon to City of Modesto along McHenry Avenue	120 min	240 min	N/A

Source: Based on information presented in operator's website.

Bicycle System

Bicycle facilities are provided throughout the study area. Figure 2-13 shows the existing and planned bicycle facilities in the proposed roadway area.

Bicycle classes are briefly described below.

- Class I Bikeway (Bicycle Path) – Provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized.
- Class II Bikeway (Bicycle Lane) – Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian cross-flow are permitted.
- Class III (Bicycle Route) – Provides for a right-of-way designated by signs and/or pavement markings for shared use with pedestrians or motor vehicles.

Pedestrian System

The pedestrian network in the study area consists mostly of sidewalks along most of the streets and crosswalks at the major intersections. While many of the roadways in the developed areas of Salida, Modesto, Riverbank, and Oakdale provide sidewalks, most roadways in the unincorporated areas of the county do not have pedestrian facilities. Since the proposed roadway would be located within unincorporated areas of Stanislaus County, it would often cross roadways that currently do not provide sidewalks.

Extensive information was collected from July 2008 through October 2008 to determine existing roadway average daily traffic volumes, truck percentages, and travel times on parallel roadways. This information was used to analyze changes in levels of service, vehicle hours of delay, and travel times.

Travel demand forecasts for the project were developed using a locally calibrated and validated model that came from the 2007 StanCOG Regional Transportation Plan travel demand forecasting model. Year 2030 and 2050 models were developed from the base year forecast by updating the roadway network and land use anticipated in future years.

The following models were developed:

- Year 2030 and Year 2050 No-Action
- Year 2030 and Year 2050 Corridor A
- Year 2030 and Year 2050 Corridor B

A detailed description of the specific roadway network and land use assumptions used in the models is presented in the Transportation Report.

Environmental consequences of project alternatives were analyzed for roadway facilities, transit facilities and bicycle and pedestrian facilities.

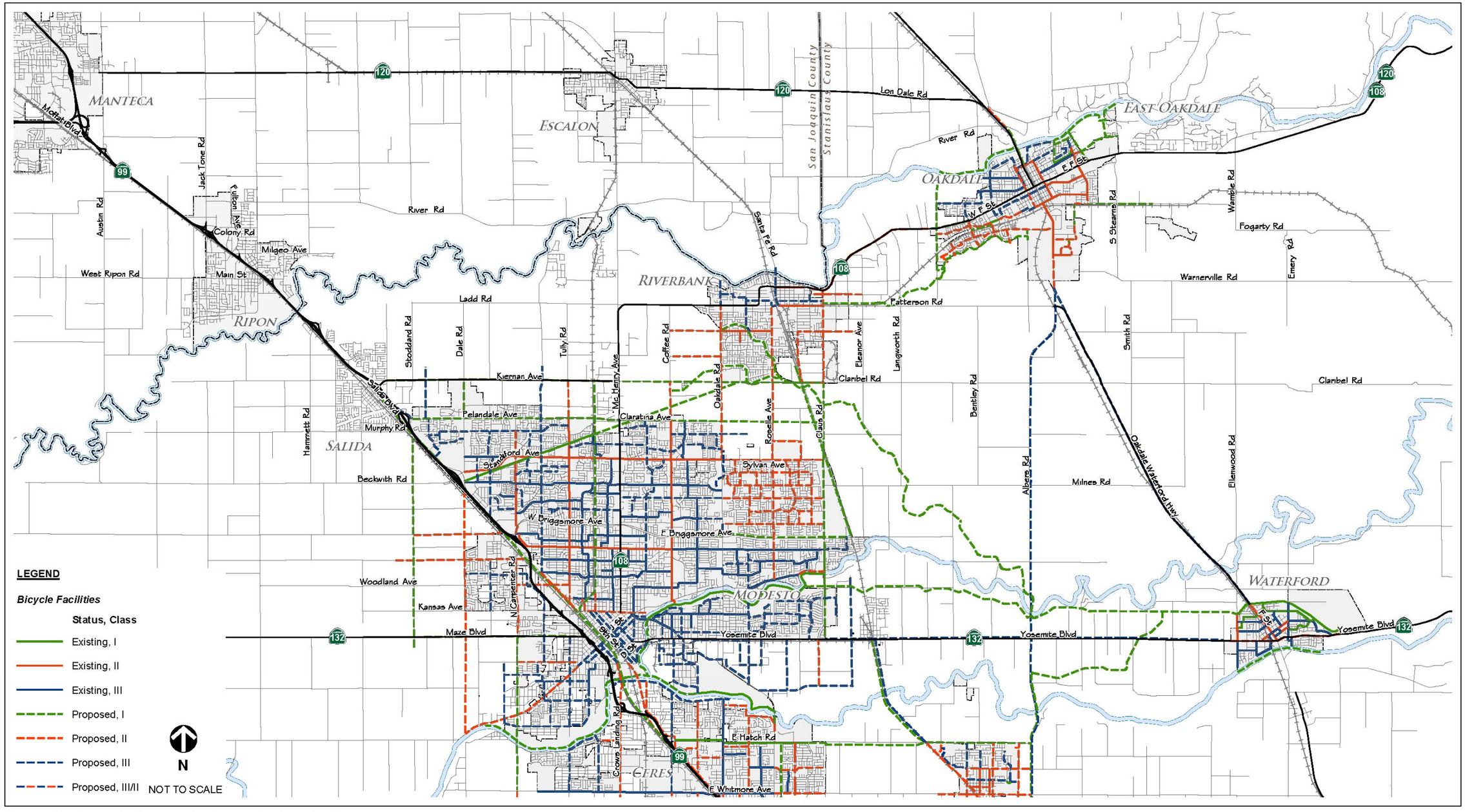


Figure 2-13. Existing and Planned Bicycle System

Environmental Consequences

Existing and future levels of service were evaluated for a transportation facility in either corridor and also for the No-Action Alternative in the years 2030 and 2050. The adoption of a wide corridor would not affect traffic patterns in the study area; however once funding is available for the construction of a roadway within a corridor it would change traffic patterns. Anticipated levels of service at critical locations such as State Route 108 on McHenry Avenue in Riverbank and through downtown Oakdale indicated deteriorating level of service. The existing State Route 108 is operating poorly and its performance is projected to worsen through 2030 and 2050. There are no road facilities operating at level of service D or worse under the no-action condition that would be degraded by one service level or more as of result of implementing an action alternative.

A summary of future level of service conditions for Corridor A, Corridor B and the No-Action Alternative is presented below.

Level of Service

To measure and describe the operational status of the local roadway network, transportation engineers and planners commonly use a grading system called level of service. Level of service is a description of a roadway segment's operation ranging from level of service A (indicating free-flow traffic conditions with little or no delay), to level of service F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). Level of service E describes conditions approaching or at maximum capacity.

Level of service for the study area roadways was determined by comparing the roadway's average weekday daily traffic volume to planning level daily volume thresholds. The thresholds in Table 2-7 were used as a starting point to determine the capacity for general roadway classifications. These thresholds are consistent with the level of service thresholds presented in the Stanislaus County General Plan. In some cases, the volume thresholds were adjusted downward to reflect localized reductions in capacity associated with close intersection spacing; in other cases, the volume thresholds were increased to reflect higher observed capacities such as on State Route 99.

Table 2-7. Roadway Segment Level of Service Criteria

Roadway Capacity Class	Level of Service Thresholds (Vehicles Per Day Per Lane)				
	A	B	C	D	E
4-Lane Freeway	5,760	9,180	13,500	16,650	18,000
6+-Lane Freeway	5,400	8,820	12,780	15,840	18,000
Class A Expressway	4,500	7,500	10,500	12,600	15,000
Class B Expressway	3,750	6,250	8,750	10,500	12,500
Class C Expressway	3,000	5,000	7,000	8,400	10,000
2-Lane Arterial	700	1,900	3,400	5,900	10,000
4+-Lane Arterial	2,520	4,230	5,940	7,110	9,000
2-Lane Collector	350	950	1,700	2,950	5,000
4-Lane Collector	1,400	2,350	3,300	3,950	5,000
Source: Stanislaus County General Plan					

The evaluation criteria listed below were used to determine acceptable traffic operating conditions in the study area. For this study, an evaluation criterion for project design and its impact to other facilities was established.

While level of service standards differ for each jurisdiction, the level of service threshold for project design was set at level of service C. As shown in Table 2-8, most jurisdictions have a level of service C or better level of service standard. Level of service standards on Caltrans facilities are based on the Transportation Concept Report for each facility. In the study area, State Route 99, 132 and 219 maintain a level of service D standard, while State Route 108 and 120 maintain a level of service C standard in rural areas and a level of service D standard in urban areas.

Table 2-8. Level of Service Standards

Jurisdiction/Agency	Level of Service Standard
Stanislaus County	C
San Joaquin County	D
City of Modesto	D
City of Riverbank	D
City of Oakdale	C
City of Waterford	C
City of Escalon	C
Caltrans	Based on Transportation Concept Report for each facility
Sources: Stanislaus County General Plan; San Joaquin Council of Governments Congestion Management Plan, Caltrans Transportation Concept Reports for State Routes 99, 108, 120, and 132.	

Year 2030 Roadway Segment Operations

The year 2030 average daily traffic volumes were compared to daily roadway segment capacities to determine the level of service at each study roadway segment.

Year 2030 Corridor A

The Year 2030 Corridor A level of service results are shown in Figure 2-14. Detailed level of service calculations are provided in the Transportation System Planning Analysis Report. As a 4-lane expressway, Corridor A would operate at level of service C or better for most segments, except between Coffee Road and Oakdale Road, where it would operate at level of service D.

The following roadway segments operating at level of service D or worse under no-action conditions are anticipated to improve by at least one service level with Corridor A:

- State Route 120/108 between Wamble Road and Lancaster Road (east of Wamble Road and the city of Oakdale) – From level of service F to level of service E.
- Claribel Road between McHenry Avenue and Oakdale Road – From level of service E to level of service A.
- Claribel Road between Oakdale Road and Claus Road – From level of service E to level of service B.
- Langworth Road between Milnes Road and Claribel Road – From level of service D to level of service B.

There are no roadway facilities operating at level of service D or worse under no-action conditions that would be degraded by one service level or more as a result of Corridor A.

The following two facilities operate below their applicable level of service standards under no-action conditions and would experience an increase of more than 0.01 in volume-to-capacity ratio with implementation of Corridor A.

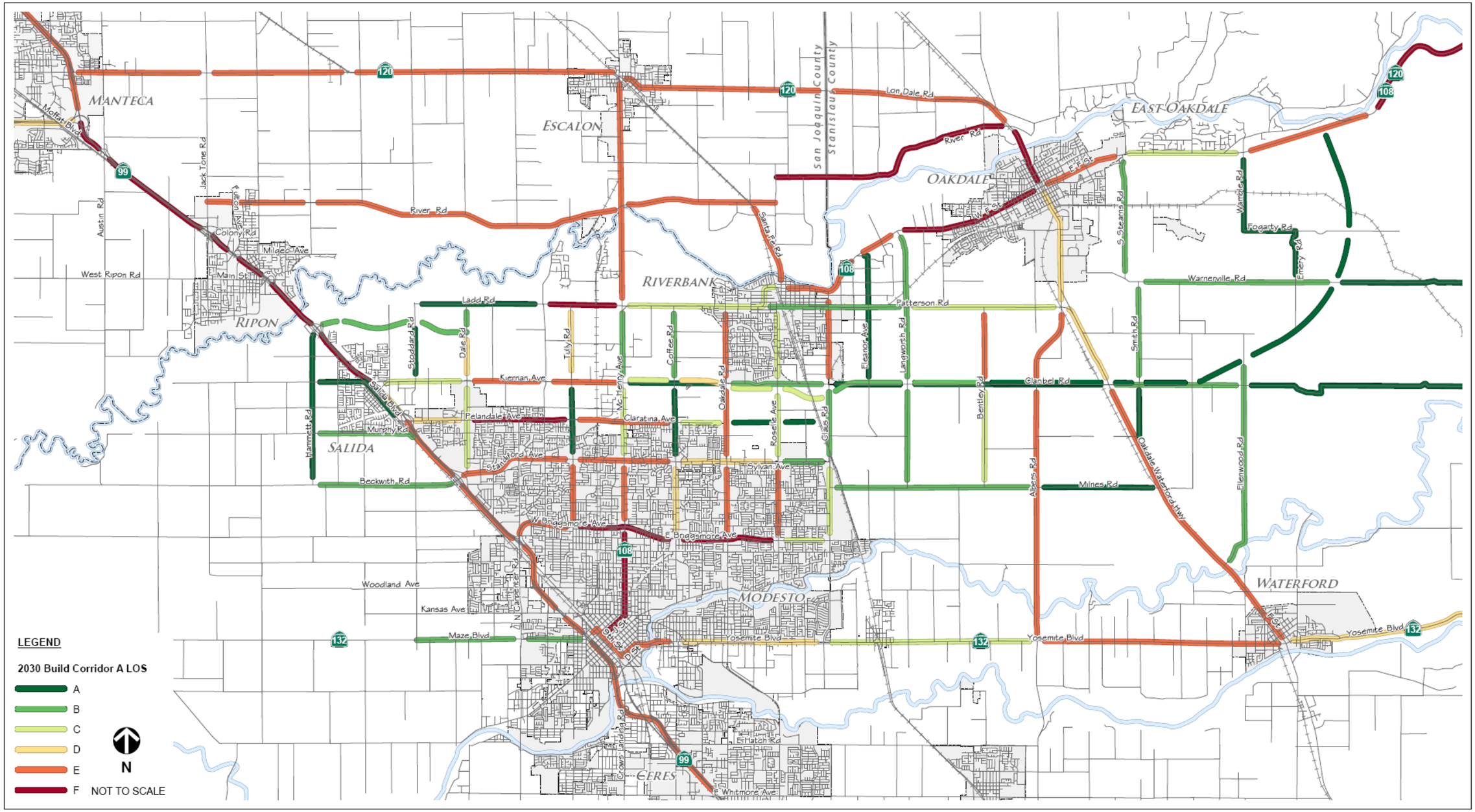


Figure 2-14. Year 2030 Corridor A Level of Service

- Tully Road between Kiernan Avenue and Ladd Road – level of service D (volume-to-capacity ratio increase of 0.027).
- Oakdale Road between Claribel Road and Patterson Road – level of service E (volume-to-capacity ratio increase of 0.092).

Year 2030 Corridor B

The Year 2030 Corridor B level of service results are shown in Figure 2-15. Detailed level of service calculations are provided in the Transportation System Planning Analysis Report. As a 4-lane expressway, Corridor B would operate at level of service C or better for most segments, except between Coffee Road and Roselle Avenue where it would operate at level of service D.

The following roadway segments operating at level of service D or worse under no-action conditions are anticipated to improve by at least one service level with Corridor B:

- State Route 120/108 between Wamble Road and Lancaster Road (east of Wamble Road and the city of Oakdale) – From level of service F to level of service D.
- Kiernan Avenue between Carver Road (west of Tully Road) and McHenry Avenue – From level of service E to level of service D.
- Claribel Road between McHenry Avenue and Oakdale Road – From level of service E to level of service A.
- Claribel Road between Oakdale Road and Claus Road – From level of service E to level of service B.
- Claus Road between Claribel Road and Patterson Road – From level of service E to level of service D.
- Langworth Road between Milnes Road and Claribel Road – From level of service D to level of service A.
- Bentley Road between Claribel Road and Patterson Road – From level of service E to level of service A.

There are no roadway facilities operating at level of service D or worse under no-action conditions that would be degraded by one service level or more as a result of Corridor B. The following facilities operate below their applicable level of service standards under no-action conditions and would experience an increase of more than 0.01 in volume-to-capacity ratio with implementation of Corridor B:

- Tully Road between Kiernan Avenue and Ladd Road – level of service D (volume-to-capacity ratio increase of 0.087).
- Oakdale Road between Claribel Road and Patterson Road – level of service E (volume-to-capacity ratio increase of 0.081).
- Yosemite Avenue between Oakdale-Waterford Highway and F Street – level of service E (v/c increase of 0.073).
- Oakdale-Waterford Highway between Claribel Road and Albers Road – level of service E (volume-to-capacity ratio increase of 0.235).

Year 2030 No-Action Alternative

The Year 2030 No-Action level of service results are shown in Figure 1-7. Detailed level of service calculations are provided in the Transportation System Planning Analysis Report. There are 60 roadway segments that do not meet the applicable level of service standards.

Year 2050 Roadway Segment Operations

The year 2050 average daily traffic volumes were compared to daily roadway segment capacities to determine the level of service at each study roadway segment.

Year 2050 Corridor A

The Year 2050 Corridor A level of service results are shown in Figure 2-16. Detailed level of service calculations are provided in the Transportation System Planning Analysis Report. As a 4- to 6-lane expressway, Corridor A would operate at level of service C or better for most segments, except between Oakdale Road and Claus Road, where it would operate at level of service D.

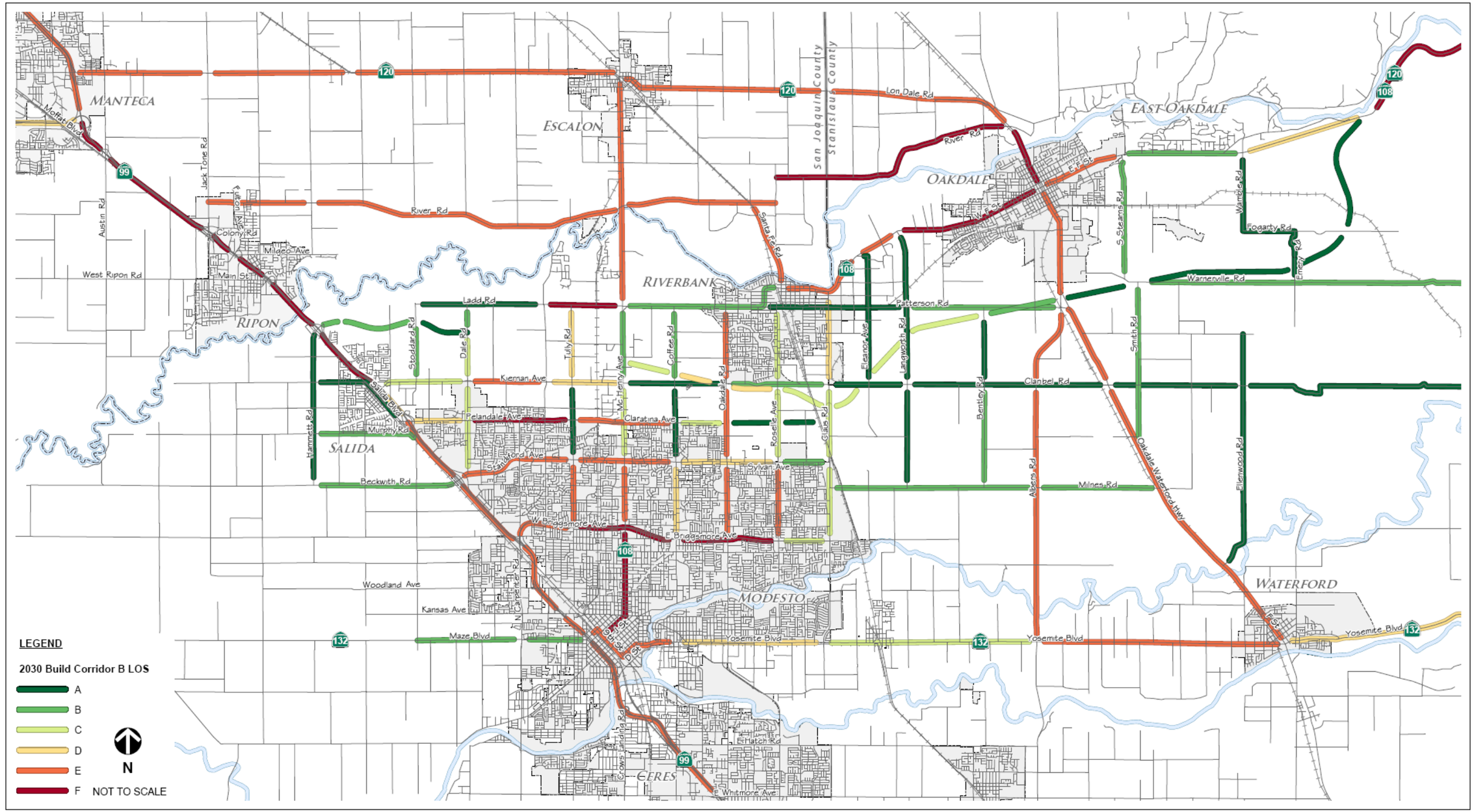


Figure 2-15. Year 2030 Corridor B Level of Service

The following roadway segments operating at level of service D or worse under the No-Action Alternative are anticipated to improve by at least one service level with Corridor A:

- State Route 120/108 between Wamble Road and Lancaster Road (east of Wamble Road and the city of Oakdale)– From level of service F to level of service E
- State Route 120/108 between Stearns Road and Wamble Road – From level of service D to level of service C.
- State Route 108 between McHenry Avenue and 1st Street, Oakdale – From level of service D to level of service C.
- Claribel Road between Oakdale Road and Claus Road – From level of service F to level of service D.
- Clarantina between Coffee Road and Oakdale Road – From L level of service E to level of service D
- The following two facilities operate below their applicable level of service standards under no-action conditions and would experience an increase of more than 0.01 in volume-to-capacity ratio with implementation of Corridor A.
- Claus Road between Sylvan Avenue and Claribel Road – level of service D (volume-to-capacity ratio increase of 0.142).
- Oakdale-Waterford Highway between State Route 132 and Claribel Road – level of service E (volume-to-capacity ratio increase of 0.055).

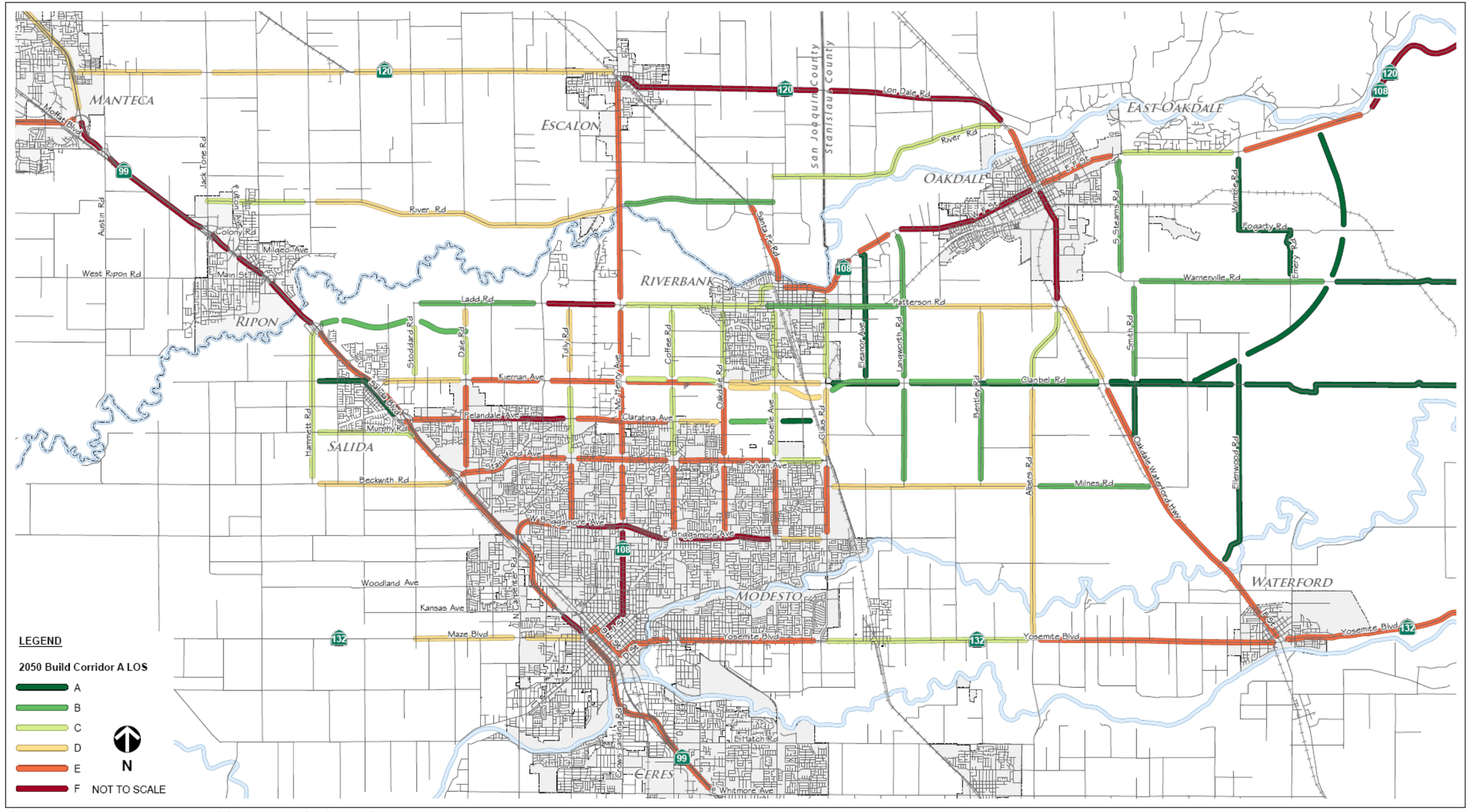


Figure 2-16. Year 2050 Corridor A Level of Service

Year 2050 Corridor B

The Year 2050 Corridor B level of service results are shown in Figure 2-17. Detailed level of service calculations are provided in the Transportation System Planning Analysis Report. As a 4- to 6-lane expressway, Corridor B would operate at level of service C or better.

The following roadway segments operating at level of service D or worse under no-action conditions are anticipated to improve by at least one service level with Corridor B:

- State Route 120/108 between Wamble Road and Lancaster Road (east of Wamble Road and the city of Oakdale)– From level of service F to level of service E.
- State Route 120/108 between Stearns Road and Wamble Road – From level of service D to level of service C.
- State Route 108 between McHenry Avenue and 1st Street – From level of service D to level of service C.
- Claribel Road between Oakdale Road and Claus Road – From level of service F to level of service E.
- Bentley Road between Claribel Road and Patterson Road – From level of service D to level of service A.
- Clarantina between Coffee Road and Oakdale Road – From level of service E to level of service D.

The following two facilities operate below their applicable level of service standards under no-action conditions and would experience an increase of more than 0.01 in volume-to-capacity ratio with implementation of Corridor B:

- Claus Road between Sylvan Avenue and Claribel Road – level of service E (volume-to-capacity ratio increase of 0.158).
- Oakdale-Waterford Highway between Claribel Road and Albers Road – level of service D (volume-to-capacity ratio increase of 0.192).

Year 2050 No-Action Alternative

The Year 2050 No-Action level of service results are shown in Figure 1-8. Detailed level of service calculations are provided in the Transportation System Planning Analysis Report. There are 63 roadway segments that do not meet the applicable level of service standards.

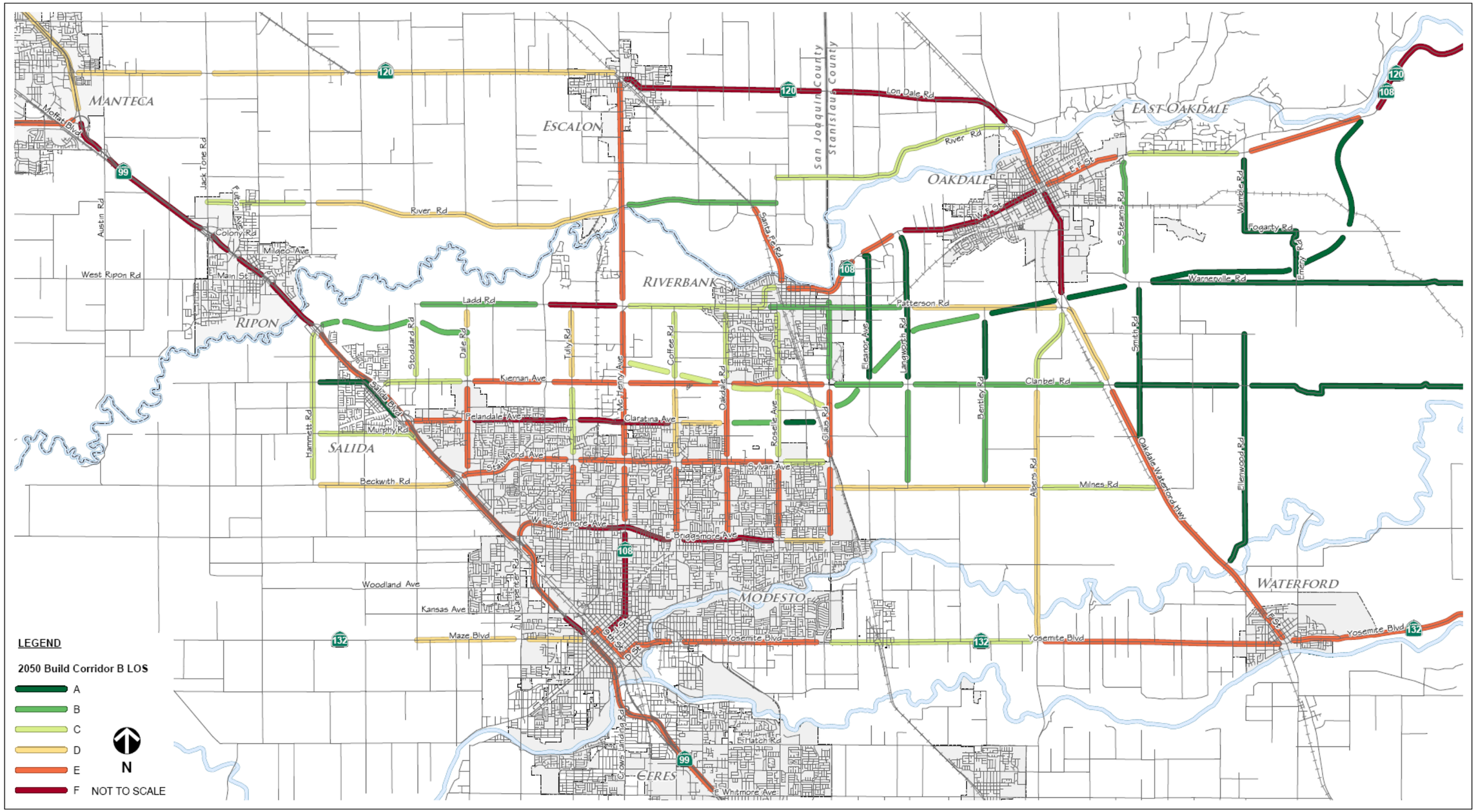


Figure 2-17. Year 2050 Corridor B Level of Service

Reduction in Travel Delays

Regional measures of effectiveness were calculated to determine the effects of the project from a regional perspective. Table 2-9 below summarizes the daily area wide vehicle miles of travel, vehicle hours of travel, and vehicle hours of delay with and without the project. The following is a brief description of the measures of effectiveness:

- Vehicle Miles of Travel – is a measure of the total miles traveled by all vehicles in the study area during the analysis period.
- Vehicle Hours of Travel – is a measure of the total hours traveled by all vehicles.
- Vehicle Hours of Delay – is the amount of total vehicle delay incurred as a result of congestion.

As Table 2-9 indicates, the overall amount of daily travel throughout the study area would remain relatively similar with the Action Alternatives as compared to No-Action Alternative. Both Corridor A and Corridor B are expected to have positive region wide impacts in reducing delays caused by congestion. The magnitude of the improvements resulting from the Action Alternatives Corridors is somewhat greater in 2030 than in 2050 because the overall amount of congestion in the study area would be higher in 2050 and the benefits generated by an individual project would be a smaller proportion of the total.

Table 2-9. Regional Measures of Effectiveness

	Year 2030			Year 2050		
	No-Action	**Corridor A**	**Corridor B**	**No-Action**	**Corridor A**	**Corridor B**
Daily Vehicle Miles of Travel	4,550,959	4,553,281 (0.1%)	4,550,100 (-0.1%)	6,432,088	6,548,002 (1.8%)	6,507,719 (1.2%)
Daily Vehicle Hours of Travel	144,795	140,506 (-3.0%)	140,343 (-3.1%)	235,808	235,249 (-0.2%)	236,228 (0.2%)
Daily Vehicle Hours of Delay	42,095	38,365 (-8.9%)	38,373 (-8.8%)	94,769	87,399 (-7.8%)	88,890 (-6.2%)

Notes:

The area used for this analysis is generally bound by the San Joaquin River to the north, Standiford/Sylvan Avenue to the south, State Rout 99 to the west, and the Stanislaus/Tuolumne County line to the east.

Percent change from No-Action conditions is presented in parentheses.

Source: Transportation System Planning Analysis Report, June 2009.

Travel Times

Table 2-10 presents the east-west travel times between various State Route 99 interchanges and the Stanislaus County/Tuolumne County border. Under no-action conditions, these types of trips generally use existing State Route 108; under Action Alternative conditions, the trips generally use the new expressway. As shown in Table 2-10, both Corridor A and B are anticipated to substantially reduce east-west travel times, often by as much as 10%-20%.

Table 2-10. Travel Time in Minutes between Various State Route 99 Interchanges and the Stanislaus County/Tuolumne County Border

Starting Point	Year 2030					Year 2050				
	No-Action	Corridor A	% Change	Corridor B	% Change	No-Action	Corridor A	% Change	Corridor B	% Change
Hammett Interchange	50.5	45.3	-10.1%	42.1	-16.5%	64.5	55.9	-13.3%	53.8	-16.6%
Kiernan Interchange	51.1	43.4	-15.1%	40.6	-20.6%	66.0	55.0	-16.6%	51.5	-21.9%
Pelandale Interchange	52.1	45.5	-12.7%	41.9	-19.7%	67.2	55.9	-16.9%	60.4	-10.1%
Standiford Interchange	53.0	45.2	-14.7%	43.0	-18.9%	70.3	64.5	-8.3%	63.0	-10.4%
Briggsmore Interchange	55.3	48.3	-12.6%	45.6	-17.5%	71.3	62.4	-12.5%	65.0	-8.9%
Downtown Modesto	56.2	46.3	-17.6%	42.9	-23.8%	72.0	57.2	-20.5%	59.1	-17.9%
Source: Transportation System Planning Analysis Report, June 2009.										

Changes to Vehicle Miles of Travel

The construction of a roadway in either Corridor A or B would cause slight changes in the region wide vehicle miles of travel, including a small increase in vehicle miles of travel. The effect of the regional vehicle miles of travel projections on greenhouse gas emissions is addressed in the air quality (2.2.6) and climate change (3.2.5) sections of this Draft EIR.

Disruption to Existing Transit Stop

The construction of a roadway in either Corridor A or B would result in a new east-west roadway connection to McHenry Avenue near the McHenry Avenue/Kiernan Avenue intersection. The new connection could disrupt the existing transit the McHenry Avenue/Kiernan Avenue intersection.

Accommodation of Multi-Modal Travel

The construction of a roadway in either Corridor A or B would accommodate multi-modal travel, including mass transit and bicyclists. Corridors A and B would provide a new high-capacity east-west connection that could accommodate regional or longer-distance transit services and bicycle travel at relatively high levels of efficiency.

Interference with Planned Pedestrian and Bicycle Facilities

The construction of a roadway in either Corridor A or B would result in a new east-west roadway with interchanges on several north-south roadways where there are planned bicycle and pedestrian facilities. The interchanges could interfere with the implementation of the planned bicycle and pedestrian facilities.

Avoidance, Minimization, and/or Mitigation Measures

No transportation impacts would result from the adoption of a wide corridor for State Route 108. The construction of a future new State Route 108 alignment would require a separate environmental review and require additional traffic operations analysis to identify potential transportation impacts and refine the design of roadway alignment alternatives to address potential impacts. The final design of the interchanges would accommodate the implementation of planned bicycle and pedestrian facilities.

Before road construction in either Corridor A or B, Caltrans would coordinate with the local transit agencies to ensure that the transit services currently provided along McHenry Avenue would be adequately accommodated after implementation of the project.

The design of future State Route 108 alignments would be based on standard design guidelines such as the Caltrans Highway Design Manual. The expressway and the new connections and crossings would be designed to provide a level of service of D or better. At locations where that would be infeasible, the design would be based on feasible improvements that could be accommodated.

2.1.9 Visual/Aesthetics

Affected Environment

Project Setting

The proposed project sits in one of California's more recognizable land areas—the Central Valley, which is a long, flat valley in the middle of the state, crossed with meandering rivers and edged with mountains. The valley stretches 400 miles north to south and averages 50

miles wide. The Sierra Nevada mountain range forms the eastern valley wall, while the Coast Range borders the valley on the west. The study area lies in the southeastern portion of the valley.

The Central Valley is one of California's most fertile and productive agricultural regions. Farms, orchards and pasturelands span the valley, supported by a network of irrigation canals that provide water from rivers such as the Stanislaus and Tuolumne rivers in Stanislaus County. Valley agriculture is also supported by a vast county road system and an underground system of natural gas and oil pipelines. Electrical power is transmitted from hydro-electrical plants in the Sierra to cities and communities in the Central Valley and along California's coast.

The statewide network of railroads and highways enable produce and other offerings from the Central Valley to be transported out to other parts of the state and the nation.

Within the North County Corridor project study area, orchards, row crops, and pasturelands are important to Stanislaus County's principal industry of agriculture. The study area's visual setting is based on Stanislaus County's agricultural heritage.

Historically, towns in the North County Corridor area formed and then grew based on the Central Valley's need to produce, pack, store, and ship vast amounts of agricultural products produced in Stanislaus County.

The City of Modesto, which is the county seat and the largest city in the study area, was established as a railroad town by the Union Pacific Railroad in the 1870s. Modesto was and still is the trade and shipping center for agricultural products in Stanislaus County. McHenry Avenue, a north-south route, connects downtown Modesto to the proposed future roadway and beyond to the Stanislaus River. McHenry Avenue marks the western edge of the study area.

State Route 99 is not within the study area, but runs along the western edge of Modesto and serves as a key north-south highway connection within the Central Valley. The community of Salida, north of Modesto and next to State Route 99, functioned as a shipping point for produce transported along State Route 99.

The cities of Oakdale and Riverbank sit in the north part of the study area. Both cities were established on river terraces and bluffs overlooking the Stanislaus River. Oakdale was named for the live oak trees originally found on the town site. Dairy farming was the main industry

for these towns. Pasturelands and the rural residential character of older dairy buildings and farmhouses along Claribel Road provide visual evidence of this dairy farm industry.

Landscape Units and Visual Quality

Four landscape units are visually distinctive within the study area: (1) Farmland, (2) Farmtown and Suburban Community, (3) Pastureland, and (4) Foothills and River Valley. The visual features, foreground, middle ground, and background views, and visual quality of each unit are summarized below. Figure 2-8 shows the visual landscape units.

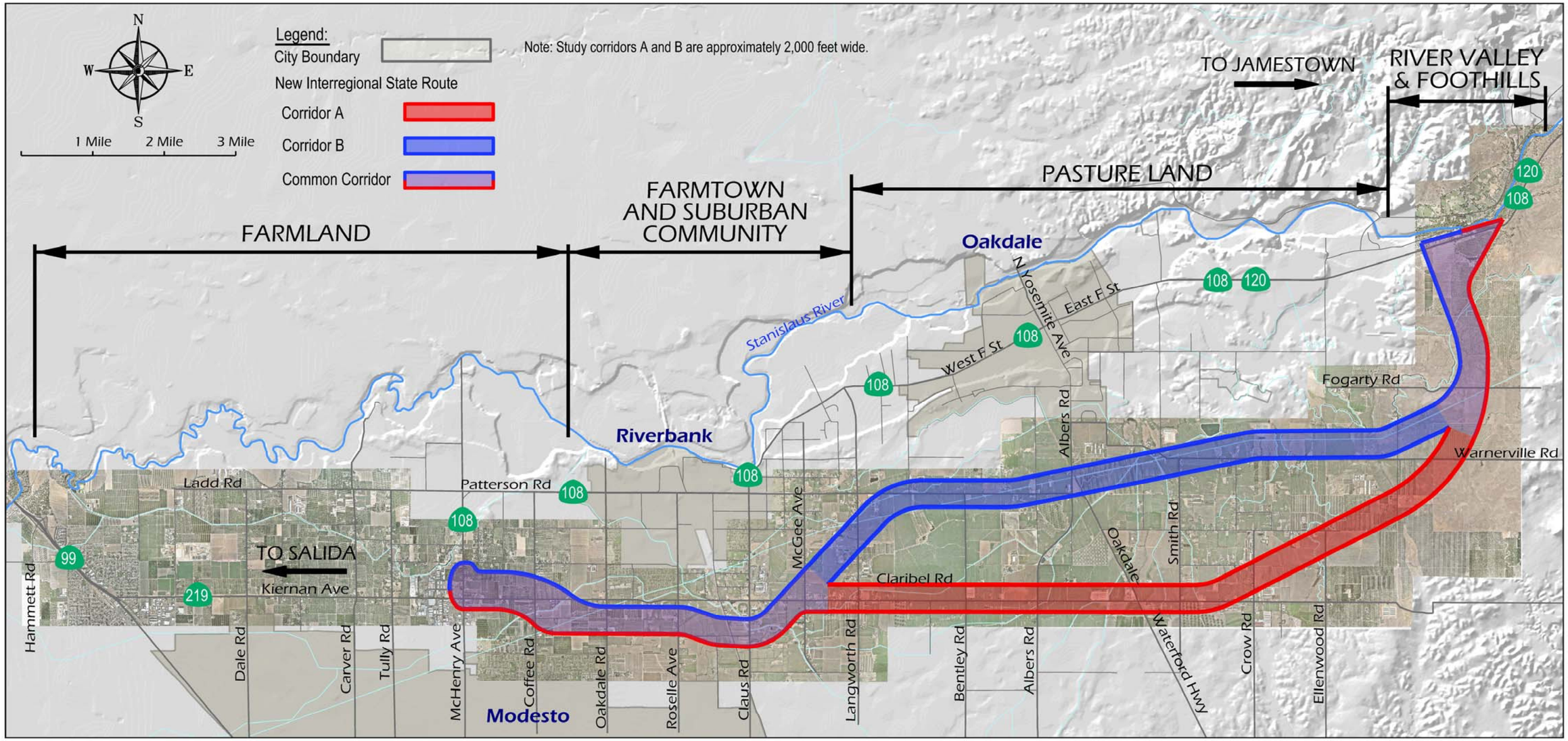


Figure 2-18. Visual Resource Landscape Units

Farmland Landscape Unit

The farmland landscape unit encompasses the western portion of the study area where visual elements of the agriculture business provide a foundation for landscape character: vineyards, fruit and nut orchards, row crops, food factory buildings (packing plants, agricultural warehouses, migrant worker housing, etc.), and irrigation canals. Almonds, peaches, walnuts, and apricots are grown and processed in the western part of the study area. A visual distinction of the farmland unit is large multi-acre agricultural fields of single food crops arranged in a grid pattern. The edges of these areas are lined by county roads, railroads, and utilities.

The farmland landscape unit is bounded by McHenry Avenue to the west, northern boundaries of Modesto to the south, Stanislaus River to the north, and Riverbank's urban boundaries between Coffee Road and Oakdale Road to the east.

Background views and views from existing county roads are restricted to the county road pavement and roadsides because orchards and vineyards block distant views. Foreground views are strongly defined by formal arrangements of trees and row crops, irrigation ditches, and farm compounds.

Nighttime views from existing country roads are unlit, except in the few cases where new development or intersection improvements have added street lighting. An example of this exception can be found at Claribel Road and McHenry Avenue.

The vividness of the farmland landscape unit is strong and memorable. Visual unity and intactness have been compromised where new commercial businesses have replaced orchards and row crop fields. Overall, the visual quality for farmland unit areas is considered moderately appealing.

Farmtown/Suburban Community Landscape Unit

The farmtown and suburban community landscape unit can be seen where the study area meets the southern city limits and sphere of influence for Riverbank. Its boundaries roughly include Oakdale Road to the west, just south of Claribel Road to the north, Langworth Road to the east, and just north of the Modesto city limits to the south.

Dairies are the main industry of Riverbank and Oakdale. Moderately sized dairy farms, with ranch-style homes and dairy barns, distinguish the rural residential character of Claribel Road and Langworth Road in eastern Riverbank.

The farmtown character of south Riverbank is in transition. A new large regional shopping center, with a new suburban home development, has replaced agri-business, railroad, and shipping buildings. There is no visual transition between these different land uses.

Foreground views include old and new county roads, railroad tracks, new residential and commercial development, and some orchard and row crop fields. Middle ground views are extensions of the elements viewed in the foreground, plus the power poles of the Hetch Hetchy utility corridor. Warehouses for agricultural products and railroad facilities are included in the middle ground view. Background views are screened by middle ground structures.

Night views from the rural and suburban roads are unlit except where new commercial development or improved street intersections have added building signs and streetlights. An example of these changes can be seen at the intersection of Oakdale and Claribel Roads, which has traffic signals.

Visual unity and intactness in the farmtown and suburban community landscape unit have been compromised where new urban development replaced the traditional dairy, railroad, and agri-business elements of Riverbank. Visual quality is low to moderate for the farmtown and suburban community landscape unit.

Pastureland Landscape Unit

The pastureland landscape unit extends from Langworth Road at the eastern edge of Riverbank east to the foothills. Large parcels of grassland bordered by a grid pattern of country roads, canals, electrical utilities, railroads, and irrigation canals are the dominant visual features of this unit. Houses and agricultural buildings are few and spaced far apart, and crop irrigation is provided by mobile irrigation systems, if at all. The land is relatively flat, allowing clear views toward the eastern foothills. Boundaries of the pastureland landscape unit include Langworth Road to the west, Stanislaus River to the north, and Ellenwood Road to the east.

Foreground views include images of grass or fallow fields, road pavement, roadside ditches, pasture fencing, and (occasionally) road or private property signs. Middle ground views include agricultural buildings, irrigation canals, power transmission line towers, and mobile irrigation sprinklers. Background views include the foothills and Sierra Nevada Mountains to the west and farm communities to the east.

Visual quality within the pastureland landscape unit is moderately high. There has been little intrusion into the pastoral landscape by new urban structures. Distant views toward the foothills are intact. Visual unity, intactness, and integrity have been kept.

Foothills and River Valley Landscape Unit

This landscape unit begins east of Ellenwood Road and ultimately connects to State Route 108/120. Traveling east of Ellenwood Road, the landscape separates into cattle grazing on the foothills and farming on the river floodplain. Grazing land dominates the foreground. Gently rolling hills covered with dry pasture grasses and dotted with live oaks compose the middle ground. From the top of the foothills, background views can be seen of the Stanislaus River floodplain, the Sierra Nevada Mountains, and the farming towns of Stanislaus County in the distance.

The Stanislaus River floodplain, with its surrounding foothills, is the more scenic landscape of the project study area, and visual quality is moderately high. Visual character along State Route 108/120 is attractive with farmland, river, and oak/grassland views. There has been little intrusion by new non-agricultural or non-river-related elements. Views along State Route 108/120 are vivid, due to the varied topography and natural vegetation of the riparian forest, agricultural fields, and oak/grassland of the foothills.

Environmental Consequences

Impacts to the study area's visual quality stem from the introduction of a new element to this historically rural agricultural setting. While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either corridor it has the potential to affect the visual quality by expanding the width of existing country roads and utility corridors. Some areas of pasturelands would be converted when the highway changes from four lanes to eight lanes, with grade-separated railroad crossings, interchanges, and new frontage roads. These effects would be addressed in a future environmental document.

Effects to Views of Farmland

Visual impacts to the farmland and farmtown and suburban landscape units would be similar for Corridors A and B, especially between McHenry Avenue and Oakdale Road. Both corridors follow the same general route along or just south of the existing county route of Claribel Road. Farmland would become physically separated from the expressway motorist's view. Foreground views of orchards, vineyards, and row crop fields would be moved to

middle ground views. Distant views may become available to expressway motorists from new elevated, grade-separated railroad crossings.

Visual impacts caused to the pastureland unit, by Corridors A and B, differ in the following ways. Compared to Corridor A, Corridor B would convert more agricultural land to highway use where it turns northeast at Langworth Road to follow the Hetch Hetchy utility corridor. Corridor A would connect to State Route 108/120 via a "T" intersection, while Corridor B would connect to State Route 108/120 via a 1- to 2-mile expressway segment that would merge with existing State Route 108/120.

Compared to Corridor A, Corridor B would convert more high-value visual resources from the pastureland and the foothills and River Valley units to highway visual character.

Increase Light and Glare

Corridors A and B would equally degrade the existing visual quality for all landscape units with the increase of nighttime light from streetlights and glare from traffic headlights.

The No-Action Alternative would not create new highway routes where they do not currently exist. The No-Action Alternative would include ongoing population and employment increases, which would degrade existing visual quality by adding traffic and vehicle headlight glare.

Table 2-11 provides a summary of the potential adverse visual impacts of the action, based on goals and policies set by Stanislaus County. Although Corridors A and B do not enter the city limits of Modesto, Riverbank or Oakdale, these city goals were considered because of how close the cities are to the corridors.

Table 2-11. Summary of Visual Effects

Alternative	Meets Community Goals for Visual Resources				Amount of Agricultural Land Converted To New Roadway	Impacts to Visual Quality				Conclusions
	Stanislaus County	Modesto	Riverbank	Oakdale		Unity	Intactness	Vividness	Totals	
A	4	4	3	3	3	4	3	4	28	Construction in Corridor A would have the lowest adverse impact on visual resources of the action alternatives.
B	2	4	3	4	4	3	3	2	25	Construction in Corridor B would have the highest adverse impact on visual resources.
No-Action	5	5	5	5	5	4	4	4	37	No-Action Alternative would result in the lowest adverse impact on visual resources.

Legend: Evaluation scale from 1 to 5:
1 = Highest adverse impact
3 = Moderate adverse impact
5 = Lowest adverse Impact

Avoidance, Minimization, and/or Mitigation Measures

No impacts will occur as the result of adoption of a wide corridor. The construction for a future a new State Route 108 would require that a qualitative/aesthetic approach be taken to mitigate for visual quality loss in the study area. Mitigation measures would be analyzed for specific roadway alignment alternatives addressed in future environmental review once funding is available.

The following list of avoidance and minimization measures is typical of what could be expected in project-level documents:

- Minimize conversion of agricultural lands to roadway by placing the new expressway alignment along the routes of existing roads, where possible.
- Locate the new expressway where agricultural lands have been compromised by existing adjacent development, where possible.
- Incorporate city gateway aesthetic features into the design for new intersections at Claribel Road with Roselle Avenue and Warnerville Road. Since agricultural heritage and rural character have been identified in city and county general plans as major components of the study area's identity, city gateways could be designed to incorporate these visual images into the gateway design. For example, gateway site elements could include farmland elements. The elements could be located to screen or enhance scenic views, or the choice of gateway materials could match agricultural, scenic, or rural elements.
- Design expressway landscape to reflect vegetation patterns and plant types of the adjacent agricultural lands or native plant communities.
- Add cut-off light shields to expressway lighting to direct lighting toward the street, not toward adjacent land uses.
- Minimize impacts to the natural terrain, drainages, and vegetation, where possible. For example, visual impacts could be minimized by aligning the highway to follow natural landforms, preserving natural floodways by crossing drainages by bridge or extra-wide culvert, preserving scenic vegetation and visually prominent native trees, and by restoring native vegetation in accordance with the location, density and species characteristic for native plant communities in Stanislaus County.
- Identify important community views to culturally significant landmarks, such as mountain ranges, agricultural lands, historic buildings and other community landmarks, and design the expressway to preserve and enhance these views, where feasible.

All visual avoidance and minimization measures would be designed and implemented with concurrence of the district landscape architect.

2.1.10 Cultural Resources

Affected Environment

The study area sits east of Highway 108 at McHenry Avenue on the eastern side of the San Joaquin Valley. It is east of the San Joaquin River between the Stanislaus and Tuolumne rivers, which drain to the Sacramento River. The study area is underlain by Eocene, Miocene, and Pliocene nonmarine sedimentary rocks. The upper layers of the valley floor are composed of Holocene alluvium and sandy sediments.

The study area contains low hills and terraces. Streams and rivers helped form the area through erosion and the depositing of sediments.

During prehistoric times, the natural environment supported a diverse array of plants and animals that provided food for native populations. Today, the area consists mostly of agricultural land with rural communities and developed residential, commercial, and industrial areas.

Prehistoric Context

Although few archaeological sites show evidence of human occupation of the San Joaquin Valley during the late Pleistocene and early Holocene (12,000 to 6,000 B.C.), this is likely a product of the archaeological record itself rather than lack of use of this area. Most Pleistocene- and Holocene-epoch sites are deeply buried in accumulated gravels and silts, or have eroded away. One site was studied in northern Stanislaus County about 12 miles north of the current project area.

A chronology was determined for the southern San Joaquin Valley in 1969 by researchers Olsen and Payen based on western valley excavations. They found four distinct complexes: Positas, Pacheco, Gonzaga, and Panoche.

- The Positas Complex (3,300–2,600 B.C.) has small-shaped mortars, short cylindrical pestles, millingstones, perforated flat cobbles, and spire-lopped *Olivella* beads.
- The Pacheco Complex (2,600 B.C.–A.D. 300) has been divided into two phases. The Pacheco, Phase B (2,600–1,600 B.C.) is characterized by foliated bifaces, rectangular

Haliotis ornaments, and thick, rectangular *Olivella* beads. The Pacheco, Phase A (1,600 B.C.–A.D. 300) has by more varied types of shell beads.

- The Gonzaga Complex (A.D. 300–1000) has extended and flexed burials, bowl mortars and shaped pestles, squared and tapered stem projectile points, and a distinctive shell industry.
- The Panoche Complex (A.D. 1500 to European contact) has a few millingstones and varied mortars and pestles, small side-notched arrow points, clamshell disc beads, and bone awls, whistles, saws, and tubes.

Ethnographic Context

Native peoples lived in this area. Population estimates for the Northern Valley Yokuts vary from 11,000 to more than 31,000 individuals. Populations were concentrated along waterways and on the east side of the San Joaquin River. Settlements were located on the tops of low mounds, on or near the banks of the larger rivers and streams, based on abundance of resources in the area.

The native peoples ate little game; their diet staples were acorns, tule roots, and seeds. Goods not available locally were obtained through trade. Paiute and Shoshone groups on the eastern side of the Sierra supplied obsidian. Shell beads and mussels were obtained from Salinan and Costanoan groups. Trading with Miwok groups to the north yielded baskets and bows and arrows.

Historical Early Exploration and Settlement

The study area is in Stanislaus County, north of the city of Modesto, and south of the cities of Riverbank and Oakdale. Organized in 1854 from the western portion of Tuolumne County, present-day Stanislaus County also includes a northeastern section annexed from San Joaquin County in 1860. After changing hands several times, the county seat eventually settled in Modesto in 1872.

Gabriel Moraga was the first recorded early explorer to reach present-day Stanislaus County while on a scouting expedition for mission sites in 1806. The first Euro-American to cross the area was likely Jedediah Strong Smith, who opened the Sacramento Trail in the late 1820s. Following Mexico's independence from Spain in 1821, the colonization of California progressed with the issuance of rancho lands by Mexican governors. Stanislaus County area grantees used their ranchos mainly for grazing cattle. Governor Micheltorena granted the largest rancho in the San Joaquin Valley to Francisco Rica and José Antonio Castro, who

named the 49,000 acres Rancho de Rio Estanislao. The rancho extended north and east into Tuolumne and Calaveras counties and was bound on the south by the Stanislaus River

Historical Development

The American annexation of California, the discovery of gold in 1848, the resulting Gold Rush, and California statehood in 1850 all contributed to a change in Stanislaus County in the mid- and late-19th century. Prominent early Stanislaus County agriculturalists and ranchers—William Sherman, Fred Billings, and Henry Halleck—collectively owned the cattle ranch on Alfias Basil Thompson's rancho. There was expansive acreage that included the present-day location of Oakdale and Riverbank, and these men—like many others—established productive farms and ranches in the area throughout the mid- and late 1800s.

Although cattle and sheep ranching were popular in the Stanislaus County region for a short time, a series of disastrous floods and droughts in 1860 and 1861, and the implementation of the "No Fence Law" prohibiting the use of the valley as an open range, persuaded many ranchers to adopt crop farming. These early farmers first grew wheat and barley, but later, after the introduction of irrigation in 1885, switched to nuts, fruits, and berries. Dairy farming also became prominent after the introduction of irrigation. As a result, by the turn of the 20th century, grain was no longer the staple crop of the region; it had been replaced by creameries and dairy farming.

Throughout the 20th century, parcels in the study area have been used for livestock and eventually crop cultivation and dairy processing. While most of the acreage has continually been used for agricultural purposes, residential properties also existed within the established cities of Modesto, Riverbank, and Oakdale. Mid-19th century surveyor maps show the study area as a patchwork of vegetation and road/trail systems immediately south of the Stanislaus River. Mid-20th century United States Geologic Survey maps show development, with scattered homes and municipal improvements. The scattered nature of development throughout the 20th century kept the area mostly agricultural. Today, the study area contains orchards and dairies.

Environmental Consequences

The proposed action is the adoption of a wide corridor for a future State Route 108 and does not directly involve physical construction. Once funding is available for a new State Route 108, these measures would be further defined and the subject of a future environmental review.

Impacts related to construction and operations of a future new alignment of State Route 108 are evaluated below.

Substantial Adverse Change in the Significance of a Historical Resource

Corridors A and B have not been formally inventoried for cultural resources. However, a records search for previously recorded cultural resources in the study area was done on December 10, 2008 at the Central California Information Center of the California Historical Resources Information System at California State University, Stanislaus. The Central California Information Center staff did a database search of all previously recorded sites and studies within the specific study area (Corridors A and B), plus a 0.5-mile radius of the study area. The search also checked current listings for the National Register of Historic Places, the California Register of Historical Resources, the Historical Resources Inventory database, Historic Spots in California (Hoover et al. 1990), and historical maps.

The search found no known cultural resources listed in the National Register of Historic Places or the California Register of Historical Resources in the study area. The record search showed eight cultural resources that have been previously recorded in the study area. Only 2 of those have been recommended as eligible for the National Register of Historic Places and are therefore historical resources for the purposes of the California Environmental Quality Act: a segment of Hetch Hetchy Aqueduct and a segment of the Sierra Railroad. Both of these significant historical resources cross Corridors A and B.

Another survey of the study area on January 7, 2009 revealed about 50 parcels containing buildings and structures 45 years old or older within the boundaries of the Corridor A study area; Corridor B had about 40 such properties.

Because of the age of the buildings and structures, these resources could be eligible for listing in the California Register of Historical Resources or eligible as locally designated historical resources. As noted above, however, the records search did not identify any archaeological cultural resources listed in or eligible for the National Register of Historic Places or the California Register of Historical Resources in the study area.

No formal investigations into the possible presence of archaeological cultural resources have been conducted for Corridors A and B, so the study area may contain significant archaeological historical resources under the California Environmental Quality Act. If cultural resources (buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance) cannot be completely avoided

by project design, then ground-disturbing and other activities associated with construction of a new roadway in either of the alternative corridors may result in damage, physical demolition, destruction, relocation, or alteration of buildings or structures. This would result in a substantial adverse change to significant cultural resources. Implementation of the measures below would reduce this effect.

Currently, only about 10% of the study area has been formally surveyed for cultural resources. It is not known if buried human remains are located in the study areas of the Corridors A and B. However, the study area is located within a geographic area that is considered of moderate to high sensitivity for archaeological cultural remains.

Previous archaeological studies near the eastern end of the study area have identified resources such as housepits, midden, lithic scatters, and milling features. Archaeological finds such as these would indicate a habitation site and would likely be considered substantial as well as have a high sensitivity for the presence of buried human remains.

Therefore, within the study areas of Corridors A and B, the potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation, would be high. Implementation of the measures below would likely reduce the severity of this effect.

Avoidance, Minimization, and/or Mitigation Measures

No impact will occur as a result of the adoption of a corridor. A separate environmental review for a new State Route 108 would be required to analyze potential roadway alignment alternatives. Before construction of a new state route roadway, Caltrans would ensure that cultural resources are treated appropriately according to state and federal laws and regulations, as applicable. Because the new roadway would be a state route, all cultural resources in the future project area would be appropriately inventoried and documented according to Caltrans procedures and California Environmental Quality Act guidelines. Each construction project would be designed to avoid cultural resources, if possible.

In addition, it is possible that construction of the future roadway could involve federal funding, thereby making Federal Highway Administration/Caltrans the federal lead agency for future phases of the project. Should Caltrans determine that a federal undertaking exists; Section 106 of the National Historic Preservation Act regulations would apply and be followed. The purpose of the Section 106 process is to evaluate the potential for the project

to affect cultural resources eligible for listing in the National Register of Historic Places or any resources considered historic for the purposes of California Environmental Quality Act.

If construction of a new roadway, as a result of route adoption, results in the demolition or destruction of any cultural resources (buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance) located in the roadway study area, the effect cannot be fully eliminated by this measure. In this case, it is likely that further research or documentation would be required, and additional mitigation measures may need to be developed to reduce the effect.

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

If human remains are discovered during ground-disturbing activities, all work must stop in the immediate area of the find and within 100-feet of the find and the on-site environmental construction monitor, the construction foreman, and Caltrans must comply with state laws pertaining to the protection of interred human remains. State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the county coroner contacted. Per Public Resources Code Section 5097.98, if the remains were thought to be Native American, the coroner would notify the Native American Heritage Commission, which would then notify the Most Likely Descendent. At this time, the person who discovered the remains would contact Caltrans so that Caltrans staff can work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Affected Environment

The study area contains the Stanislaus River, the Tuolumne River, and an extensive system of irrigation canals. The area is underlain by the Modesto Groundwater Sub-basin. Surface water and groundwater resources are important features in the study area, as much of the area is used for agriculture and relies on irrigation. Natural floodplains associated with rivers,

streams, and creeks are important in attenuating flood waters and minimizing the potential for property damage or loss.

Surface Water Resources

The study area sits in the Middle San Joaquin–Lower Merced–Lower Stanislaus watershed. The watershed drains an area about 1,800 square miles in size. The most prominent surface water feature in the study area is the Stanislaus River, which marks the northern boundary of the study area and is a tributary to the San Joaquin River. According to the Water Quality Control Plan issued by the Central Valley Region of the California Regional Water Quality Control Board for the Sacramento River and San Joaquin River Basins, the Stanislaus River has existing beneficial uses in agriculture, industry, recreation, fish habitat, and wildlife habitat.

The Modesto Irrigation District and Oakdale Irrigation District maintain several linear water conveyance features in the study area. Surface water features are shown in Figure 2-19.

National Hydrology Dataset mapping was used to identify surface water bodies such as streams, creeks, natural pools, ponds, and lakes. Figure 2-22 shows these features.

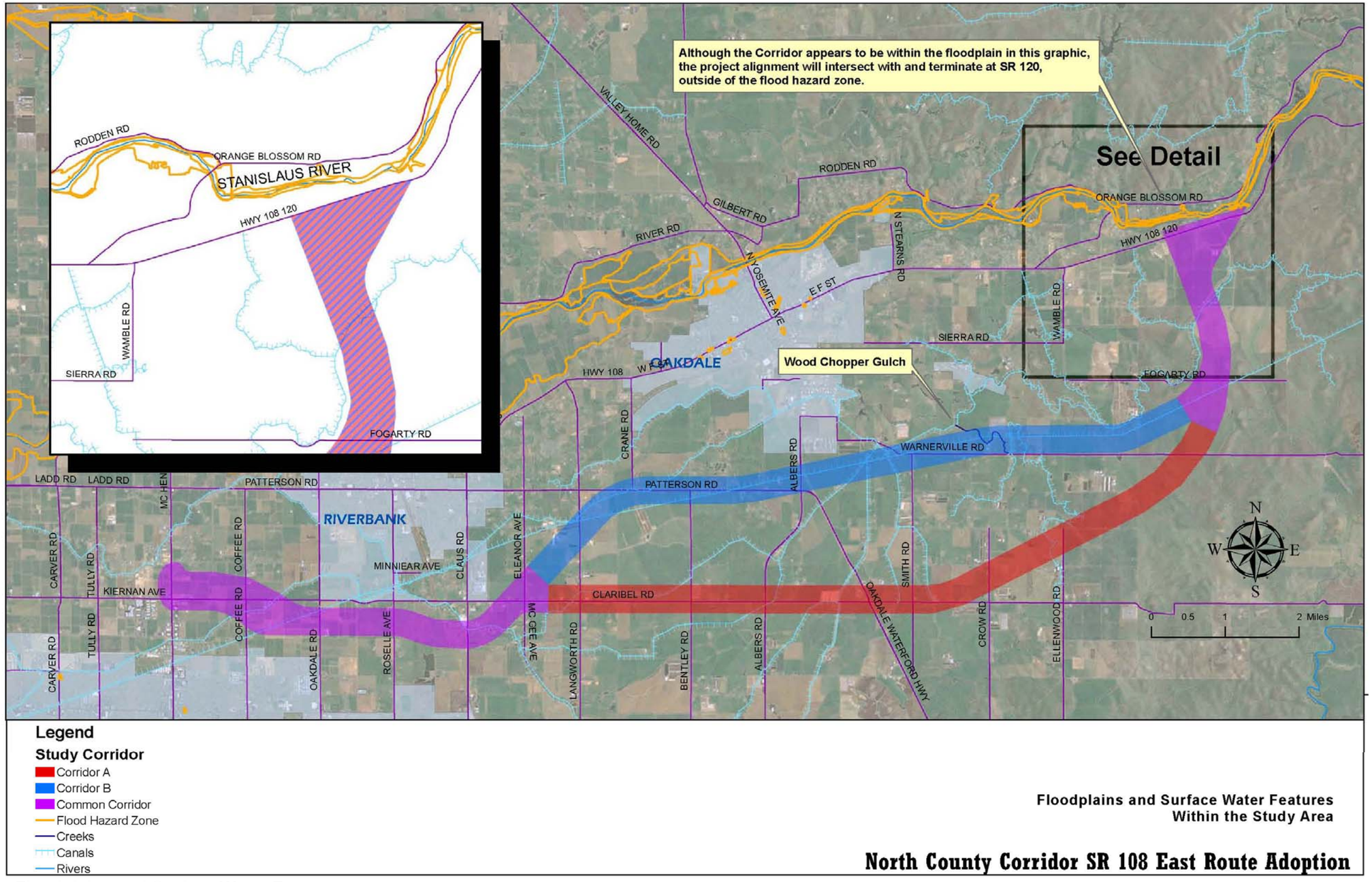


Figure 2-19. Floodplains and Surface Water Features

Floodplains

The Federal Emergency Management Agency provides information on flood hazards and has delineated designated hazard zones to indicate the potential for flooding. The regulatory benchmark for encroachment is the 100-year floodplain, defined as "the area subject to flooding by the flood or tide having a 1% chance of being exceeded in any given year." Floodplains are generally associated with waterways. Figure 2-19 shows surface water features and the 100-year floodplain as delineated by the Federal Emergency Management Agency.

The study area is next to and south of the Stanislaus River and its associated floodplain.

Environmental Consequences

Designation of a wide corridor for the future State Route 108 would not have an effect on water bodies and floodplains. The construction of a new State Route 108 alignment with the selection of either corridor has the potential to affect hydrology because of the increase in the amount of impervious surface and the number of stream and water crossings. Once funding is available these impacts would be addressed in a future environmental review for a new State Route 108 within the adopted corridor.

The increase in impervious surface area could result in increased peak flows and runoff volumes and, if left untreated, could negatively affect water quality of receiving water bodies. Permanent structures such as water quality ponds, detention basins, and swales can be incorporated into roadway design to retain or delay the flow of the additional runoff, thus attenuating peak flows and reducing water quality impacts. Corridor A would include the addition of between 222 to 361 acres of impervious surface area; Corridor B would include the addition of 233 to 381 acres of impervious surface area.

Streams crossings can affect the hydrologic integrity of the watershed due to potential constriction or blockage of natural flows and streambed migration. Alteration of the streambed can also affect natural flooding regimes and reduce the downstream transport of sediment and pollutants. Corridor A would not cross any perennial streams or rivers. Therefore, there would be no direct impact to streams or rivers. Corridor B would cross Wood Chopper Gulch. The gulch is highly channelized through the corridor and connects two irrigation canals.

Crossings of canals and irrigation ditches can have an impact on the hydrologic integrity of the watershed and constrict or block canal flows. The combined corridor would cross three canals and irrigation ditches within the western portion and two canals and irrigation ditches

within the eastern portion. Corridor A would cross seven canals and irrigation ditches, including the Modesto Irrigation District Lateral No. 8, the Mootz lateral, and the Oakdale Irrigation District South Main. Corridor B would also cross seven canals and irrigation ditches. Coordination with the Modesto and Oakdale Irrigation Districts would be required to determine the clearance over and on either side of their facilities that would be needed for the roadway to avoid impacts to flow patterns and volumes.

Encroachment of the regulated floodplain can degrade beneficial floodplain values and hydraulic functions. Development in a flood hazard zone could potentially increase flood elevation, extend the boundary of the natural floodplain, and/or reduce its overall storage capacity. The construction of the corridors would not encroach on regulated floodplains within the study area; therefore, no adverse impact would incur.

The No-Action Alternative would result in no new encroachments to regulated floodplains or further degradation of other hydrological resources. Since there would be no impacts, no avoidance and minimization would be required.

Avoidance, Minimization, and/or Measures

No impact will occur as a result of the adoption of a corridor. A detailed hydraulic analysis of the area would be done during the design phases of a future new State Route 108 and would be the basis for defining avoidance and minimization measures.

Measures including short- and/or long-term best management practices, or the construction of physical features, to retain or delay the flow of the additional runoff and prevent or offset impacts to water resources would be implemented within the study area.

2.2.2 Water Quality and Storm Water Runoff

Affected Environment

Water quality affects the human and the natural environment, including fisheries, wildlife, recreation, and human health. Surface water quality is typically influenced by the surrounding land use.

Historically, the study area has been agricultural, but the area has become more urban in recent years. Runoff from agricultural lands could include pollutants such as pesticides, herbicides, nitrogen, phosphorous, and coliform bacteria, while runoff from urban areas could include such pollutants as oil, grease, metals, pesticides, and herbicides.

Water quality degradation from non-point source pollutants is often the result of stormwater runoff carrying pollutants from upland areas, without being treated, into water resources. Pollutants from urban areas are often gathered via stormwater drainage systems and treated before being released to receiving waters. This form of discharge is referred to as a point source. If stormwater runoff contains excessive concentrations of pollutants, it could adversely affect fisheries, water supplies, and aquatic-dependent wildlife, as well as degrading streams to an extent that warrants precluding human contact (such as for recreational uses).

Surface Water Resources

The study area sits in the Environmental Protection Agency-designated Middle San Joaquin–Lower Merced–Lower Stanislaus watershed. According the Office of Water Program at California State University, Sacramento, the project lies in the San Joaquin Valley Floor hydrologic unit, in the Riverbank Hydrologic Area and within an undefined hydrologic Sub-Area.

The watershed drains an area about 1,800 square miles in size. The most prominent surface water feature within the study area is the Stanislaus River, which is a tributary to the San Joaquin River. According to the California Regional Water Quality Control Board–Central Valley Region's Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, the Stanislaus River has existing beneficial uses in agriculture, industry, recreation, fish habitat, and wildlife habitat.

Water quality objectives for surface waters include limits for biostimulatory substances, chemical constituents, dissolved oxygen, floating material, methylmercury, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

Within the study area, the Modesto Irrigation District and Oakdale Irrigation District maintain several linear water conveyance features. The Modesto Irrigation District diverts its water from the Tuolumne River, south of the study area. The Oakdale Irrigation District provides irrigation to its service area from releases from the New Melones Dam, a storage reservoir upstream on the Stanislaus River. Figure 2-19 shows the irrigation canals in the study area.

Groundwater

The study area is underlain by the Modesto Groundwater Sub-basin of the San Joaquin Groundwater Basin. Groundwater recharge for the Modesto Groundwater Sub-basin is provided mainly from surface water infiltration (seepage into the underlying aquifer from rivers, streams, and irrigation systems) and subsurface inflow from adjacent sub-basins.

Groundwater is generally of good quality, but elevated concentrations of total dissolved solids, nitrates, and volatile organic compounds have been found by Stanislaus County in isolated areas of the basin. The Central Valley Regional Water Quality Control Board has designated beneficial uses of the groundwater resources. All groundwaters in the region are considered suitable or potentially suitable for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply. Water quality objectives for groundwater resources include limits for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity.

In April 1994, six agencies within the Modesto Groundwater Sub-basin formed the Stanislaus and Tuolumne Rivers Groundwater Basin Association to coordinate and consolidate management efforts within the basin and to develop a management plan. The major purveyors of water within the sub-basin are the Modesto Irrigation District, the Oakdale Irrigation District, and the cities of Modesto, Riverbank, and Oakdale.

Within Corridor A are three irrigation wells managed by the Modesto Irrigation District and two managed by Oakdale Irrigation District. Within Corridor B are five irrigation wells managed by the Modesto Irrigation District.

Domestic Water Supply

The cities of Modesto, Riverbank and Oakdale are served by public water systems using groundwater from the Modesto Groundwater Sub-basin. The extracted water is of a quality that meets state standards for direct distribution and does not require treatment. Private wells provide domestic water supplies for areas outside the cities.

The City of Modesto also uses treated water from the Modesto Irrigation District as part of its domestic water supply. Use of surface water from Modesto Irrigation District, delivered via the Modesto Regional Water Treatment Plant, has led to a reduction of groundwater extraction for municipal use in Modesto.

Wastewater

Each of the three cities within the study area maintains its own wastewater treatment plant, which operates in compliance with federal and state requirements. Treated wastewater from the cities of Oakdale and Riverbank is transferred to holding ponds and discharged via evaporation/percolation. Treated wastewater from the City of Modesto is discharged to the San Joaquin River. Wastewater treatment in the rural areas is generally performed on-site using leach fields and septic systems; this type of treatment does not remove pollutants that may be present.

Stormwater

Each of the three cities within the study area maintains separate municipal storm sewer systems consisting of underground pipes within the street right-of-way. Stormwater discharges from the cities of Oakdale and Riverbank drain into the Stanislaus River. Discharge from the stormwater drainage system in the City of Modesto drains to the Tuolumne, Dry Creek, or Modesto Irrigation District Lateral No. 3, which drains into the San Joaquin River.

Stormwater in the rural areas generally seeps directly through the soil, although natural drainage swales or roadside ditches convey stormwater into other drainages that flow into the Stanislaus River.

Environmental Consequences

Selection of either corridor would not have an impact, but construction of a new State Route 108 alignment within either Corridor A or Corridor B would potentially affect water quality and stormwater runoff in the project area because of the increased amount of impervious surface and number of stream and water crossings. When funding becomes available these impacts would be analyzed in a future environmental document.

The addition of impervious surface within the study area would affect the hydrologic integrity of the watershed added to peak flows and runoff volumes, which can cause flooding downstream and increase the amount and concentration of pollutants entering water systems. Highly impervious surfaces create high velocities of runoff that easily transport solids and contaminants into waterways.

Construction of either corridor would add impervious surface area to the watershed, constituting a long-term impact to affected water resources. The construction of physical features such as media filters, detention basins, or biofiltration swales can be incorporated

into roadway design to retain or delay the flow of the additional runoff to attenuate peak flows and affect water quality volume, thus reducing water quality impacts.

Stream crossings can have an impact on the hydrologic integrity of the watershed due to potential constriction or blockage of natural flows and streambed migration. Stream crossings also provide an opportunity for stormwater runoff that may contain pollutants to enter into a waterway, both during and after construction, without the implementation of effective best management practices. Alteration of the streambed can also affect natural flooding regimes and cause a reduction or increase in the downstream transport of sediment and pollutants.

Corridor A would not cross any perennial streams or rivers. Therefore, there would be no direct impact to streams or rivers. Corridor B would cross Wood Chopper Gulch. The gulch is highly channelized through the corridor and connects two irrigation canals. Coordination with the Modesto and Oakdale Irrigation Districts and the California Department of Water Resources would be required to avoid or minimize impacts to stream flow patterns and volume. Because no hydrologic change of existing waterways would occur, only short-term impacts would be anticipated.

Crossings of canals and irrigation ditches can have an impact on the hydrologic integrity of the watershed and constrict or block canal flows. Crossings at canals also provide an opportunity for stormwater runoff that may contain pollutants to enter into a waterway, both during and after construction, without the implementation of effective best management practices.

The proposed common corridor alignment would cross three canals and irrigation ditches in the western portion and two canals and irrigation ditches in the eastern portion.

Corridor A would cross seven canals and irrigation ditches, including the Modesto Irrigation District Lateral No. 8, the Mootz lateral, the Oakdale Irrigation District South Main, and several irrigation ditches. Corridor B would cross seven canals and irrigation ditches. Coordination with the Modesto and Oakdale Irrigation Districts and owner/operators of affected canals would be required to avoid or minimize impacts to canal flow patterns and volume. Because no hydrologic modification of existing waterways would occur, only short-term impacts would be anticipated.

Within Corridor A, there are three irrigation wells managed by Modesto Irrigation District and two irrigation wells managed by Oakdale Irrigation District. Within Corridor B, there are five irrigation wells managed by Modesto Irrigation District. Design elements such as the

construction of physical features to collect or redirect water, as needed, and implementation of best management practices can be used to avoid impacts to groundwater wells.

Implementation of the No-Action Alternative would result in no project-related degradation of hydrological resources. Thus, there would be no impacts, and no avoidance and minimization measures would be required.

Avoidance, Minimization, and/or Mitigation Measures

No impacts will occur as a result of the route adoption. The proposed action is the adoption of a wide corridor for a future State Route 108, and does not directly involve physical construction. A future environmental review for a new State Route 108 would require avoidance and minimization measures to reduce these impacts and the implementation of best management practices can alleviate the potential for increased flood risk. The construction of physical features may be incorporated into roadway design to retain or delay the flow of the additional runoff to attenuate peak flows and affect water quality volume, thus reducing water quality impacts. All construction would conform to National Pollutant Discharge Elimination System permit requirements to maintain water quality within the study area.

2.2.3 Geology/Soils/Seismic/Topography

Affected Environment

Corridors A and B sit in the eastern margin of the Great Valley Geomorphic Province (California Geological Survey 2002). The Great Valley is a northwest-southeast valley bounded by the Coast Range to the west and the Sierra Nevada to the east. It consists of marine and non-marine sedimentary rock that ranges in age from the Late Jurassic period to the Holocene. These sedimentary formations (known as the Great Valley Sequence) lie over Paleozoic-Mesozoic metamorphic rock and Mesozoic plutonic rock.

The geology in the project area consists of mainly Quaternary and Tertiary alluvial fan deposits and Tertiary volcanic sedimentary deposits. Figure 2-20 shows the geologic units in the project area (*Geologic Map of the San Francisco-San Jose Quadrangle,* Borugno et. al. 1991a). The geologic units exposed near the project area generally increase in age progressively toward the east, except for Holocene sediments present along the Stanislaus River immediately to the north. The geologic units exposed in the project area, from youngest to oldest, are:

- Modesto Formation (Upper Pleistocene arkosic alluvial fan deposits)
- Riverbank Formation (Middle Pleistocene arkosic alluvial fan deposits)
- Turlock Lake Formation (Lower Pleistocene arkosic alluvial fan deposits)
- Mehrten Formation (Miocene-Pliocene andesitic lahars, silts, sands and conglomerate)

The topography of the project area is generally flat in the western half, with gently rolling hills in the eastern half and some steeper slopes along the eastern margin.

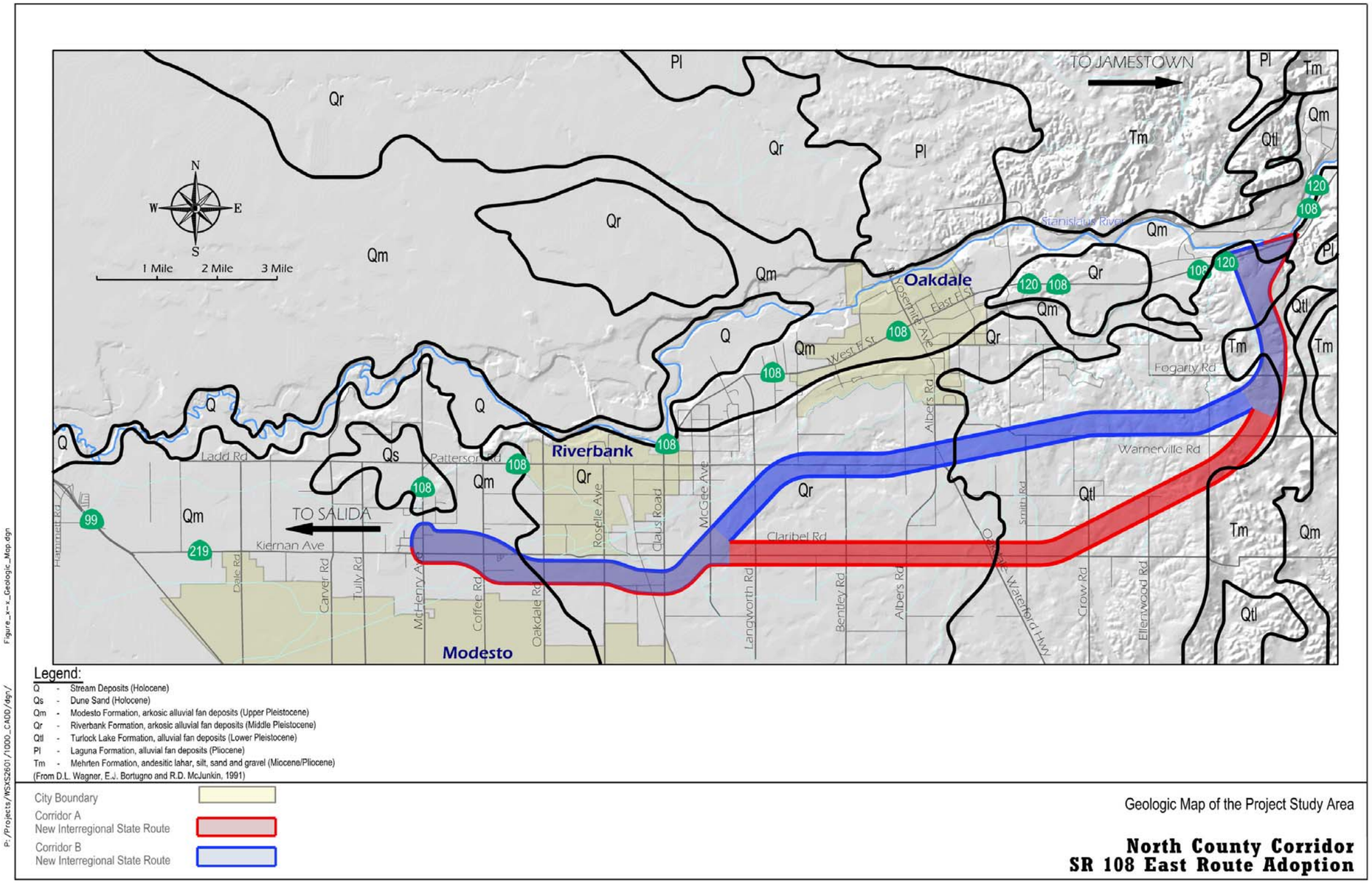


Figure 2-20. Geologic Map

Environmental Consequences

While the selection of either corridor would not have an impact, once funding is available for a new State Route 108 construction could affect topography and seismology, because of the potential impacts on slope stability, expansive soils, erosion, and hazardous minerals. Based on the maps reviewed and the absence of Alquist-Priolo Fault Zones, no known active faults are in the project area and surface ruptures are not anticipated.

The potential for ground shaking exists within the corridors, but both corridors are located a substantial distance from active faults in the Oakdale area. Based on the age and consolidation of the geologic formations, as well as the depth to water in the project area, the potential exists for soil liquefaction within the corridors. Review of the California Geological Survey, Landslide Inventory Map indicates that there are no maps identifying landslide hazard in eastern Stanislaus County. In addition, there is relatively flat topography throughout the project area.

Excavation activities producing road cuts during road construction could produce slope stability problems. This would be more likely to occur in the eastern margin of the project area where the topography is more pronounced.

Some soil types that might be considered expansive were identified in the eastern half of the project area. No expansive soil types were identified west of Langworth Road. Below is a summary of the findings from review of the National Resource Conservation Service (a division of the U.S. Department of Agriculture) Web Soil Survey Website (National Resource Conservation Service 2009).

- Grading and excavation activities associated with road construction expose underlying soil by removing vegetative cover. This would be more likely within the eastern margin of the project area where topography includes more slopes.
- The hazard from radon gas usually results from accumulation in the bottom of a structure (such as a residential basement) over an extended period. According to the California Department of Health Services California Indoor Radon Levels Website, one of nineteen samples collected in the Oakdale area exceeded the U.S Environmental Protection Agency action level of four Pico curies per liter (California Department of Health Services 2009). Therefore, worker exposure to radon gas during demolition of a structure seems remote. The potential for radon gas exposure would not be known until a specific route alignment is selected and properties could be identified for testing.

- Workers would be exposed to mercury only if mercury ore (cinnabar) or natural-occurring mercury, were exposed during construction. Most of the mercury mines in California are in the Coast Range, with minor amounts in the Sierra Nevada and the Basin and Range geomorphic provinces. There are no known mercury deposits in the Great Valley. Therefore, exposure to mercury ore is unlikely.
- Asbestos-form minerals are typically associated with ultramafic rock such as serpentinite. The nearest ultramafic rock formation is 11 miles northeast of the project area (Borugno et. al. 1991a).

Implementation of the No-Action Alternative would not result in project-related impacts on geology, soils, seismic, or topography.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation measures would be required for the adoption of wide corridor. A future environmental review of the construction of a new State Route 108 alignment would result in evaluation of avoidance and mitigation measures within the adopted corridor. Erosion and impacts to slope stability caused by construction of a new roadway for State Route 108 could be offset by adopting control measures such as hydro-seeding and surface water diversion during construction.

Additional information provided from a project-specific geotechnical investigation would further evaluate the possible impacts of seismic ground shaking, liquefaction and expansive soils, as well as provide design avoidance and minimization measures if needed.

Implementation of the No-Action Alternative would not result in project-related impacts on geology, soils, seismic, or topography. Therefore, no avoidance and minimization measures would be required.

2.2.4 Paleontology

Affected Environment

Geologic maps show the western portion and potentially the easternmost portion of the Common Corridor on alluvial sedimentary deposits of the Modesto Formation of Pleistocene age (see Figures 2-29 and 2-30). The Modesto Formation throughout the Sacramento-San Joaquin Valleys was deposited by streams. It consists of tan and light-gray gravelly sand, silt, and clay except where it comes from volcanic rocks. Where it comes from a volcanic source, it is red and black with minor brown fragments.

The Modesto Formation is divided into upper and lower areas. The upper area is unconsolidated, unweathered gravel, sand, silt, and clay; the lower area is unconsolidated, slightly weathered gravel, sand, silt, and clay. The upper area is about 12,000 to 26,000 years old, and the lower member about 29,000 to 42,000 years old.

The Modesto Formation contains vertebrate fossils, including remains of rodents and snakes, as well as plant fossils. The Modesto Formation overlies the Riverbank Formation regionally in the Sacramento Valley. Because of its vertebrate content, the Modesto Formation is considered highly sensitive for paleontological resources.

The central portions of Corridors A and B would sit over the Pleistocene Riverbank Formation, which consists of reddish gravels, sand, silt, and clay and ranges from less than 1 foot to more than 200 feet in thickness depending on location. The Riverbank Formation is divided into upper and lower areas based largely on the more eroded character of the lower area. The Pleistocene age of the Riverbank Formation is well represented by important fossils recovered from excavations immediately north of Sacramento, at Arco Arena, in 1989. Fossils from the Arco Arena site include remains of ground sloth, dire wolf, horse, rabbit, birds, wood rat, bison, camel, coyote, antelope, deer, and mammoth, as well as clams, fish, turtles, frogs, snakes, and land plant wood, leaves, and seeds. Because of its abundant finds, the Riverbank Formation is considered highly sensitive for paleontological resources.

The eastern portions of Corridors A and B would sit over the Pleistocene Turlock Lake Formation and are on or close to exposures of the Pliocene-Miocene Merhten Formation. More detailed site evaluation is needed to see whether the project would involve surface exposures of the Mehrten Formation.

The Turlock Lake Formation consists of arkosic gravels with metamorphic rock fragments and quartz pebbles with sand and silt along the south and east sides of the Sacramento Valley. The Irvingtonian (about 780,000 years old) Fairmead Landfill site contains significant vertebrate fossils from this formation, including remains of horses, ground sloths, saber-toothed cat, Armbruster's wolf, scimitar-toothed cat, llama, *Tetrameryx irvingtonensis* Stirton (ancestor to modern pronghorn), deer, camels, mammoth, smooth-tooted pocket gopher, Capromeryx (pronghorn-like ungulates), coyote, *Miracinonyx trumani* (American cheetah-like cat), turtle, and tortoise. Because of its vertebrate content, the Turlock Lake Formation is considered highly sensitive for paleontological resources.

The Mehrten Formation consists of sandstone, laminated siltstone, conglomerate, and tuff breccia composed almost entirely of andesitic material and other minor igneous and metamorphic rock fragments from other sources. The Mehrten Formation contains significant fossils that aid in interpreting late Miocene uplift of the Sierra Nevada mountain ranges, the life during this time, climate and environment of deposition. Fossils include microfossils such as foraminifera, plants (*Sequoia* and white oaks) and vertebrates (extinct horse, primitive rhinoceros, camel, and tortoise). Because of its significant fossil content, the Mehrten Formation is considered highly sensitive for paleontological resources.

Environmental Consequences

The proposed route adoption does not directly involve physical construction. But, once funding is available for the construction of a new State Route 108 it has the potential under either corridor to disturb or destroy paleontological remains. Effects of construction of a roadway alignment within the adopted corridor would be assessed in a subsequent environmental document.

The main impact on paleontological resources would be ground disturbance during construction of the roadway. The potential for impact would be greatest:

- In the western portion of the Common Corridor, where the highly sensitive Modesto Formation is exposed at the ground surface.
- In the central portion of Corridors A and B, where the highly sensitive Riverbank Formation is exposed at the ground surface.
- In the eastern portion of the Corridors A and B and the Common Corridor, where the highly sensitive Turlock Lake Formation and Merhten Formation are exposed at the ground surface.
- In any of the northern portions of both Corridors A and B where project excavation or drilling would affect Pleistocene (Modesto, Riverbank, and Turlock Lake Formations) to Pliocene-Miocene strata exposed at the surface or concealed under any soil/Holocene veneer.

Ground disturbance for the construction of ancillary facilities, including supporting facilities, temporary construction offices, and construction staging areas, also could disturb native materials, with potential for impacts on paleontological resources.

The No-Action Alternative would result in no project-related impacts to paleontological remains.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation would be required for the route adoption. The construction of a new State Route 108 alignment has the potential to affect the paleontologically sensitive Modesto, Riverbank, Turlock Lake, and Merhten Formations, a project-specific paleontological evaluation report would be prepared for each separate future construction project, The paleontological evaluation report would include an evaluation of site- and project-specific potential for impacts on paleontologically sensitive strata that may be present in the subsurface in areas with strata of Holocene age exposed at the surface, based on available geologic and geotechnical information; project design; proposed construction or maintenance methods, including the anticipated depths of disturbance; and existing site conditions, including preexisting disturbance, if any.

If the paleontological evaluation report concludes that any of the project's potential impacts on paleontological resources cannot be avoided through project design or the establishment of environmentally sensitive areas for avoidance, a paleontological mitigation plan would be required before construction can begin.

2.2.5 Hazardous Waste or Materials

Affected Environment

A Department of Toxic Substances Control Envirostor and California Integrated Waste Management Board Solid Waste Information System search was conducted for Stanislaus County. Envirostor identified 38 hazardous material or waste sites within Stanislaus County; only three of the 38 sites were identified within 1 mile of the North County Corridor State Route 108 East Route Adoption study area. The Solid Waste Information System database search identified 28 solid waste facilities in Stanislaus County; only two were identified within one mile of the project study area.

In the database searches, one site identified on the National Priorities List/Superfund List was found within 1 mile of the study area. There was one State Response Plan site within the project area, and one State Response Plan site within 1 mile of the project area. There was one composting operations plant within 1 mile of the project area and one closed solid waste disposal site within 2 miles of the project area.

Table 2-12 shows the hazardous materials or waste sites in the study area for each alternative. Figure 2-151 shows the locations of the hazardous materials/waste sites in the project area.

Following the table is a brief description and discussion of the potential impacts of these sites. Dashes on the table mean that there were no listings on the database searched.

Table 2-12. Hazardous Materials/Waste Sites in or near the Vicinity of the North County Corridor State Route 108 East Route Adoption Area

California State Solid Waste Landfills	National Priorities List/ Superfund Sites	State Response Plan	Location of Site	Latitude/ Longitude	Status of Site
Oakdale Disposal Site	-	-	Oakdale Airport, South of Runway, Oakdale, CA 95361	37.75389/-120.79861	Closed
Central Valley Agricultural Grinding, Inc.	-	-	5707 Langworth Road, Riverbank, CA 95361	37.72475/-120.90214	Active
-	Riverbank Army Ammunition Plant	Riverbank Army Ammunition Plant	5300 Claus Road, Riverbank, CA 95367	-	National Priorities List/Hazardous Waste Facility/ Active
-	-	Union Pacific Railroad Tidewater Subdivision (Voluntary Clean-up)	Mile Post 26.43 to Mile Post 3205, Modesto, CA 95350	-	This is a voluntary clean-up site. No further action granted December 19, 2001.

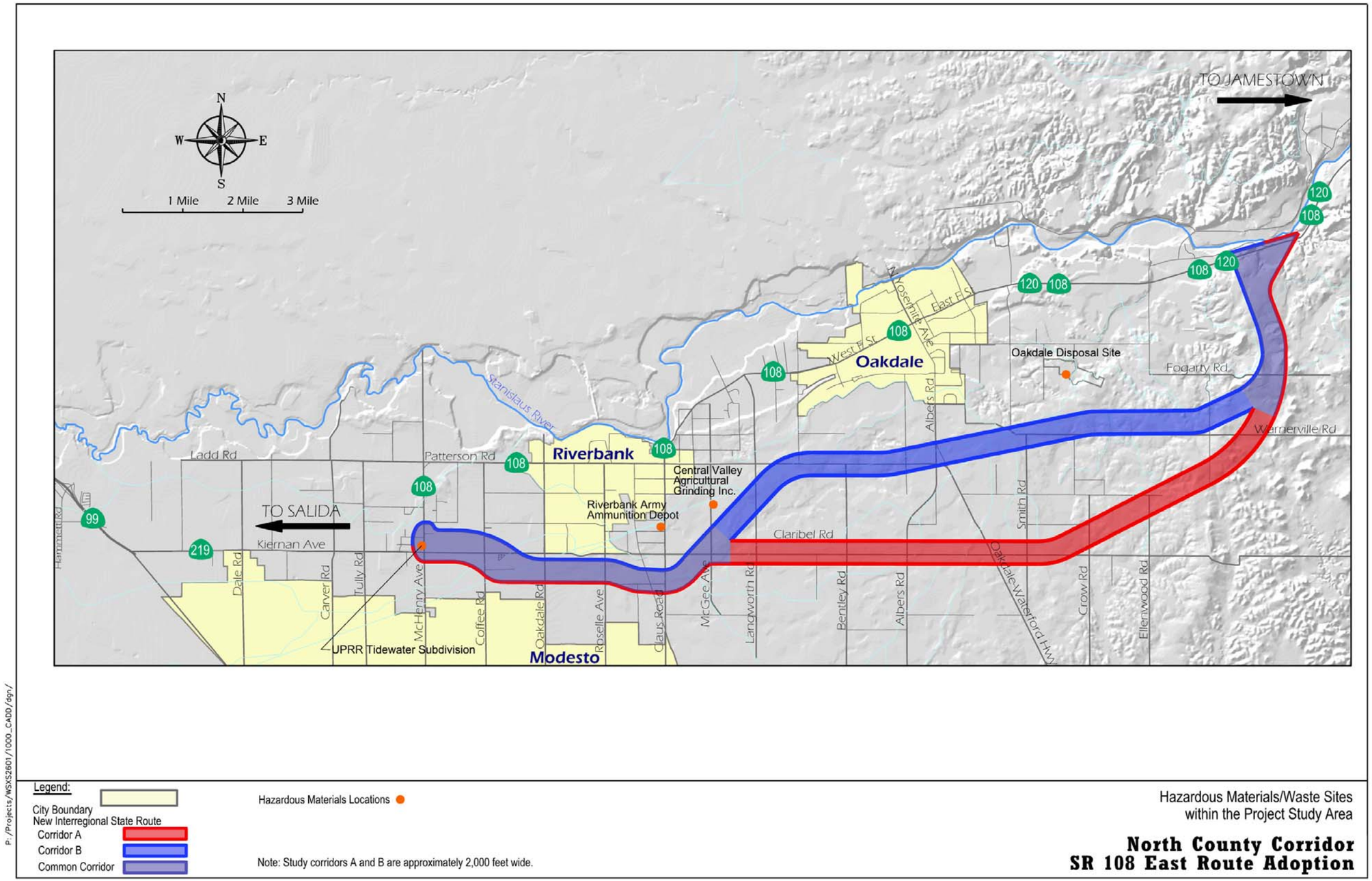


Figure 2-21. Hazardous Materials/Waste Sites

Oakdale Disposal Site

The Oakdale Disposal Site is a solid waste disposal site. The site is closed and is outside the project area about 1.5 miles north of Corridor B. The site is about 1 mile north of Warnerville Road and 1.5 miles east of Fogarty Road. \

Central Valley Agricultural Grinding Company

The Central Valley Agricultural Grinding Company is a composting operation for green waste. The facility is listed as active. No other enforcement actions were found during this review. This site is about half a mile south of Patterson Road between Eleanor and Langworth Road. This site is in the project area.

Riverbank Army Ammunition Plant

The Riverbank Army Ammunition Plant is on the National Priorities List/Superfund list. It is an ammunition manufacturing facility sitting one mile north of the proposed Corridor A and B project areas, about half a mile south of Patterson Road on Claus Road. The Riverbank Plant is a government-owned contractor-operated facility operated by Norris Industries, Inc.

The Riverbank Plant did an investigation to find the extent of contamination, and three potential locations for the release of hazardous waste were identified: the abandoned landfill, the evaporation percolation ponds, and the industrial waste treatment plant. The U.S. Environmental Policy Act got involved after the plant was proposed for the National Priorities List in June 1988. In June 1990, the Army and the regulatory agencies, including the U.S. Environmental Policy Act, Department of Toxic Substances Control, and the Regional Water Quality Control Board, entered into a Federal Facility Agreement that provided a framework for all remedial activities done at the plant and established a schedule for implementing the activities. The Department of Toxic Substances Control is the lead state agency for this facility.

This site is surrounded by scattered residential areas. Residents living to the west have been affected by groundwater contamination from the facility. The contaminants of concern were hexavalent chromium (chrome VI) and cyanide.

By September 30, 1992, the U.S. Army developed a permanent alternative water supply for residents affected by groundwater contamination emanating from the site. The alternative system connected the approximately 80 affected residences to the city of Riverbank's municipal water supply. The alternative water supply system included piping, valves, and hookups necessary to transport potable water to each household. The residents still had the

use of existing domestic wells for non-potable uses such as irrigation and livestock sustenance.

The Riverbank Plant has completed construction of its groundwater extraction and treatment plant with a capacity of about 250 gallons per minute. The well extraction network is designed to contain and extract contaminated water. The plant is designed to remove chromium VI and cyanide contamination from the extracted water. The expected life of the project is 15 years. The regulatory agencies began evaluating alternative measures to enhance the groundwater treatment plant's efficiency. The purpose of the evaluation is to enhance or eliminate the groundwater treatment system as part of the cleanup process.

The Riverbank Plant is a Base Re-Alignment and Closure 2005 facility. This facility will close. According to the Department of Toxic Substances Control Envirostor database, the site is expected to close by 2013.

This site is also identified in the State Response Plan as a permitted hazardous waste facility. The hazardous waste activities at the site include an industrial waste treatment plant, which treats the liquid waste generated on-site from the production of ammunition. There is also a hazardous waste drum storage area on the site. A corrective action consent agreement was signed on June 21, 2002 with the Department of Toxic Substances Control. Areas of concern were identified as the transformer oil storage tanks and distribution system, industrial wastewater collection system, zinc cyanide wastewater collection system, substation number 5, and pesticide storage building. No details about the corrective actions were identified in the database, but it did indicate that the areas of concern were fully characterized and on June 29, 2005, the Department of Toxic Substances Control approved the site report and determined that no further action was necessary.

Union Pacific Railroad Tidewater Subdivision

The Union Pacific Railroad Tidewater Subdivision is a 5.62-mile-long rail line that was proposed for abandonment. The site is in the project area near Kiernan Avenue and McHenry Avenue. The Department of Toxic Substances Control reviewed the site and approved a Preliminary Endangerment Assessment, which found that no further action was necessary. Low levels of residual pesticides and petroleum hydrocarbons were found. The site does not pose a significant threat to human health or the environment for carcinogenic or non-carcinogenic risk. The Preliminary Endangerment Assessment found no substantial impact from the rail line operations and indicated that the site was suitable for use as a trail.

Environmental Consequences

The proposed action is the adoption of a route for a wide corridor for a future State Route 108 alignment and does not directly involve physical construction. However, based on the results of the hazardous material site database search, once funding is available for the construction of a new State Route 108 alignment it has the potential to affect hazardous materials or hazardous wastes. Once a route alignment is selected, a more-detailed analysis and specific avoidance and minimization measures would be included in subsequent project-level analysis.

Implementation of the No-Action Alternative would not result in project-related impacts to hazardous materials.

Avoidance, Minimization, and/or Mitigation Measures

At this level of review, it is not possible to identify the nature and severity of contamination at specific sites. Further environmental study should include review of site on the Cortese list, assessment of specific impacts to sites with hazardous materials, and development of specific avoidance and minimization measures. In addition, the following would be needed:

- Prepare initial site assessments to assess the potential for hazardous materials and hazardous waste within the route alignment of the future roadway. When indicated by the initial site assessments, perform a preliminary site assessment to conform with the standards of the American Society for Testing and Materials to identify specific avoidance and minimization measures.
- Before demolition of buildings for project construction, survey for lead-based paint and asbestos-containing materials.
- During design of the roadway, project engineers would avoid identified sites containing hazardous material or waste contamination, where possible. If the roadway would affect areas of known contamination, remediation would be conducted.
- Follow best management practices for testing, treating, and disposing of water and acquire necessary permits from the Regional Water Quality Control Board if ground dewatering is required.
- Prepare a Site Management Program/Contingency Plan before construction to address known and potential hazardous material issues, including but not limited to:
    - Measures to address management of contaminated soil and groundwater.

- A site-specific Health and Safety Plan, including measures to protect construction workers and general public.
- Procedures to protect workers and the general public in the event that unknown contamination or buried hazards are encountered.
- As part of additional environmental review, consider effects to the environment on sites identified on the Cortese list (Government Code section 65962.4).

Implementation of the No-Action Alternative would not result in project-related impacts to hazardous materials. Therefore, no avoidance and minimization measures would be required.

2.2.6 Air Quality

Affected Environment

The following area plans and study area reports were reviewed:

- Air Quality Technical Memorandum (July 2009)
- Preliminary Design Report for the North County Corridor (April 2008)

The area's climate is considered "inland Mediterranean," characterized by warm, dry summers and cool winters. Summer high temperatures often exceed 100°F., averaging in the low 90s in the northern valley and high 90s in the south.

Although marine air generally flows into the basin from the Sacramento-San Joaquin River Delta, the surrounding mountain ranges restrict air movement through and out of the valley. Wind speed and direction influence the dispersion and transportation of ozone precursors, particulate matter (less than or equal to 10 microns in diameter), and carbon monoxide; the more wind flow, the less accumulation of these pollutants.

The vertical dispersion of air pollutants in the San Joaquin Valley Air Basin is limited by the presence of persistent temperature inversion (warm air over cool air). Because of differences in air density, the air above and below the inversion does not mix. Ozone and its precursors would mix and react to produce higher concentrations under an inversion and would trap directly emitted pollutants, such as carbon monoxide.

Precipitation and fog tend to reduce or limit pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. Carbon monoxide is slightly water-soluble, so precipitation and fog tend to reduce carbon monoxide

concentrations in the atmosphere. Particulate matter (less than or equal to 10 microns in diameter) is somewhat "washed" from the atmosphere with precipitation. Annual precipitation in the valley decreases from north to south, with about 20 inches in the north, 10 inches in the middle, and less than 6 inches in the southern part of the valley.

The April 2008 Preliminary Design Report indicates the project is listed in the 2004 Regional Transportation Plan, which was adopted by the StanCOG Policy Board on August 11, 2004. The proposed project was considered in traffic forecasting performed for the Regional Transportation Plan and is considered to conform to state and federal ambient air quality standards. However, the project is not listed in the 2007 Regional Transportation Plan. The 2007 Regional Transportation Plan will need to be amended to include the project, and the conformity determination will need to be reevaluated.

Areas are classified as either attainment or nonattainment with respect to state and federal ambient air quality standards. Monitored air pollutant concentrations are compared to state and federal standards to make these classifications. If a pollutant concentration is lower than or meets the state or federal standard over a designated period of time, the area is classified as being in attainment of the standard for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area for that pollutant. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. This typically occurs in unurbanized areas where levels of the pollutant are not a concern.

Table 2-13 shows applicable standards and area attainment statuses for each pollutant. Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants and by monitoring data collected in the region. Monitoring data concentrations are typically expressed in terms of parts per million.

The air quality monitoring station nearest the project area is the Modesto 14th Street monitoring station at 814 14th Street in Modesto, which monitors for ozone, carbon monoxide, particulate matter (less than or equal to 10 microns in diameter), and particulate matter (less than or equal to 2.5 microns in diameter). Air quality monitoring data from the Modesto 14th Street monitoring station are shown in Table 2-14. The information represents air quality monitoring data for the last 3 years (2005–2008) in which complete data is available.

Table 2-13. Air Quality Standards and Status

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of Stanislaus County	
			California	National	California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA	Severe nonattainment	Extreme nonattainment
		8 hours	0.070	0.075	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area	Not yet classified	Serious nonattainment
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Moderate (≤ 12.7 ppm) maintenance for Modesto Urbanized Area
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Moderate (≤ 12.7 ppm) maintenance for Modesto Urbanized Area
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA	NA	NA
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year	NA	Unclassified/ attainment
		1 hour	0.18	NA	339	NA	If exceeded	NA	Attainment	NA
Sulfur dioxide	SO_2	Annual arithmetic mean	NA	0.030	NA	80	NA	If exceeded	NA	Unclassified/ Attainment
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year	Attainment	Unclassified/ Attainment
		1 hour	0.25	NA	655	NA	If exceeded	NA	Attainment	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA	Attainment	NA

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of Stanislaus County	
			California	National	California	National	California	National	California	National
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA	Attainment	NA
Inhalable particulate matter	PM10	Annual arithmetic mean	NA	NA	20	NA	If exceeded	If exceeded at each monitor within area	NA	Serious maintenance
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Serious maintenance
	PM2.5	Annual arithmetic mean	NA	NA	12	15	If exceeded	If 3-year average from single or multiple community-oriented monitors is exceeded	Nonattainment	Nonattainment
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded	NA	Nonattainment
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA	Attainment	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year	NA	No classification
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA	Attainment	NA
		Rolling 3-Month average	NA	NA	NA	0.15	If equaled or exceeded	Averaged over a rolling 3-month period	Not yet classified	NA

Source: California Air Resources Board 2008a

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure; national standards shown are the primary (health effects) standards; NA = not applicable.

Table 2-14. Ambient Air Quality Monitoring Data Measured at the Modesto 14th Street Monitoring Station

Pollutant Standards	2006	2007	2008
1-Hour Ozone			
Maximum 1-hour concentration (ppm)	0.120	0.100	0.127
1-hour California designation value	0.11	0.11	0.11
1-hour expected peak day concentration	0.112	0.113	0.114
Number of days standard exceeded			
Californian Ambient Air Quality Standards 1-hour (>0.09 ppm)	14	1	10
8-Hour Ozone			
National maximum 8-hour concentration (ppm)	0.097	0.081	0.106
National second-highest 8-hour concentration (ppm)	0.096	0.078	0.097
State maximum 8-hour concentration (ppm)	0.098	0.081	0.107
State second-highest 8-hour concentration (ppm)	0.097	0.079	0.098
8-hour national designation value	0.086	0.085	0.085
8-hour California designation value	0.098	0.098	0.098
8-hour expected peak day concentration	0.102	0.102	0.103
Number of days standard exceeded			
National Ambient Air Quality Standards 8-hour (>0.075 ppm)	19	4	18
Californian Ambient Air Quality Standards 8-hour (>0.070 ppm)	30	10	24
Carbon Monoxide			
National maximum 8-hour concentration (ppm)	3.73	3.16	1.76
National second-highest 8-hour concentration (ppm)	3.65	2.95	1.68
California maximum 8-hour concentration (ppm)	3.73	3.16	1.76
California second-highest 8-hour concentration (ppm)	3.65	2.95	1.68
Maximum 1-hour concentration (ppm)	6.9	3.7	2.8
Second-highest 1-hour concentration (ppm)	5.3	3.7	2.3
Number of days standard exceeded			
National Ambient Air Quality Standards 8-hour (>9 ppm)	0	0	0
CAAQS 8-hour (>9.0 ppm)	0	0	0
National Ambient Air Quality Standards 1-hour (>35 ppm)	0	0	0
CAAQS 1-hour (>20 ppm)	0	0	0
Particulate Matter (PM10)d			
National maximum 24-hour concentration (μg/m3)	96.0	83.0	111.1
National second-highest 24-hour concentration (μg/m3)	73.0	75.0	88.7
Statec maximum 24-hour concentration (μg/m3)	102.0	87.0	110.6
Statec second-highest 24-hour concentration (μg/m3)	76.0	80.0	90.5
State annual average concentration (μg/m3)e	31.9	27.7	–
National annual average concentration (μg/m3)	31.7	27.0	28.2
Number of days standard exceeded			
National Ambient Air Quality Standards 24-hour (>150 μg/m3)f	0.0	0.0	–
Californian Ambient Air Quality Standards 24-hour (>50 μg/m3)f	46.3	37.7	–
Particulate Matter (PM2.5)			
National maximum 24-hour concentration (μg/m3)	71.0	64.0	88.3
National second-highest 24-hour concentration (μg/m3)	54.0	59.7	64.5
Statec maximum 24-hour concentration (μg/m3)	72.8	75.1	107.2

Pollutant Standards	2006	2007	2008
Statec second-highest 24-hour concentration (μg/m^3)	64.9	71.6	97.6
National annual designation value (μg/m^3)	14.1	14.6	–
National annual average concentration (μg/m^3)	14.8	15.0	–
State annual designation value (μg/m^3)	16	16	16
State annual average concentration (μg/m^3)	15.9	16	–
Number of days standard exceeded			
National Ambient Air Quality Standards 24-hour (>35 μg/m^3)	26.8	49.1	–

Notes:

ppm= parts per million

μg/m^3 = micrograms per cubic meter

An exceedance is not necessarily a violation.

National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.

Measurements usually are collected every 6 days.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2009; U.S. Environmental Protection Agency 2009.

As shown in Table 2-14, during the 3-year monitoring period, the Modesto 14th Street monitoring station has had the following violations:

- 25 violations of the state 1-hour ozone standard
- 41 violations of the federal 8-hour ozone standard
- 64 violations of the state 8-hour ozone standard
- no violations of the federal and state carbon monoxide standards
- no violations of the federal 24-hour particulate matter (less than or equal to 10 microns in diameter) standard
- 84 violations of the state 24-hour particulate matter (less than or equal to 10 microns in diameter) standard
- 75.9 violations for the federal 24-hour particulate matter (less than or equal to 2.5 microns in diameter) standard

Environmental Consequences

While selection of either corridor would not have an impact on air quality, once funding is available for the construction of a new State Route 108 alignment it could result in temporary construction emissions from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, and paving activities and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather. These potential impacts would be addressed in a future environmental review for roadway alignment alternatives within the adopted corridor.

Because specific details on the construction activities likely to occur are not available, construction emissions are not quantified. Given the level of construction activities that are likely to occur on a project of this size and scope, it is anticipated that construction emissions could exceed the San Joaquin Valley Air Pollution Control District's (California) thresholds of significance (10 tons/year).

Specific information to analyze whether implementation of the proposed project and operation of a new roadway would result in carbon monoxide emissions in excess of National or California Ambient Air Quality Standards is unavailable.

Air toxics analysis is a new and emerging issue and is a continuing area of research. Currently, there are limited tools and techniques available for assessing project-specific health impacts from mobile source air toxics because there are no established criteria for

determining when mobile source air toxics emissions should be considered a significant issue.

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, mainly those operating in the project vicinity. Emissions of Reactive Organic Gases, oxide of nitrogen, carbon monoxide, particulate matter (less than or equal to 10 microns in diameter), particulate matter (less than or equal to 2.5 microns in diameter), and carbon dioxide for existing year (2008), interim year (2030), and design-year (2050) with and without project conditions were evaluated through modeling using Caltrans' emission model and traffic data.

Traffic conditions modeled in the analysis (vehicle miles traveled aggregated by speed range for existing year (2008), interim year (2030), and design year (2050) with and without the proposed roadway) included vehicle activity for affected roadways in the immediate project region. This information is shown in Table 2-15 through 2-17.

Table 2-15. Existing (2008) Daily Vehicle Miles Traveled Data

Speed Ranges	Existing (2008)	Existing (2008) Corridor A	Existing (2008) Corridor B
0.0-7.5	9,601	9,877	7,344
7.5-12.49	20,546	9,633	15,069
12.5-17.49	65,082	54,509	55,801
17.5-22.49	49,858	30,692	34,803
22.5-27.49	175,850	134,754	142,092
27.5-32.49	478,980	357,540	350,801
32.5-37.49	360,049	341,047	342,129
37.5-42.49	356,765	273,406	254,619
42.5-47.49	687,396	753,084	708,600
47.5-52.49	220,448	213,235	211,407
52.5-57.49	346,979	391,939	459,781
57.5-62.49	0	19,853	19,824
62.5-67.49	0	314,581	305,537
67.5-72.49	0	0	0
Total	2,771,554	2,904,150	2,907,807

Adapted from: Transportation System Planning Analysis Report, June 2009.

Note: Existing Corridor A and B values modeled for affected roadways in the immediate project region.

Table 2-16 shows that implementation of the proposed project would increase overall daily vehicle miles traveled for the year 2030 under the Corridor A and would decrease overall

daily vehicle miles traveled for the year 2030 under the Corridor B. For the Corridor A, vehicle miles traveled would increase by 0.05%.

Table 2-16. 2030 Daily Vehicle Miles Traveled Data

Speed Ranges	2030 No-Project	2030 Corridor A	2030 Corridor B
0.0-7.5	22,765	19,090	22,774
7.5-12.49	218,949	210,023	217,241
12.5-17.49	154,451	94,793	82,179
17.5-22.49	165,464	172,539	179,652
22.5-27.49	278,507	223,364	217,593
27.5-32.49	422,092	430,474	433,149
32.5-37.49	824,238	877,901	854,432
37.5-42.49	514,541	455,545	356,882
42.5-47.49	943,225	937,842	993,532
47.5-52.49	549,483	364,325	389,399
52.5-57.49	352,153	662,658	711,454
57.5-62.49	0	0	0
62.5-67.49	105,091	104,727	91,813
67.5-72.49	0	0	0
Total	4,550,959	4,553,281	4,550,100

Adapted from: Transportation System Planning Analysis Report, June 2009.

Table 2-17 indicates that construction and operation of a new roadway as a result of implementation of the proposed project would increase overall daily vehicle miles traveled for the year 2050. The increase in Corridor A would be approximately 1.80%, and the increase in Corridor B would be 1.18%.

Table 2-17. 2050 Project vs. Corridor Alternatives Comparison for the Project Area

Speed Ranges	2050 No-Project	2050 Corridor A	2050 Corridor B
0.0-7.5	168,602	193,170	190,928
7.5-12.49	126,237	102,785	119,147
12.5-17.49	190,088	204,413	207,632
17.5-22.49	482,200	420,265	453,919
22.5-27.49	632,445	462,991	470,604
27.5-32.49	765,634	813,836	748,322
32.5-37.49	782,191	681,471	649,146
37.5-42.49	695,832	796,110	823,509
42.5-47.49	1,429,589	1,497,272	1,556,393
47.5-52.49	339,568	160,881	181,391
52.5-57.49	669,377	1,065,716	958,500
57.5-62.49	0	0	0
62.5-67.49	150,325	149,092	148,228
67.5-72.49	0	0	0
Total	6,432,088	6,548,002	6,507,719

Adapted from: Transportation System Planning Analysis Report, June 2009.

Table 2-18 summarizes the modeled emissions for 2008, 2030, and 2050 with and without the future roadway, respectively. Emissions associated with proposed planning corridor alternatives were obtained by comparing with-project emissions to without-project emissions. The differences in emissions between with- and without-project conditions represent emissions generated directly as a result of operation of a roadway as a result of implementation of the proposed project in either Corridor A or B. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Table 2-18 presents a comparison of the emissions of a future roadway built and operated in either alternative corridor to the no-project alternative and indicates that implementation of a roadway in Corridor A or Corridor B would result in decreases in all pollutant emissions under the interim year (2030). Table 2-18 also indicates that implementation of a roadway in Corridor A or Corridor B would result in an increase in all pollutant emissions under the design year (2050). The emission increases are mainly attributable to increases in vehicle miles traveled between no- and conditions, in addition to changes in speed-vehicle miles traveled distribution, while the decreases in emissions are the inverse.

Table 2-18. Summary of Future Roadway Project-Related Emissions Contribution

Scenario	Yearly Vehicle Miles Traveled	Tons Per Year					
		ROG	NO_X	CO	PM10	PM2.5	CO_2[1]
2008 No-Project	1,011,617,210	368.109	2,212.863	4,521.704	74.237	68.565	533,366.062
2008 Alternative A	1,060,014,750	373.923	2,358.002	4,771.826	78.413	72.361	558,388.813
2008 Alternative B	1,061,349,555	375.301	2,363.711	4,785.192	78.834	72.746	560,134.179
2030 No-Project	1,661,100,035	181.148	566.977	1,781.897	43.046	39.621	921,555.628
2030 Alternative A	1,661,947,565	176.474	562.374	1,767.596	42.433	38.971	911,311.393
2030 Alternative B	1,660,786,500	176.838	562.358	1,766.114	42.502	39.066	911,420.154
2050 No-Project[2]	2,347,712,120	231.845	678.161	2,180.070	61.303	55.501	1,335,884.879
2050 Alternative A[2]	2,390,020,730	234.160	686.080	2,208.179	62.092	56.123	1,350,576.983
2050 Alternative B[2]	2,375,317,435	234.335	683.842	2,199.204	62.038	56.081	1,347,010.211
Alternative Differences							
Scenario	**Yearly Vehicle Miles Traveled**	**Tons per year**					
		ROG	**NO_X**	**CO**	**PM10**	**PM2.5**	**CO_2[1]**
2008 Alternative A - 2008 No-Project	48,397,540	5.814	145.139	250.121	4.176	3.796	25,022.751
2008 Alternative B - 2008 No-Project	49,732,345	7.192	150.849	263.488	4.597	4.181	26,768.117
2030 Alternative A - 2030 No-Project	847,530	-4.674	-4.603	-14.301	-0.612	-0.650	-10,244.234
2030 Alternative B - 2030 No-Project	-313,535	-4.309	-4.619	-15.783	-0.543	-0.555	-10,135.473
2050 Alternative A - 2050 No-Project[2]	42,308,610	2.315	7.919	28.110	0.789	0.622	14,692.103
2050 Alternative B - 2050 No-Project[2]	27,605,315	2.490	5.681	19.135	0.735	0.579	11,125.332
San Joaquin Valley Air Pollution Control District Thresholds	N/A	10	10	N/A	15	N/A	38,000

Adapted from: Transportation System Planning Analysis Report, June 2009
[1] CO_2 presented in metric tons per year.
[2] CT-EMFAC analysis was performed for the year 2040, as 2040 is the latest year analyzed by CT-EMFAC.

The operation of a new roadway as a future consequence of the proposed project would help to alleviate traffic congestion on parallel roadways and enhance local traffic circulation and would provide interregional connectivity. The demand that the new roadway would be serving would be present with or without the additional capacity provided by the roadway. Further, congestion relief achieved through operation of a new roadway as a future consequence of implementation of the proposed project would help to reduce idling times, acceleration, and braking, which have been established as contributors to air pollution. Future project-related emissions associated with construction and operation of a roadway in Corridor A would not exceed San Joaquin Valley Air Pollution Control District (California)

thresholds. Future construction and operation of a roadway in Corridor B would result in decreases in all criteria pollutant emissions. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The route adoption would not result in air quality impacts. The construction of a new State Route 108 alignment this project could result in the following being required:

- Future construction of a new future State Route 108 alignment would be included in a financial constrained Stanislaus County Regional Transportation Plan and would be in conformance with air quality standards.

- Preparation and implementation of a Dust Control Plan to comply with San Joaquin Valley Air Pollution Control District Regulation VIII Requirements would control construction emissions of particulate matter less than 10 microns in diameter. Caltrans would require construction contractors to prepare and submit a Dust Control Plan to the San Joaquin Valley Air Pollution Control District (California) for its approval at least 30 days before any earthmoving or construction activities. The plan would include specific dust control measures and practices for all phases of construction activities to ensure compliance with the regulation.
- During construction the awarded contractor would be required to comply with Rule 9510 (Indirect Source Review) set forth by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The Rule requires that the contractor perform a project-level analysis of construction emissions associated with construction of the proposed roadway. The contractor in conjunction with the SJVAPCD would use the most recent version of Sacramento Municipal Air Quality Management District's Road Construction Emissions Model and project-specific construction equipment information provided by the contractor. Construction emissions would be compared to the most recent SJVAPCD significance thresholds to determine impacts of construction emissions. Caltrans would require construction contractors to implement best management practices regarding reduction of construction equipment emissions and limitations on the timing and phasing of construction activities to reduce overall construction-related exhaust emissions.

2.2.7 Noise and Vibration

California Environmental Quality Act

The California Environmental Quality Act requires a strictly baseline versus analysis to assess whether a proposed project would have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality

Act, then the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with Federal Highway Administration (and Caltrans, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criterion for residences (67 dBA) is lower than the noise abatement criterion for commercial areas (72 dBA). Table 2-19 lists the noise abatement criteria for use in the National Environmental Policy Act-23 Code of Federal Regulations 772 analysis.

Table 2-19. Noise Abatement Criteria

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

Affected Environment

Terminology

The following terms are used in this discussion:

- **Sound:** A vibratory disturbance created by a vibrating object that when transmitted by pressure waves through a medium such as air is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise:** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB):** A unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-Weighted Decibel (dBA):** An overall frequency-weighted sound level in dB that approximates the frequency response of the human ear.
- **Equivalent Sound Level (L_{eq}):** The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy. The one-hour L_{eq} sound level is used by Caltrans to determine traffic noise impacts and is identified as dBA-L_{eq}[h].
- **Day-Night Level (Ldn):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10 p.m. to 7 a.m.

In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound, would generally be perceived as barely detectable.

Noise Environment

Land along each of the alternative corridors is mostly rural. There is a large subdivision, several mobile home parks, and a number of scattered rural residences. There are also some developed commercial uses. To identify land uses in the area, Corridors A and B have been separated into three major segments. Table 2-20 shows the land uses along each of the major roadway segments.

Table 2-20. Land Uses Along Corridors A and B

Segment Limits	Land Uses Along Corridor A	Land Uses Along Corridor B
McHenry Avenue to Clause Road	One large subdivision, a mobile home park, a church, a school, approximately 15 rural residences, and commercial uses	One large subdivision, a mobile home park, a church, a school, approximately 15 rural residences, and commercial uses
Clause Road to Albers Road	A mobile home park and approximately 15 rural residences	A mobile home park and approximately 15 rural residences
Albers Road to end	Four rural residences	Two rural residences

The noise along Corridors A and B would be caused mostly by traffic on nearby roadways. The noise environment along the west end of Corridors A and B is dominated by traffic on State Route 219. Where Corridors A and B are near State Route 108, noise from traffic on that roadway is most noticeable.

Existing traffic volumes and truck percentages from Caltrans (California Department of Transportation 2007a, 2007b) and the Federal Highway Administration Traffic Noise Model (Version 2.5) were used to calculate existing traffic noise levels along these roadways. Table 2-21 shows the calculated traffic noise levels. The distance to the 66-dBA-L_{eq}[h] is the Federal Highway Administration/Caltrans criterion for traffic noise impacts at residential uses. Traffic data assumptions come from the Transportation System Planning Analysis Report.

Table 2-21. Existing Noise Levels along Roadways in the Project Area

Roadway	Distance to 66 dDA-LEQ[H]
State Route 219 near State Route 108	150 feet
State Route 108 near State Route 219	140 feet
State Route 108 near Yosemite Avenue	130 feet

Moving east along Corridors A and B, the project area is mostly rural, and noise levels are lower as a result of the rural setting and lower traffic volumes. Table 2-22 shows typical noise levels as a function of population density and indicates that noise levels in rural portions of the project area are in the range of 40 to 50 dBA-L_{dn}.

Table 2-22. Population Density and Associated Ambient Noise Levels

Population Density Type	dBA-L_{dn}
Rural	40–50
Small town or quiet suburban residential	50
Normal suburban residential	55
Urban residential	60
Noisy urban residential	65
Very noise urban residential	70
Downtown, major metropolis	75–80
Adjoining freeway or near a major airport	80–90
Source: Hoover and Keith 1996.	

Environmental Consequences

While selection of a corridor would not have a noise impact, once funding is available for the construction of a new State Route 108 alignment it would involve the use of trucks and heavy equipment. The assessment of potential construction noise levels was based on methodology developed by the Federal Highway Administration in 2006. Table 2-23 shows noise levels produced by the noisiest construction equipment likely to be used. Individual types of construction equipment are expected to generate noise levels ranging from 80 dBA to 85 dBA at a distance of 50 feet. The construction noise level at a given receiver depends on the type of construction activity, the noise level generated by that activity, and the distance and shielding between the activity and noise-sensitive receivers.

Table 2-23. Construction Equipment Noise Emission Levels

Equipment	Typical Maximum Noise Level (dBA) 50 Feet from Source
Dump truck	84
Front-end loader	80
Scraper	85
Combined	88
Source: Federal Highway Administration 2006.	

Potential noise levels resulting from construction operations were evaluated by summing the noise levels of the three loudest pieces of equipment that would likely operate at the same time. The resulting maximum noise level is 88 dBA at 50 feet.

Construction noise typically tapers off at a rate of about 6 dB per doubling of distance away. Assuming this rate of reduction, construction activity with a source level of 88 dBA at 50 feet would drop off to about 65 dBA at a distance of about 700 feet. This means that homes that are within 700 feet of potential construction activity that occurs during nighttime hours could be affected by construction noise. The implementation of Caltrans standard noise reduction measures would reduce this effect. However, it may not be feasible in all cases to implement measures to minimize or avoid noise effects from construction activity (for instance, nighttime construction along existing roadways may be unavoidable).

An evaluation of traffic noise levels has been conducted using the Federal Highway Administration Traffic Noise Model (Version 2.5). The design year for the project is 2050. According to the project traffic engineer, the roadway would likely need to be 6 lanes in 2050. The roadway would have a capacity of 1,500 vehicles per land per hour and a speed limit of 55 miles per hour. At capacity, the roadway would operate at level of service E with

a speed less than 55 miles per hour. The maximum noise level occurs when the traffic volume is still free flowing at 55 miles per hour. This is typically in the level of service D-E range or about 80% of capacity. For this analysis, each of the six lanes is presumed to have a traffic volume of 1,200 vehicles traveling at 55 miles per hour. Truck percentages were assumed to be similar to current truck mixes on State Route 219.

Under these assumptions for 2050 condition, the distance to the 66 dBA-L_{eq}[h] criterion would be 440 feet. Residential land uses are located within this distance. Therefore, traffic noise impacts as defined by the Federal Highway Administration/Caltrans would occur because traffic noise would "approach or exceed" the Federal Highway Administration impact criterion of 67 dBA-L_{eq}[h]. (Caltrans defines "approach" as being within 1 dB of the impact criterion.) With ambient noise levels as low as 40 dBA in rural areas, this result also indicates that traffic noise impacts would occur as a result of substantial increases (i.e., 12-dB increases) in traffic noise.

Residences in the project area (see Table 2-20, Land Uses along Corridors A and B) could be affected by traffic noise because implementation of the proposed project is predicted to result in substantial increases in traffic noise as defined by Caltrans.

Compliance with federal noise regulations would be required along any of the corridor segments that would involve federal funding. Because traffic noise impacts as defined under the federal regulations are anticipated, noise abatement would need to be considered. Where noise abatement would benefit a large number of receivers (such as in a subdivision or mobile home park), noise abatement would likely be reasonable and feasible and would likely be implemented.

In addition to abating traffic noise impacts, this abatement would likely mitigate significant noise impacts identified under the California Environmental Quality Act. It is likely; however, that noise abatement required by federal regulations would not be reasonable or feasible at isolated rural residences and other locations where only a few residences would benefit from abatement. At these locations, it is likely that noise abatement evaluated under federal requirements would not be implemented and that significant traffic noise impacts under the California Environmental Quality Act would not be mitigated at these locations by noise abatement triggered by 23 Code of Federal Regulations 772.

The implementation of the measures below would reduce these unabated impacts at locations where noise abatement under 23 Code of Federal Regulations 772 would not be

implemented. However, it may not be feasible to implement measures to minimize or avoid these impacts.

Implementation of the No-Action Alternative would result in no impacts to noise.

Avoidance, Minimization, and/or Mitigation Measures

No impacts would result from a route adoption. The construction of a future new State Route 108 alignment within a corridor would use noise-reducing construction practices such that construction noise would not exceed applicable construction noise standards. Caltrans would design and implement measures where feasible to reduce traffic noise associated with operation of the roadway, with the goal of reducing traffic noise increases to less than 12 dBA.

Implementation of the No-Action Alternative would result in no impacts to noise. Thus, there would be no impacts and no avoidance and minimization measures would be required.

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors, fish passages and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species section 2.3.5. Wetlands and other waters are also discussed in section 2.3.2.

Affected Environment

Oak Woodlands

Woodland and savanna communities occur at the eastern end of the study area, near State Route 108/120. These communities are dominated by a variety of oaks, including valley oak (*Quercus lobata*), interior live oaks (*Quercus wislizenii*), and blue oaks (*Quercus douglasii*). Shrubs are few in this community and typically include California blackberry (*Rubus ursinus*), California coffeeberry (*Rhamnus californicus*), California wild grape (*Vitis*

californica), poison oak (*Toxicodendron diversilobum)*, and toyon (*Photinia arbutifolia*). Ground cover consists of annual grasses such as bromes, wild oats, barley, ryegrass (*Lolium* spp.), and, rarely, native needlegrass (*Stipa* spp.).

Abundant insect life, found in the bark and foliage of oak trees, provide food for birds such as white-breasted nuthatches (*Sitta carolinensis*), bushtits (*Psaltriparus minimus*), and ash-throated flycatchers (*Myiarchus cinerascens*). Oak trees also provide refuge, shade, and breeding habitat for many other wildlife species. In addition to providing critical wildlife habitat, oak woodland and savannas are also important for soil development and watershed protection.

Riparian Communities

Riparian communities occur along the Stanislaus River corridor, tributary drainages to the river, and other water bodies in the study area. The California Department of Fish and Game considers the Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, and the Great Valley oak riparian forest sensitive natural communities. Riparian habitat is the richest in terms of structural and biotic diversity of any plant community found in California. Riparian vegetation provides three important functions in addition to that of wildlife habitat: 1) acts as a travel lane between the river and adjacent uplands, providing an important migratory corridor for wildlife; 2) filters out pollutants, thus protecting water quality; and 3) helps to reduce the severity of floods by stabilizing riverbanks.

Riparian communities are composed of a canopy tree layer, subcanopy tree layer, understory shrub layer, and dense ground cover. California sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), and valley oak dominate the canopy layer, which may become almost completely closed in areas with favorable growth conditions. Willows (*Salix* spp.) dominate the subcanopy layer, and Himalayan blackberry (*Rubus discolor*) dominates the understory shrub layer. Some of these riparian communities may also be considered waters of the United States and would be more accurately described as freshwater forested/shrub wetlands.

Despite widespread disturbances resulting from urbanization, agricultural conversion, and grazing, riparian forests remain important wildlife resources because of their scarcity regionally and statewide and because the riparian community is used by a large variety of wildlife species. Many wildlife species use riparian habitats for food, protection from the elements, escape from predators, dispersal and migration corridors, and as a reliable water source.

Environmental Consequences

Both Corridors contain riparian communities along drainage and water body edges in the study area. While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either Corridor it has the potential to result in the disturbance or removal of riparian communities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. Impacts on riparian communities would be considered substantial. Once funding is available these impacts would be assessed in future environmental review of roadway alignment alternatives within the adopted corridor in a subsequent environmental document.

Construction activities associated with the new roadway in the eastern portions of Corridors A or B could result in removal of oak woodland communities and individual oak trees. Potential impacts could result from direct removal of trees and indirect activities associated with trenching, parking construction equipment under the trees, or stockpiling construction materials in the tree root zone (defined by the tree canopy).

Oak woodlands were once a common natural community, but have steadily declined as a result of development and agricultural land conversion practices throughout the state. The disturbance or potential removal of oak woodland communities (particularly valley oak woodlands) and individual oaks may be considered a substantial impact because some oak communities have declined compared to their historic extent. A project-by-project determination would be made for future phases of the project; the level of effect would depend on the extent of impact, scarcity of the resource locally, habitat functions and values, and local regulations protecting or regulating oak trees.

Construction and maintenance activities associated with a proposed new State Route 108 alignment could result in conflicts with local policies or ordinances that protect locally significant biological resources.

Implementation of the No-Action Alternative would not result in project-related impacts on natural communities.

Avoidance, Minimization, and/or Mitigation Measures

No impacts would result from a route adoption. The construction of a future new State Route 108 alignment within either corridor would require a qualified biologist to document the location, type, extent, and habitat functions and values of riparian communities that occur in

the project corridor and that could be affected by the project. This information would be mapped and documented as part of future environmental review of roadway alignment alternatives within the adopted corridor. The measures below would be implemented concurrently to avoid, minimize, and compensate for impacts on riparian communities

Avoidance or minimization impacts on riparian communities would be addressed by implementing the following measures.

Redesigning the roadway to avoid direct and indirect impacts on riparian communities, if feasible

- Protect riparian communities near the project site by installing environmentally sensitive area fencing at a minimum distance from the edge of the riparian vegetation. The distance would be determined through consultation with resource agencies. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet. The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire shrub. Shrub vegetation would be cut to a minimum height above ground level to leaves the root systems intact and allow for more rapid regeneration of the species. The cut height would be determined through consultation with resource agencies. Cutting would be limited to the minimum area necessary within the construction zone. This type of removal would be allowed only for shrub species (all trees would be avoided) in areas that do not provide habitat for nesting birds. To protect nesting birds, raptors, and migratory birds, riparian vegetation would not be removed from February 15 through September 15, as required under California Fish and Game Code 3503, 3503.5, and 3513, and Migratory Bird Treaty Act. However, if removal of riparian vegetation cannot be avoided during this period, a nesting bird surveys would be necessary. Removal of vegetation could occur only if no nesting birds are observed.

Compensate for the Loss of Riparian Community

If riparian vegetation is removed, Caltrans would compensate for the loss of riparian vegetation to ensure no net loss of habitat functions and values. Compensation ratios would be based on site-specific information and determined through coordination with the appropriate state and federal agencies during the permitting process. Compensation may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. Caltrans

would develop a restoration and monitoring plan that describes how riparian habitat would be enhanced or re-created and monitored over a minimum period of time, as determined by the appropriate state and federal agencies.

Install Temporary Construction Barrier Fencing to Protect Native Oak Trees next to the Construction Zone

If determined feasible, Caltrans would install orange construction barrier fencing to identify environmentally sensitive areas around the native oak trees (the minimum size of a tree that would be protected would be determined by the local ordinance). Before construction, the contractor would work with the project engineer to identify the locations for the barrier fencing and would place stakes around the sensitive resource sites to indicate these locations. The fencing would be installed before construction activities are begun and would be maintained throughout the construction period. The following paragraph would be included in the construction specifications:

> *The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose would be allowed unless specifically authorized in writing by Caltrans. The Contractor would take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.*

Temporary fences around the environmentally sensitive areas would be installed as the first order of work. Temporary fences would be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing would be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing would be tightly strung on posts with a maximum spacing of 10 feet.

Implementation of the No-Action Alternative would not result in impacts to the natural communities. Therefore, no mitigation measures would be required.

2.3.2 Wetlands and Other Waters

Affected Environment

The study area contains a variety of wetlands and other water bodies. Figure 2-22 shows where wetlands have been mapped as part of the U.S. Fish and Wildlife Service National Wetland Inventory Database (2009). This database is typically incomplete and should not be used as a sole indicator of whether wetlands are present in a particular area. However, this

database information along with a map of hydric soils (shown in Figure 2-23) can be used to determine the relative abundance or potential for wetlands to occur in a region. Under those parameters, wetlands and hydric soils are present within the central portion of both corridors, indicating that there is a high potential for wetlands to occur in the corridors (see Figures 2-22 and 2-23). However, since detailed field data from project-level surveys have not been done for this phase of the project, it is not possible to determine using this information which corridor has a larger acreage of waters of the United States.

The most common types of wetlands in the study area are vernal pools and other seasonal wetlands and freshwater emergent wetland communities. The undeveloped annual grasslands in the eastern portion of the study area contain seasonal wetlands. Many of the low sites in the grasslands can be classified as vernal pools. These pools form in depressions of generally level terrain in the Central Valley.

Vernal Pools

Vernal pools are shallow depressions that occur in annual grasslands and are inundated only during the rainy season; the vegetation is composed of wetland-adapted annual grasses and forbs. A review of aerial photographs of the project area indicates that the undeveloped annual grasslands in the eastern portion of the study area appear to contain seasonal wetlands. A vernal pool is a unique type of seasonal wetland that typically supports a variety of plant, vertebrate, and invertebrate species.

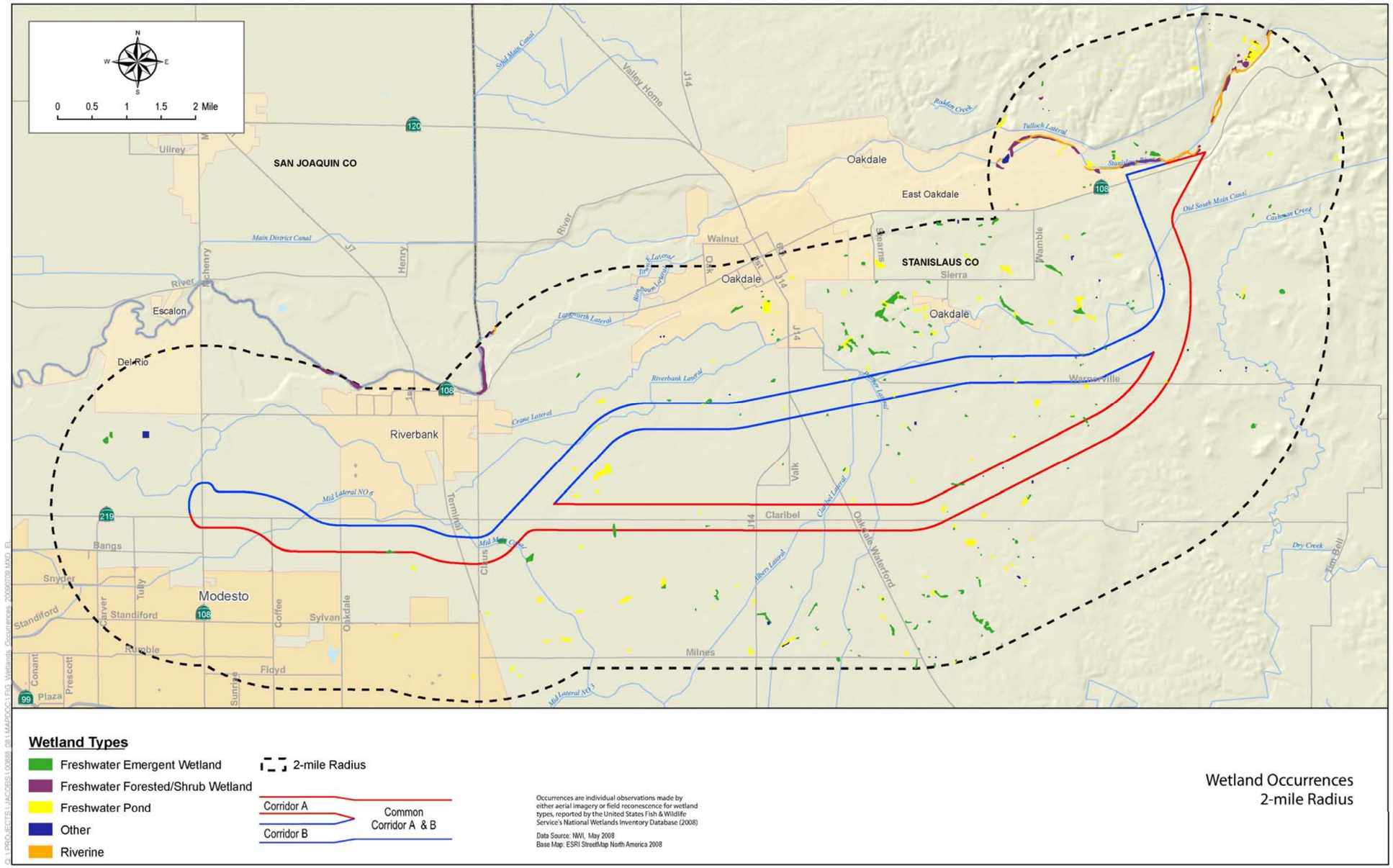


Figure 2-22. Wetlands in the Project Area

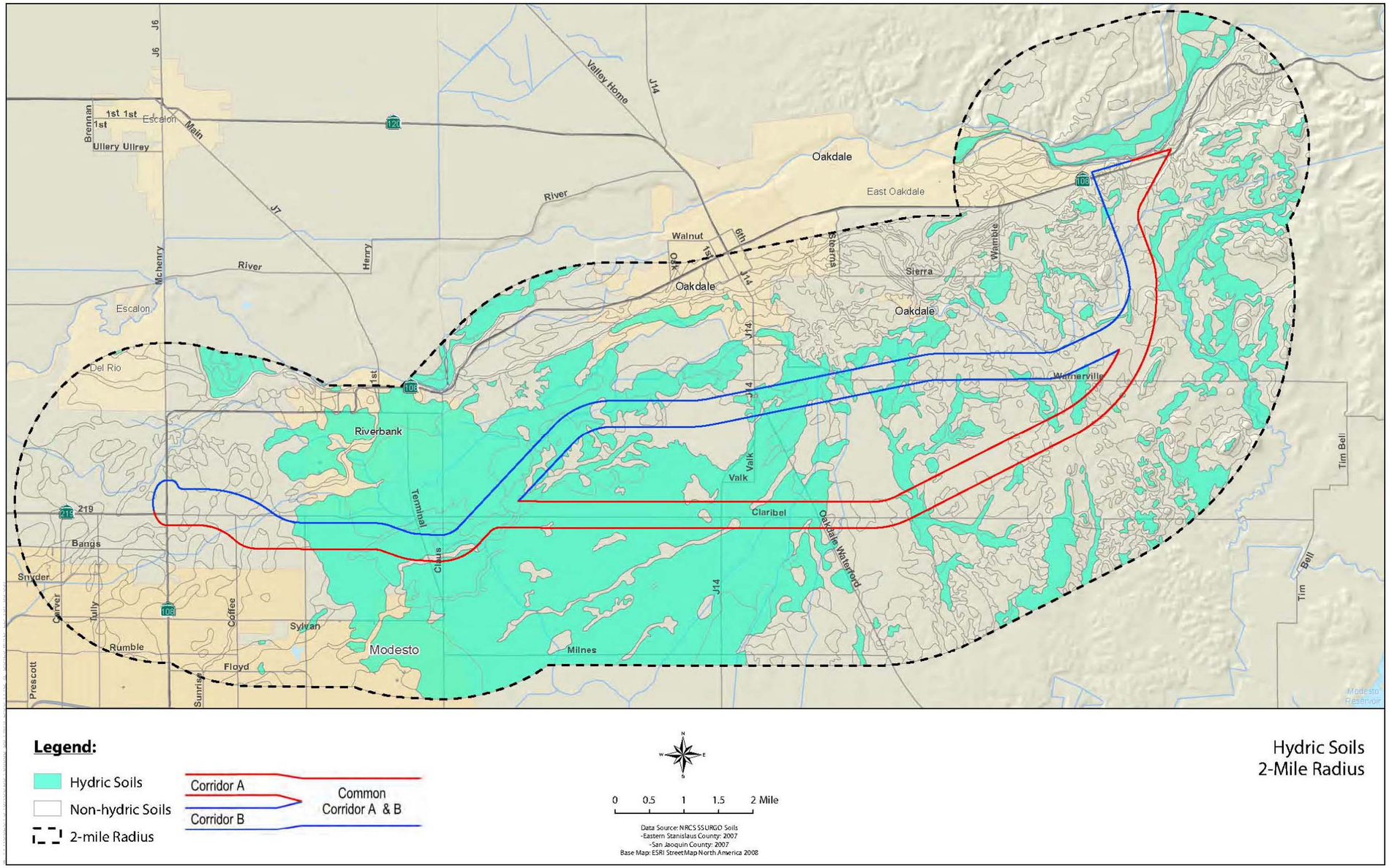


Figure 2-23. Hydric Soils in the Project Area

The impervious nature of the underlying hardpan clay soil in the valley allows water to form small pools during the rainy season in areas of low to moderate rainfall. During the hot summer months, evaporation causes the pools to completely dry up. As much as one third of the Central Valley once supported vernal pools. Much of the plant life depends on the highly specialized vernal pool habitat (e.g. *Allocarya*, *Blemnosperma*, *Downingia*, *Gratiola*, *Lasthenia*, *Legenere*, *Limnanthes*, *Neostapfia*, and *Orcuttia* spp.). Overgrazing by livestock, and urban and agricultural development have led to the disappearance of many vernal pools throughout the Central Valley. The northern claypan and northern hardpan vernal pools are considered by the California Department of Fish and Game to be sensitive natural communities.

Freshwater Emergent Wetlands

Freshwater emergent wetland communities may occur along unmaintained canals and other water bodies in the study area. In the study area, freshwater emergent wetlands are often associated with small artificial ponds, reservoirs, natural drainages, irrigation canals, and roadside ditches. These communities occur throughout both of the corridors.

Riverine Wetlands

Riverine systems in the study area include natural systems (Stanislaus River and tributary waterways) and artificial systems (irrigation canals, irrigation ditches, and roadside ditches). The Stanislaus River runs in the study area, but is north of Corridors A and B. The largest drainage systems that occur in the study area are the Stanislaus River and Modesto Main Canal. The Stanislaus River occurs in the northern portion of the study area, north of State Route 120/108 near the proposed intersection of Corridor B.

The Modesto Main Canal crosses or is within both alternative corridors. Irrigation canals, laterals, and siphons occur throughout the area. Some of these systems are maintained and lack vegetation, while unmaintained drainages support riparian and wetland communities along their edges.

The construction and operation of water development facilities and other causes of habitat loss and degradation have substantially reduced the historical distribution and abundance of Chinook salmon and steelhead trout. Currently, naturally spawning runs of Chinook salmon and steelhead trout occur in the Stanislaus River below Goodwin Dam.

Other Water Bodies

The study area contains natural and artificially created freshwater ponds and detention basins (see Figure 2-24). Depending on their location and source of hydrology, some of these

freshwater ponds and detention basins may be considered "waters of the United States" and subject to Section 404 of the Clean Water Act. Many of the water bodies support perennial and seasonal wetland and riparian communities along their edges.

Environmental Consequences

Disturbance or Loss of Wetlands and Other Waters of the United States

While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either corridor it could result in the disturbance or loss of wetlands and other waters, including riverine systems, vernal pools, marshes, and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected by the following:

- direct removal
- filling
- hydrological interruption (including dewatering)
- alteration of bed and bank
- other construction-related activities

The result could be long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors.

Corridor A appears to have a greater number of mapped wetlands (freshwater ponds and freshwater emergent wetlands). However, the extent of hydric soils is about the same for both Corridors A and B (as shown in Figure 2-23). Therefore, without any field data, it is not possible to determine which alternative would result in greater impacts to waters of the United States.

Implementation of the No-Action Alternative would not result in project-related impacts to wetlands or other waters.

Avoidance, Minimization, and/or Measures

No impacts would result from a route adoption. The construction of a future new State Route 108 alignment would require project-level environmental review. The project proponent would retain a qualified wetlands ecologist to identify areas that could qualify as waters of the United States, including jurisdictional and isolated wetlands. Wetlands would be

identified using both the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service/California Department of Fish and Game definitions of wetlands. U.S. Army Corps of Engineers jurisdictional wetlands would be delineated using the methods outlined in the U.S. Army Corps of Engineers 1987 *Wetlands Delineation Manual* and the *Arid West Manual*. The jurisdictional boundary for other waters of the United States would be identified based on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding area (*33 CFR 328.3[e]*).

This information would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable, and in wetland delineation reports.

To the extent possible, Caltrans would avoid and minimize impacts on wetlands and other waters of the United States by implementing the following measures:

- Redesign or change the project to avoid direct and indirect impacts on wetland habitats, if feasible.
- Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at a minimum distance from the edge of the wetland. The distance would be determined through consultation with resource agencies. The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as the use of padding or vehicles with balloon tires, would be employed.
- Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation.

- Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States would be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- In highly erodible stream systems, stabilize banks using a nonvegetative material that binds the soil initially and breaks down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.
- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.

These measures would be incorporated into contract specifications and implemented by the construction contractor. In addition, Caltrans would ensure that the contractor incorporate all state and federal permit conditions into construction specifications.

If waters of the United States, including wetlands, are filled or disturbed as part of the proposed project, Caltrans would compensate for the loss of waters of the United States to ensure no net loss of habitat functions and values. Compensation ratios would be based on site-specific information and determined through coordination with state and federal agencies (including California Department of Fish and Game, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers). The compensation would be at a minimum ratio of 1:1 (1 acre restored or created for every acre filled) and may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. A restoration and monitoring plan would be developed and implemented if on-site or off-site restoration or creation is chosen. The plan would describe how wetlands would be created and monitored over the minimum duration required by the regulatory agencies.

Implementation of the No-Action Alternative would not result in impacts to wetlands or other waters. Therefore, no mitigation measures would be required.

2.3.3 Plant Species

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 2.3.5 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.

Affected Environment

Several special-status plant species, not listed as threatened or endangered under California Endangered Species Act or Federal Endangered Species Act, could occur in the study area (Biology Technical Memorandum, 2009). According to the California Natural Diversity Database (2009), one special-status plant listed as a California Native Plant Society 1B—beaked clarkia (*Clarkia rostrata*)—has been documented in the project corridors (see Figure 2-24). The beaked clarkia is a California Native Plant Society List 1B species and is recorded near the Oakdale Waterford Highway (in Corridor A).

Table 2-24 shows special-status species that could occur in the study area.

Table 2-24. Special-Status Plants (Non-Threatened and Endangered) with Potential to Occur in the Study Area

Common Name (Scientific Name)	Status
Big tarplant (*Blepharizonia plumose*)	1B.1
Hoover's calycadenia (*Calycadenia hooveri)*	1B.3
Succulent owl's-clover *Castilleja campestris* ssp.*succulenta*	1B.2
Hoover's spurge (*Chamaesyce hooveri)*	1B.2
Brandegee's clarkia (*Clarkia biloba ssp. Brandegeeae)*	1B.2
Beaked clarkia (*Clarkia rostrata)*	1B.3
Dwarf downingia (*Downingia pusilla)*	2.2
Stinkbells (*Fritillaria agrestis)*	4.2
Boggs Lake hedge-hyssop (*Gratiola heterosepala)*	1B.2
Ahart's dwarf rush (*Juncus leiospermus var. ahartii)*	1B.2
Legenere (*Legenere limosa)*	1B.1
Pincushion navarretia (*Navarretia myersii* ssp. *Myersii)*	1B.1
Colusa grass (*Neostapfia colusana)*	1B.1
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis)*	1B.1
Hairy Orcutt grass (*Orcuttia pilosa)*	1B.1
Slender Orcutt grass (*Orcuttia tenuis)*	1B.1
Sacramento Orcutt grass (*Orcuttia viscida)*	1B.1
Hartweg's golden sunburst (*Pseudobahia bahiifolia)*	1B.1
Sanford's arrowhead (*Sagittaria sanfordii)*	1B.2
Greene's tuctoria (*Tuctoria greenei)*	1B.1

Notes:
California Native Plant Society:
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
4 = List 4 species: Plants of limited distribution.
CNPS Code Extensions:
.1 = seriously endangered in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
.2 = fairly endangered in California (20%–80% of occurrences threatened)
.3 = not very endangered in California (less than 20% of occurrences threatened, or no current threats known)

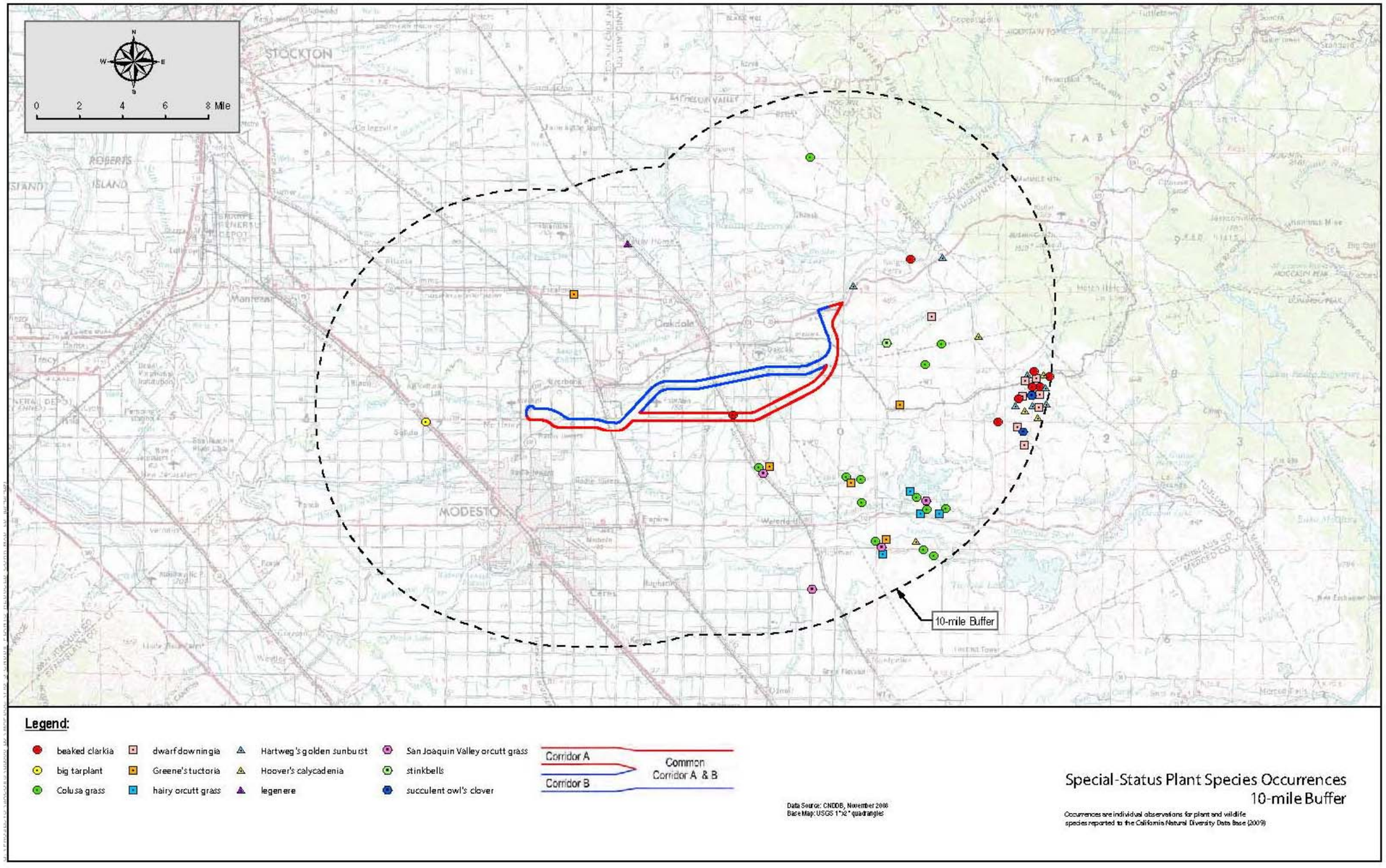


Figure 2-24. Special-Status Plant Species Occurrences

Environmental Consequences

While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either corridor it could affect special-status plants. As described under the "Affected Environment" section, Corridors A and B contain documented occurrences of one non-listed plant species (beaked clarkia) and one endangered plant species (Hartweg's golden sunburst), which is discussed in Section 2.3.5.

In addition, several occurrences of special-status plants have been documented east and southeast of both alternative corridors (Figure 2-24). The potential for special-status plants to occur in the corridors is relatively high, especially in undeveloped lands in the eastern sections of the corridors.

Construction activities associated with a new roadway for State Route 108 within alternative Corridors A and B could result in the direct loss or indirect disturbance of special-status plants that are known to grow or that could occur in the corridors. Impacts on special-status plants could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Because Caltrans cannot guarantee that special-status plants would be avoided during construction of future phases of the proposed project, future construction activities could result in substantial impacts on special-status plants.

Implementation of the No-Action Alternative would result in no impacts to plant species.

Avoidance, Minimization, and/or Mitigation Measures

No impacts would result from a route adoption. The construction of a new roadway for a future new State Route 108 alignment project, would retain a qualified botanist to document the presence or absence of special-status plants before project implementation. The following steps would be implemented to document special-status plants and determine potential impacts on the populations:

- Review existing information. The botanist would review existing information to develop a list of special-status plants that could grow in the project area. Sources of information would include the California Department of Fish and Game's California Natural Diversity Database, previously prepared environmental documents, and the California Native Plant Society electronic inventory.
- Coordinate with agencies. The botanist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, Caltrans) to

discuss botanical resource issues and determine the appropriate levels of survey necessary to document special-status plants.

- Conduct field studies. The botanist would evaluate existing habitat conditions for each project and determine what levels of botanical survey may be required. The type of botanical survey would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required:
  - Habitat assessment. A habitat assessment would be done to determine whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys would be required.
  - Species-focused surveys. Species-focused surveys (or target species surveys) would be done if suitable habitat is present for special-status plants. The surveys would focus on special-status plants that could grow in the region and be done during a period when the target species are evident and identifiable.
  - Floristic protocol-level surveys. Floristic surveys that follow the California Native Plant Society Botanical Survey Guidelines (also accepted by California Department of Fish and Game) would be done in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The California Native Plant Society Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more field surveys may be required in spring and summer months.
- Special-status plant populations identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act process, as applicable. If special-status plants are identified in the project corridor, the project applicant would implement the following measures to avoid and minimize impacts on special-status plants:
- Redesign or change specific project elements to avoid direct and indirect impacts on special-status plants, if feasible.
- Protect special-status plants near their project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations.

The environmentally sensitive area fencing would be installed at a minimum distance from the edge of the population. The distance would be determined through consultation with resource agencies. The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- Coordinate with the appropriate resource agencies and local experts to determine whether transplantation is feasible. If the agencies concur that transplantation is a feasible mitigation measure, the botanist would develop and implement a transplantation plan through coordination with the appropriate agencies. The special-status plant transplantation plan would involve the following: identifying a suitable transplant site; moving the plant material and seed bank to the transplant site; collecting seed material and propagating it in a nursery; and monitoring the transplant sites to document recruitment and survival rates.

Implementation of the No-Action Alternative would not result in impacts to plant species. Therefore, no mitigation measures would be required.

2.3.4 Wildlife Species

This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5. All other special-status animal species are discussed here, including California Department of Fish and Game fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries candidate species.

Affected Environment

Several special-status animal species not listed under the California Endangered Species Act or Federal Endangered Species Act could occur in the study area and are listed in

Table 2-25 (Biology Technical Memorandum, 2009). Special-status wildlife species would also occur in drainage habitats in the study area. Fish-eating birds forage near the surface of pools and in shallow waters along the rivers. Western pond turtles (*Actinemys marmorata*) could be found in drainage habitats in the study area, including rivers, creeks, canals, and ditches. Within the study area, the Stanislaus River and its smaller tributaries sustain populations of various native and introduced fish species.

Table 2-25. Special-Status (Non-Threatened and Endangered) Species with the Potential to Occur in the Study Area

Common Name (Scientific Name)	Status Federal/State/ Western Bat Working Group
Amphibians	
Western spadefoot (*Scaphiopus hammondii)*	–/SSC/–
Reptiles	
California horned lizard (*Phrynosoma coronatum frontale)*	–/SSC/–
Western pond turtle (*Actinemys marmorata)*	–/SSC/–
Birds	
Great blue heron (rookery) (*Ardea herodias*)	–/CDF Sensitive/–(Rookery)
Great egret (rookery) (*Ardea albus)*	–/CDF Sensitive/–(Rookery)
White-tailed kite (*Elanus leucurus)*	–/FP/–
Northern harrier (*Circus cyaneus)*	–/SSC/–
Western burrowing owl (*Athene cunicularia hypugea)*	–/SSC/–
Loggerhead shrike (*Lanius ludovicianus)*	–/SSC/–
Tricolored blackbird (*Agelaius tricolor)*	–/SSC/–
Mammals	
Fringed myotis (*Myotis thysanodes)*	
Greater western mastiff bat (*Eumops perotis californicus)*	–/SSC/–
Hoary bat (*Lasurius cinerius)*	–/SSC/–
Pallid bat (*Antrozous pallidus)*	–/SSC/High priority
Pale Townsend's (=western) big-eared bat (*Corynorhinus townsendii pallescens)*	–/SSC/–
Western red bat (*Lasiurus blossevillii)*	–/–/High priority
Western mastiff bat (*Eumops perotis)*	–/SSC/High priority
Yuma myotis (*Myotis yumanensis)*	–/–/Low-medium priority
American badge (*Taxidea taxus)*	–/SSC/–
Fish	
Central valley fall-/late fall-run Chinook salmon (*Oncorhynchus tshawytscha)*	–/–/–
River lamprey (*Lampetra ayresi)*	–/SSC/–
Pacific lamprey (*Lampetra tridentate)*	–/–/–
Sacramento splittail (*Pogonichthys macrolepidotus)*	–/SSC/–
San Joaquin roach (*Lavinia symmetricus symmetricus)*	–/SSC/–
Hardhead (*Mylopharodon conocephalus)*	–/SSC/–

Notes:
Federal
– = no listing.
State
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
– = no listing.
Western Bat Working Group. Available: <http://www.wbwg.org/speciesinfo/species_matrix/spp_matrix.pdf>.
High priority = Species are imperiled or at high risk of imperilment.
Moderate priority = This designation indicates a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat.
Low priority = While there may be localized concerns, the overall status of the species is believed to be secure.

Special-status fish species could occupy drainages in Stanislaus County, including the Stanislaus River, which runs in the northern part of the study area, north of Corridors A and B. Several smaller tributaries, streams, and irrigation ditches occur within the two corridors, and some of these waterways are connected to the river. It is not known whether these waterways support suitable special-status fish habitat. Therefore, for the purpose of this document, it is assumed that special-status fish could occur in waterways that are tributary to the Stanislaus River (which is known to support special-status fish species).

Species of concern, relative to current trends in abundance, include the fall-/late-fall-run chinook salmon, Sacramento splittail, river lamprey (*Lampetra ayresi*), Pacific lamprey (*L. tridentata*), hardhead (*Mylopharodon conocephalus*), and San Joaquin roach, a subspecies of the California roach (*Lavinia symmetricus*).

In 1999, the National Marine Fisheries Service determined that listing was not warranted and classified the Central Valley fall-/late-fall-run chinook salmon as an Evolutionarily Significant Unit candidate species; the National Marine Fisheries Service transferred this Evolutionary Significant Unit to the newly created "species of concern" list in 2004 to reflect the fact that the fish was no longer actively being considered for listing under the Federal Endangered Species Act (National Marine Fisheries Service 2008). Although the Central Valley fall-/late-fall-run chinook salmon is not protected under the Federal Endangered Species Act, it is a commercially valuable species and protected under the Sustainable Fisheries Act of 1996, which amended the Magnuson-Stevens Fishery Conservation and Management Act.

Essential Fish Habitat is the aquatic habitat (water and substrate) necessary for fish to spawn, breed, feed, or grow to maturity (National Marine Fisheries Service 1998). It allows the level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem. Consultation with National Marine Fisheries Service is required for potential effects on all runs of the chinook salmon because of its commercial value.

Environmental Consequences

While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either corridor it could disturb habitat for many common wildlife species associated with non-native annual grassland and agricultural habitats. Also, a small amount of this habitat for common wildlife species would be removed as a result of site-specific roadway construction. The amount of habitat that would be removed is expected to be small relative to the amount of habitat available to common species in the project region.

In addition to losing habitat from construction, the disturbance would cause many species to move out of project sites and into nearby habitat areas, and inevitably, some individuals would be lost as a result. This loss of individual animals would not result in a substantial reduction or elimination of common wildlife species (in diversity or abundance).

Construction of a new State Route 108 either corridor could result in the direct loss or indirect disturbance of special-status wildlife or their habitats that are known to occur or could occur in the study area and surrounding region (see Figure 2-25). Impacts on special-status wildlife or their habitat could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation.

Substantial impacts on special-status wildlife associated with the construction and operation of highway projects would include, but are not limited to:

- Injury or death from the collapse of underground burrows resulting from soil compaction.
- Injury or death resulting from equipment and vehicles moving through the project area.
- Injury or death caused by more vehicles on new or widened roads in migration corridors.
- Loss of breeding and foraging habitat resulting from the filling of seasonal or perennial wetlands.
- Loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation.
- Abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, as a result of construction-related noises.
- Loss of suitable foraging habitat for special-status raptor species.
- Loss of migration corridors resulting from the construction of permanent building structures or features.

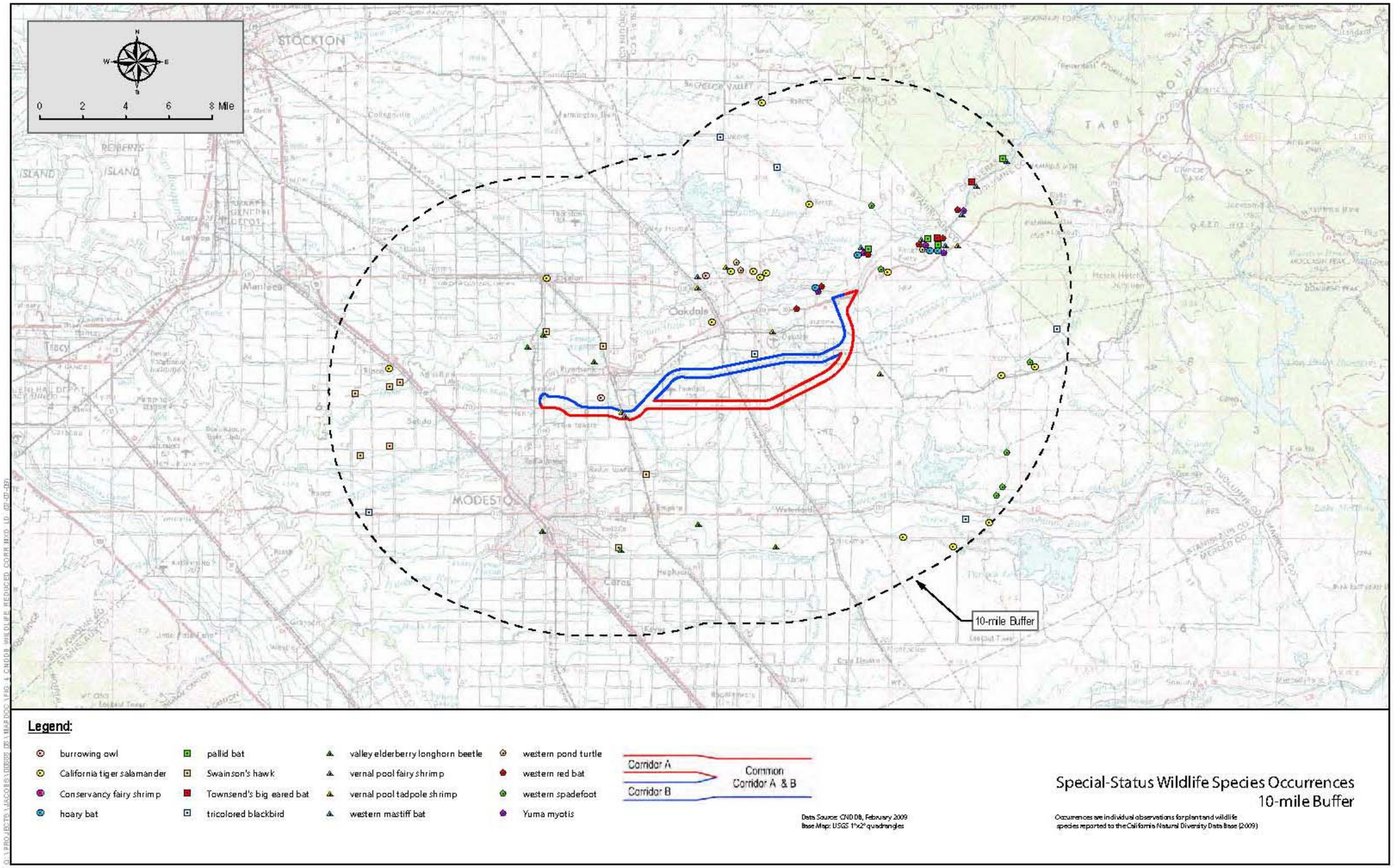


Figure 2-25. Special-Status Wildlife Species Occurrences

As noted previously, the Stanislaus River runs north of Corridors A and B and would not be directly affected by either of the alternatives. However, numerous drainages, canals, and other waterways connected to the Stanislaus River could support habitat for special-status fish species. For this analysis, it is assumed that tributary drainages to the Stanislaus River could support potential habitat. Therefore, construction of a new State Route alignment in either corridor could result in impacts on special-status fish and their aquatic habitat in these tributary waterways.

Impacts on aquatic habitat could result from an increase in sediment input, contaminant input, and removal of streamside riparian vegetation. Construction and maintenance activities next to waterways could disturb soils and cause sediment to be transported into and through the channel; this would result in temporary increases in turbidity (murkiness) and sedimentation downstream of construction sites. Periods of localized high concentrations of sediments and turbidity from channel disturbance could reduce feeding opportunities for sightfeeding fish, plus clog and irritate fish gills. Sediments can also degrade food-producing habitat downstream of project areas. Finally, sediments can interfere with photosynthesis of aquatic plants, resulting in the displacement of aquatic life.

Fuel and concrete could spill into the waterway during construction. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be introduced into the system either directly or through surface runoff. Contaminants may be lethal or sub-lethally toxic to fish and other aquatic organisms or may change the rate at which oxygen is diffused; as a result, they may reduce the survival and growth rates of aquatic species.

Removal of riparian vegetation from tributary waterways that support fish habitat could increase a stream bank's susceptibility to erosion. Alteration of fish habitat would occur if the channel bed and banks were disturbed or mechanically disturbed sites were further disturbed by high-flow events before being stabilized. Streamside riparian vegetation provides cover for juvenile rearing, shade, and food, and is considered a valuable component of fish habitat. Removal of woody riparian vegetation may affect fish directly by removing habitat. Fish use complex woody debris structures to avoid predators and conceal themselves from prey. Woody debris in the waterway reduces water velocity, providing resting habitat as well.

Construction activities could cause fish to avoid biologically important habitat for substantial periods. Avoidance of important habitat may increase deaths, reduce reproductive success, or substantially reduce local population size. These potential impacts are considered substantial.

Implementation of the No-Action Alternative would not result in impacts to wildlife species.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the No-Action Alternative would not result in impacts to wildlife species. Therefore, no mitigation measures would be required.

For either corridor, a project-level environmental review for a new roadway for State Route 108 alignment would require a qualified wildlife biologist to document the presence or absence of suitable habitat for special-status wildlife in the alternative corridors, as follows:

- Review existing information. The wildlife biologist would review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information would be reviewed as part of this process:
  - U.S. Fish and Wildlife Service special-status species list for the project region
  - U.S. Fish and Wildlife Service recovery plans
  - California Department of Fish and Game's California Natural Diversity Database
  - Previously prepared environmental documents
  - City and county general plans
  - Habitat conservation plans and natural community conservation plans (if any are adopted by the time the project is built)
  - U.S. Fish and Wildlife Service-issued biological opinions for previous projects
- Coordinate with state and federal agencies. The wildlife biologist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, and Caltrans) to discuss wildlife resource issues in the project region and determine the appropriate levels of survey necessary to document special-status wildlife and their habitats.
- Conduct field studies. The wildlife biologist would evaluate existing habitat conditions and determine the levels of biological survey that may be required. The type of survey required would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or a combination of the following levels of survey may be required:
  - Habitat assessment. A habitat assessment determines whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys would be required.

- Species-focused surveys. Species-focused surveys (or target species surveys) would be conducted if suitable habitat is present for special-status wildlife and it is necessary to determine the presence or absence of the species in the project area. The surveys would focus on special-status wildlife species that have the potential to occur in the region. The surveys would be conducted during a period when the target species are present and/or active.
- Protocol-level wildlife surveys. The project proponent would comply with protocols and guidelines issued by responsible agencies for certain special-status species. The U.S. Fish and Wildlife Service and California Department of Fish and Game have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) valley elderberry longhorn beetle, vernal pool fairy and tadpole shrimps, California tiger salamander, riparian brush rabbit, and western burrowing owl. The protocols and guidelines may require that surveys be done during a particular time of year and/or time of day when the species is present and active. Many survey protocols require that only a U.S. Fish and Wildlife Service- or California Department of Fish and Game-approved biologist perform the surveys. The project proponent would coordinate with the appropriate state or federal agency biologist before beginning protocol level surveys to ensure that the survey results would be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period, and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species. Special-status wildlife and/or suitable habitat identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable.

Caltrans would implement the following measures to avoid and minimize impacts on special-status wildlife and their habitats:

- Redesign or change the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.
- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking would be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (U.S. Fish and Wildlife Service and California Department of Fish and Game). Location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities,

vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- Restrict construction-related activities to the non-breeding season for special-status wildlife species that could occur in the project area. Timing restrictions may vary depending on the species and could occur during any time of the year.
    - Coordinate with the appropriate resource agencies to determine whether a monitoring plan for special-status wildlife is necessary as part of all highway projects. If a monitoring plan is required, it would be developed and implemented in coordination with appropriate agencies and would include:
    - A description of each of the wildlife species and the suitable habitat for species that could occur at the project site.
    - The locations of known occurrences of special-status wildlife species within 5 miles of the project site.
    - The location and size of no-disturbance zones in and next to environmentally sensitive areas for wildlife.
    - Directions on handling and relocating special-status wildlife species found on the project site that are in immediate danger of being destroyed.
    - Notification and reporting requirements for special-status species identified on the project site.

As part of project-level environmental review, a qualified fisheries biologist would locate and identify streams that could support special-status fish habitat. Aquatic and streamside habitat conditions would be mapped and documented as part of California Environmental Quality Act and National Environmental Policy Act documentation and biological assessment reports, as applicable.

Project elements that could affect special-status fish and their habitat would be built (to the extent possible) during time periods that avoid the sensitive life stages of special-status fish species. Construction activities would be scheduled so that they do not interfere with the reproductive cycles of fish species. Work in most of the systems would take place between June 1 and October 15 to avoid causing impacts on the majority of the adult and juvenile migration stages of anadromous species.

In addition, Caltrans would implement best management practices in the Storm Water Pollution Prevention Plans, as applicable, to control the transport of sediments to streams, promote the restoration of construction areas to pre-construction conditions, and avoid the potential for spills

of hazardous substances. The Storm Water Pollution Prevention Plans would include pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a best management practice monitoring and maintenance schedule. A staging and storage area would be provided away from the waterway for equipment, construction materials, fuels, lubricants, solvents, and other possible contaminants.

The contractor would do periodic maintenance of erosion and sediment control measures. 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 until wet while avoiding the production of runoff. Paved streets would be swept daily after construction activities.

2.3.5 Threatened and Endangered Species

Affected Environment

According to the California Natural Diversity Database (2009), one federal- or state-listed plant species—Hartweg's golden sunburst (*Pseudobahia bahiifolia*)—has been documented in the project corridors (see Figure 2-24) (Biology Technical Memorandum, 2009). Hartweg's golden sunburst is an endangered species under Federal Endangered Species Act and/or California Endangered Species Act and has been recorded near State Route 108/120, by Corridor B.

Table 2-26 shows federal- or state-listed plant species that could occur in the study area.

Table 2-26. Federal- or State-Listed Plant Species with the Potential to Occur in the Study Area

Common Name (Scientific Name)	Status		
	Federal	State	California Native Plant Society
Succulent owl's-clover (*Castilleja campestris ssp. Succulenta*)	T	E	1B.2
Hoover's spurge (*Chamaesyce hooveri*)	T	–	1B.2
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	–	E	1B.2
Colusa grass (*Neostapfia colusana*)	T	E	1B.1
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	T	E	1B.1
Hairy Orcutt grass (*Orcuttia pilosa*)	E	E	1B.1
Slender Orcutt grass (*Orcuttia tenuis*)	T	E	1B.1
Sacramento Orcutt grass (*Orcuttia viscida*)	E	E	1B.1
Hartweg's golden sunburst (*Pseudobahia bahiifolia*)	E	E	1B.1
Greene's tuctoria (*Tuctoria greenei*)	E	R	1B.1

Notes:
Federal
E = listed as endangered under the Federal Endangered Species Act.
T = listed as threatened under the Federal Endangered Species Act.
C = candidate; species for which U.S Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
– = no listing.
State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = designated as fully protected under the California Fish and Game Code.
R = listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
– = no listing.
SSC = California Species of Special Concern
California Native Plant Society
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
California Native Plant Society
Code Extensions
.1 = seriously endangered in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
.2 = fairly endangered in California (20%–80% of occurrences threatened)
.3 = not very endangered in California (less than 20% of occurrences threatened or no current threats known)

Two federally listed species—the vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp—occur within Corridors A and B (see Figure 2-25). In addition, the federally listed California tiger salamander (*Ambystoma californiense*) occurs in aquatic habitat just over a mile from both corridors and could occur in terrestrial habitat in both corridors. Critical habitat for vernal pool fairy shrimp, conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool tadpole shrimp, and California tiger salamander (see Figure 2-26) is in the project region and Stanislaus County. Neither of the alternative corridors is within critical habitat; however, critical habitat for vernal pool tadpole shrimp is about 1 mile south from Corridor A (see Figure 2-26).

The San Joaquin kit fox (*Vulpes macrotis mutica*) has not been seen in the study area, but kit foxes have been found from La Grange in southeastern Stanislaus County south through Merced, Madera, and Fresno counties (U.S. Fish and Wildlife Service 1998). The U.S. Fish and Wildlife Service has identified the foothills region along the eastern portion of the San Joaquin Valley as a "link area" for the kit fox. San Joaquin kit fox link areas join core and satellite population centers to the north and south and are the subject of U.S Fish and Wildlife Service habitat conservation efforts (see Figure 2-27). The easternmost portion of both alternative corridors is within an identified link area.

Table 2-27 shows federal- or state-listed wildlife species that could occur in the study area.

Fish species could occupy drainages in Stanislaus County, including the Stanislaus River. The Stanislaus River runs in the northern part of the study area, north of Corridors A and B. Several smaller tributaries, streams, and irrigation ditches occur within the two corridors, and some of these waterways are connected to the river. It is currently not known whether these waterways support suitable special-status fish habitat. Therefore, for this document, it is assumed that special-status fish could occur in waterways that are tributary to the Stanislaus River (which is known to support special-status fish species). Species currently listed under the Federal Endangered Species Act that occur, or may occur, in the study area include steelhead trout.

The Central Valley steelhead trout is listed as threatened under the Federal Endangered Species Act (*63 FR 13347*, March 19, 1998), and the lower San Joaquin River and its tributaries (including the Stanislaus River) are included in the designated critical habitat range for this fish (*50 CFR 226*).

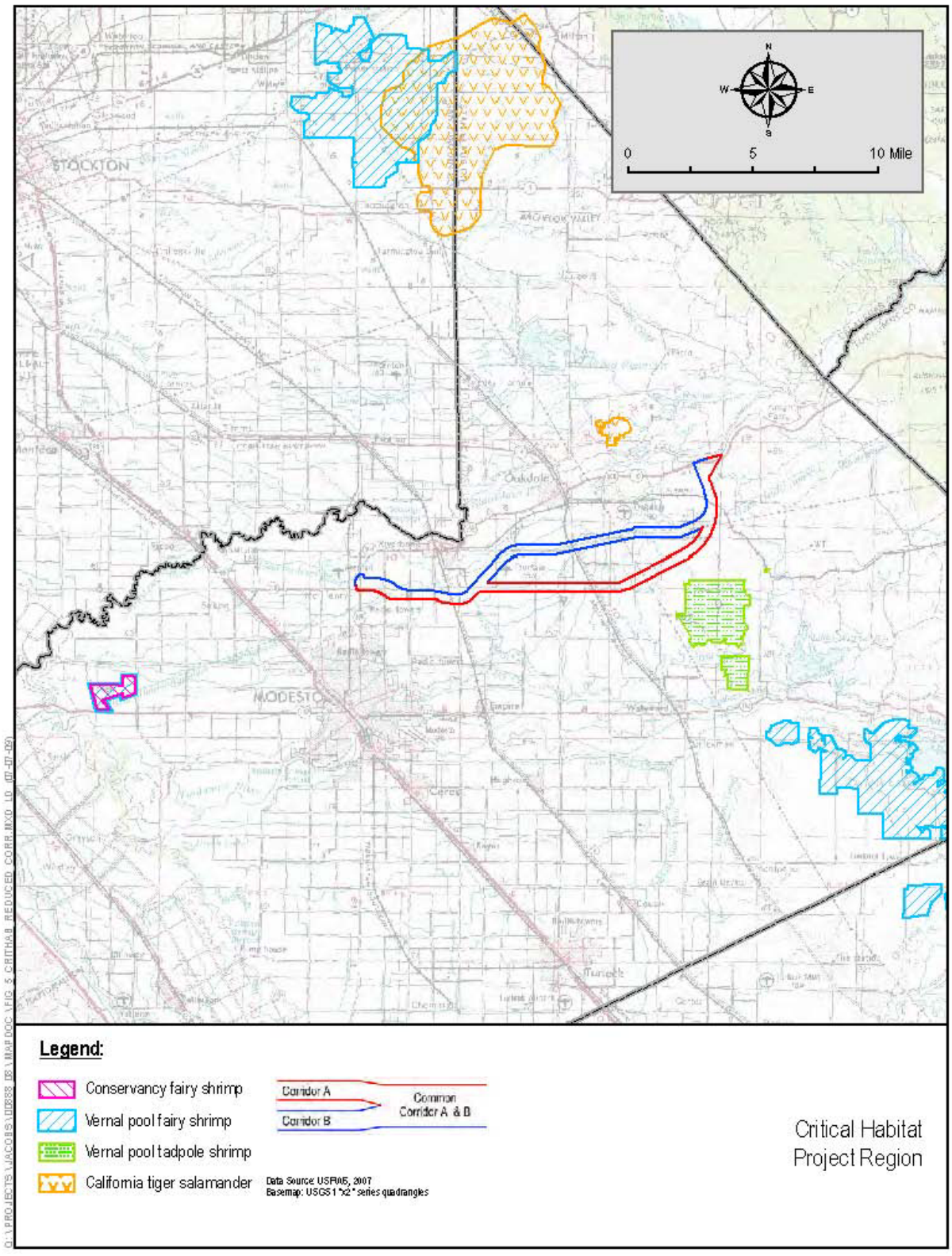


Figure 2-26. Critical Habitat

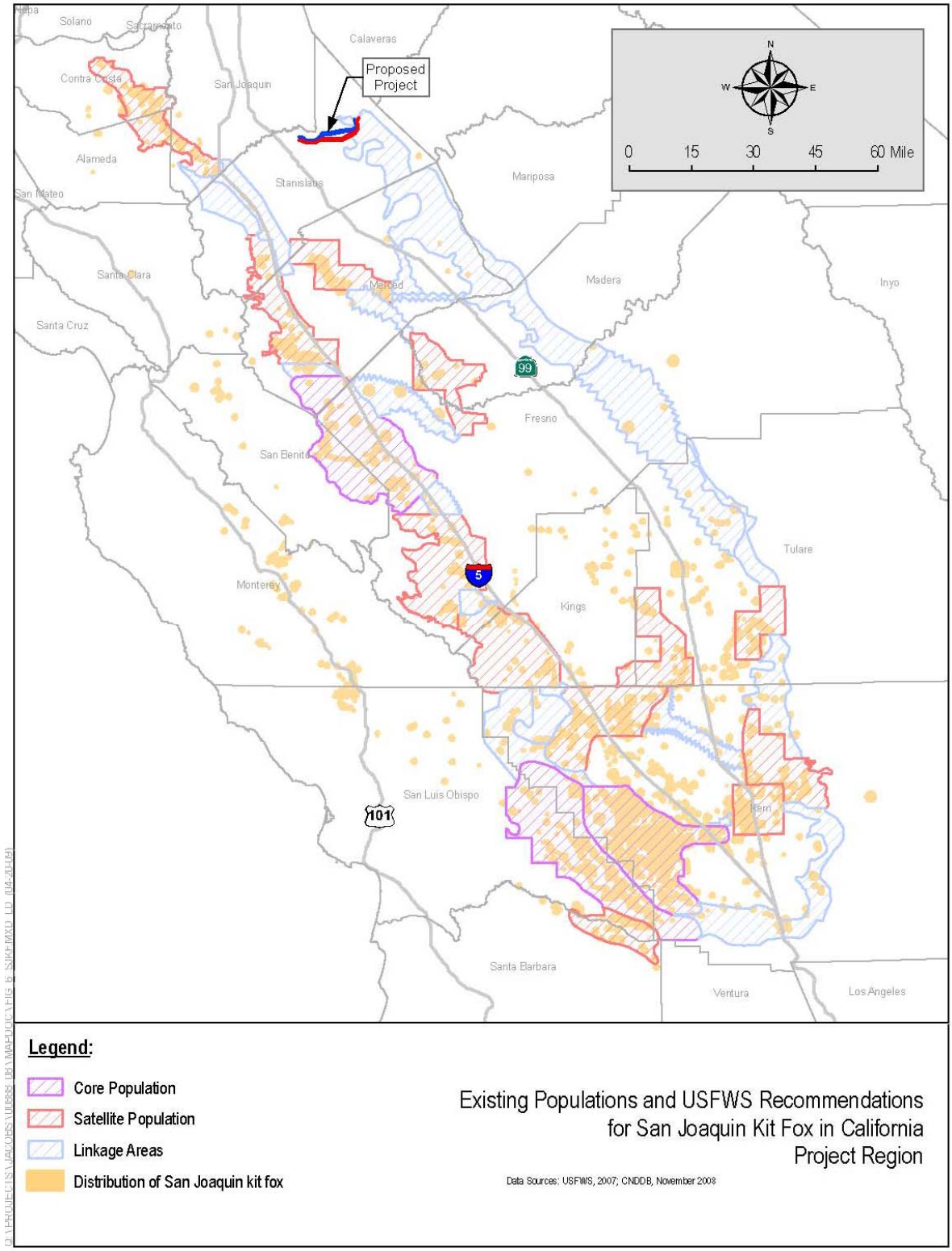


Figure 2-27. Existing Populations and USFWS Recommendations for San Joaquin Kit Fox in California

Table 2-27. Federal- or State-Listed Wildlife Species with the Potential to Occur in the Study Area

Common Name (Scientific Name)	Status Federal/State/ Western Bat Working Group
Invertebrates	
Valley elderberry longhorn beetle *(Desmocerus californicus dimorphus)*	T/–/–
Conservancy fairy shrimp *(Branchinecta conservation)*	E/–/–
Vernal pool fairy shrimp *(Branchinecta lynchi)*	T/–/–
Vernal pool tadpole shrimp *(Lepidurus packardi)*	E/–/–
Amphibians	
California tiger salamander *(Ambystoma californiense)*	T/C, SSC/–
California red-legged frog *(Rana aurora draytonii)*	T/SSC/–
Riparian brush rabbit *(Sylvilagus bachmani riparius)*	E/E/–
San Joaquin Valley woodrat *(Neotoma fuscipes riparia)*	E/SSC/–
San Joaquin kit fox *(Vulpes macrotis mutica)*	E/T/–
Fish	
Central Valley steelhead trout *(Oncorhynchus mykiss)*	T/–/–

Notes:
Federal
E = listed as endangered under the Federal Endangered Species Act.
T = listed as threatened under the Federal Endangered Species Act.
– = no listing.
State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
C = candidate for listing
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
– = no listing.
Western Bat Working Group (WBWG). Available: <http://www.wbwg.org/speciesinfo/species_matrix/spp_matrix.pdf>.
High priority = Species are imperiled or at high risk of imperilment.
Moderate priority = This designation indicates a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat.
Low priority = While there may be localized concerns, the overall status of the species is believed to be secure.

Environmental Consequences

While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either corridor it could affect special-status plants. As described under the "Affected Environment" section, Corridors A and B contain documented occurrences one endangered plant species (Hartweg's golden sunburst). In addition, several occurrences of special-status plants have been documented east and southeast of both alternative corridors (see Figure 2-24).

The potential for special-status plants to occur in the corridors is relatively high, especially in undeveloped lands in the eastern portions of the corridors. Construction activities associated

with a new State Route 108 alignment within either corridor could result in the direct loss or indirect disturbance of special-status plants that are known to grow or that could occur in the corridors. Impacts on special-status plants could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Because Caltrans cannot guarantee that special-status plants would be avoided during construction of future phases of the proposed project, future construction activities could result in substantial impacts on special-status plants.

Corridors A and B support potential habitat for special-status wildlife. Corridors A and B contain documented occurrences of vernal pool fairy shrimp and vernal pool tadpole shrimp, both of which are listed under the Federal Endangered Species Act. In addition, numerous occurrences of special-status wildlife species have been documented within a 10-mile buffer of both alternative corridors, and the study area is within the geographical range of additional special-status species (see Figures 2-34 and 2-35). The potential for special-status wildlife species to occur in the corridors is relatively high, especially along the Stanislaus River corridor and in undeveloped lands in the eastern portions of the corridors.

Construction of a new State Route 108 within either corridor could result in the direct loss or indirect disturbance of special-status wildlife or their habitats, which are known to occur or could occur in the study area and surrounding region (see Figure 2-25). Impacts on special-status wildlife or their habitat could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Substantial impacts on special-status wildlife associated with the construction and operation of highway projects include, but are not limited to:

- Injury or death from the collapse of underground burrows resulting from soil compaction.
- Injury or death resulting from equipment and vehicles moving through the project area.
- Increased deaths caused by higher numbers of vehicles on new or widened roads in migration corridors.
- Loss of breeding and foraging habitat resulting from the filling of seasonal or perennial wetlands.
- Loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation.
- Abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, as a result of construction-related noises.

- Loss of suitable foraging habitat for special-status raptor species.
- Loss of migration corridors resulting from the construction of permanent building structures or features.

The Stanislaus River occurs north of Corridors A and B and would not be directly affected by either of the alternatives. However, numerous drainages, canals, and other waterways are connected to the Stanislaus River and could support habitat for special-status fish species. For this analysis, it is assumed that tributary drainages to the Stanislaus River could support potential habitat. Therefore, construction of a new State Route 108 within either corridor could result in impacts to special-status fish and their aquatic habitat in these tributary waterways.

Impacts on aquatic habitat could result from an increase in sediment input, contaminant input, and removal of streamside riparian vegetation. Construction and maintenance activities next to waterways could disturb soils and cause sediments to be transported into and through the channel; this would result in temporary increases in turbidity (murkiness) and sedimentation downstream of construction sites.

Localized high concentrations of sediments and turbidity from channel disturbance could result in reduced feeding opportunities for sightfeeding fish, plus could clog and irritate fish gills. Also, increased sediment loading can degrade food-producing habitat downstream of project areas. Sediment can also interfere with photosynthesis of aquatic plants and result in the displacement of aquatic life.

Fuel and concrete could spill into the waterway during construction. Various contaminants, such as fuel oils, grease, and other petroleum products used in construction activities, could be introduced into the system either directly or through surface runoff. Contaminants may be lethal or sub-lethally toxic to fish and other aquatic organisms or may change the rate at which oxygen is diffused; as a result, sediments could reduce the survival and growth rates of aquatic species.

Removal of riparian vegetation from tributary waterways that support fish habitat could increase a stream bank's susceptibility to erosion. Alteration of fish habitat would occur if the channel bed and banks were disturbed or mechanically disturbed sites were further disturbed by high-flow events before being stabilized.

Streamside riparian vegetation provides cover for juvenile rearing, shade, and food input and is considered a valuable component of fish habitat. Removal of woody riparian vegetation

may affect fish directly by removing habitat. Fish use complex woody debris structures to avoid predators and conceal themselves from prey. Woody debris in the waterway reduces water velocity, providing resting habitat as well.

Construction activities could cause fish to avoid biologically important habitat for substantial periods. Avoidance of important habitat may increase deaths, reduce reproductive success, or substantially reduce local population size. These potential impacts are considered substantial.

Implementation of the No-Action Alternative would not result in project-related impacts to threatened and endangered plant and wildlife species.

Avoidance, Minimization, and/or Mitigation Measures

No impact will occur as a result of the adoption of a corridor. The construction of a new State Route 108 be required to analyze potential roadway alignment alternatives. A qualified botanist to document the presence or absence of special-status plants before project implementation would be required. The following steps would be implemented to document special-status plants and determine potential impacts on the populations:

- Review existing information. The botanist would review existing information to develop a list of special-status plants that could grow in the project area. Sources of information would include the California Department of Fish and Game's California Natural Diversity Database, previously prepared environmental documents, and the California Native Plant Society electronic inventory.
- Coordinate with agencies. The botanist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, Caltrans) to discuss botanical resource issues and determine the appropriate levels of survey necessary to document special-status plants.
- Conduct field studies. The botanist would evaluate existing habitat conditions for each project and determine what levels of botanical survey may be required. The type of botanical survey would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required:
    - Habitat Assessment. A habitat assessment would be done to determine whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return

surveys are necessary. If no suitable habitat is present, no additional surveys would be required.

  - Species-focused surveys. Species-focused surveys (or target species surveys) would be done if suitable habitat is present for special-status plants. The surveys would focus on special-status plants that could grow in the region and be done during a period when the target species are evident and identifiable.
  - Floristic protocol-level surveys. Floristic surveys that follow the California Native Plant Society Botanical Survey Guidelines (also accepted by California Department of Fish and Game) would be done in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The California Native Plant Society Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be done when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more field surveys may be required in spring and summer months.

- Special-status plant populations identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act process, as applicable.

As part of project-level environmental review for a new roadway for State Route 108, a qualified wildlife biologist would document the presence or absence of suitable habitat for special-status wildlife in the alternative corridors, as follows:

- Review existing information. The wildlife biologist would review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information would be reviewed as part of this process: the U.S. Fish and Wildlife Service special-status species list for the project region, U.S. Fish and Wildlife Service recovery plans, the California Department of Fish and Game's California Natural Diversity Database, previously prepared environmental documents, city and county general plans, habitat conservation plans and natural community conservation plans (if any are adopted by the time the project is constructed), and U.S. Fish and Wildlife Service-issued biological opinions for previous projects.
- Coordinate with state and federal agencies. The wildlife biologist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, and Caltrans) to discuss wildlife resource issues in the project region

and determine the appropriate levels of survey necessary to document special-status wildlife and their habitats.

- Conduct field studies. The wildlife biologist would evaluate existing habitat conditions and determine the levels of biological survey that may be required. The type of survey required would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or a combination of the following levels of survey may be required:
  - Habitat assessment. A habitat assessment determines whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys would be required.
  - Species-focused surveys. Species-focused surveys (or target species surveys) would be done if suitable habitat is present for special-status wildlife and it is necessary to determine the presence or absence of the species in the project area. The surveys would focus on special-status wildlife species that have the potential to occur in the region. The surveys would be done during a period when the target species are present and/or active.
  - Protocol-level wildlife surveys. The project proponent would comply with protocols and guidelines issued by responsible agencies for certain special-status species. The U.S. Fish and Wildlife Service and California Department of Fish and Game have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) valley elderberry longhorn beetle, vernal pool fairy and tadpole shrimps, California tiger salamander, riparian brush rabbit, and western burrowing owl. The protocols and guidelines may require that surveys be done during a particular time of year and/or time of day when the species is present and active. Many survey protocols require that only a U.S. Fish and Wildlife Service- or California Department of Fish and Game-approved biologist perform the surveys. The project proponent would coordinate with the appropriate state or federal agency biologist before beginning protocol level surveys to ensure that the survey results would be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period, and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species. Special-status wildlife and/or suitable habitat identified during the field surveys would be mapped and documented as part of the

California Environmental Quality Act and National Environmental Policy Act documentation, as applicable.

This mitigation measure focuses on avoiding and minimizing all direct and indirect effects on special-status wildlife. Caltrans would implement the following measures to avoid and minimize impacts on special-status wildlife and their habitats:

- Redesign or change the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.
- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking would be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (U.S. Fish and Wildlife Service and California Department of Fish and Game). Location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Restrict construction-related activities to the non-breeding season for special-status wildlife species that could occur in the project area. Timing restrictions may vary depending on the species and could occur during any time of the year.
- Coordinate with the appropriate resource agencies to determine whether a monitoring plan for special-status wildlife is necessary as part of all highway projects. If a monitoring plan is required, it would be developed and implemented in coordination with appropriate agencies and would include:
    - A description of each of the wildlife species and the suitable habitat for species that could occur at the project site.
    - The locations of known occurrences of special-status wildlife species within 5 miles of the project site.
    - The location and size of no-disturbance zones in and next to environmentally sensitive areas for wildlife.
    - Directions on handling and relocating special-status wildlife species found on the project site that are in immediate danger of being destroyed.

- Notification and reporting requirements for special-status species that are identified on the project site.

If the above measures are not feasible and site-specific construction activities would result in substantial impacts on wildlife species listed under the Federal Endangered Species Act and/or California Endangered Species Act, a compensation plan would be developed in coordination with the appropriate resource agency, or agency-approved compensation guidelines would be followed to reduce the impact to a less-than-significant level. Compensation guidelines have been identified for several special-status wildlife species, including valley elderberry longhorn beetle, vernal pool fairy and tadpole shrimps, California tiger salamander, Swainson's hawk, and burrowing owl. The amount of compensation would vary depending on the amount of habitat loss or degree of habitat disturbance anticipated. The compensation plan would be developed and implemented in coordination with the appropriate state or federal agency and would involve identifying an agency-approved mitigation bank or mitigation site (on or off the site); transplanting (elderberry shrubs), re-creating (burrows and vernal pools), and/or preserving additional habitat for special-status wildlife species; monitoring the mitigation site; and funding the management of the mitigation site.

As part of project-level environmental review, a qualified fisheries biologist would locate and identify streams that could support special-status fish habitat. Aquatic and streamside habitat conditions would be mapped and documented as part of California Environmental Quality Act and National Environmental Policy Act documentation and biological assessment reports, as applicable.

Project elements that could affect special-status fish and their habitat would be built (to the extent possible) during time periods that avoid the sensitive life stages of special-status fish species. Construction activities would be scheduled so that they do not interfere with the reproductive cycles of fish species. Work in most of the systems would take place between June 1 and October 15 to avoid causing impacts on the majority of the adult and juvenile migration stages of anadromous species.

In addition, Caltrans would implement best management practices in the Storm Water Pollution Prevention Plans, as applicable, to control the transport of sediment to streams, promote the restoration of construction areas to pre-construction conditions, and avoid the potential for spills of hazardous substances. The Storm Water Pollution Prevention Plans would include pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of

compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a best management practices monitoring and maintenance schedule. A staging and storage area would be provided away from the waterway for equipment, construction materials, fuels, lubricants, solvents, and other possible contaminants.

The contractor would do periodic maintenance of erosion and sediment control measures. 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 until wet while avoiding the production of runoff. Paved streets would be swept daily after construction activities.

Project elements that are built in, near, or across tributaries to the Stanislaus River could affect steelhead trout and chinook salmon or their Essential Fish Habitats. To minimize potential impacts, Caltrans would request that the federal lead agency on the project (Caltrans/Federal Highway Administration) initiate consultation with National Marine Fisheries Service and/or U.S. Fish and Wildlife Service to obtain a determination from the agency as well as approval to proceed with the project and the approved avoidance, minimization, and compensation measures.

Implementation of the No-Action Alternative would not result in impacts to the threatened and endangered species. Therefore, no mitigation measures would be required.

2.3.6 Invasive Species

Affected Environment

Approximately 138 invasive species could occur in the project region (Biology Technical Memorandum, 2009). The Deputy Stanislaus County Agricultural Commissioner indicated that capeweed (*Arctotheca calendula* (*L.*) *levyns*) was a species of particular concern and interest in Stanislaus County. Invasive species were not inventoried for this analysis because target weeds would differ depending on the sensitivity of the site to infestation and the type of weeds in the immediate project area. Invasive species should be included on a target list if they are considered to have great potential for displacing native plants and damaging natural habitats and not considered too widespread to be effectively controlled.

Environmental Consequences

While selection of a corridor would not result in any physical construction, once funding is available for the construction of a future new State Route 108 alignment within either

corridor it could introduce or spread invasive species into currently uninfested areas, possibly resulting in the displacement of special-status plant species and degradation of habitat for special-status wildlife. Plants or seeds may be dispersed via construction equipment if the appropriate measures are not implemented. The introduction or spread of invasive species could result in a substantial reduction in diversity or abundance or elimination of a species.

Implementation of the No-Action Alternative would not result in additional spread of invasive species.

Avoidance, Minimization, and/or Mitigation Measures

No impact will occur as a result of the adoption of a corridor. For either corridor, as part of project-level environmental review for a new State Route 108 alignment, a qualified botanist would document invasive species and address noxious weed impacts. The botanist would determine whether noxious weeds are an issue for the project and whether they could displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity.

If the botanist determines that noxious weeds are an issue, Caltrans would review the Stanislaus County Agricultural Commission's noxious weed list, the California Department of Food and Agriculture's A, B, and C lists of noxious weeds, and the California Exotic Pest Plant Council's list of pest plants of ecological concern. These lists would be used to identify weeds that would be targeted during field surveys by the botanist. Surveys would focus on target weed species that are considered locally important for documentation and control purposes.

If noxious weed infestations are located during the field surveys, they would be mapped and documented in the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable.

If noxious weeds infestations are identified in site-specific project areas, Caltrans would incorporate the following measures into project plans and specifications to avoid the introduction or spread of noxious weeds into uninfested areas:

- Use certified, weed-free imported erosion-control materials (or rice straw in upland areas).
- Coordinate with the Stanislaus County agricultural commissioner to ensure that the appropriate best management practices are implemented.

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds.
- Clean equipment at designated wash stations after leaving noxious weed infestation areas.

Implementation of the No-Action Alternative would not result in additional spread of invasive species. Therefore, no mitigation measures would be required.

Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance under the California Environmental Quality Act

This chapter provides the basis for describing any environmental effects identified in Chapter 2 that would be considered significant under the California Environmental Quality Act (also known as CEQA). Determining and documenting whether a project may have a significant effect on the environment plays a critical role in the California Environmental Quality Act process. The California Environmental Quality Act requires that lead agencies know what constitutes a significant effect on the environment and whether mitigation measures are available to reduce a significant effect to a less-than-significant level. It also requires mitigation of all significant impacts on the environment to the extent feasible.

The project is subject to state environmental review requirements. Therefore, project documentation has been prepared in compliance with the California Environmental Quality Act. Caltrans is the project proponent and the lead agency under the California Environmental Quality Act. The North County Corridor Transportation Expressway Authority is the local proponent.

The California Environmental Quality Act requires 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. 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 less-than-significant effects of the proposed project are on emergency services. No mitigation is required to reduce the effect on emergency services. Please see the Emergency Services section in Chapter 2 for the full discussion of these effects.

3.2.2 Significant Environmental Effects of the Proposed Project

A route adoption would not result in any physical environmental effects. However, future construction of a roadway within the adopted corridor would result in impacts which are considered as indirect effects in this analysis. The potentially significant environmental effects of the proposed project are: land use, relocations, utilities, visual/aesthetics, cultural resources, hydrology and floodplain, water quality and storm water runoff, geology, paleontology, hazardous waste, air quality, natural communities, wetlands and other waters, plants, animals, threatened and endangered species, invasive species, community character and cohesion, and growth. Route adoption and the future construction of a roadway within the Action Alternatives is in response to and would accommodate for planned growth, as described in the general plans for Stanislaus County and respective cities along Corridors A and B. However, it should be noted that the potential exists for the new highway to define urban growth limits, which would be a beneficial impact.

These effects can be reduced to less-than-significant levels with the implementation of the measures identified with each effect. Please see the respective sections in Chapter 2 for the full discussion of these effects and measures.

3.2.3 Unavoidable Significant Environmental Effects

The effects on farmland and noise would remain significant even after mitigation measures are taken. Please see the respective sections in Chapter 2 for the full discussion of these effects and measures.

3.2.4 Beneficial Environmental Changes

The project would have a beneficial effect on traffic and transportation. Please see the traffic section in Chapter 2 for the full discussion of these effects.

3.2.5 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, 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, 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, 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, in order to enact the standards California needed a waiver from the U.S. Environmental Protection Agency. The waiver was denied by Environmental Protection Agency in December 2007. See California v. Environmental Protection Agency, 9th Cir. Jul. 25, 2008, No. 08-70011.

On January 26, 2009, it was announced that 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-miles-per-gallon fuel economy standard for automobiles and light duty trucks, which will take effect in 2012. This standard is the same standard that was proposed by California, and so the California waiver request has been shelved.

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

directs state agencies to begin implementing Assembly Bill 32, including the recommendations made by the state's Climate Action Team.

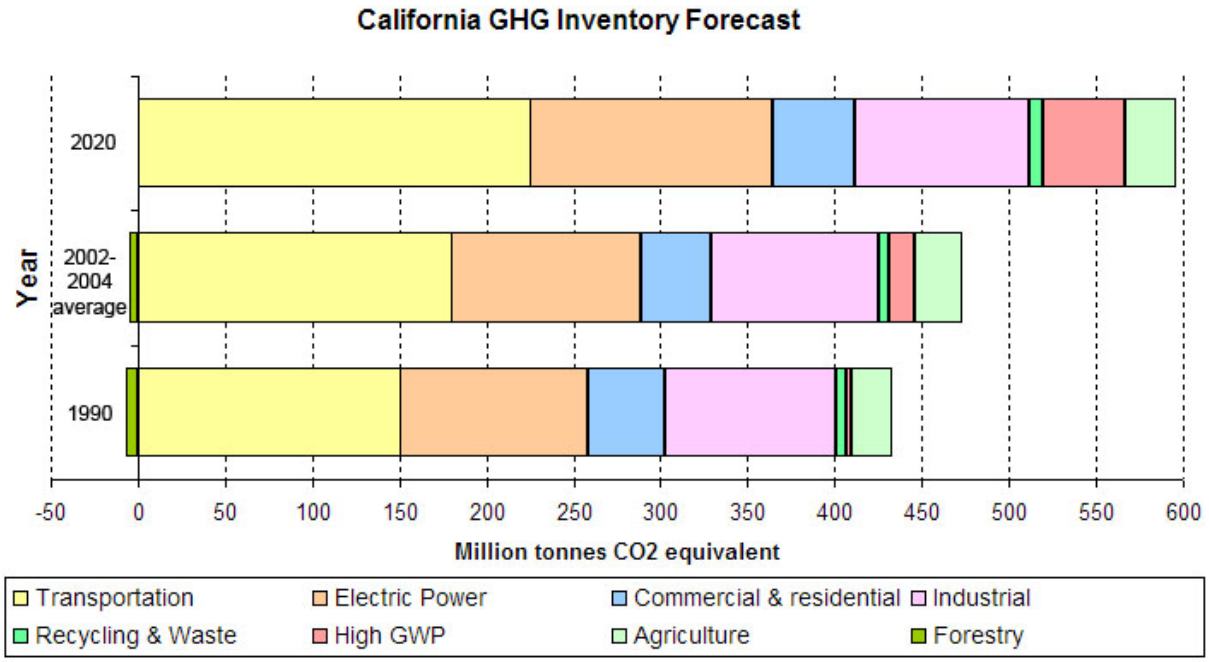
With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this order, the carbon intensity of California's transportation fuels is to be reduced by at least 10% by 2020.

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 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 Environmental Protection Agency does have the authority to regulate greenhouse gas. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

According to *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of greenhouse gas. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines Sections 15064(i)(1) and 15130.

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

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



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

Figure 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% of California's greenhouse gas emissions are from the burning of fossil fuels and 40% 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.

Environmental Consequences

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations.

Construction Emissions

Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives,

improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Operational Emissions

Project-level emissions were obtained by comparing future with-project emissions to future no-project emissions.

Table 3-1 presents project-level emissions associated with implementation of the project alternatives, and a comparison of project emissions to the no- condition to identify emissions directly attributed to the project.

Table 3-1 indicates that carbon dioxide emissions would decrease for both alternatives for 2030 conditions and would increase under 2050 conditions. These increases are directly attributed to increases in vehicle miles of travel between the no-project and with project conditions. However, these increases would not exceed the San Joaquin Valley Air Pollution Control District's thresholds of 38,000 tons. Consequently, this impact is considered less than significant.

Table 3-1. Summary of Future Roadway Project-Related Emissions Contribution

Scenario	Yearly Vehicle Miles of Travel	Tons per year					
		ROG	NO_X	CO	PM10	PM2.5	CO_2[1]
2008 No-Project	1,011,617,210	368.109	2,212.863	4,521.704	74.237	68.565	533,366.062
2008 Alternative A	1,060,014,750	373.923	2,358.002	4,771.826	78.413	72.361	558,388.813
2008 Alternative B	1,061,349,555	375.301	2,363.711	4,785.192	78.834	72.746	560,134.179
2030 No-Project	1,661,100,035	181.148	566.977	1,781.897	43.046	39.621	921,555.628
2030 Alternative A	1,661,947,565	176.474	562.374	1,767.596	42.433	38.971	911,311.393
2030 Alternative B	1,660,786,500	176.838	562.358	1,766.114	42.502	39.066	911,420.154
2050 No-Project[2]	2,347,712,120	231.845	678.161	2,180.070	61.303	55.501	1,335,884.879
2050 Alternative A[2]	2,390,020,730	234.160	686.080	2,208.179	62.092	56.123	1,350,576.983
2050 Alternative B[2]	2,375,317,435	234.335	683.842	2,199.204	62.038	56.081	1,347,010.211
Alternative Differences							
Scenario	**Yearly Vehicle Miles of Travel**	**Tons per year**					
		ROG	**NO_X**	**CO**	**PM10**	**PM2.5**	**CO_2[1]**
2008 Alternative A - 2008 No-Project	48,397,540	5.814	145.139	250.121	4.176	3.796	25,022.751
2008 Alternative B - 2008 No-Project	49,732,345	7.192	150.849	263.488	4.597	4.181	26,768.117
2030 Alternative A - 2030 No-Project	847,530	-4.674	-4.603	-14.301	-0.612	-0.650	-10,244.234
2030 Alternative B - 2030 No-Project	-313,535	-4.309	-4.619	-15.783	-0.543	-0.555	-10,135.473
2050 Alternative A - 2050 No-Project[2]	42,308,610	2.315	7.919	28.110	0.789	0.622	14,692.103
2050 Alternative B - 2050 No-Project[2]	27,605,315	2.490	5.681	19.135	0.735	0.579	11,125.332
SJVAPCD Thresholds	N/A	10	10	N/A	15	N/A	38,000

Adapted from: Fehr & Peers 2009
[1] CO_2 presented in metric tons per year.
[2] CT-EMFAC analysis was performed for the year 2040, as 2040 is the latest year analyzed by CT-EMFAC.

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. 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 3-2, 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.

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. 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 on the figure below, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements. (Sellers comment: This info is redundant. Read through it for any differences and delete redundant material.)

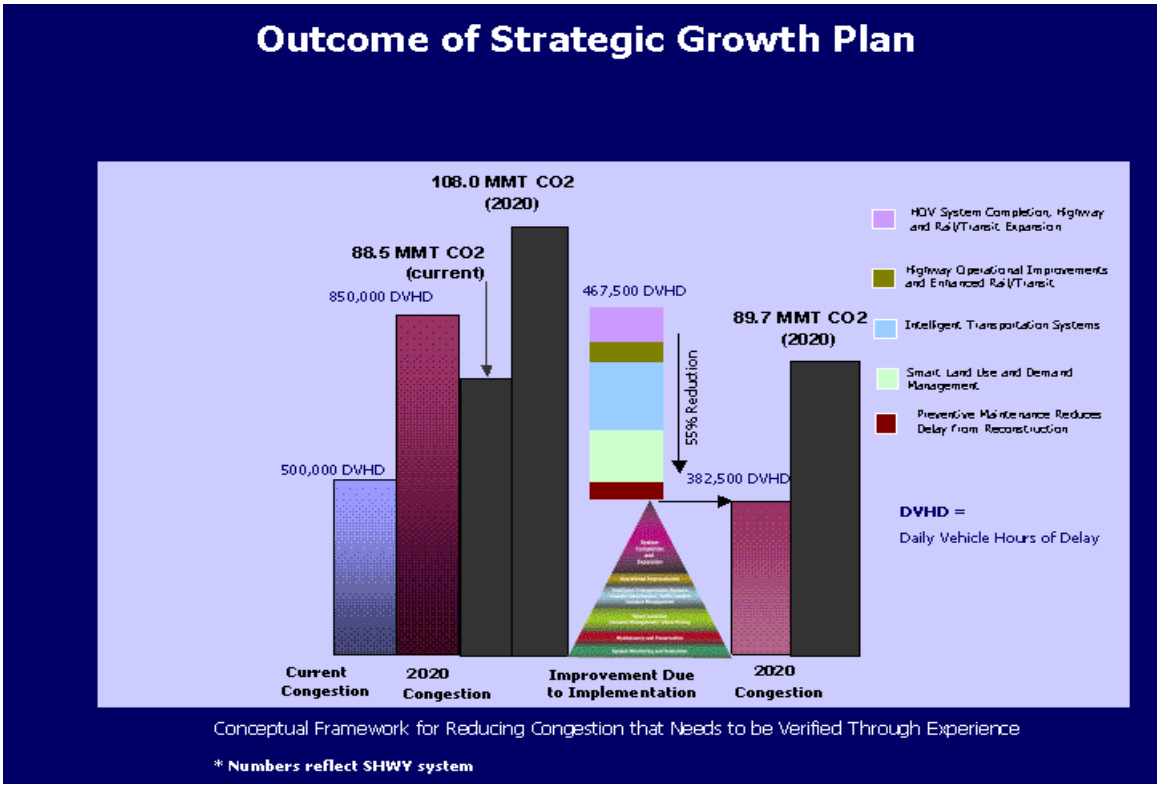


Figure 3-2. Outcome of Strategic Growth Plan

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

Table 3-2 summarizes Caltrans' and statewide efforts that Caltrans is implementing in order to reduce greenhouse gas emissions. For more detailed information about each strategy, please see the Climate Action Program at Caltrans (December 2006) available at http://www.dot.ca.gov/docs/ClimateReport.pdf.

Table 3-2. Caltrans Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated carbon dioxide 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	0.007	2.17
Mainstream Energy & greenhouse gas into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, California Air Resources Board, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
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 0.36	3.6
Goods Movement	Office of Goods Movement	Cal Environmental Protection Agency, California Air Resources Board, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					**2.72**	**18.67**

To the extent that it is applicable or feasible for the project, and through coordination with the project development team, the mitigation measures identified below will help to reduce greenhouse gas emissions and potential climate change impacts associated with the action alternatives.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

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. Results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, 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.

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. he Climate Adaptation Strategy will 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 is to include the following:

- The 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 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.

Before the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to 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 the next five years (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 regarding 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.)

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 Governor's 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 is due for release in December 2010.

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 will 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.

To the extent that it is applicable or feasible for the project, the following measures can also help to reduce the greenhouse gas emissions and potential climate change impacts from projects:

- Use of reclaimed water—currently 30% of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces greenhouse gas emissions from electricity production.
- Use of landscaping—landscaping reduces surface warming and, through photosynthesis, decreases carbon dioxide.
- Use of Portland cement—use of lighter color surfaces such as Portland cement helps to reduce the albedo effect and cool the surface; in addition, Caltrans has been a leader in the effort to add fly ash to Portland cement mixes. Adding fly ash reduces the greenhouse gas emissions associated with cement production; it also can make the pavement stronger.
- Use of energy-efficient lighting, such as light emitting diode (LED) traffic signals.
- Use of idling restrictions for trucks and equipment.

Chapter 4 Comments and Coordination

4.1 Public Scoping

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 have been accomplished through 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.

Caltrans, in cooperation with the Stanislaus Council of Governments, Stanislaus County, and the Cities of Modesto, Oakdale, and Riverbank, held two public scoping meetings in November 2008. The meetings were held on November 13, 2008 at the Salida Regional Library and November 20, 2008 at the Oakdale Community Center.

The public scoping meetings were publicized through large postcard invitations in both English and Spanish, which were distributed to a mailing list of 2,648 stakeholders. The stakeholders represented local, state, and federal agencies; emergency responders; civic and community groups; chambers of commerce and other business groups; environmental groups; and other potentially interested individuals and organizations. Extra copies of the postcard invitation were also available at the Community Development Departments of the Cities of Oakdale and Riverbank.

A personal invitation letter from the District Director of Caltrans District 10 was also sent to federal, state, and local elected officials in Stanislaus County and southern San Joaquin County.

Public notices for the proposed project were published in the following newspapers:

- *The Modesto Bee* (October 18, 2008)
- *The Oakdale Leader* (October 22, 2008)
- *The Riverbank News* (October 22, 2008)
- *Bilingual Weekly* (November 3 and 20, 2008)

Two news releases were sent to the following print and broadcast media serving the project area:

- Ceres Chamber of Commerce
- Citadel Broadcasting
- Clear Channel
- Hispanic Chamber of South San Joaquin County
- Hispanic Chamber of Stanislaus County
- Hughson Chronicle
- KANM/KBUL
- KAT Country 103
- KCBC 770 AM
- KCIV 99.9 FM
- KCSO Telemundo 33
- KCSS 91.9 FM
- KHKK 104.1 The Hawk
- KHOP
- KJAX 1280
- KJSN
- KVFX
- KKME
- KQOD
- KMRQ
- KOSO
- KRVR
- KUYL
- KVIN
- Mattos Newspapers, Inc.
- *The Modesto Bee*
- Modesto Chamber of Commerce
- Newman Chamber of Commerce
- *The Oakdale Leader*
- Patterson-Westley Chamber of Commerce
- Riverbank Chamber of Commerce
- *The Escalon Times*
- *The Riverbank News*
- Rock 96.7
- Stanislaus Farm News
- *Stanislaus Magazine*
- *The Ceres Courier*
- *The Signal*
- Turlock Chamber of Commerce
- *The Turlock Journal*
- Valley Builders Exchange
- Waterford News

Articles about the meetings were published in *The Modesto Bee* on November 11, 2008 and November 14, 2008. The meetings were attended by 237 individuals.

During the meetings, attendees completed comment sheets and/or dictated comments to a public stenographer. Comments presented at the meetings focused on the following topics:

- impact on business operations
- impact on prime farmland
- traffic congestion
- fiscal impacts
- project need given the existing highways in the region
- interest in a six-lane roadway
- avoidance of Ladd Road
- expansion/extension of Ladd Road/Patterson
- noise and air quality
- avoidance of properties on Plainview Road
- incompatibility with farming practices
- avoidance of historical sites
- impact to the area's economy
- effects on natural resources, including threatened and endangered species, vernal pools, and water courses
- loss of revenue from property taxes
- growth-inducing impacts
- potential decrease in property values
- effect on ConAgra's wastewater capacity and likelihood of needing to close the plant
- use Pelendale
- use Claribel/Kiernan
- avoid south side of Claribel
- avoid Chenault
- impact on agricultural trucking operations
- uncertainty and lack of more specific timeframes
- ineffective meeting format/request for question-and-answer format
- need to fix other congested highways and roads first
- request for contact information for the North County Connector Transportation Expressway Authority
- use Warnerville to Willms Road
- avoid Warnerville
- right-of-way processes
- need to move corridor south toward Waterford or north of Oakdale
- starting at Manteca, design road to go north of Oakdale
- need to plan for mass transit
- need to consider no-action option
- need to consider heavy metal runoff from prospective roadway
- concern that this project may be coordinated with other large construction projects underway or being proposed

4.2 Public Informational Meeting

A public information meeting was held on June 15, 2009 at the Riverbank Community Center at 3600 Santa Fe Street in Riverbank to update community members on the status of the project. Specialists in engineering, environmental studies and right-of-way were present to discuss concerns and answer questions. Maps and other information were made available for viewing along with comment cards, which included information on how to contact the project team.

The public information meeting was publicized through large postcard invitations in both English and Spanish, which were distributed to a mailing list of 3,049 individuals who represented local, state, and federal agencies; emergency responders; civic and community groups; chambers of commerce and other business groups; environmental groups; persons who attended the two previous public meetings; and other potentially interested individuals and organizations.

Public notices for the proposed project were published in the newspapers contacted for the scoping meetings. In addition, a notice was published in *The Latino Times* (June 2009).

Two news releases were sent on June 4, 2009 and June 13, 2009 to the following print and broadcast media serving the project area:

- Ceres Chamber of Commerce
- Citadel Broadcasting
- Clear Channel
- Hispanic Chamber of South San Joaquin County
- Hispanic Chamber of Stanislaus County
- Hughson Chronicle
- KANM/KBUL
- KAT Country 103
- KCBC 770 AM
- KCIV 99.9 FM
- KCSO Telemundo 33
- KCSS 91.9 FM
- KHKK 104.1 The Hawk
- KHOP
- KJAX 1280
- *The Escalon Times*
- *The Riverbank News*
- Rock 96.7
- Stanislaus Farm News
- *Stanislaus Magazine*
- *The Ceres Courier*
- KJSN
- KVFX
- KKME
- KQOD
- KMRQ
- KOSO
- KRVR
- KUYL
- KVIN
- Mattos Newspapers, Inc.
- *The Modesto Bee*
- Modesto Chamber of Commerce
- Newman Chamber of Commerce
- *The Oakdale Leader*
- Patterson-Westley Chamber of Commerce
- Riverbank Chamber of Commerce
- *The Signal*
- Turlock Chamber of Commerce
- *The Turlock Journal*
- Valley Builders Exchange
- *Waterford News*

Articles about the meetings were published in *The Modesto Bee* on June 15, 2009; *Riverbank News* on June 10, 2009; and *Oakdale Leader* on June 9, 2009. A total of 275 individuals signed in at the door. An estimated 15-20 attendees did not sign in. Also, 16 project team members attended the meeting.

During the meeting, attendees completed 69 comment sheets and/or dictated comments (approximately 15) to the public stenographer. The comments presented at the meeting were

similar to those provided at the scoping meetings and listed above. In addition, comments received at the June 15, 2009 meeting focused on the following topics:

- Expansion/extension of Ladd Road/Patterson
- impact to the area's economy
- potential decrease in property values
- effect on ConAgra's wastewater capacity
- use Pelendale
- use Claribel/Kiernan
- avoid south side of Claribel
- avoid Chenault
- impact on agricultural trucking operations
- uncertainty and lack of more specific time frames
- ineffective meeting format/request for question-and-answer format
- need to fix other congested highways and roads first
- request for contact information for the NCCTEA (Sellers comment: Spell out.)
- use Warnerville to Willms Road
- avoid Warnerville
- right-of-way processes
- need to move corridor south toward Waterford or north of Oakdale
- starting at Manteca, design road to go north of Oakdale
- need to plan for mass transit
- need to consider no-action option
- need to consider heavy metal runoff from prospective roadway
- concern that this project may be coordinated with other large construction projects underway or being proposed

4.3 Other Community Meetings

A meeting was held with local property owners, at their request, on June 1, 2009 at the StanGOC office at 900 H Street, Suite D, in Modesto. Participants were Mike DeRuosi (property owner), Frank Bavaro (leases land for agriculture), George Petrulakis (property owner), and Caltrans representatives.

The discussion focused on the Hetch Hetchy area, bounded roughly by McHenry Avenue, Claribel Road, and Coffee Road. Participants felt that if the corridor were dropped south of Claribel Road before Coffee Road, it would affect 18 parcels and 8 homes. Fewer property owners and fewer homes would be affected if the route stayed north of Claribel Road until Coffee Road. The participants were generally in favor of the project and would like to stay involved.

4.4 Correspondence

Information about the project is posted on Caltrans' website at www.dot.ca.gov/dist10, and all outreach activities have included a request for comments by phone (209-464-4350 or 877-464-4350). The 80 written or emailed comments received express concern about the alignments of the proposed future alignment of the new State Route 108. In some cases, the proposed corridor alignments bisect property and farmland. Property owners are unsure about the long-term goals of the project and what will be achieved by building a new state route. They would also like a clearer understanding of the route selection process.

4.5 Consultation and Coordination with Public Agencies

A California Environmental Quality Act Notice of Preparation was filed with the Office of Planning and Research on October 17, 2008. The Notice of Preparation was distributed to state agencies by the Office of Planning and Research. Comments were requested from October 17, 2008 to November 17, 2008.

Early in 2009, the western end of the proposed project was adjusted from State Route 99 eastward to McHenry Avenue. A Notice of Preparation was issued on April 20, 2009 to inform agencies and the general public of this change to the project limits. The Notice of Preparation invited scoping comments for a 30-day period ending May 20, 2009.

The following tables present agencies and organizations contacted during the development of the proposed action.

Table 4-1. Public Agencies Contacted during the Project's Development

BIA Central California	Modesto Library	Riverbank Community Development
Bureau of Indian Affairs	Riverbank Police Department	Riverbank Economic Development & Housing
California Air Resources Board	Riverbank Public Works	Salida Library
California Department of Fish and Game	Riverbank School District	Salida Municipal Advisory Council
California Department of Transportation	Riverbank/Oakdale Transit Authority	Salida Union School District
California Environmental Protection Agency	Salida Fire Protection District	San Francisco Public Utilities Commission
California Historical Resources	Modesto Planning Department	San Joaquin County
California State Assembly	Modesto Police Department	San Joaquin County Public Information Officer
California State Senate	Modesto Public Works	San Joaquin County Public Works Department
Central California Indian Tribal Council	Native American Heritage Commission	San Joaquin Council of Governments
Central Valley Regional Water Quality Control Board.	North Valley Yokuts Tribe	San Joaquin Council of Governments Public Information Officer
California Highway Patrol, Modesto Area	Oak Valley Ambulance	Southern Sierra Miwuk Nation
City of Oakdale	Oakdale City Manager	Stanislaus Council of Governments
City of Oakdale Public Works	Oakdale Fire Department	Stanislaus County Farm Bureau
Department of Water Resources	Oakdale Fire District	Stanislaus County Office of Education
Escalon Planning Department	Oakdale Irrigation District	Stanislaus County Public Works
Escalon Public Works	Oakdale Joint Unified School District	Stanislaus County Sheriff-Coroner
Modesto Area Express	Oakdale Police Department	Stanislaus Conservation Fire Protection District
Modesto City Manager	Oakdale Public Works	Stanislaus County
Modesto City Mayor	Oakdale Rural Fire Protection	Stanislaus Local Agency Formation Commission
Modesto City Schools	Public Utilities Commission	Tule River Indian Tribe
Modesto Community & Economic Development	Ripon Planning Department	U.S. Fish & Wildlife Service
Modesto Fire Department	Ripon Public Works	U.S. Environmental Protection Agency Regulatory Branch, Region 9
Modesto Irrigation District		Valley Air District, Northern Region

Three agencies responded to the Notice of Preparation or scoping notifications. The Modesto Irrigation District requested an extension of the scoping comment period. The California Public Utilities Commission and the Stanislaus Farm Bureau submitted letters acknowledging the project and requesting ongoing coordination.

Table 4-2. Organizations Contacted during the Project's Development

American Medical Response	Modesto Chamber of Commerce	Sierra Club, Yokuts Group
BNSF Public Affairs	National Association for the Advancement of Colored People	Stanislaus Alliance
California Trucking Association	Oak Valley Hospital	Stanislaus Audubon Society
Central Valley Association of Realtors	Opus West Corporation	Tuolumne Chamber of Commerce
Hughson Library	Riverbank Chamber of Commerce	Union Pacific Railroad Public Affairs
Leadership Tuolumne County	Riverbank Library	Women's Center of Stanislaus
The Modesto Bee	*The Riverbank News*	

Table 4-3. Elected Officials Contacted during the Project's Development

Escalon City Council	Representative for Supervisor Jeff Grover	San Joaquin County Board of Supervisors
Modesto City Council	Ripon City Council	Stanislaus Council of Governments Board of Directors
Modesto Vice Mayor	Riverbank City Council	Stanislaus County Board of Supervisors
Oakdale City Council	Riverbank City Manager	U.S. Congress
Oakdale Mayor	Riverbank Mayor	U.S. Senate
Oakdale Mayor Pro Tem	Riverbank Vice Mayor	

Focused meetings held with local agencies are listed in the following table.

Table 4-4. Listing of All Meetings and Interviews

Agency	Department	Communications	Date
City of Modesto	Community and Economic Development Department	Interview with Daniel England	December 2008
City of Modesto	Public Works Department	Interview with Jim Alves	January 2009
City of Modesto	Department of Community Development	Interview with Brad Wall	December 2008
City of Modesto	Department of Community Development	Interview with Paul Liu	January 2009
City of Oakdale	Public Works Department	Interview with David L. Meyers	December 2008
City of Oakdale	Department of Community Development	Interview with Danielle Stylos	December 2008
City of Riverbank	Department of Public Works	Interview with Dave Mellili	December 2008 January 2009
City of Riverbank	Department of Community Development	Interview with J.D. Hightower	December 2008 January 2009
City of Riverbank	City Manager	Interview with Richard Holmer	December 2008
City of Riverbank	Department of Community Development	Interviews-contacts with J.D. Hightower	December 2008 March 2009
Modesto Irrigation District		Interview with Bill Kull	January 2009
Oakdale Irrigation District		Interview with John Davids	January 2009
Oakdale Rural Fire District		Interview with Chief Robert Hoyer	December 2008
Salida Fire Protection District		Interview with Chief Dale Skiles	January 2009
Salida Sanitary District		Interview with Michael Gilton	January 2009
Stanislaus Consolidated Fire Protection District		Interview with Battalion Chief Paul Spain	December 2008
Stanislaus County	Department of Public Works	Laurie Barton	December 2008 January 2009
Stanislaus County Department of Community Development		Interview with Kirk Ford	December 2008
Stanislaus County Sheriff's Department	Crime Analyst	Interview with Robyn Muirhead	January 2009

Chapter 5 List of Preparers

5.1 Caltrans

- Gail Miller, Senior Environmental Planner. B.A., Public Administration, California State University, Fresno; 17 years land use and environmental planning experience. Contribution: senior review
- Scott Smith, Associate Environmental Planner. B.A., Economics, California State University, Fresno; 10 years environmental planning experience. Contribution: Contribution: senior review
- Kirsten Helton, senior peer review
- Matthew Palmer, Environmental Planner. M.A., Organizational Management, University of Phoenix, Fresno; B.S., Environmental Science, California State University, Fresno; 7 years environmental technical experience. Contribution: associate peer review
- Rachel Kleinfelter, Associate Environmental Planner. B.A., Environmental Studies, Mills College; 13 years biology experience. Contribution: biology review
- Jon Brady, cultural resources review
- Christopher Brewer, Associate Environmental Planner (Architectural History). M.A., Public Administration, California State University, Bakersfield; 31 years of experience in California history, cultural resource management, and architectural history. Contribution: paleontology review
- Tina Fulton, Native American coordinator. B.A. English, California State University Los Angeles. Five years of Archaeology experience in the academic and Cultural Resource Management sectors. Contribution: cultural resources
- 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; 12 years environmental technical studies experience. Contribution: air quality review
- Allam Alhabaly, Transportation Engineer. B.S., Industrial Engineering, California State University, Fresno; 8 years environmental technical studies experience. Contribution: noise review

- Rajeev Dwivedi, Associate Engineering Geologist. Ph.D., Environmental Engineering, Oklahoma State University, Stillwater; 16 years environmental technical studies experience. Contribution: hydrology and water quality review
- Bobi Lyon-Ritter, Senior Environmental Planner. M.A., Landscape Architecture, University of Arizona; B.A., Fine Art; 16 years landscape design and construction experience, 8 years open space/trail planning and design experience, and 12 years environmental planning experience. Contribution: Chapter 1 review
- Shawn Ogletree, Associate Environmental Planner. B.S., Environmental Conservation of Natural Resources, Texas Tech University; B.S., Wildlife/Fisheries Management, Texas Tech University; MPH California State University, Fresno; 9 years environmental health, environmental technical studies experience; 7 years biology experience. Contribution: hazardous waste review
- Richard C. Stewart, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 19 years hazardous waste and water quality experience; 2 years paleontology/geology experience. Contribution: paleontology review

5.2 Jacobs Engineering

- Lauren Abom, Senior Environmental Planner. M.S., Environmental Education, California State University, Hayward; B.S., Environmental and Resource Sciences, University of California, Davis; 10 years environmental consulting experience. Contribution: peer review, technical writer for Summary and Chapter 3.
- Jack Allen, Environmental Planner. B.A., Parks and Recreation Management, Resource Management, California State University, Chico; 25 years environmental and transportation planning experience. Contribution: purpose and need primary author, technical memorandum senior review, project oversight.
- J. Steven Brooks, AICP, Environmental and Transportation Program Manager. B.S. Env. Design, Texas A&M University, College Station, TX; 35 years environmental planning experience. Contribution: senior review.
- Trin Campos, Transportation Project Manager. B.S., Civil Engineering, California State University Chico; 25 years transportation engineering experience, CA Professional Engineer. Contribution: Engineering lead, project corridor mapping, and project description review.

- Marianne Cater, Civil Engineer. B.S., Civil and Environmental Engineering, Imperial College London; 4 year experience. Contribution: project coordinator and technical writer for Chapter 2 (parks and recreational facilities, farmlands, utilities/emergency services, visual/aesthetics, and geology), Chapter 4 to 6, and Appendix C.
- Mike Davis, Program Manager. M.U.P., Urban and Regional Planning, Texas A&M University; 28 years urban and environmental planning experience. Contribution: senior review, strategic oversight.
- Jon Hilliard, Senior Urban Planner. B.A., Urban and Regional Planning, Texas State University, San Marcos; 22 years urban planning and environmental planning experience. Contribution: technical writer for Chapter 2 (land use, growth, and community impacts).
- Susie Partington, CAD Technician. Design Technology Certification, American River College; over 20 years transportation engineering experience. Contribution: graphic support.
- Phillip Peters, Biologist/Environmental Planner. M.S., Western Michigan University; 8 years environmental technical studies experience. Contribution: technical writer for Chapter 2 (hydrology and floodplains, water quality and stormwater runoff, and hazardous waste).
- Theron Roschen, Transportation Program Manager. B.S., Civil Engineering, California State University, Sacramento; 23 years civil engineering experience. Contribution: Project Management, design review and oversight
- Tamami Takenaka, Senior Designer. Urban Design & Planning, Musashino Art College, Japan, Monterey Peninsula College; 23 years in graphics with design experience in land planning. Contribution: GIS Analysis, Mapping and Research.

5.3 Buethe Communications

- Judith Buethe, Public Outreach Coordinator. M.P.A., Masters in Public Administration, University of San Francisco, B.S., Applied Behavioral Sciences, University of California, Davis; 20 years public outreach experience. Contribution: Public Outreach/Participation.

5.4 ICF Jones & Stokes

- Claire Bromund, Senior Project Manager. B.S., Biological Sciences, University of California, Davis; 11 years environmental consulting and Project Management experience. Contribution: technical review, document preparation oversight.
- Tina Sorvari, Project Coordinator. B.A., Anthropology, California State University, Sacramento; 9 years environmental consulting and archaeological experience. Contribution: project coordination, cultural resources.
- Chris Small, Lead Technical Editor. M.A., English, California State University, Sacramento; B.A., English and Economics, University of California, Davis; 12 years technical editing and writing experience. Contribution: technical edit of EIR and technical memoranda.
- Elizabeth Irvin, Lead Technical Editor. B.A., English, University of California, Irvine; 10 years technical editing experience. Contribution: technical edit of EIR and technical memoranda.
- Lisa Randall, Technical Editor. M.S., Landscape Architecture, California Polytechnic State University, Pomona; B.A., English, University of California, Santa Barbara; 17 years technical editing experience. Contribution: technical edit of EIR and technical memoranda.
- Ryan Patterson, Publications Specialist. B.A., English, University of California, Berkeley; 1 year publication and document production experience. Contribution: formatting of EIR and technical memoranda.
- Lily Douglas, GIS Specialist. B.S., Biology, California State University, Sacramento, A.S., Geographic Information Systems, American River College; A.S., Biology, Sacramento City College; 4 years GIS and analysis experience. Contribution: graphics and biological resources GIS analysis.
- Senh Saelee, Graphic Artist. B.A., Visual Communications Design, University of California, Davis; 8 years illustration and information design experience. Contribution: graphics.
- Dave Buehler, Senior Acoustical Engineer. B.S., Civil Engineering, California State University, Sacramento; 28 years acoustical consulting experience. Contribution: technical writer for noise and Noise Analysis Technical Memorandum.

- Shannon Hatcher, Senior Air Quality And Noise Specialist. B.S., Environmental Science and Environmental Health and Safety, Oregon State University, Corvallis, Oregon; 9 years air quality and noise technical experience. Contribution: technical writer for air quality, climate change and Air Quality and Energy Technical Memorandum.
- Susan Bushnell, Senior Botanist. B.S., Plant Ecology, College of Natural Resources, University of California, Berkeley; 16 years botanical and impact analysis experience. Contribution: technical writer for biological resources and Biological Environment Technical Memorandum.
- Stephanie Myers, Senior Wildlife Biologist. M.S., Avian Sciences, University of California, Davis; B.A., Biology, California State University, Fresno; 21 years wildlife biology and impact analysis experience. Contribution: technical writer for biological resources and Biological Environment Technical Memorandum.
- Kathryn Haley, Architectural Historian. M.A., History (Public History), California State University, Sacramento; B.A., History, California State University, Sacramento; 6 years historic architecture experience. Contribution: technical writer for architectural history and Cultural Resources Technical Memorandum.
- Traci O'Brien, Archaeologist. B.A., Anthropology, California State University, Sacramento; 25 years archaeological experience. Contribution: technical writer for archaeology and Cultural Resources Technical Memorandum.
- Anna Buising, Ph.D, P.G., Senior Project Manager, Geologist. Ph.D., Geological Sciences, University of California, Santa Barbara; B.S., Geology, University of California, Los Angeles; 22 years environmental consulting and geological experience. Contribution: technical peer review for paleontology.
- James R. Allen, M.S., P.G., Geologist/Paleontologist under subconsultant agreement. M.S., Geology, California State University, San Jose; B.S., Geology, Sonoma State University, Rohnert Park; California Professional Geologist No. 8335; 10 years geological experience. Contribution: Paleontological Identification Report/Programmatic Paleontological Evaluation Report, Paleontological Resources Technical Memorandum.

Chapter 6 Distribution List

The Environmental Impact Report will be distributed to the following governmental and community groups:

State Government Groups

- California Air Resources Board
- California Department of Fish and Game
- California Department of Transportation
- California Highway Patrol
- California Native American Heritage Commission
- California Public Utilities Commission
- California Resources Agency
- Central Valley Regional Water Quality Board
- Department of Conservation
- Department of Parks & Recreation
- Office of Historic Preservation
- Office of Public School Construction
- State Lands Commission

Local Government Groups

- Ceres Library
- Denair Public Library
- Hughson Public Library
- Keyes Public Library
- Modesto Community and Economic Development Department
- Modesto Library
- Modesto Public Works Department
- Oakdale City Hall
- Oakdale Public Works Department
- Riverbank City Clerk
- Riverbank Community Development Department
- Riverbank Library
- Salida Regional Library
- Stanislaus County Department of Public Works
- Stanislaus Council of Governments

Appendix A California Environmental Quality Act Checklist

The proposed action is the adoption of a 2,000-foot corridor for a future State Route 108 and does not directly involve physical construction (which would be subject to a separate, future environmental review). The following checklist identifies physical, biological, social, and economic factors that might be affected by construction of the future roadway. The California Environmental Quality Act impact levels include "potentially significant impact," "less than significant impact with mitigation," "less than significant impact," and "no impact."

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 2 of this Environmental Impact Report/Environmental Assessment. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Except for noise, discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2. Noise impacts under the California Environmental Quality Act are discussed in Chapter 3.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS—Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐
II. AGRICULTURE RESOURCES—In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☒	☐	☐	☐
III. AIR QUALITY—Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	☐	☒	☐	☐
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES—Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐
V. CULTURAL RESOURCES—Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
VI. GEOLOGY AND SOILS—Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☒	☐	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☒	☐	☐
VII. 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?	☐	☒	☐	☐

	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?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
VIII. HYDROLOGY AND WATER QUALITY—Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐

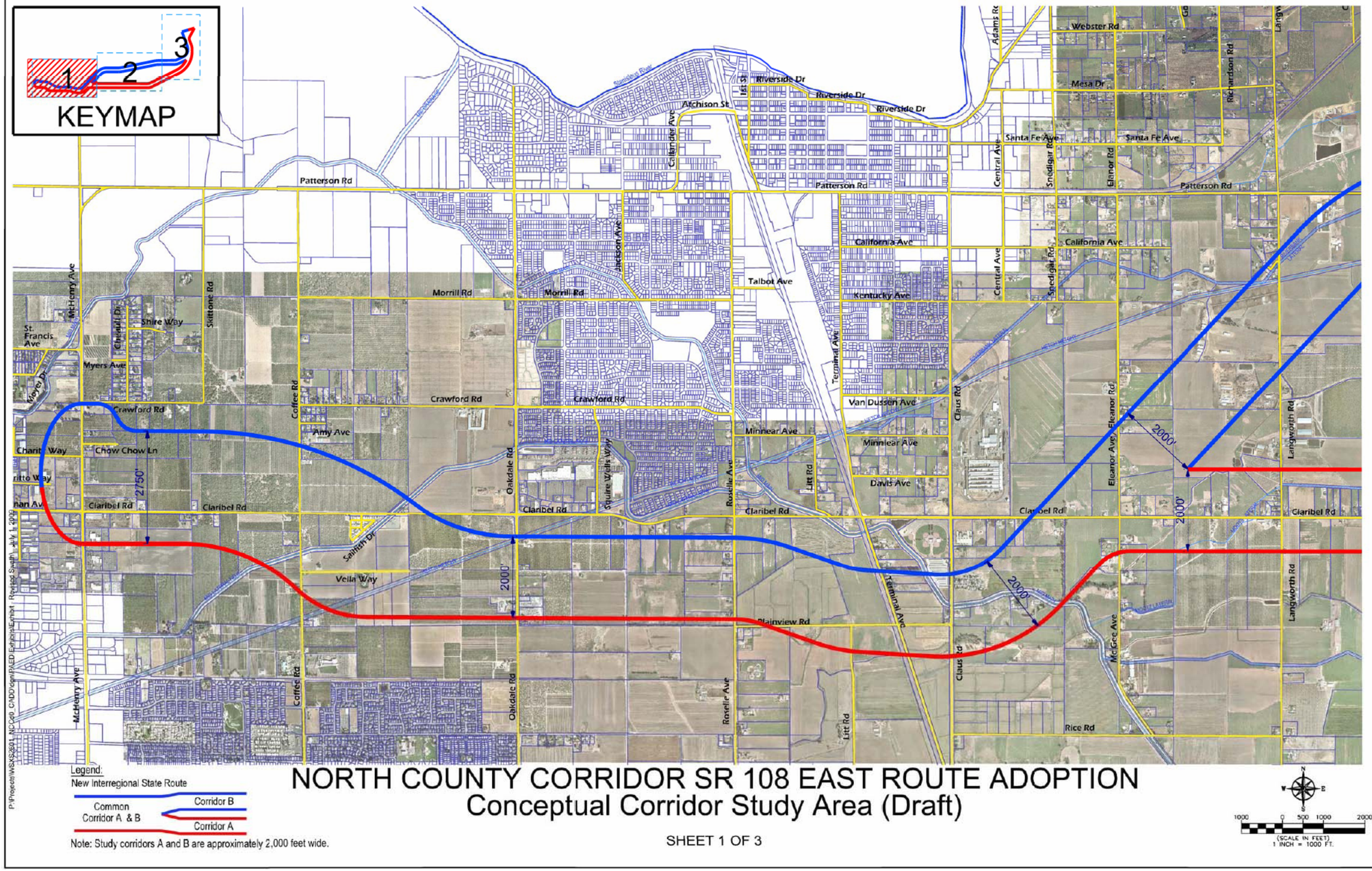
	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
IX. LAND USE AND PLANNING—Would the project:				
a) Physically divide an established community?	☒	☐	☐	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐
X. MINERAL RESOURCES—Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XI. NOISE—Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XII. POPULATION AND HOUSING—Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☒	☐	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☒	☐	☐
XIII. 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 public services:				
a) Fire protection?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Police protection?	☐	☒	☐	☐
c) Schools?	☐	☒	☐	☐
d) Parks?	☐	☒	☐	☐
e) Other public facilities?	☐	☒	☐	☐
XIV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XV. TRANSPORTATION/TRAFFIC—Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections)or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Result in inadequate parking capacity?	☐	☐	☒	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☒	☐
XVI. UTILITIES AND SERVICE SYSTEMS—Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☒	☐	☐
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Appendix B Aerial Alignment Graphics for Corridors A and B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1
2
3
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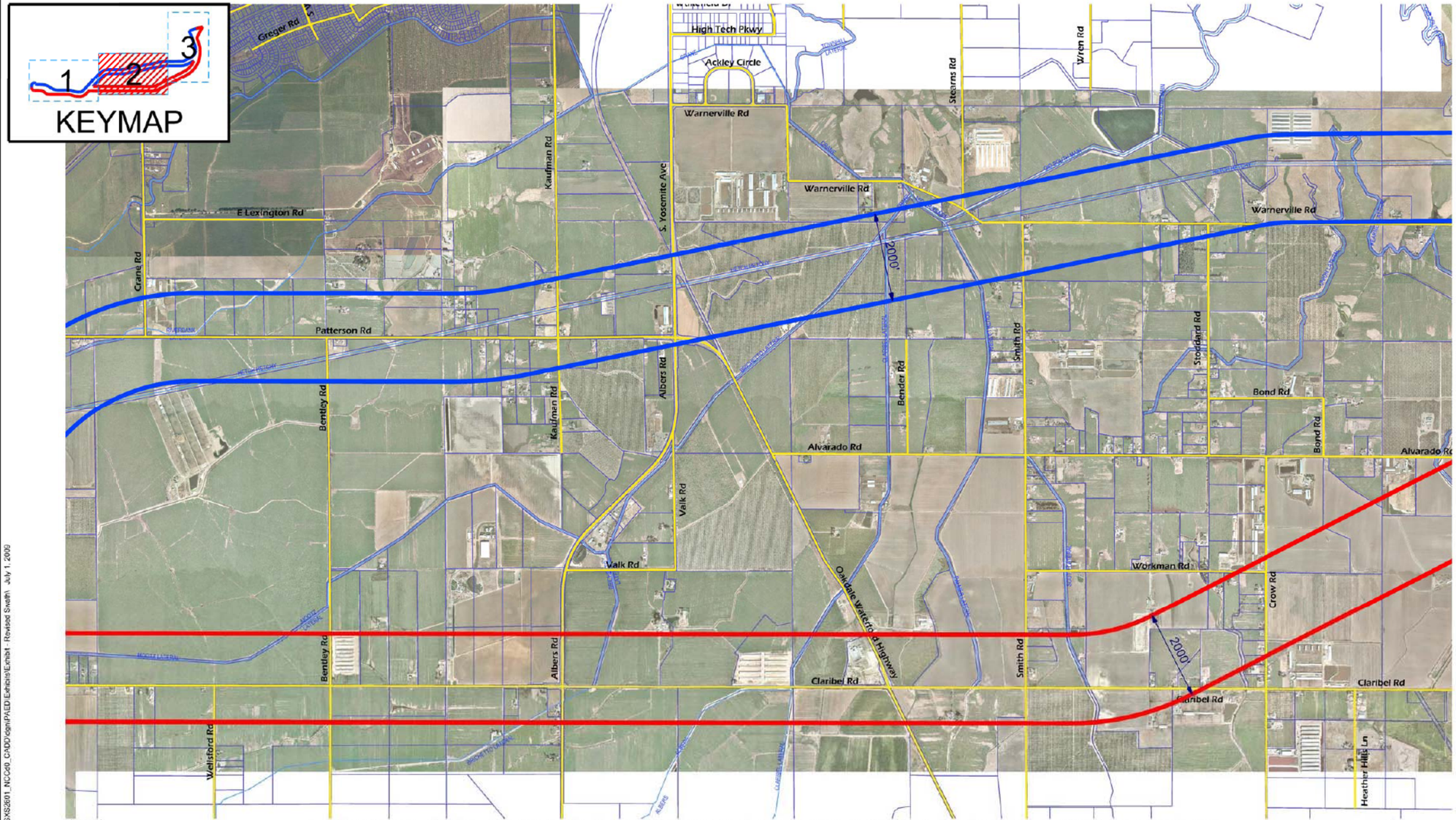
Morrill Rd
Crawford Rd
Claribel Rd
Riverside Dr
Atchison St
California Ave
Kentucky Ave
Talbot Ave
Minnear Ave
Van Dusen Ave
Davis Ave
Plainview Rd
Santa Fe Ave
Mesa Dr
Webster Rd
Rice Rd
Jackson Ave
Coffee Rd
McHenry Ave
Oakdale Rd
Roselle Ave
Litt Rd
Terminal Ave
Claus Rd
Central Ave
Sneddigar Rd
Eleanor Rd
Langworth Rd
Richardson Rd
Adams Rd
Columbia Ave
1st St
Skittone Rd
Myers Dr
St. Francis Ave
Shire Way
Shiloh Dr
Myers Ave
Amy Ave
Chow Chow Ln
Charity Way
Vella Way
Salitish Dr
Square Wells Way
2750'
2000'
Legend:
New Interregional State Route
Common Corridor A & B
Corridor B
Corridor A
Note: Study corridors A and B are approximately 2,000 feet wide.
NORTH COUNTY CORRIDOR SR 108 EAST ROUTE ADOPTION
Conceptual Corridor Study Area (Draft)
SHEET 1 OF 3
1000 0 500 1000 2000
(SCALE IN FEET)
1 INCH = 1000 FT.



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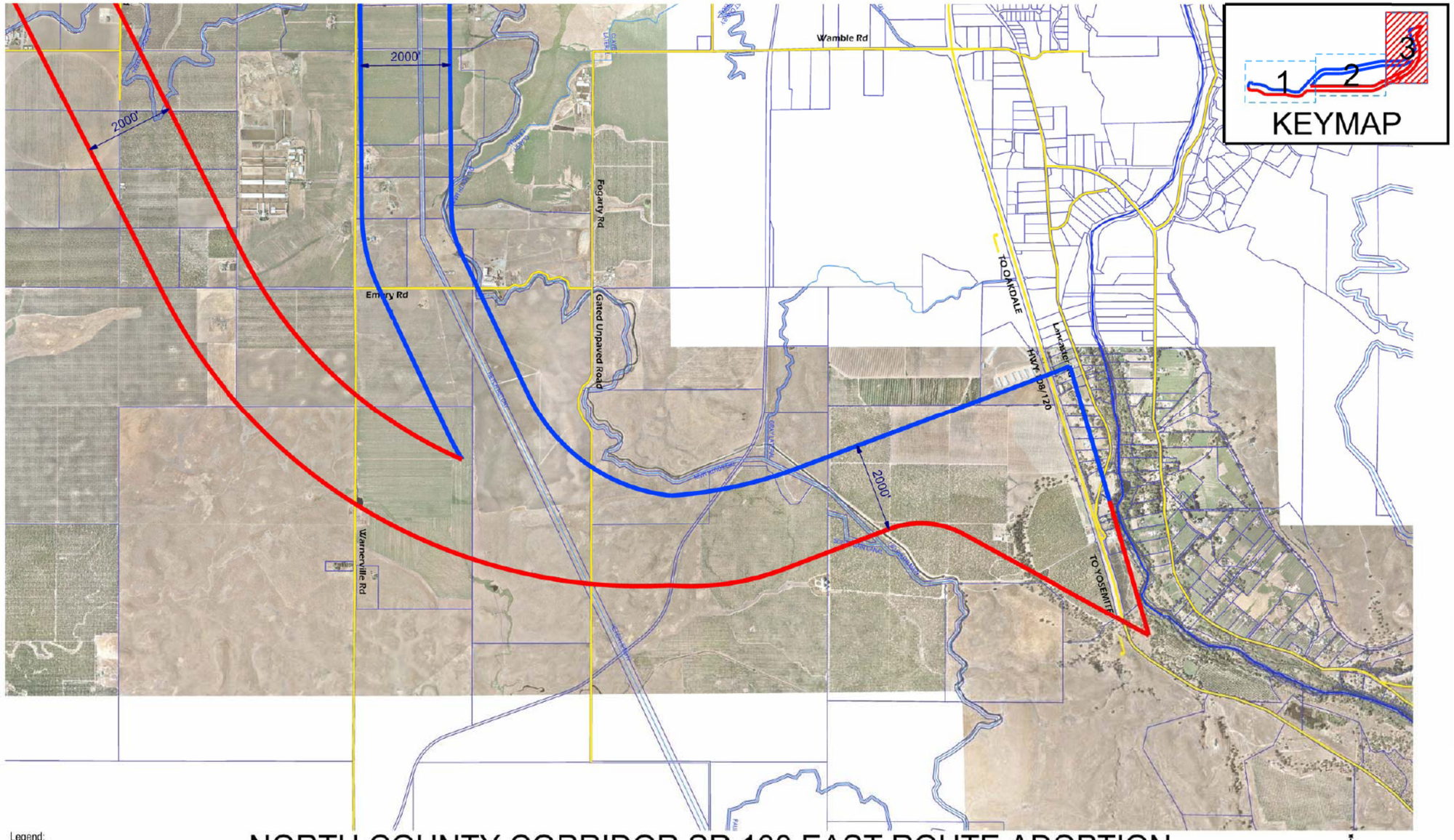
NORTH COUNTY CORRIDOR SR 108 EAST ROUTE ADOPTION
Conceptual Corridor Study Area (Draft)

SHEET 2 OF 3



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NORTH COUNTY CORRIDOR SR 108 EAST ROUTE ADOPTION
Conceptual Corridor Study Area (Draft)

SHEET 3 OF 3

Appendix C Title VI Policy Statement

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

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086

Flex your power!
Be energy efficient!

January 14, 2005

TITLE VI
POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

WILL KEMPTON
Director

"Caltrans improves mobility across California"

Appendix D Minimization and/or Mitigation Summary

No minimization and/or mitigation measures would be required for the adoption of wide corridor. Once funding is available a future environmental review of the construction of a new State Route 108 alignment would result in evaluation of avoidance and mitigation measures within the adopted corridor

Land Use

Amendments to the Circulation element of the general plans for Stanislaus County and the cities of Modesto, Riverbank and Oakdale would be required for the North County Corridor State Route 108 East Route Adoption to be considered fully consistent with these local plans.

Growth

Impacts on local growth rates and detrimental effects on local infill development goals can be minimized through implementation of phasing programs that require development in the central city before or concurrent with development at the periphery of the urban area. However, implementation of this measure is the responsibility of future decision-making among the local agencies.

At this stage of the project (route adoption), it would be speculative and infeasible to quantify project contributions to cumulative and indirect impacts created by new development such as air quality, habitat destruction, traffic congestion, aesthetics, and noise. Impacts associated with future actions are subject to the control of local jurisdictions and the responsibility to offset these impacts lies in the decision-making and policies of the local jurisdictions.

Farmlands

Caltrans would commit in future stages of project design and environmental reviews to minimizing impacts to important farmlands with strategies such as: following section lines wherever possible; leasing back farmland purchased for projects until it is needed for construction, working with landowners to recombine remnant parcels to minimize creation of nonfarmable farmland; localized avoidance of farm houses, out buildings, and irrigation systems. Natural Resource Conservation Service farmland site assessments would be carried out for all future projects within the corridor.

Community Character and Cohesion

Caltrans would coordinate with the cities of Modesto and Riverbank, and the County of Stanislaus, along with the Modesto city Schools District, and the Comprehensive Planning

District stakeholders, in the project design stage to assure optimal connectivity between the existing and planned neighborhoods, schools, shopping areas, and services in the shared sphere of influence between Modesto and Riverbank.

Specific criteria would consider pedestrian facilities to ensure safe routes to schools and shopping, and surface street connections between interchange locations to assure convenient passage of personal, public transit and emergency response vehicles between the north and south sides of the new State Route 108.

Relocations

The following are measures that would be implemented to minimize or mitigation impacts to the relocation of residences or businesses.

The Caltrans Relocation Assistance Program would reduce impacts as benefits are provided to relocate residences and businesses, reducing the level of impact to below a substantial level. A range of benefits is available; some include finding comparable replacement housing and paying for costs associated with moving. Details are identified at the time property is acquired. The Community Impact Assessment found that there is adequate comparable replacement housing property within the required distance in the cities of Modesto, Riverbank and Oakdale and Stanislaus County.

With implementation of the Caltrans Relocation Assistance Program, no substantial impact to persons, businesses, or property access would result from construction of the project. All parties would be treated in a fair and equal manner as prescribed by Caltrans policy, the Federal Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970 (as amended), Title 49–Code of Federal Regulations–Part 24, and Title VI of the Civil Rights Act (42 US Code 2000d, et seq.). See Caltrans' Title VI Policy Statement in Appendix C.

Utilities

Selection of a new State Route 108 alignment shall consider the least invasive alignment with respect to minimizing crossings of existing canals and utility corridors, where appropriate. Advance coordination with utility providers and stakeholders would be a required component of the project planning and design. Temporary facilities may be necessary to avoid prolonged interruptions to vital services such as water and electricity.

Emergency Services

Approval of a future State Route 108 would require coordination with the Stanislaus Consolidated Fire Protection District, the Oakdale Rural Fire District, and the Stanislaus County Sheriff's Department to clarify existing critical emergency response routes, and

identify measures in any future project documents (such as an emergency access and traffic plan) to maintain these paths of travel or develop alternatives that provide equal or superior routes.

Traffic and Transportation/Pedestrian and Bicycle Facilities

Construction of any new roadway for State Route 108 would require project-specific traffic analysis to be conducted, and the locations of future roadway impacts would be determined. It is anticipated that some of the north-south roads providing direct access to Corridors A and B may need to have additional capacity, in the form of additional travel lanes along a defined road segment and/or additional turning lanes at intersections near the project to facilitate traffic flow to and from the future roadway. Caltrans would coordinate with the responsible local jurisdiction(s) to determine appropriate avoidance and minimization measures to be implemented at these intersections, which meet applicable local standards.

The final design of the interchanges shall accommodate the implementation of planned bicycle and pedestrian facilities.

Before construction of a roadway in either Corridor A or B, Caltrans shall coordinate with the local transit agencies to ensure that the transit services currently provided along McHenry Avenue are adequately accommodated after implementation of the project.

Project design shall be based on adopted design guidelines such as the Caltrans Highway Design Manual. The expressway and the new connections and crossings shall be designed to provide a level of service of D or better. At locations where this is infeasible, the design shall be based on the feasible improvements that can be accommodated.

Visual/Aesthetics

The approval of construction for a new roadway for State Route 108 would mandate that a qualitative/aesthetic approach be taken to mitigate for visual quality loss in the study area.

Avoidance and minimization measures would meet Federal Highway Administration assessment guidelines, and design guidelines based on Stanislaus County and the cities' goals and policies, as well as Caltrans design policies:

- Minimize conversion of agricultural lands to roadway by placing the new expressway alignment along the routes of existing roads, where possible.
- Locate the new expressway where agricultural lands have been compromised by existing adjacent development, where possible.

- Incorporate city gateway aesthetic features into the design for new intersections at Claribel Road with Roselle Avenue and Warnerville Road. Since agricultural heritage and rural character have been identified in city and county general plans as major components of the study area's identity, city gateways could be designed to incorporate these visual images into the gateway design. For example, gateway site elements could include farmland elements. The elements could be placed to screen or enhance scenic views, or the choice of gateway materials could match agricultural, scenic, or rural elements.
- Design expressway landscape to reflect vegetation patterns and plant types of the adjacent agricultural lands or native plant communities.
- Add cut-off light shields to expressway lighting to direct lighting toward the street, not toward adjacent land uses.
- Minimize impacts to the natural terrain, drainages, and vegetation, where possible. For example, visual impacts could be minimized by aligning the highway to follow natural landforms, preserving natural floodways by crossing drainages by bridge or extra-wide culvert, preserving scenic vegetation and visually prominent native trees, and by restoring native vegetation in accordance with the location, density and species characteristic for native plant communities in Stanislaus County.
- Identify important community views to culturally significant landmarks, such as mountain ranges, agricultural lands, historic buildings and other community landmarks, and design the expressway to preserve and enhance these views, where feasible.

All visual avoidance and minimization measures would be designed and implemented with the concurrence of the District Landscape Architect.

Cultural Resources

Before construction of the new state route roadway, Caltrans would ensure that cultural resources are treated appropriately according to state and federal laws and regulations, as applicable. Because the new roadway would be a state route, all cultural resources in the future project area would be appropriately inventoried and documented according to Caltrans procedures and California Environmental Quality Act guidelines.

In addition, it is possible that construction of the future roadway could involve federal funding, thereby making Federal Highway Administration/Caltrans the federal lead agency for future phases of the project. Should Caltrans determine that a federal undertaking exists, Section 106 of the National Historic Preservation Act regulations would apply and be followed. These regulations pertain to federally funded undertakings and their impacts on

cultural resources. The purpose of the Section 106 process is to evaluate the potential for the project to affect cultural resources eligible for listing in the National Register of Historic Places or any resources considered historic for the purposes of the California Environmental Quality Act.

If construction of a new roadway, as a result of route adoption, results in the demolition or destruction of any cultural resources (buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance) in the roadway study area, the effect cannot be fully eliminated by this measure. In this case, it is likely that further research or documentation would be required and additional mitigation measures may need to be developed to reduce the effect.

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

If human remains are discovered during ground-disturbing activities, all work must stop in the immediate area of the find and within 100-feet of the find, and the onsite environmental construction monitor, the construction foreman, and Caltrans must comply with state laws pertaining to the protection of interred human remains. State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the county coroner contacted. Per Public Resources Code Section 5097.98, if the remains were thought to be Native American, the coroner would notify the Native American Heritage Commission, which would then notify the Most Likely Descendent. At this time, the person who discovered the remains would contact Caltrans so that Caltrans staff can work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

Hydrology and Floodplain

A detailed hydraulic analysis of the area would be done during the design phase of a future roadway project for State Route 108 and would be the basis for defining avoidance and minimization measures.

Measures including short- and/or long-term best management practices, or the construction of physical features, to retain or delay the flow of the additional runoff and prevent or offset impacts to water resources would be implemented within the study area.

Water Quality and Storm Water Runoff

Construction of any future roadway project would require avoidance and minimization measures to reduce these impacts and the implementation of best management practices can alleviate the potential for increased flood risk. The construction of physical features may be incorporated into roadway design to retain or delay the flow of the additional runoff, thus attenuating peak flows, treating the water quality volume, thus reducing water quality impacts. All construction would conform to National Pollutant Discharge Elimination System permit requirements to maintain water quality within the study area.

Geology/Soils/Seismic/Topography

Erosion and impacts to slope stability caused by the construction of a new roadway for State Route 108 could be offset by adopting control measures such as hydro-seeding and surface water diversion during construction.

Additional information provided from a project-specific geotechnical investigation would further evaluate the possible impacts of seismic ground shaking, liquefaction and expansive soils, as well as provide design avoidance and minimization measures if needed.

Paleontology

Because there's a potential for the new State Route 108 roadway to affect the paleontologically sensitive Modesto, Riverbank, Turlock Lake, and Merhten Formations in the project area, a project-specific paleontological evaluation report would be prepared for each separate future construction phase of the project. The evaluation report would look at the potential for site- and project-specific impacts on paleontologically sensitive layers in the ground where Holocene-age strata is exposed at the surface.

If the evaluation report concludes that any of the project's potential impacts on paleontological resources cannot be avoided through project design or by establishing environmentally sensitive areas for avoidance, a paleontological mitigation plan would be required before construction could begin.

Before construction, a qualified paleontologist would ensure that a paleontological mitigation plan consistent with all guidance in Caltrans' *Standard Environmental Reference* (California Department of Transportation 2008 or most current) is developed. The qualified paleontologist would be responsible for ensuring comprehensive and timely implementation of all aspects of the paleontological mitigation plan. Implementation would be overseen by staff meeting the following qualifications ("qualified paleontologist"):

- A graduate degree in paleontology, geology, or a related discipline, with demonstrated experience in the vertebrate, invertebrate, or botanical paleontology of California or related topics.
- At least one year of full-time professional experience, or equivalent specialized training in paleontological research, administration, or management.
- At least 4 months of supervised field and analytic experience in general North American paleontology.
- A demonstrated ability to carry research to completion.

The paleontological mitigation plan would contain the following information:

- The responsibilities of the lead agency.
- The responsibilities of the qualified paleontologist overseeing the plan's implementation.

The plan also would include the following activities, requirements, and provisions:

- **Preconstruction Meeting and Worker Awareness Training**—The lead agency would provide a time for paleontological resources awareness training for all construction personnel before the start of site preparation and construction activities. Construction personnel involved with earth-moving activities would be informed of the possibility of encountering fossils, the types and appearance of fossils likely to be seen during construction activities, and proper procedures in the event fossils are encountered. Worker training would be prepared and presented by a qualified paleontologist or other appropriate personnel (e.g., a California licensed professional geologist with appropriate experience) experienced in teaching non-specialists. It may be delivered at the same time as other planned construction-worker education, or it may be presented separately.
- **Paleontological Monitoring**—Full-time paleontological monitoring would be conducted for portions of the proposed project that have the potential to affect significant paleontological resources (i.e., all activities involving excavation or other ground disturbance in native substrate materials of Pleistocene age or older). A trained paleontological monitor would oversee all ground-disturbing activities that affect native or potentially native substrate materials of Pleistocene age or older, including vegetation removal, site preparation, and construction grading and excavation.

  Paleontological monitoring would consist of observing operations and periodically inspecting disturbed, graded, and excavated surfaces. The monitor would have the authority to divert grading or excavation away from exposed surfaces temporarily in order to examine disturbed areas more closely, or to recover fossils. The supervising

paleontologist would be responsible for coordinating with the lead agency and project engineer to ensure that monitoring is thorough but does not result in unnecessary delays.

If additional personnel are needed for effective monitoring, the supervising paleontologist may train other consultant staff in paleontological monitoring. Training may include in-house and project site phases, at the supervising paleontologist's discretion. Once training is complete, individuals trained by the qualified paleontologist then may monitor the proposed project construction independently.

- **Stop Work Requirement**—If vertebrate fossils are discovered during any project-related activity, including project grading and excavation, all ground-disturbing work in the vicinity of the find would stop immediately until the supervising paleontologist can assess the nature and importance of the find and recommend appropriate treatment. Assessment would occur in a timely manner. Recommendations for treatment would be consistent with Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995). Treatment may include the preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and also may include the preparation of a report for publication describing the finds. If no report is required, the lead agency would ensure nonetheless that information about the nature, location, and depth of all finds is readily available to the scientific community. The supervising paleontologist and all paleontological monitors would be empowered to temporarily halt or redirect the excavation equipment away from fossils to be salvaged.
- **Fossil Recovery**—If fossil materials are discovered during project-related activities, the supervising paleontologist would be responsible for determining whether recovery and curation are warranted. All materials warranting recovery would be stabilized on the site and then salvaged consistent with currently accepted procedures and the prevailing standard of care for paleontological materials collection. The supervising paleontologist would be responsible for coordinating with the lead agency and project engineer to ensure that specimen recovery proceeds in a timely manner.
- **Fossil Preparation and Analysis**—Recovered fossils would be prepared for identification consistent with currently accepted procedures and the prevailing standard of care. They then would be identified by competent specialists, potentially including the supervising paleontologist. If possible, identification would include genus, species, and, if applicable, subspecies. If species-level identification is not feasible, the maximum feasible level of specificity would be provided. The fossil assemblage then would be analyzed by stratigraphic occurrence and any other applicable parameters, such as size, taxa present, and taphonomic conditions. A faunal list would be developed.

- **Curation of Specimens**—The plan would specify the university or museum collection where any recovered specimens (fossils) of paleontological significance found during construction would be housed, as well as any key provisions of the curation agreement with that institution.
- **Preparation of Final Report**—The supervising paleontologist would prepare a final report that includes at least the following components: information on site geology and stratigraphy, including a stratigraphic column; a description of field and laboratory methods; a faunal list, with stratigraphy ranges/occurrences for each taxon; concise discussion of the significance of the site and its relationship to other nearby or similar fossil localities; a list of references consulted during the project, including published geologic maps for the site and vicinity; and a complete set of field notes, field photographs, and any new geologic maps developed for or during the project.

  Full copies of the final report, including any appended materials, would be put on file with the lead agency and with the repository institution(s) (see "Curation of Specimens," above). Depending on the nature of the materials recovered, it also may be appropriate to prepare a report for publication; reporting would be at the discretion of the supervising paleontologist.

Hazardous Waste/Materials

At this programmatic level of review for this document, it is not possible to identify the nature and severity of contamination at specific sites. Further environmental study should include review of the Cortese-listed sites, assessment of specific impacts to sites with hazardous materials, and development of specific avoidance and minimization measures. Other measures include:

- Perform initial site assessments to assess the potential for hazardous materials and hazardous waste within the route alignment of the future roadway. When indicated by initial site assessments, perform a preliminary site assessment in conformance with the standards of the American Society for Testing and Materials to identify specific avoidance and minimization measures. Before demolition of buildings for project construction, survey for lead-based paint and asbestos-containing materials.
- During design of the roadway, project engineers would avoid identified sites containing hazardous material or waste contamination, where possible. If the roadway would affect areas of known contamination, remediation would be conducted.
- Follow best management practices for testing, treating, and disposing of water and acquire necessary permits from the Regional Water Quality Control Board if ground dewatering is required.

- Prepare a Site Management Program/Contingency Plan before construction to address known and potential hazardous material issues, including but not limited to:
  - Measures to address management of contaminated soil and groundwater.
  - A site-specific Health and Safety Plan, including measures to protect construction workers and general public.
  - Procedures to protect workers and the general public in the event that unknown contamination or buried hazards are encountered.
  - As part of additional environmental review, consider effects to the environment on sites identified on the Cortese List (Government Code section 65962.4).

Air Quality and Energy

Construction of a new roadway for State Route 108 could result in the following being required:

- Preparation and implementation of a Dust Control Plan to comply with San Joaquin Valley Air Pollution Control District Regulation VIII Requirements would control construction emissions of particulate matter less than 10 microns in diameter. Caltrans would require construction contractors to prepare and submit a Dust Control Plan to the San Joaquin Valley Air Pollution Control District (California) for their approval at least 30 days prior to any earth-moving or construction activities. The plan will include specific dust control measures and practices for all phases of construction activities to ensure compliance with the regulation.

During construction the awarded contractor would be required to comply with Rule 9510 (Indirect Source Review) set forth by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The Rule requires that the contractor perform a project-level analysis of construction emissions associated with construction of the proposed roadway. The contractor in conjunction with the SJVAPCD would use the most recent version of Sacramento Municipal Air Quality Management District's Road Construction Emissions Model and project-specific construction equipment information provided by the contractor. Construction emissions would be compared to the most recent SJVAPCD significance thresholds to determine impacts of construction emissions. Caltrans would require construction contractors to implement best management practices regarding reduction of construction equipment emissions and limitations on the timing and phasing of construction activities to reduce overall construction-related exhaust emissions.

Noise and Vibration

Construction of a future roadway project would use noise-reducing construction practices such that construction noise does not exceed applicable construction noise standards.

Caltrans would design and implement measures where feasible to reduce traffic noise associated with operation of the roadway with the goal of reducing traffic noise increases to less than 12 dBA.

Natural Communities

A qualified biologist will document the location, type, extent, and habitat functions and values of riparian communities that occur in the project corridor and could be affected by the project. This information would be mapped and documented as part of California Environmental Quality Act and National Environmental Policy Act documentation, as applicable. The measures below would be implemented concurrently to avoid, minimize, and compensate for impacts on riparian communities.

To avoid or minimize impacts on riparian communities, the following measures would be implemented:

Redesign roadway to avoid direct and indirect impacts on riparian communities, if feasible

- Protect riparian communities near the project site by installing environmentally sensitive area fencing at a minimum distance from the edge of the riparian vegetation. The distance would be determined through consultation with resource agencies. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet. The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire shrub. Shrub vegetation would be cut to a minimum height above ground level to leave the root systems intact and allow for more rapid regeneration of the species. The cut height would be determined through consultation with resource agencies. Cutting would be limited to the minimum area necessary within the construction zone. This type of removal would be allowed only for shrub species (all trees would be avoided) in areas that do not provide habitat for nesting birds. To protect nesting birds, raptors, and migratory birds, riparian vegetation would not be removed

from February 15 through September 15, as required under California Fish and Game Code 3503, 3503.5, and 3513, and Migratory Bird Treaty Act. However, if removal of riparian vegetation cannot be avoided during this period, a nesting bird surveys would be necessary. Removal of vegetation could occur only if no nesting birds are observed.

Compensate for the loss of riparian community

If riparian vegetation is removed, Caltrans would compensate for the loss of riparian vegetation to ensure no net loss of habitat functions and values. Compensation ratios would be based on site-specific information and determined through coordination with the appropriate state and federal agencies during the permitting process. Compensation may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. Caltrans would develop a restoration and monitoring plan that describes how riparian habitat would be enhanced or re-created and monitored over a minimum period of time, as determined by the appropriate state and federal agencies.

Install temporary construction barrier fencing to protect native oak trees next to the construction zone

If determined feasible, Caltrans would install orange construction barrier fencing to identify environmentally sensitive areas around the native oak trees (the minimum size of a tree that would be protected would be determined by the local ordinance). Before construction, the contractor would work with the project engineer to identify the locations for the barrier fencing and would place stakes around the sensitive resource sites to indicate these locations. The fencing would be installed before construction activities begin and would be maintained throughout the construction period. The following paragraph would be included in the construction specifications:

> *The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose would be allowed unless specifically authorized in writing by Caltrans. The Contractor would take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.*

Temporary fences around the environmentally sensitive areas would be installed as the first order of work. Temporary fences would be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing would be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing would be tightly strung on posts with a maximum spacing of 10 feet.

Wetlands and Other Waters

As part of a project-level environmental review for a future roadway for State Route 108, the project proponent would retain a qualified wetlands ecologist to identify areas that could qualify as waters of the U.S., including jurisdictional and isolated wetlands. Wetlands would be identified using both U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service/California Department of Fish and Game definitions of wetlands. U.S. Army Corps of Engineers jurisdictional wetlands would be delineated using the methods outlined in the U.S. Army Corps of Engineers 1987 *Wetlands Delineation Manual* and the *Arid West Manual*.

The jurisdictional boundary for other waters of the U.S. would be identified based on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding area (*33 CFR 328.3[e]*).

This information would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable, and in wetland delineation reports.

To the extent possible, Caltrans would avoid and minimize impacts on wetlands and other waters of the U.S. by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on wetland habitats, if feasible.
- Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at a minimum distance from the edge of the wetland. The distance would be determined through consultation with resource agencies. The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as the use of padding or vehicles with balloon tires, would be employed.

- Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation.
- Stabilize exposed slopes and stream banks immediately on completion of installation activities. Other waters of the U.S. would be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- In highly erodible stream systems, stabilize banks using a nonvegetative material that binds the soil initially and breaks down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.
- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.

These measures would be incorporated into contract specifications and implemented by the construction contractor. In addition, Caltrans would ensure that the contractor incorporates all state and federal permit conditions into construction specifications.

If waters of the U.S., including wetlands, are filled or disturbed as part of the proposed project, Caltrans would compensate for the loss of waters of the U.S. to ensure no net loss of habitat functions and values. Compensation ratios would be based on site-specific information and determined through coordination with state and federal agencies (including California Department of Fish and Game, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers). The compensation would be at a minimum ratio of 1:1 (1 acre restored or created for every acre filled) and may be a combination of on-site restoration/creation, off-site restoration, or mitigation credits. A restoration and monitoring plan would be developed and implemented if on-site or off-site restoration or creation is chosen. The plan would describe how wetlands would be created and monitored over the minimum duration required by the regulatory agencies.

Plant Species

As part of the future environmental review process for a new roadway for the future State Route 108, the project would retain a qualified botanist to document the presence or absence of special-status plants before project implementation. The steps listed below would be implemented to document special-status plants and determine potential impacts on the populations:

- Review Existing Information. The botanist would review existing information to develop a list of special-status plants that could grow in the specific project area. Sources of information consulted would include the California Department of Fish and Game's California Natural Diversity Database, previously prepared environmental documents, and the California Native Plant Society electronic inventory.
- Coordinate with Agencies. The botanist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, Caltrans) to discuss botanical resource issues and determine the appropriate levels of survey necessary to document special-status plants.
- Conduct Field Studies. The botanist would evaluate existing habitat conditions for each project and determine what levels of botanical survey may be required. The type of botanical survey would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required.
- Habitat Assessment. A habitat assessment would be conducted to determine whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat were present, no additional surveys would be required.
- Species-Focused Surveys. Species-focused surveys (or target species surveys) would be conducted if suitable habitat were present for special-status plants. The surveys would focus on special-status plants that could grow in the region and be conducted during a period when the target species are evident and identifiable.
- Floristic Protocol-Level Surveys. Floristic surveys that follow the California Native Plant Society Botanical Survey Guidelines (also accepted by California Department of Fish and Game) would be done in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The California Native Plant Society Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be done when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more field surveys may be required in spring and summer months.

- Special-status plant populations identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act process, as applicable.
- If special-status plants are identified in the project corridor, the project applicant will implement the following measures to avoid and minimize impacts on special-status plants.
- Redesign or modify specific project elements to avoid direct and indirect impacts on special-status plants, if feasible.
- Protect special-status plants near their project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations. The environmentally sensitive area fencing will be installed at a minimum distance from the edge of the population. The distance will be determined through consultation with resource agencies. The location of the fencing will be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Coordinate with the appropriate resource agencies and local experts to determine whether transplantation is feasible. If the agencies concur that transplantation is a feasible mitigation measure, the botanist will develop and implement a transplantation plan through coordination with the appropriate agencies. The special-status plant transplantation plan will involve identifying a suitable transplant site; moving the plant material and seed bank to the transplant site; collecting seed material and propagating it in a nursery; and monitoring the transplant sites to document recruitment and survival rates.

Wildlife Species

As part of project-level environmental review for a new roadway for State Route 108, a qualified wildlife biologist would document the presence or absence of suitable habitat for special-status wildlife in the alternative corridors. The following steps would be implemented to document special-status wildlife and their habitats:

- Review Existing Information. The wildlife biologist would review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information would be reviewed as part of this process: the U.S. Fish and Wildlife Service special-status species list for the project region, U.S. Fish and Wildlife Service recovery plans, the California Department of Fish and Game's California Natural

Diversity Database, previously prepared environmental documents, city and county general plans, habitat conservation plans and natural community conservation plans (if any are adopted by the time the project is constructed), and U.S. Fish and Wildlife Service-issued biological opinions for previous projects.

- Coordinate with State and Federal Agencies. The wildlife biologist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, and Caltrans) to discuss wildlife resource issues in the project region and determine the appropriate levels of survey necessary to document special-status wildlife and their habitats.
- Conduct Field Studies. The wildlife biologist would evaluate existing habitat conditions and determine the levels of biological survey that may be required. The type of survey required would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or a combination of the following levels of survey may be required.
    - Habitat Assessment. A habitat assessment determines whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat were present, no additional surveys would be required.
    - Species-Focused Surveys. Species-focused surveys (or target species surveys) would be done if suitable habitat were present for special-status wildlife and it is necessary to determine the presence or absence of the species in the project area. The surveys would focus on special-status wildlife species that have the potential to occur in the region. The surveys would be done during a period when the target species were present and/or active.
    - Protocol-Level Wildlife Surveys. The project proponent would comply with protocols and guidelines issued by responsible agencies for certain special-status species. U.S. Fish and Wildlife Service and California Department of Fish and Game have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) valley elderberry longhorn beetle, vernal pool fairy and tadpole shrimps, California tiger salamander, riparian brush rabbit, and western burrowing owl. The protocols and guidelines may require that surveys be conducted during a particular time of year and/or time of day when the species is present and active.

Many survey protocols require that only a U.S. Fish and Wildlife Service- or California Department of Fish and Game approved biologist perform the surveys. The project proponent would coordinate with the appropriate state or federal agency biologist before beginning protocol-level surveys to ensure that the survey results would be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period, and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species. Special-status wildlife and/or suitable habitat identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable.

Caltrans would implement the following measures to avoid and minimize impacts on special-status wildlife and their habitats:

- Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.
- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking would be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (U.S. Fish and Wildlife Service and California Department of Fish and Game). The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Restrict construction-related activities to the nonbreeding season for special-status wildlife species that could occur in the project area. Timing restrictions may vary depending on the species and could occur during any time of the year.
- Coordinate with the appropriate resource agencies to determine whether a monitoring plan for special-status wildlife is necessary as part of all highway projects. If a monitoring plan is required, it would be developed and implemented in coordination with appropriate agencies and would include:
    - A description of each of the wildlife species and the suitable habitat for species that could occur at the project site.

- The locations of known occurrences of special-status wildlife species within 5 miles of the project site.
- The location and size of no-disturbance zones in and adjacent to environmentally sensitive areas for wildlife.
- Directions on the handling and relocating of special-status wildlife species found on the project site that are in immediate danger of being destroyed.
- Notification and reporting requirements for special-status species that are identified on the project site.

As part of project-level environmental review, a qualified fisheries biologist would locate and identify streams that could support special-status fish habitat. Aquatic and streamside habitat conditions would be mapped and documented as part of California Environmental Quality Act and National Environmental Policy Act documentation and biological assessment reports, as applicable.

Project components that have the potential to affect special-status fish and their habitat would be built (to the extent possible) during time periods that avoid the sensitive life stages of special-status fish species. Construction activities would be scheduled so that they do not interfere with the reproductive cycles of fish species. Work in most of the systems would take place between June 1 and October 15 to avoid causing impacts on most adult and juvenile migration stages of anadromous species.

In addition, Caltrans would implement best management practices in its Storm Water Pollution Prevention Plans, as applicable, to control the transport of sediment to streams, promote the restoration of construction areas to pre-construction conditions, and avoid the potential for spills of hazardous substances. The Storm Water Pollution Prevention Plans would include pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a best management practice monitoring and maintenance schedule. A staging and storage area would be provided away from the waterway for equipment, construction materials, fuels, lubricants, solvents, and other possible contaminants.

The contractor would conduct periodic maintenance of erosion and sediment control measures. 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 until wet while avoiding the production of runoff. Paved streets would be swept daily after construction activities.

Threatened and Endangered Species

As part of the future environmental review process for a new roadway for the future State Route 108, the project would retain a qualified botanist to document the presence or absence of special-status plants before project implementation. The steps listed below would be implemented to document special-status plants and determine potential impacts on the populations:

- Review Existing Information. The botanist would review existing information to develop a list of special-status plants that could grow in the specific project area. Sources of information consulted would include the California Department of Fish and Game's California Natural Diversity Database, previously prepared environmental documents, and the California Native Plant Society electronic inventory.
- Coordinate with Agencies. The botanist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, Caltrans) to discuss botanical resource issues and determine the appropriate levels of survey necessary to document special-status plants.
- Conduct Field Studies. The botanist would evaluate existing habitat conditions for each project and determine what levels of botanical survey may be required. The type of botanical survey would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required.
- Habitat Assessment. A habitat assessment would be conducted to determine whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat were present, no additional surveys would be required.
- Species-Focused Surveys. Species-focused surveys (or target species surveys) would be conducted if suitable habitat were present for special-status plants. The surveys would focus on special-status plants that could grow in the region and be done during a period when the target species are evident and identifiable.
- Floristic Protocol-Level Surveys. Floristic surveys that follow the California Native Plant Society Botanical Survey Guidelines (also accepted by California Department of Fish and

Game) would be done in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The California Native Plant Society Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be done when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more field surveys may be required in spring and summer months.

- Special-status plant populations identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act process, as applicable.

As part of project-level environmental review for a new roadway for State Route 108, a qualified wildlife biologist would document the presence or absence of suitable habitat for special-status wildlife in the alternative corridors. The following steps would be implemented to document special-status wildlife and their habitats:

- Review Existing Information. The wildlife biologist would review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information would be reviewed as part of this process: the U.S. Fish and Wildlife Service special-status species list for the project region, U.S. Fish and Wildlife Service recovery plans, the California Department of Fish and Game's California Natural Diversity Database, previously prepared environmental documents, city and county general plans, habitat conservation plans and natural community conservation plans (if any are adopted by the time the project is constructed), and U.S. Fish and Wildlife Service-issued biological opinions for previous projects.
- Coordinate with State and Federal Agencies. The wildlife biologist would coordinate with the appropriate agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, and Caltrans) to discuss wildlife resource issues in the project region and determine the appropriate levels of survey necessary to document special-status wildlife and their habitats.
- Conduct Field Studies. The wildlife biologist would evaluate existing habitat conditions and determine the levels of biological survey that may be required. The type of survey required would depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or a combination of the following levels of survey may be required:

- Habitat Assessment. A habitat assessment determines whether suitable habitat is present. This type of assessment can be done at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat were present, no additional surveys would be required.
- Species-Focused Surveys. Species-focused surveys (or target species surveys) would be done if suitable habitat is present for special-status wildlife and it is necessary to determine the presence or absence of the species in the project area. The surveys would focus on special-status wildlife species that have the potential to occur in the region. The surveys would be done during a period when the target species are present and/or active.
- Protocol-Level Wildlife Surveys. The project proponent would comply with protocols and guidelines issued by responsible agencies for certain special-status species. U.S. Fish and Wildlife Service and California Department of Fish and Game have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) valley elderberry longhorn beetle, vernal pool fairy and tadpole shrimps, California tiger salamander, riparian brush rabbit, and western burrowing owl. The protocols and guidelines may require that surveys be done during a particular time of year and/or time of day when the species is present and active. Many survey protocols require that only a U.S. Fish and Wildlife Service- or California Department of Fish and Game-approved biologist perform the surveys. The project proponent would coordinate with the appropriate state or federal agency biologist before initiation of protocol level surveys to ensure that the survey results would be valid.

  Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period, and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species. Special-status wildlife and/or suitable habitat identified during the field surveys would be mapped and documented as part of the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable.

This mitigation measure focuses on avoiding and minimizing all direct and indirect effects on special-status wildlife. Caltrans would implement the following measures to avoid and minimize impacts on special-status wildlife and their habitats:

- Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.

- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking would be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (U.S. Fish and Wildlife Service and California Department of Fish and Game). The location of the fencing would be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications would contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Restrict construction-related activities to the nonbreeding season for special-status wildlife species that could occur in the project area. Timing restrictions may vary depending on the species and could occur during any time of the year.
- Coordinate with the appropriate resource agencies to determine whether a monitoring plan for special-status wildlife is necessary as part of all highway projects. If a monitoring plan were required, it would be developed and implemented in coordination with appropriate agencies and would include:
    - A description of each of the wildlife species and the suitable habitat for species that could occur at the project site.
    - The locations of known occurrences of special-status wildlife species within 5 miles of the project site.
    - The location and size of no-disturbance zones in and next to environmentally sensitive areas for wildlife.
    - Directions on the handling and relocating of special-status wildlife species found on the project site that are in immediate danger of being destroyed.
    - Notification and reporting requirements for special-status species that are identified on the project site.

If the above measures are not feasible and site-specific construction activities would result in substantial impacts on wildlife species listed under the Federal Endangered Species Act and/or California Endangered Species Act, a compensation plan would be developed in coordination with the appropriate resource agency, or agency-approved compensation guidelines would be followed to reduce the impact to a less-than-significant level. Compensation guidelines have been identified for several special-status wildlife species, including valley elderberry longhorn beetle, vernal pool fairy and tadpole shrimp, California

tiger salamander, Swainson's hawk, and burrowing owl. The amount of compensation would vary depending on the amount of habitat loss or degree of habitat disturbance anticipated.

The compensation plan would be developed and implemented in coordination with the appropriate state or federal agency and would involve identifying an agency-approved mitigation bank or mitigation site (on or off the site); transplanting (elderberry shrubs), re-creating (burrows and vernal pools), and/or preserving additional habitat for special-status wildlife species; monitoring the mitigation site; and funding the management of the mitigation site.

As part of project-level environmental review, a qualified fisheries biologist would locate and identify streams that could support special-status fish habitat. Aquatic and streamside habitat conditions would be mapped and documented as part of California Environmental Quality Act and National Environmental Policy Act and NEPA documentation and biological assessment reports, as applicable.

Project components that have the potential to affect special-status fish and their habitat would be built (to the extent possible) during time periods that avoid the sensitive life stages of special-status fish species. Construction activities would be scheduled so that they do not interfere with the reproductive cycles of fish species. Work in most of the systems would take place between June 1 and October 15 to avoid causing impacts on most adult and juvenile migration stages of anadromous species. In addition, Caltrans would implement best management practices in its Storm Water Pollution Prevention Plans, as applicable, to control the transport of sediment to streams, promote the restoration of construction areas to pre-construction conditions, and avoid the potential for spills of hazardous substances.

The Storm Water Pollution Prevention Plans would include pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a best management practices monitoring and maintenance schedule. A staging and storage area would be provided away from the waterway for equipment, construction materials, fuels, lubricants, solvents, and other possible contaminants.

The contractor would conduct periodic maintenance of erosion and sediment control measures. 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 until wet while avoiding the production of runoff. Paved streets would be swept daily after construction activities.

Project components built in, near, or across tributaries to the Stanislaus River could affect steelhead and chinook salmon or their Essential Fish Habitats. To minimize potential impacts, Caltrans would request that the federal lead agency on the project (Caltrans/Federal Highway Administration or U.S. Army Corps of Engineers) begin consultation with National Marine Fisheries Service and/or U.S. Fish and Wildlife Service to obtain a determination from the agency as well as approval to proceed with the project and the approved avoidance, minimization, and compensation measures.

Invasive Species

As part of project-level environmental review for a future roadway for State Route 108, a qualified botanist would document invasive species and address noxious weed impacts. The botanist would determine whether noxious weeds are an issue for the project and whether they could displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity.

If the botanist determines that noxious weeds were an issue, Caltrans would review the Stanislaus County Agricultural Commission's noxious weed list, the California Department of Food and Agriculture's A, B, and C lists of noxious weeds, and the California Exotic Pest Plant Council's list of pest plants of ecological concern. These lists would be used to identify weeds that would be targeted during field surveys by the botanist. Surveys would focus on target weed species that are considered locally important for documentation and control purposes.

If noxious weed infestations were found during the field surveys, they would be mapped and documented in the California Environmental Quality Act and National Environmental Policy Act documentation, as applicable.

If noxious weeds infestations are identified in site-specific project areas, Caltrans would incorporate the following measures into project plans and specifications to avoid their introduction or spread into uninfested areas:

- Use certified, weed-free imported erosion-control materials (or rice straw in upland areas).
- Coordinate with the Stanislaus County agricultural commissioner to ensure that the appropriate best management practices are implemented.

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds.
- Clean equipment at designated wash stations after leaving noxious weed infestation areas.

Appendix E Regulatory Settings

This appendix contains general information about laws and regulations that apply to transportation projects and the topics covered in Chapter 2 of this document.

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…"

Farmlands/Timberlands

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

Community Character and Cohesion

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

Relocations

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 United States Code 2000d, et seq.). Please see Appendix C for a copy of Caltrans' Title VI Policy Statement.

Visual/Aesthetics

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)].

Cultural Resources

"Cultural resources" as used in this document refers to historic and archaeological resources, regardless of significance. The main federal laws dealing with cultural resources include the following:

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

Water Quality and Storm Water Runoff

Section 401 of the Clean Water Act requires water quality certification from the State Water Resources Control Board or from a Regional Water Quality Control Board when the project requires a Clean Water Act Section 404 permit. Section 404 of the Clean Water Act requires a permit from the U.S. Army Corps of Engineers to discharge dredged or fill material into waters of the United States.

Along with Section 401 of the Clean Water Act, Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System permit for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the National Pollutant Discharge Elimination System program to the State Water Resources Control Board and nine Regional Water Quality Control Boards. The State Water Resources Control Board and Regional Water Quality Control Boards also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The State Water Resources Control Board has developed and issued a statewide National Pollutant Discharge Elimination System permit to regulate storm water discharges from all Caltrans activities on its highways and facilities. Caltrans construction projects are regulated under the statewide permit, and projects performed by other entities on Caltrans right-of-way (encroachments) are regulated by the State Water Resources Control Board's Statewide General Construction Permit. All construction projects over 1 acre require a Storm Water Pollution Prevention Plan to be prepared and implemented during construction. Caltrans activities of less than 1 acre require a Water Pollution Control Program.

Geology/Soils/Seismic/Topography

Topographic and geologic features are protected under the California Environmental Quality Act. The Geology/Soils/Seismic/Topography section in Chapter 2 discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Paleontology

Paleontology is the study of life in past geologic time based on fossil plants and animals. Under California law, paleontological resources are protected by the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5.

Hazardous Waste or Materials

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 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 & Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

Hazardous waste in California is regulated primarily under Caltrans 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.

Air Quality

The Clean Air Act, as amended in 1990, is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2).

Regional level conformity is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met.

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

Conformity at the project-level also requires "hot spot" analysis if an area is in "nonattainment" or "maintenance" for carbon monoxide (CO) 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 non-attainment areas but have recently met the standard are called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy Act and California Environmental Quality Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated, and in "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.

Noise and Vibration

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

California Environmental Quality Act

The California Environmental Quality Act requires a strictly baseline versus 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 Federal Highway Administration involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur.

The noise abatement criteria differ depending on the type of land use under analysis. For example, the criterion for residences (67 decibels) is lower than the criterion for commercial areas (72 decibels). Table E.1 lists the noise abatement criteria for use in the National Environmental Policy Act and 23 Code of Federal Regulations 772 analysis. Figure E.1 shows the noise levels of typical activities.

Table E-1 Activity Categories and Noise Abatement Criteria

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

Source: Caltrans Traffic Noise Analysis Manual, 1998
A-weighted decibels are adjusted to approximate the way humans perceive sound. Leq(h) is the steady A-weighted level that equals the same amount of energy as that contained in the actual time-varying levels over 1 hour.

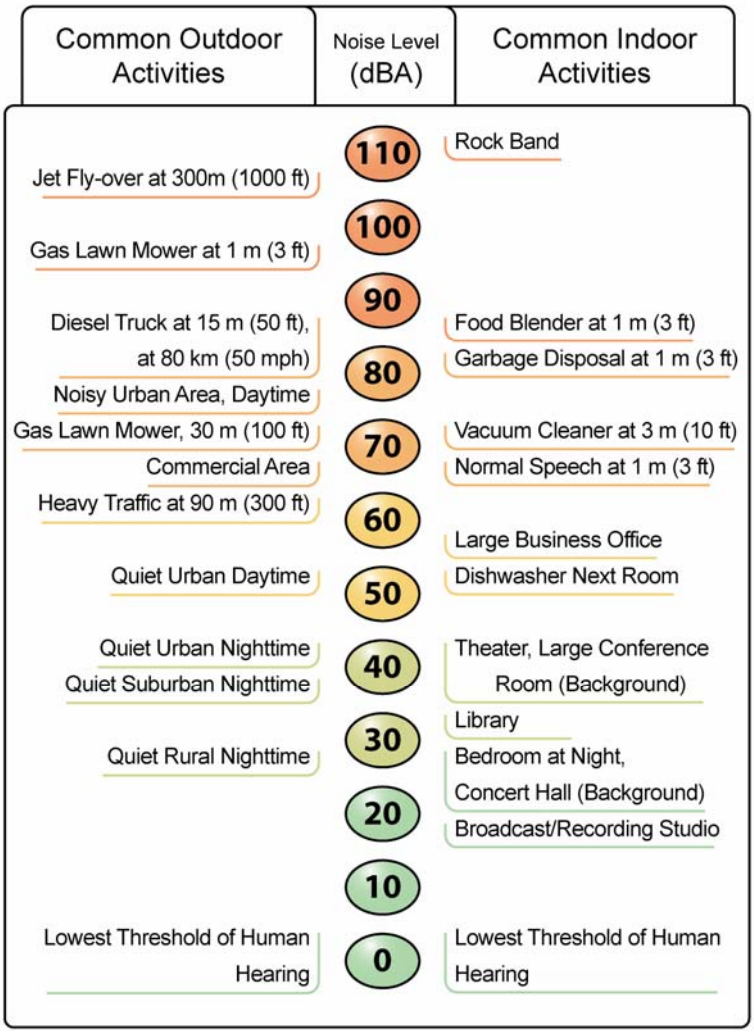

Figure E.1 Typical Noise Levels

In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects,* August 2006, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12-decibel or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. Approaching the noise abatement criteria is defined as coming within 1 decibel of the criteria.

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

specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. 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, versus existing noise, environmental impacts of abatement, public and local agencies' input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

Feasibility of noise abatement is basically an engineering concern. A minimum 5-decibel reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations.

Energy

The California Environmental Quality Act Guidelines (Appendix F, Energy Conservation, in the guidelines) state that Environmental Impact Reports are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

Wetlands and Other Waters

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 United States Code 1344) is the main law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce.

To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly

degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the Environmental Protection Agency.

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

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

Plant Species

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. See the Threatened and Endangered Species section later in this appendix for detailed regulatory information regarding these species.

The Plant Species section in Chapter 2 of this 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 United States 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. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

Animal Species

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration Fisheries Service, and the California Department of Fish and Game are responsible for implementing these laws. The section on Animal Species in Chapter 2 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 a separate section. All other special-status animal species are discussed under Animal Species in Chapter 2, including California Department of Fish and Game fully protected species and species of special concern, and the U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

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

Threatened and Endangered Species

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 United States Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend.

Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species.

The outcome of consultation under Section 7 is a Biological Opinion or an incidental take statement. Section 3 of the Federal Endangered Species Act defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code, Section 2050, et seq. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats.

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

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

Invasive Species

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.

Cumulative Impacts

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

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

Section 15130 of the California Environmental Quality Act Guidelines describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under the California Environmental Quality Act, can be found in Section 15355 of the California Environmental Quality Act Guidelines.

Climate Change under the California Environmental Quality Act

Impacts, minimization measures and so on related to this topic are covered in Chapter 3, not Chapter 2 as the topics above are.

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, the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years.

In 2002, with the passage of Assembly Bill 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 Air Resources Board to develop and implement

regulations to reduce automobile and light truck greenhouse gas emissions; these regulations will apply to automobiles and light trucks beginning with the 2009-model year. Greenhouse gases related to human activity include carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this order is to reduce California's greenhouse gas emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 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 Air Resources Board create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06, signed on October 17, 2006, 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, 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% 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. However, California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency to regulate greenhouse gases as a pollutant under the Clean Air Act (Massachusetts vs. Environmental Protection Agency et al., U.S. Supreme Court No. 05–1120. 549 U.S. 497 [2007]. Argued November 29, 2006—Decided April 2, 2007).

The court ruled that greenhouse gases do fit within the Clean Air Act's definition of a pollutant, and that the Environmental Protection Agency does have Caltrans to regulate greenhouse gases. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

Appendix F List of Technical Studies (Bound Separately)

- Air Quality Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- Biological Environment Technical Memorandum, North County Corridor State Route 108 East Route Adoption. August 2009.
- Cultural Resources Technical Memorandum, North County Corridor State Route 108 East Route Adoption. August 2009.
- Geology and Soils Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- Hazardous Waste/Materials Technical Memorandum, North County Corridor State Route 108 East Route Adoption. August 2009.
- Human Environment and Community Impact Assessment Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- Hydrology and Floodplains Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- Noise Analysis Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- North County Corridor Feasibility Study. January 2008.
- Paleontological Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- Preliminary Design Report for the North County Corridor Project. April 2008.
- Transportation System Planning Analysis Report for the North County Corridor Project. August 2009.
- Visual Resources and Aesthetics Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.
- Water Quality and Stormwater Runoff Technical Memorandum, North County Corridor State Route 108 East Route Adoption. July 2009.