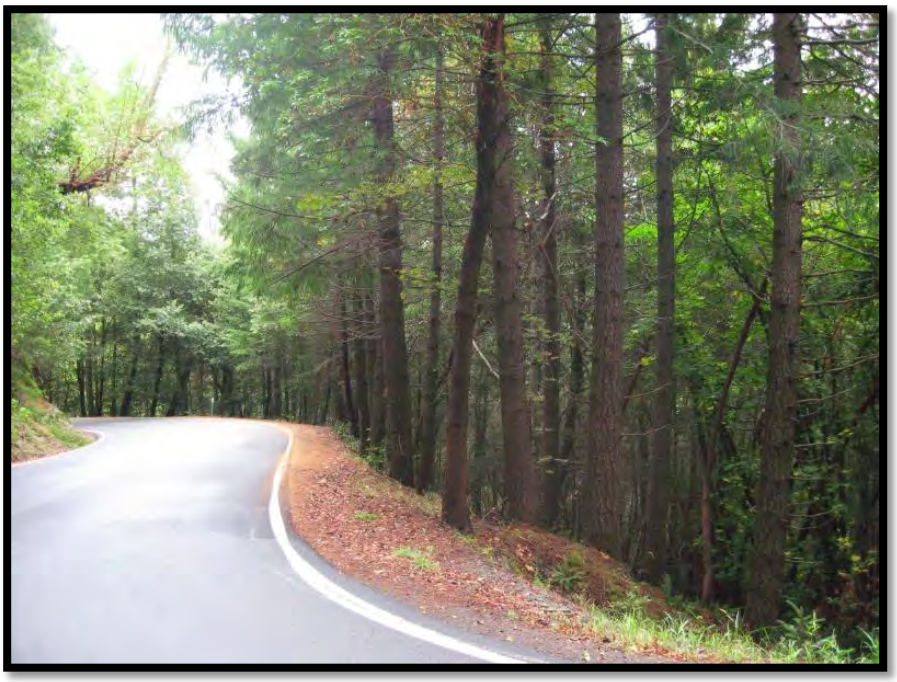
California State Route 36 Improvement Project

CA FLAP SR 36(13)
Humboldt County, CA
(HUM MP 36.1 – HUM MP 40.5)
District 1 437300

Environmental Assessment with Finding of No Significant Impact & Initial Study with Mitigated Negative Declaration



Prepared By:

U.S. Department of Transportation
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WHAT'S IN THIS DOCUMENT

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD) with the California Department of Transportation (Caltrans) has prepared this Environmental Assessment/Initial Study, which examined the potential environmental impacts of the alternatives being considered for the proposed project located in Humboldt County, California. The EA/IS document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization and/or mitigation measures.

FHWA-CFLHD is the lead agency for the National Environmental Policy Act (NEPA) compliance and Caltrans is the lead agency for the California Environmental Quality Act (CEQA) compliance. A Finding of No Significant Impact (FONSI) and Mitigated Negative Declaration are enclosed. The EA/IS circulated for public review is also enclosed, with updates to Chapter 4.0, Comments and Coordination, which summarizes input received during the environmental document's public review period. Any updates to the environmental document are identified by a vertical line in the right margin. Two appendices have been added to the document. Appendix F contains all the comments received from individuals and agencies on the environmental document during the public review period, as well as responses to those comments. Appendix G contains a transcript from the public hearing held on July 29, 2014.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Nicole Winterton at (720) 963-3689 or 12300 West Dakota Ave., Ste. 280, Lakewood, CO 80228.

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U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division

and

THE STATE OF CALIFORNIA
Department of Transportation

In Cooperation with
U.S. Forest Service, Six Rivers National Forest

ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT AND INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION

Submitted Pursuant to:

(Federal) 42 U.S.C. 4332(2)(c)
(State) Division 13, California Public Resources Code

for
California State Route 36 Improvement Project
CA FLAP SR 36(13)
Humboldt County, CA
(HUM MP 36.1 – HUM MP 40.5)

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09/11/2014
Date

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U.S. DEPARTMENT OF TRANSPORTATION

Federal Highway Administration
Central Federal Lands Highway Division

FINDING OF NO SIGNIFICANT IMPACT

for

California State Route 36 Improvement Project
CA FLAP SR 36(13)
Humboldt County, CA
(HUM MP 36.1 – HUM MP 40.5)

This Finding of No Significant Impact is submitted pursuant to:
42 U.S.C. 4332 (2)(c)

The Federal Highway Administration, Central Federal Lands Highway Division, has determined that this project, for which the Preferred Alternative has been selected, will have no significant impact on the human or natural environment. Principal areas of public controversy have been addressed, and there are no major unresolved issues outstanding. This finding is based on the attached Environmental Assessment, coordination with local and Federal agencies, public involvement, and applicable laws, executive orders, and regulations. The Environmental Assessment, with revisions contained herein, accurately and adequately discusses the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It lists environmental commitments to be carried out by the FHWA in order to minimize unavoidable impacts. The Environmental Assessment provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The Federal Highway Administration takes full responsibility for the accuracy, scope, and content of the following Environmental Assessment.

Michael Davies

Michael Davies, P.E.
FHWA-CFLHD Director of Project Delivery

09/11/2014
Date

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MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the U.S. Forest Service, Six Rivers National Forest, is proposing to improve California State Route 36 (SR 36) in southeastern Humboldt County approximately 12.3 miles east of the community of Bridgeville (Humboldt County Mile Post [HUM MP] 36.1 to HUM MP 40.5). Proposed improvements include realigning and widening SR 36 to attain two 12-foot-wide travel lanes with 4-foot-wide paved shoulders. In addition, new signing, pavement delineation, and the acquisition of new right-of-way are included in the project. Caltrans is the lead agency for compliance with the California Environmental Quality Act (CEQA).

Determination

Caltrans has prepared a joint Environmental Assessment/Initial Study for this project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on:

- Growth
- Coastal Zone
- Cultural Resources
- Parks and Recreational Facilities
- Wilderness
- Hazardous Waste/Materials

In addition, the proposed project would have less than significant effects to:

- Land Use/Wild and Scenic Rivers
- Farmlands/Timberlands
- Community Character and Cohesion
- Economic Conditions
- Relocations and Real Property
- Environmental Justice
- Utilities/Emergency Services
- Floodplains
- Noise
- Invasive Species
- Climate Change

With incorporation of the mitigation measures proposed in the EA/IS, and summarized in Appendix E, the proposed project would have less than significant effects to:

- Traffic and Transportation/Pedestrian and Bicycle Facilities
- Visual and Aesthetics
- Water Quality and Storm Water Runoff
- Geology and Soils
- Paleontological Resources
- Air Quality
- Natural Communities

- Water Quality and Storm Water Runoff
- Geology and Soils
- Paleontological Resources
- Air Quality
- Natural Communities
- Wetlands and Other Waters
- Plant Species
- Animal Species
- Threatened and Endangered Species
- Cumulative Considerations

09/09/2014

Sandra Rosas
Office Chief
North Region Environmental Services
California Department of Transportation

Date

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ADT	annual daily traffic
APE	Area of Potential Effect
ARB	Air Resources Board
AST	aboveground storage tank
BMP	best management practice
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CFLHD	Central Federal Lands Highway Division
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRHR	California Register of Historical Resources
CTP	California Transportation Plan
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBa	A-weighted decibels
DBH	diameter at breast height
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EJ	environmental justice
EO	Executive Order
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FPPA	Farmland Protection Policy Act
GHG	greenhouse gas emissions
H_2S	Hydrogen sulfide
HCAOG	Humboldt County Association of Governments
HUM	Humboldt
IS	Initial Study
KOP	key observation point
LEDPA	Least environmental damaging practicable alternative
Lmax	Maximum decibel level (in A-weighted decibels)
LOS	level of service
MP	milepost
mph	miles per hour
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile source air toxics
NAAQS	National ambient air quality standards
NAC	noise abatement criteria
NCRWCQB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NOAA	National Oceanic and Atmospheric Administration
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	northern spotted owl
O_3	ozone
PM_{10}	Particulate matter less than 10 microns in equivalent diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in equivalent diameter
PMP	Paleontological Mitigation Plan
RCEM	Roadway Construction Emission Model
RCR	Route Concept Report

RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SAAQS	State ambient air quality standards
SB	Senate Bill
SHPO	State Historic Preservation Office
SMAQMD	Sacramento Metropolitan Air Quality Management District
SR	State Route
SRNF	Six Rivers National Forest
SWMP	Statewide Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis System
TCR	Transportation Concept Report
The Department	California Department of Transportation
TMDL	Total maximum daily load
TPZ	Timber production zone
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
vph	vehicles per hour
WEAT	Worker environmental awareness trainer
WSRA	National Wild and Scenic Rivers Act
WUS	waters of the United States

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1.0 PURPOSE AND NEED

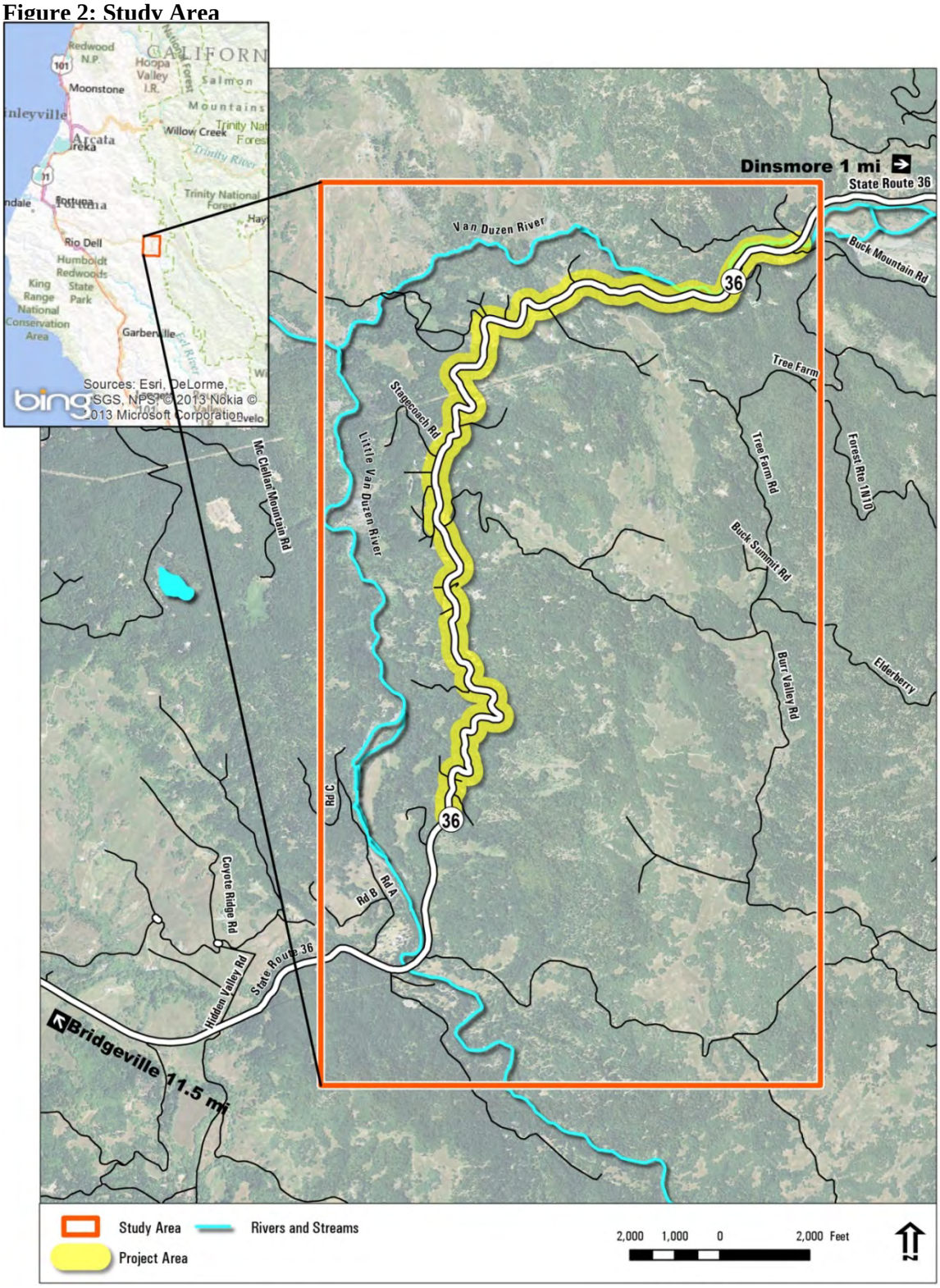
1.1 INTRODUCTION

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD) and the California Department of Transportation (Caltrans) in cooperation with the U.S. Forest Service, are evaluating roadway improvements to California State Route 36 (SR 36) from HUM Milepost (MP) 36.1 to HUM MP 40.5 in Humboldt County. The project is located in northern California in the vicinity of Bridgeville. The total length of the project is 4.4 miles. FHWA has prepared this joint environmental assessment (EA) and initial study (IS) to analyze the impacts of implementing this action consistent with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). FHWA is the lead agency for NEPA and Caltrans is the lead agency for CEQA. The project location is shown in Figure 1 and the study area is shown in Figure 2.

Figure 1: Project Location

Both Caltrans District 1 and District 2, in coordination with county-level governments, issued Transportation Concept Reports (TCRs) for SR 36. TCRs provide guidance regarding short-term improvement decisions through route analysis and long-term management strategy identification. The management strategies for the segment of SR 36 within the study area recommend rehabilitating or reconstructing narrow roadway sections to two 12-foot lanes, with shoulders and standard design speeds where possible. The TCR identified the project area as the highest priority for improvement between Red Bluff, California and Fortuna, California over the next 20 years (Caltrans 2012).

Figure 2: Study Area



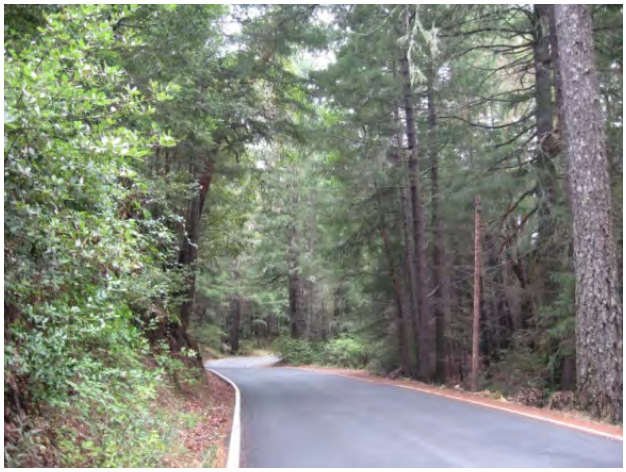
1.2 FEDERAL LANDS ACCESS PROGRAM

The proposed improvement of SR 36 is administered under the Federal Lands Access Program (FLAP), which provides funds for projects on "Federal Lands access transportation facilities." A Federal Lands access transportation facility is a public highway, road, bridge, trail, or transit system that is located on, is adjacent to, or provides access to federal lands for which title or maintenance responsibility is vested in a state, county, town, township, tribal, municipal, or local government. The Access Program supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators. SR 36 is owned and maintained by Caltrans and provides access to the nearby Six Rivers National Forest.

Funds are distributed under the Access Program by formula among states that have federal lands. These funds are allocated from the Highway Account of the Highway Trust Fund and provide funding for transportation planning, research, engineering, preventive maintenance, rehabilitation, restoration, construction, and reconstruction of federal lands access transportation facilities located on or adjacent to, or that provide access to, federal land.

The project segment of SR 36 was placed in the FLAP program in 2012 with matching funds coming from Caltrans (CA FLAP SR 36[13]; Caltrans Expenditure Authorization #43730, Project #0112000180). The estimated cost of the proposed improvement of SR 36 is approximately $30 to $36 million (in 2015 dollars). Funding for the proposed project is programmed for 2015. The actual start of construction will be dependent upon funding availability.

1.3 ROUTE DESCRIPTION



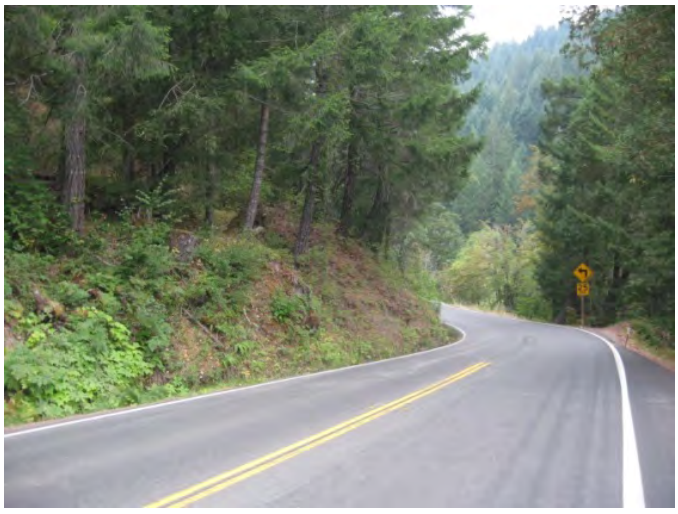
SR 36 is a significant regional, east-west route serving Humboldt County between the Pacific coast and Sacramento Valley. SR 36 originates at its junction with United States Highway 101 (US 101) just south of Fortuna, California, and proceeds east along the Van Duzen River Valley through Grizzly Creek State Park to end at its junction with Route 395 at Susanville, California, east of Interstate 5 (I-5).

SR 36 is one of only four routes between US 101 and I-5 that crosses the northern coast mountain ranges along the 375-mile stretch of US 101 between San Francisco and the California state border with Oregon. SR 36 is a two-lane facility with 0- to 4-foot shoulders and generally operates between 35 miles per hour (mph) and 55 mph, and can accommodate large commercial vehicles through most of its length. The section of SR 36 between Red Bluff and Fortuna is about 140 miles and requires approximately 3 hours and 50 minutes of travel time depending on traffic and roadway conditions. At 158 miles long, SR 36 is also the most direct route between Red Bluff and Eureka, requiring approximately 3 and a half hours of travel time. SR 299 to the north and SR 20 to the south are the closest alternate east-west routes between US 101 and I-5. SR 299 is located 30 miles north along US 101, and SR 20 is located 117 miles south along US 101. The existing roadway network is shown in **Error! Not a valid bookmark self-reference.**.

Within the study area, the terrain is steep and forested, with several rural residences scattered throughout. SR 36 generally serves small, sparsely populated communities, such as Carlotta, Bridgeville, Dinsmore, Mad River, and Forest Glen. The highway also supports logging, agricultural, and recreational traffic, and serves as access to cattle and sheep ranches in eastern Humboldt County. Bicycles are allowed on the entire length of SR 36; however, the route has no dedicated bicycle facilities.

SR 36 is a conventional two-lane highway, which is an undivided roadway with one lane in each direction, for the majority of its route. SR 36 is designated as a Class II highway within the study area and is classified as a rural minor arterial in Humboldt County. Minor arterials in rural areas are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement (FHWA 2013a). However, according to the *Highway Capacity Manual* (HCM 2010), Class II highways are highways where motorists do not necessarily expect to travel at high speeds. Class II highways are two-lane highways that provide access to Class I facilities, serve as scenic or recreational routes, or pass through rugged terrain (where high-speed operation would be impossible). The existing posted speed limit is 55 mph for the majority of the route, with reductions in the posted speed limit in a few developed communities.

The most current data available from Caltrans indicates the average annual daily traffic on SR 36 in the study area is 1,070 (Caltrans 2013). On a two-lane undivided highway, traffic flow is affected by a number of factors, including geometric conditions (curvatures, lane widths, shoulder widths, etc.), sight distance, and grade. Travel speeds decrease and time spent following other vehicles rises as volumes increase and traffic in the opposing direction reduces the opportunities to pass. The highway's current level of service (LOS), which is a qualitative measure describing operational conditions within a traffic stream, is rated LOS B during the peak hour assuming existing (2013) traffic volumes. Six LOS are defined for each type of facility analyzed. Letters designate each level, from "A" to "F", with LOS "A" representing the best operating conditions and LOS "F" the worst.



1.4 PURPOSE OF THE PROPOSED PROJECT

The purpose of this project is to enhance traffic safety while improving mobility for vehicular travel along California State Route (SR) 36 in a cost effective manner. The goal of enhancing traffic safety is aimed at reducing the likelihood and severity of a vehicular crash. The mobility component of the

project purpose seeks to improve the efficiency of the vehicular movement of people and goods on SR 36.

1.5 NEED FOR THE PROPOSED PROJECT

The needs identified below describe the problems or deficiencies this project was specifically designed to address.

1.5.1 Improve Roadway Geometry and Provide System Continuity

The geometric aspects of a roadway include features that are visible to the driver and affect driving performance. Elements of roadway geometry include the width of the driving lanes and shoulders and the horizontal and vertical curvature of the road. System continuity refers to the consistency of roadway characteristics along the length of the route. The majority of SR 36 has been improved to a more consistent design standard (improved horizontal and vertical geometry, sight distance, width, etc.), with design exceptions granted based on the context of the terrain and environment. The study area's 4.4-mile segment of SR 36 does not meet design standards and is not consistent with adjacent segments of the route.

Based on the American Association of State Highway and Transportation Officials (AASHTO) 2011 manual, *A Policy on Geometric Design of Highways and Streets*, minimum roadway width standards for this route based on projected traffic volumes include 11-foot travel lanes and 2-foot paved shoulders for a total paved width of 24 feet (AASHTO 2011). Adjacent segments of SR 36 have two 12-foot travel lanes with 2 to 4-foot paved shoulders. The existing roadway within the study area has narrow travel lanes that vary in width and little to no shoulders. Although traffic currently travels in both directions on the road, most sections of roadway lack a center stipe and are barely wider than one traffic lane.

The sharp horizontal and vertical curves on SR 36 within the study area are also inconsistent with adjacent segments of the highway and do not meet minimum standards in the AASHTO 2011 manual, *A Policy on Geometric Design of Highways and Streets.* The maximum allowable grade on a rural arterial roadway with a 55 mph posted speed limit in mountainous terrain is 6 percent (AASHTO 2011). Within the study area, the current route exceeds the maximum grade in several locations reaching grades of up to 18 percent. There are 127 horizontal curves along the project segment of SR 36, most of which do not meet criteria for a design speed of 55 mph or an operating speed of 30.

The project is needed to improve the following existing roadway geometry and system continuity conditions:

- Narrow roadway with no shoulder or centerline stripe
- Numerous tight curves

- Steep grades
- Limited sight distance
- Roadway configuration not consistent with adjacent segments of SR 36

1.5.2 Improve Mobility

Mountainous terrain in the study area contributes to slower vehicle speeds compared with other segments of SR 36. The curvilinear alignment in this segment limits truck length and freight capacity, impacting truck operator revenue and limiting the viability of the route for efficient transport of good and services.

Within the study area, the high number of sharp curves and steep grades substantially reduce the operating speed; with advisory speed limits varying from 15 to 25 mph. Research has found that heavy trucks can maintain a speed of 25 mph at sustained grades below 6 percent (AASHTO 2011). At grades of 6 percent or above, their operating speeds drop below 25 mph. Currently, 2.1 miles of SR 36 within the project area is at 6 percent or steeper. Curves are another factor impacting the operating speeds along the route; both the number of curves (127) and the speed at which vehicles can maneuver the curves (as low as 15 mph in several locations).

Heavy trucks often travel through the study area and are unable to operate at the advisory speeds due to the steep grades and sharp curves. As a result, there is a substantial speed difference between these vehicles and passenger vehicles. This speed difference further affects traffic operations and travel times by causing passenger vehicles to form lines behind these slower vehicles.

The reliability of travel times on SR 36 are also affected by emergency roadway closures. Temporary closures along this segment of SR 36 are a relatively common occurrence due to flooding, motor vehicle accidents, landslides, storm damage, and heavy trucks becoming stuck when they are unable to navigate a tight curve. For example, over the Labor Day weekend in 2008, a 110-foot long truck became stuck on a curve in this segment, resulting in a road closure of two days. SR 299, approximately 30 miles north, and SR 20, approximately 100 miles south, do not offer convenient alternate routes for the traveling public during these closures.

The project is needed to improve the following existing mobility conditions:

- Limited connectivity exists between US Highway 101 and I-5 in the north coast area
- Roadway geometry limits the viability of SR 36 for efficient transport of goods and services.

- Roadway geometry results in slow travel speeds.
- Limited passing opportunities and summer use by recreational vehicles (RVs) cause lines of vehicles to form (queuing).

1.5.3 Address Geologic Hazards

Maintenance and stability issues are ongoing due to the roadway's location in an active landslide area. Landslides have had considerable impacts on this segment of the highway, and roadway damage from landslides has required ongoing maintenance. These events have narrowed the available roadway bench through much of the study area; therefore, the roadway surface has been repaved at a narrower width as a result.

1.5.4 Improve Safety

Based on data from the Caltrans accident database, the average collision rate (from June 2008 through June 2011) within the project limits is 29 percent higher than the statewide average for similar facilities. A total of 12 collisions were reported at separate locations from June 2008 through June 2011 (Caltrans 2013). These collisions resulted in seven injuries and no fatalities. No concentrated collision areas were identified within the project limits. The primary reasons cited for the collisions include unsafe speeds and improper turns. Nearly all of the collisions occurred during snowy/icy conditions and/or outside of daylight hours. Five of the collisions involved single vehicles that struck fixed objects, and five vehicles overturned.

As mentioned above, SR 36 supports logging, agricultural, and recreational traffic, and serves as access to cattle and sheep ranches in eastern Humboldt County. Heavy trucks and recreational vehicles have difficulty maintaining speed on sustained steep grades. When a vehicle's speed drops below 10 mph relative to the speeds of other vehicles, the probability of an accident occurring sharply increases (AASHTO 2011).

2.0 ALTERNATIVES

This section describes the proposed action and the project alternatives that were developed to meet the project purpose and need while avoiding or minimizing environmental impacts. The alternatives evaluated in this EA/IS include the No Build Alternative and one Build Alternative (Proposed Action).

2.1 PROPOSED ACTION

SR 36 is a conventional two-lane highway for the majority of the route and is classified as a rural minor arterial within the study area. As mentioned in in Chapter 1, the purpose of the project is to enhance traffic safety while improving mobility for vehicular travel. To attain this goal, the project would realign and widen the existing highway. In addition, the project would include new signing and pavement delineation, and acquisition of new right-of-way.

2.2 ALTERNATIVES

One No Build Alternative and one Build Alternative are analyzed in this EA/IS. The National Environmental Policy Act requires agencies to analyze the consequences of taking no action, which is represented by the No Build Alternative. In addition, the No Build Alternative provides a baseline for comparing the consequences of the Build Alternative.

2.2.1 No Build Alternative

Under the No Build Alternative, the proposed project would not occur; it represents a continuation of existing conditions and activities without a particular planning context. The following existing conditions would remain:

- Narrow travel lanes of varying widths
- Roadway widths barely wider than one traffic lane in some sections
- Lack of center stripe in some sections
- Sharp horizontal and vertical curves
- Little to no shoulders
- Advisory speed limits vary from 15 to 25 mph
- Existing alignment grades reach 18 percent
- Regular maintenance activities would continue, as well as maintenance on an as-needed basis to address frequent landslides and other deficiencies.

2.2.2 Build Alternative

The Build Alternative would generally follow the current SR 36 alignment throughout the length of the study area. Roadway improvements would be implemented from approximately HUM MP 36.1 to HUM MP 40.5 resulting in a roadway length of 3.9 miles, which is 0.5 miles shorter than the existing alignment. However, the project would add a total of 1.9 acres of impervious surface due to widening the roadway. The alternative would vary from the existing alignment where tight curves currently exist. As shown in

Figure 3, these locations are primarily concentrated near the southern end of the study area and near the confluence of the Little Van Duzen River and the Van Duzen River. These changes would eliminate or reduce the severity of the tightest curves in the study area. The route would be designed to generally operate around 30 mph. This speed is more consistent with adjacent segments of the route. The majority of SR 36 is currently posted at 55 mph. However, design exceptions would be issued for this project because of the impracticality to construct a higher speed facility in steep mountainous terrain where the underlying geology is unstable and where adjacent segments of roadway operate at lower speeds.

The improvements proposed under the Build Alternative would realign and widen the existing highway to attain two 12-foot-wide travel lanes and 4-foot paved shoulders between HUM MP 36.1 and HUM MP 40.5. FHWA is evaluating 4-foot shoulders to comply with Caltrans standards. Construction of 2-foot shoulders may be needed to control cost; however, the analysis in this EA/IS assumes construction of 4-foot shoulders for the length of the project.

Figure 4 shows a potential "typical" cross-section of the roadway. This proposed typical section also reveals paved ditches, which may be used as a drainage improvement in some locations. Also shown in Figure 5 is a potential graded ditch scenario. Roadway cross-sections would vary within the study area based on grade and other topographical factors.

The Build Alternative would flatten the existing steep roadway grades on SR 36 within the study area. The maximum allowable grade of 8 percent (AASHTO 2011) is not attainable given the severe terrain within the study area. A grade of up to 10 percent would be required in some areas. Even though a 10 percent grade exceeds the 8 percent, it would be an improvement over the existing alignment grades, which are up to 18 percent.

The alternative would also include new signing and pavement delineation, as well as the construction of slope stabilization measures. The alternative would likely require substantial cut and fill, with earth-stabilizing structures at various locations to support steep highway embankments.

The Build Alternative may also include creation of a wetland mitigation site east of the project. This seven-acre potential mitigation site is within the Six Rivers National Forest adjacent to the Van Duzen River, 1.7 miles southeast of Dinsmore. The site may be used to mitigate potential impacts to wetlands in the project area, which would involve excavating fill and establishing new wetland habitat with groundwater connectivity to the Van Duzen River. If wetland mitigation does occur at this location, the site would be excavated to approximately 18 inches above groundwater. The approximate depth to groundwater at the time piezometers were installed on site was 12 feet. Therefore, it is anticipated that the site would be excavated between 10 and 14 feet, depending on depth to groundwater that will continue to be monitored. After site excavation and grading, the site would then be planted with wetland vegetation and monitored to establish wetland success.

2.2.3 Construction

Construction of the proposed realignment and widening of the existing highway within the project limits is expected to cause disruption to traffic depending upon the time of travel. During construction, the proposed road closure times are Monday through Friday, 8 am to noon and 1 pm to 5 pm. If night construction becomes necessary, closures may also be possible between 9 pm and 6 am. During periods when these temporary closures are not in place, one lane of traffic would remain open during

construction with a maximum 30-minute delay. Approval by the District 1 Lane Closure Review Committee will be required for any full or partial highway closures of SR 36 which exceed 30 minutes of total travel delay time to the traveling public. Consideration of other potential delays and closures in the area would be considered prior to approval to ensure no major disruptions to regional traffic would occur. All delays and closures would be relayed to the public, relevant local agencies, and emergency service providers. Coordination with the local school districts would also occur during project development and construction to accommodate passage of school buses as feasible during the road closure periods.

During weekday closures, parallel and connecting routes can serve as an alternative for travelers. However, the two closest State Highway alternatives are SR 299 to the north and SR 20 to the south, which are both many miles away and would require lengthy detours. SR 3 could also serve as a north-south connector between SR 36 and SR 299.

A potential construction staging area has been identified at the south end of the project.
The limits of the proposed project, including the potential staging area and potential mitigation site, are shown in Figure 6.

2.2.4 Comparison of Alternatives

Table 1 depicts the criteria used for evaluating the two alternatives analyzed in this document. Standards from the 2011 AASHTO manual, *A Policy on Geometric Design of Highways and Streets* were used to compare the alternatives.

Table 1: Comparison of Alternatives

Criteria	No Build Alternative	Build Alternative
Length (in Miles)	4.4	3.9
Total Number of Curves	127	37
Operates at 30 mph Curve Speed or Higher	52 (41 %)	32 (86 %)
Maximum Grade	18 %	10 %
Length of Grade 6 percent or Steeper (in Miles)	2.1	2.0

Figure 3: Build Alternative

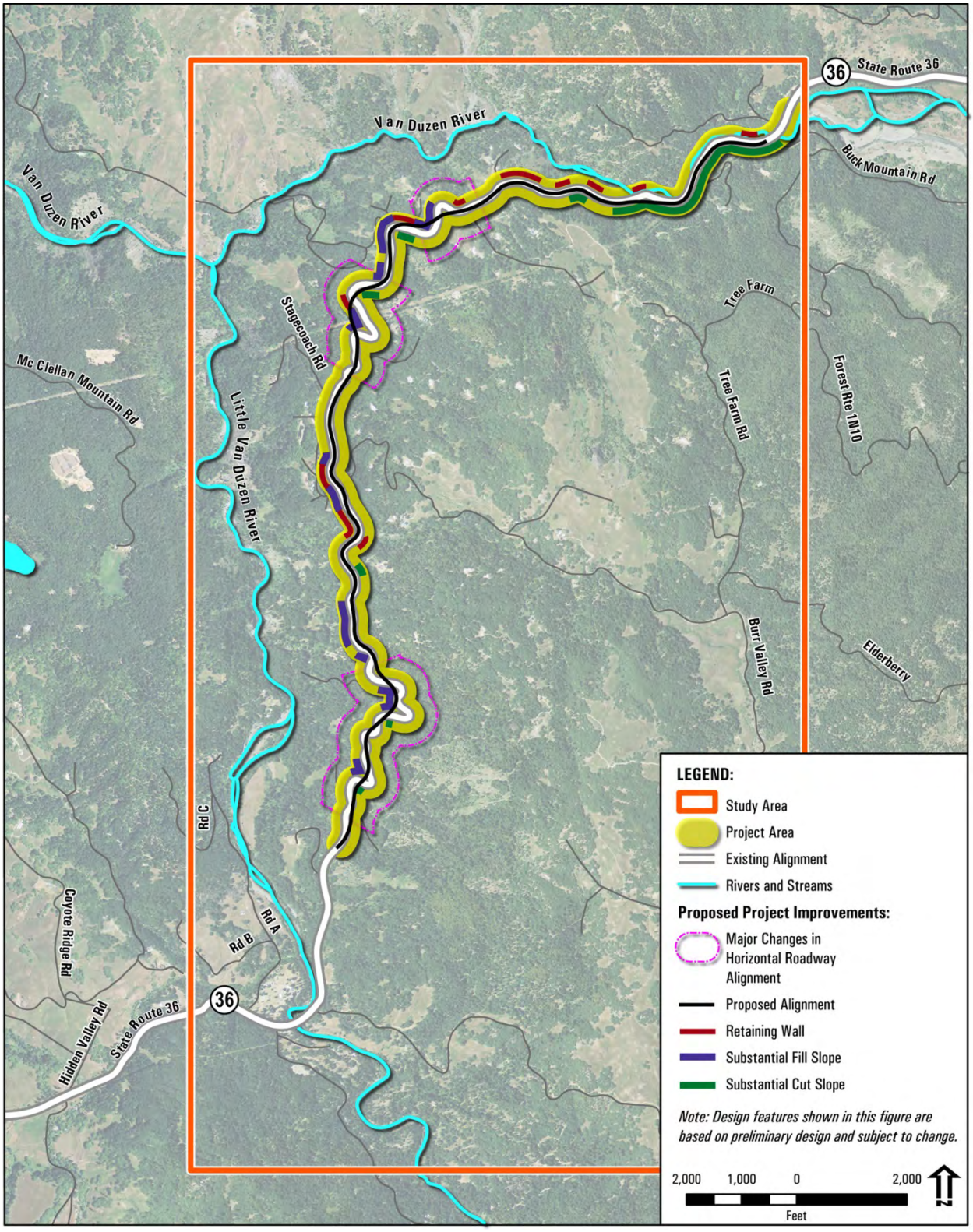


Figure 4: Proposed Typical Section

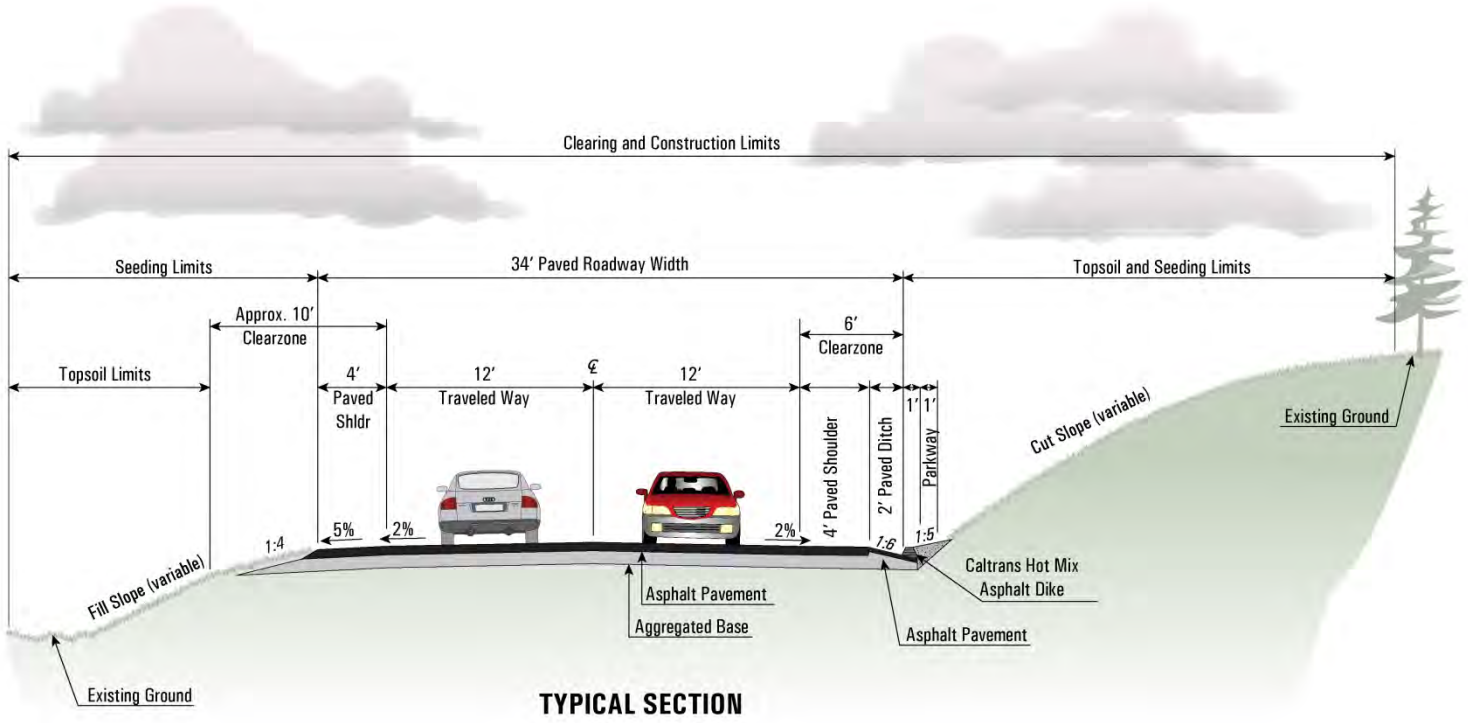


Figure 5: Potential Graded Ditch Scenario

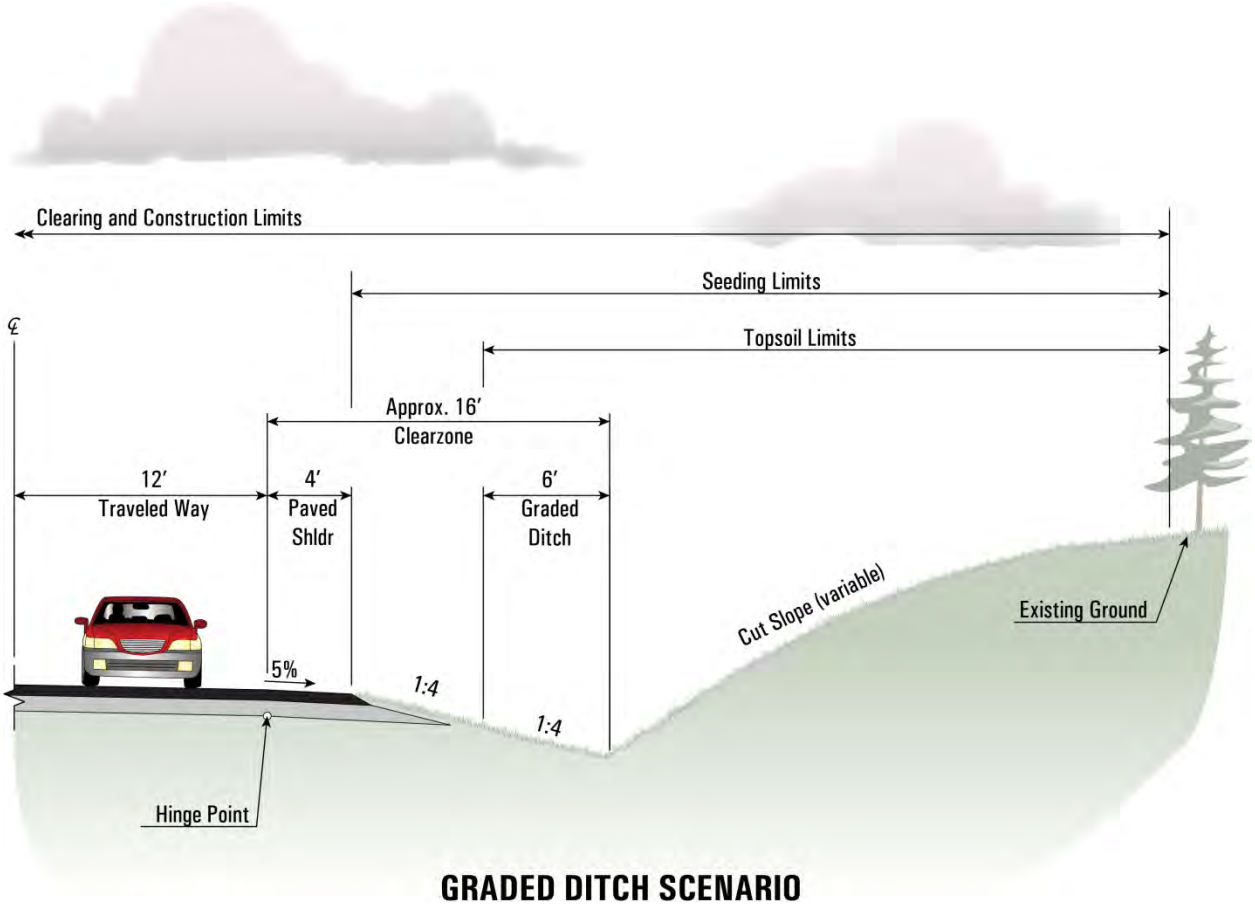
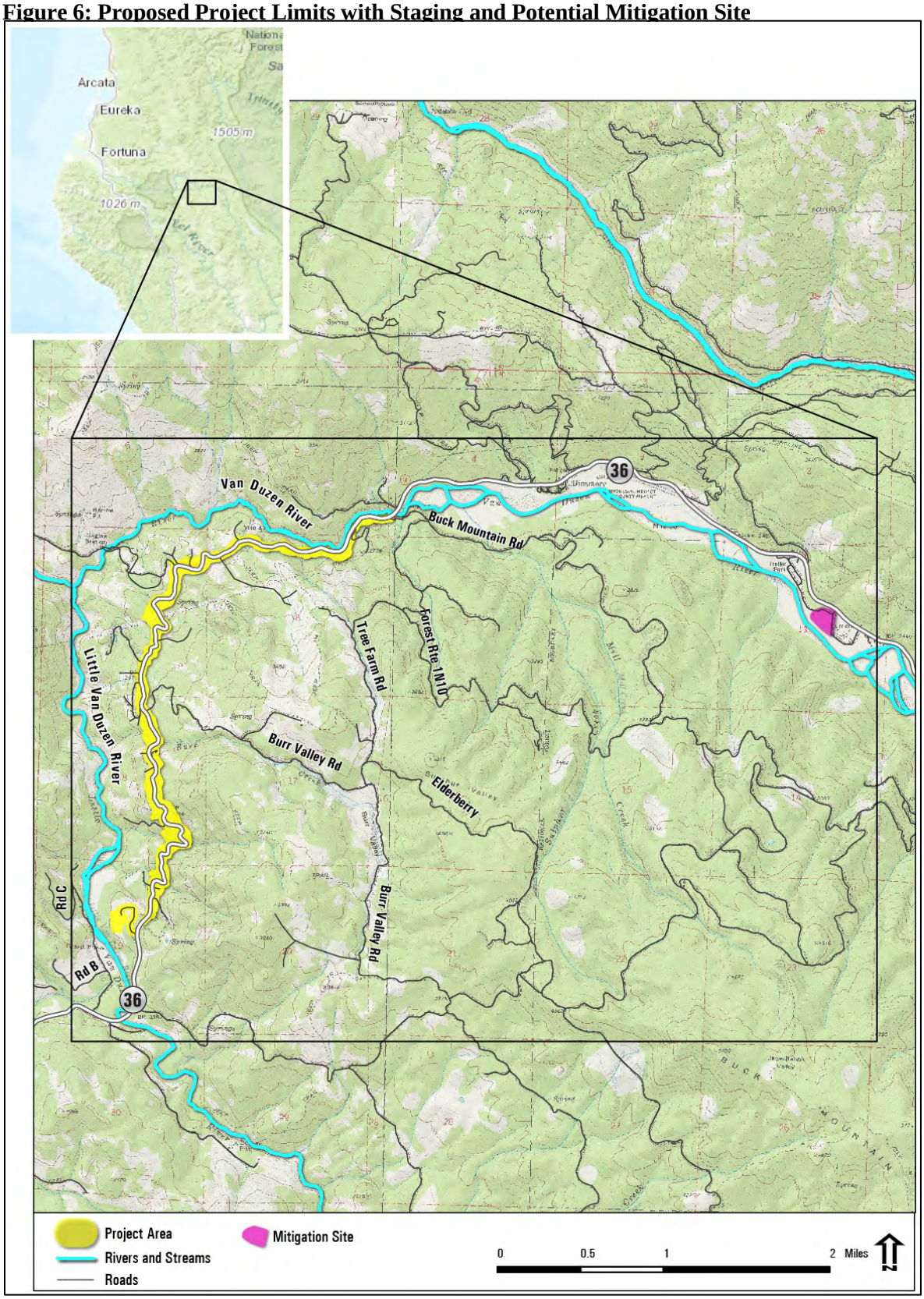


Figure 6: Proposed Project Limits with Staging and Potential Mitigation Site



2.2.5 Preferred Alternative

After comparing and weighing the benefits and impacts of the Build Alternative and No Build Alternative, as identified throughout Chapter 3 of this EA/IS, FHWA has identified the Build Alternative as the Preferred Alternative, subject to public review. Final selection of a preferred alternative will occur subsequent to the public review and comment period.

After the public circulation period, all comments will be considered, and FHWA will select a preferred alternative and make the final determination of the project's effect on the environment. If it is determined that the action does not significantly impact the environment, a Finding of No Significant Impact (FONSI) in accordance with NEPA will be issued.

2.2.6 Alternatives Considered but Eliminated from Further Discussion

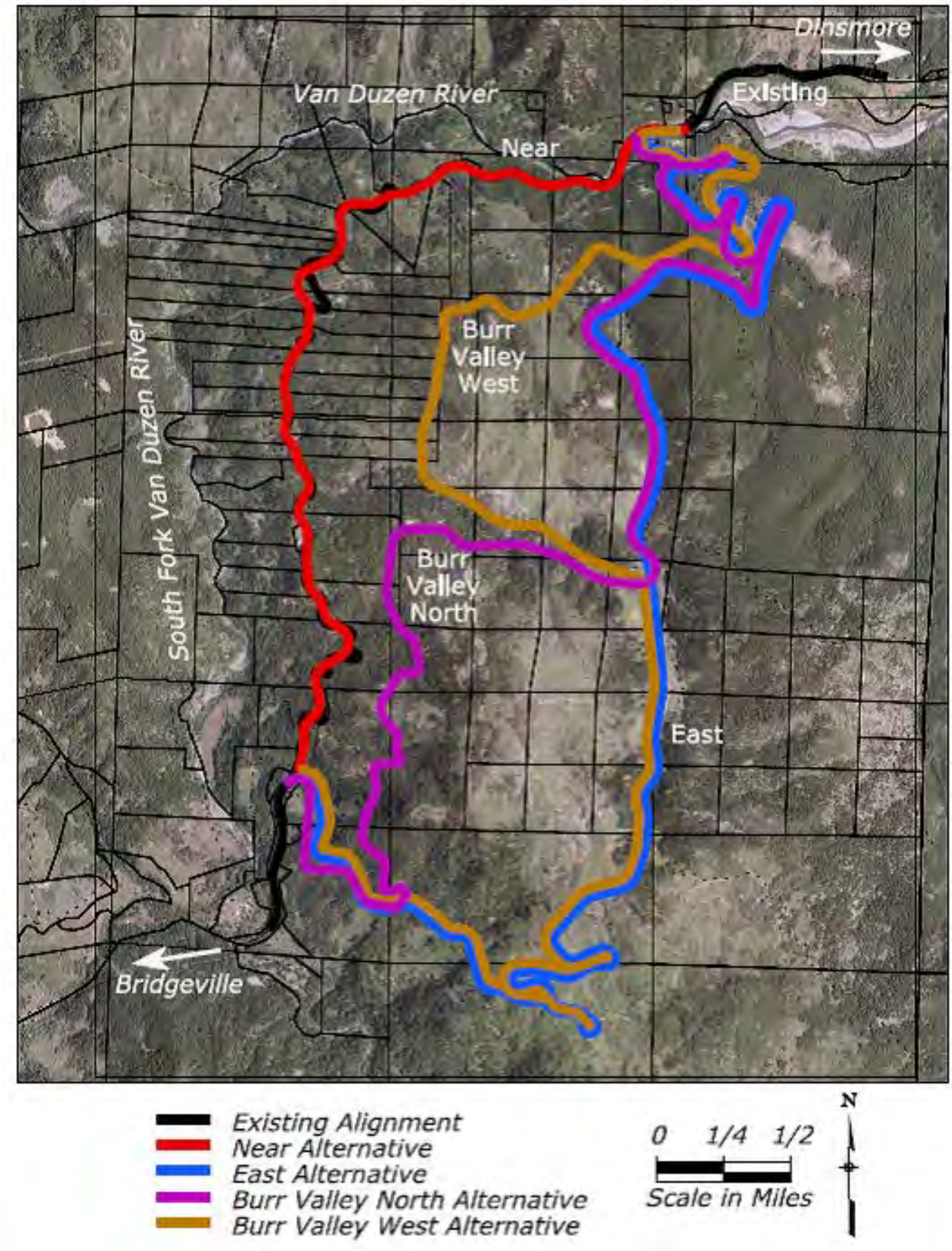
Three additional build alternatives were considered for development as documented in the *Summary of Alternative Alignments Memorandum* (FHWA 2013b). These alternatives would all diverge from the existing SR 36 alignment between HUM MP 36.0 and HUM MP 40.5 and involve construction of the highway on a new alignment. The new alignments would follow existing local roads in some areas and traverse undisturbed land in other areas. Criteria considered in the screening of alternatives include roadway geometry, geotechnical considerations, delay to the traveling public during construction, private property impacts, and construction cost.

Private property impacts and geotechnical considerations were not distinguishing factors between the potential off-alignment build alternatives. Each of the alignments would bisect numerous private parcels. Additionally, all of the alternatives considered had substantial geotechnical challenges. The primary benefit of the alternatives using alternate alignments is they would minimize temporary travel delay to the public during construction because traffic could use the existing roadway while the new roadway is being constructed. However, these alternatives were eliminated from further analysis for reasons described below. These alternatives are shown in Figure 7. The "Near Alternative" was selected as the Build Alternative (described above in Section 2.2.2).

East Alignment

The East Alignment would begin at HUM MP 36.0 and end at HUM MP 40.5, but would diverge from SR 36 at the project boundaries. From the south, it would travel east over the adjacent mountain approximately 1.0 to 1.3 miles east of the existing SR 36 in the general vicinity of the Burr Valley Road and Tree Farm Road.

Figure 7: Alternatives Considered but Eliminated from Further Discussion



This alignment would not offer enough improvement over the existing alignment based on curve radii and length. Under the East Alignment, a total of 67 curves would remain compared to 37 for the Build Alternative, and only 40 percent of the curves would operate around 30 mph compared to 86 percent for the Build Alternative. The East Alignment would be 8.4 miles long, which is 4.5 miles longer than the Build Alternative. This alignment also would have a 12 percent maximum grade, with 4.6 miles at a 6 percent grade or steeper, which is not as favorable as the Build Alternative. In addition, the East Alignment would cost two times that of the Build Alternative. For these reasons, the East Alignment was dismissed from further evaluation.

Burr Valley North Alignment

The Burr Valley North Alignment would begin at HUM MP 36.0 and end at HUM MP 40.5. This alignment would diverge from SR 36 at both project boundaries. From the south, the alignment would travel north through Burr Valley approximately 0.3 mile east of the existing SR 36 alignment. In the vicinity of Burr Valley Road, it would turn east, traverse the mountain, and then follow the same route as the East Alignment for 3.9 miles to the northern project boundary.

This alignment would not offer enough improvement over the existing alignment based on curve radii and length. Under the Burr Valley North Alignment, a total of 57 curves would remain compared to 37 for the Build Alternative, and only 37 percent of the curves would operate around 30 mph compared to 86 percent for the Build Alternative. The Burr Valley North Alignment would be 7.0 miles long, which is 3.1 miles longer than the Build Alternative. This alignment also would have a 12 percent maximum grade, with 3.4 miles at a 6 percent grade or steeper, which is not as favorable as the Build Alternative. In addition, the Burr Valley North Alignment would cost two times that of the Build Alternative. For these reasons, the Burr Valley North Alignment was dismissed from further evaluation.

Burr Valley West Alignment

The Burr Valley West Alignment would begin at HUM MP 36.0 and end at HUM MP 40.5. This alignment would follow the East alignment for 4.5 miles until crossing Burr Creek, where it would then parallel the creek to approximately 0.5 mile east of the existing SR 36 alignment. The Burr Valley West Alignment would continue north and then northeast until connecting into the existing alignment at the northern project limits.

This alignment would not offer enough improvement over the existing alignment based on curve radii and length. Under the Burr Valley West Alignment, a total of 56 curves would remain compared to 37 for the Build Alternative, and only 39 percent of the curves would operate around 30 mph compared to 86 percent for the Build Alternative. The Burr Valley West Alignment would be 8.0 miles long, which is 4.1 miles longer than the Build Alternative. This alignment also would have a 12 percent maximum grade, with 4.2 miles at a 6 percent grade or steeper, which is not as favorable as the Build Alternative. In addition, the Burr Valley West Alignment would cost four times that of the Build Alternative. For these reasons, the Burr Valley West Alignment was dismissed from further evaluation.

2.3 PERMITS AND APPROVALS NEEDED

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

Table 2: Necessary Permits and Approvals

Agency	Permit/Approval	Status
United States Fish and Wildlife Service; National Marine Fisheries Service	Section 7 Consultation for Threatened and Endangered Species	Non-jeopardy Biological Opinion issued on May 21, 2014. Letter of Concurrence from National Marine Fisheries Service received June 27, 2014.
United States Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the United States	Section 404 permit application will be submitted after Environmental Document.
California Department of Fish and Wildlife	Section 1602 Lake and Streambed Alteration Agreement	Notification of a Lake or Streambed Alteration may be needed. If necessary, notification will be submitted after Environmental Document.
California Department of Transportation	Encroachment Permit for construction in Caltrans right-of-way	Permit will be obtained immediately prior to construction.
California State Historic Preservation Office	Section 106 Consultation for proposed undertaking	Concurrence on eligibility and finding of effect received on April 29, 2014.
North Coast Regional Water Quality Control Board	Section 401 Water Quality Certification Section 402 National Pollutant Discharge Elimination System (NPDES) Construction General Permit/Stormwater Pollution Prevention Plan (SWPP)	Section 401 certification will be submitted after Environmental Document. Section 402 permit will be obtained after Environmental Document. Construction General Permit application will be submitted after Environmental Document.
California Natural Resources Agency	Notification of conversion of land to transportation use directed to the Secretary of Resources for the State of California and the Chairman of the Humboldt County Board of Supervisors	Section 51151(b) notification sent at time of EA/IS public release.

3.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

This chapter describes the affected environment, or the existing social, economic, and environmental setting for the project, and the effects that the No Build Alternative and the Preferred Alternative (Build Alternative) would have on that environment. Avoidance, minimization, and/or mitigation measures are also identified for impacts associated with the Preferred Alternative.

Consideration and analysis was given to the following resources and found to either not occur in the project area or would not be adversely affected by the project.

Coastal Zone: The Coastal Zone Management Act of 1972 (CZMA) is the primary federal law enacted to preserve and protect coastal resources. This project is outside of California's coastal zone; therefore CZMA consistency will not apply.

Cultural Resources

Cultural resources surveys, including both architectural and archaeological resources, were conducted for the project Area of Potential Effect (APE). The APE encompasses all areas of potential direct and indirect impacts proposed for the project, including a construction staging area and a proposed wetlands mitigation site along Van Duzen River. The archaeological and architectural APEs are identical and cover approximately 139 acres.

Survey methodology for cultural resources involved record searches, background research, field surveys, and consultation and coordination with Native American groups and individuals and local historical societies and museums. Record searches revealed that no previously recorded sites occur in the APE. Field surveys resulted in the recording of two newly recorded historic properties by JRP Historical Architects within the APE: APN 210192007 and APN 210191006 (JRP 2013). These sites were evaluated for significance and found to not meet the eligibility criteria for listing in the National Register of Historic Places (NRHP) of the California Register of Historical Resources (CRHR), and were therefore determined to be ***not eligible*** by FHWA. Field survey conducted by Far Western resulted in a single newly identified prehistoric site (CA-HUM-1157) within the APE (Far Western 2014). The site's boundaries were unable to be defined due to heavy surface vegetation. To assess significance of the newly recorded site, follow-up test excavations and evaluation was conducted by Far Western. Testing revealed that although the site contained some subsurface cultural material, the assemblage was sparse and limited. No features were encountered. Thus, the site does not meet any of the criteria of significance for either the NRHP or the CRHR, and was therefore determined to be ***not eligible***.

FHWA initially contacted the California Native American Heritage Commission (NAHC) to request a review of its Sacred Lands file and to obtain a list of individuals or tribes that the Commission recommends should be contacted regarding information or concerns related to the project. The following individuals and/or tribes were provided information about the project: Bear River Band of Rohnerville Rancheria, Inter Tribal Sinkyone Wilderness Council, Redding Rancheria, Round Valley Reservation/Covelo Indian Community, Fred "Coyote" Downey, Wintu Tribe of Northern California, Nor-Rel-Muk Nation, Eel River Nation of Sovereign Wailaki, and Wintu Education and Cultural Council. FHWA has received responses from three individuals. A member of the Wintu Education & Cultural Council of

Northern California requested the opportunity to comment on the project, and the Tribal Historic Preservation Officer of Bear River Band of Rohnerville Rancheria requested that copies of the archaeological studies be provided. A member of the Wintu Tribe of Northern California did not request additional information, but appeared interested in the project. A copy of the Historic Property Survey Report and its attachments were provided to all three of these individuals for review and comment. One written response was received on April 28, 2014 from the Bear River Band of Rohnerville Rancheria acknowledging review of the report and that they had no concerns. No written comment was received from the Wintu Education & Cultural Council; however, a comment was shared with FHWA regarding concerns for other tribes and a lack of affiliation with the project area.

There are no eligible historic properties within the APE. FHWA has therefore determined that the undertaking would result in No Historic Properties Affected. Eligibility and effect determinations were submitted to the CA State Historic Preservation Office (SHPO), with concurrence received in a letter dated April 29, 2014. A summary of consultation and coordination efforts related to cultural resources can be found in Chapter 3, *Comments and Coordination*.

Section 4(f) Properties: Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." There are no significant publicly owned parks, recreation lands, wildlife and waterfowl refuges, or NRHP-eligible or listed historic properties within the project area. The only publicly-owned land outside of Caltrans right-of-way that has the potential to be affected by the project is a potential mitigation site approximately four miles east of the primary project area. This currently vacant land is U.S. Forest Service-owned land managed by Six Rivers National Forest and is not managed for any park or recreation purposes. Therefore, there are no Section 4(f) properties that have the potential to be impacted.

Wilderness: The Wilderness Act of 1964 affords special protection to lands established as designated wilderness. There are no such lands in the project area and as such is not applicable to this project.

3.1 LAND USE

3.1.1 Regulatory Setting

This section analyzes the consistency of the proposed project with existing and future planned land uses and regional and local level planning policies. Direct land use impacts include the permanent and temporary conversion of land to transportation. Indirect impacts include changes in growth and development potential.

The Council on Environmental Quality (CEQ) regulations, which implement NEPA, require the evaluation of the potential environmental consequences of all proposed federal activities and programs. This includes examining indirect impacts that may occur in areas beyond the immediate influence of the proposed action and at some time in the future. The CEQ regulations, 40 CFR 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

3.1.2 Affected Environment

Information in this section is summarized from a Community Impact Assessment that was prepared for the project by Jacobs Engineering in March 2013.

Existing and Future Land Use

The project area is characterized by dense forests, steep terrain, and the small, rural and unincorporated towns of Bridgeville and Dinsmore in Humboldt County, California. The project is adjacent to the Van Duzen and the Little Van Duzen rivers. The types of land uses along the corridor, as well as applicable local and regional land use policies are described below.

Adopted Land Use and Transportation Plans

The policies and goals of local and regional level land use plans and planning efforts relevant to the project are discussed below.

Humboldt County General Plan

The Humboldt County *General Plan* guides county land use, transportation, housing, and parks and open space planning and development within Humboldt County (Humboldt County 2012a). The Humboldt County Planning Commission approved an updated draft of the 1984 *General Plan* in March of 2012. However, this updated plan has not been adopted as of November 2013.

In the updated *General Plan*, the term "development" includes the construction of roads, as well as other infrastructure (Humboldt County 2012a).[1] The *General Plan* seeks to balance growth and development with the conservation of agricultural and timberlands by focusing future growth and development in existing urban areas, Community Planning Areas, and rural community centers. The *General Plan* also seeks to maintain public roads to support a safe, efficient, and convenient circulation system supporting both vehicular traffic and the transportation of log and forest products to market. In addition, the General Plan seeks to maintain roads to conform with existing land uses and planned growth (Humboldt County 2012a).

Humboldt County Association of Governments Regional Transportation Plan

Under Assembly Bill 69 (AB 69, Chapter 1253, Statutes 1972) and Senate Bill 375 (SB 375, Chapter 728, Statutes of 2008), California state law requires the preparation of a Regional Transportation Plan (RTP) to address transportation issues and assist local and state decision-makers in shaping state transportation infrastructure. The designated Regional Transportation Planning Agency (RTPA) within Humboldt County is the Humboldt County Association of Governments (HCAOG) (HCAOG 2013)

The 2013 HCAOG 20-Year RTP is a long-range planning document that provides regional transportation goals, policies, objectives, and strategies for Humboldt County (HCAOG 2013). The HCAOG 20-Year RTP

[1] As defined in California Government Code Section 65927:

Development means on land; or in or under water; the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the intensity of use of land including but not limited to subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land except where the division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity or use of water, or of access to thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, of municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practices Act of 1973 (commencing with Section 4511 of the Public Resources Code). As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line. "Development" does not mean a "change of organization," as defined in Section 56021, or the "reorganization," as defined in Section 56073 (Humboldt County 2012a).

overall goal is "…to have a comprehensive, coordinated and balanced multi-modal transportation system, so that people in the region can travel and move goods safely and efficiently by the modes that best suit the individual or business/industry, and society at large" (HCAOG 2013). The plan outlines six objectives and planning priorities: balanced mode share, economic vitality, efficient and viable transportation systems, environmental stewardship, equitable and sustainable use of resources, and safety (HCAOG 2013).

Caltrans Transportation Concept Reports

Caltrans, in coordination with County level governments, issues Transportation Concept Reports (TCRs) for state routes and corridors. TCRs provide guidance regarding short-term improvement decisions through route analysis, and identification of long-term management strategies. Both Caltrans District 1 and District 2 issued TCRs for SR 36. Caltrans District 1 completed a Route Concept Report (RCR), a precursor to TCRs, in 1998 and the District is in the process of updating the report. District 2 completed a TCR in 2012, which was updated in coordination with District 1. Once completed, the District 1 TCR will be consistent with the 2012 District 2 TCR.

Caltrans District 1 RCR for SR 36 recommends five route management strategies: Rehabilitation Strategy, Safety and Operational Improvement Strategy, Goods Movement Strategy, Non-motorized Facilities Strategy and Corridor Preservation Strategy. However, only three of these strategies apply to the proposed project. Under the Rehabilitation Strategy, the District 1 RCR recommends that SR 36 be maintained and rehabilitated as necessary from Route 101 to Bridgeville, with the remainder maintained only. Portions of the Route designated as "maintain only" may be rehabilitated on an exception basis when maintenance of the route would be less cost-effective than rehabilitation. Under the Safety and Operational Improvement Strategy, operational improvement projects will be considered as necessary and should be constructed to appropriate state and federal standards. Under the Good Movement Strategy, the improvement in the movement of goods includes an emphasis on route safety and reliability.

The Caltrans District 2 TCR for SR 36 provides recommended management strategies to meet future projected traffic volumes (Caltrans 2012). To identify management strategies, from increases in projected traffic volumes, Caltrans assigns every route with a level of service (LOS) designation. Caltrans defines the LOS as a qualitative measure used to describe the operating conditions of the route, such as design speed, travel time, maneuver space, traffic interruptions, comfort, and convenience. Six LOSs are defined for each type of facility analyzed. Letters designate each level, from "A" to "F," with LOS "A" representing the best operating conditions and LOS "F" the worst. Caltrans' projected traffic volumes assume the same LOS within the study area, LOS B, from now until 2030 (Caltrans 2012).

The District 2 TCR management strategies for the segment of SR 36 within the study area recommends rehabilitating or reconstructing narrow roadway sections to two 12-foot lanes with shoulders and standard design speeds where possible. The District 2 TCR also identified the project area as the highest priority for improvement between Red Bluff, California and Fortuna, California over the next 20 years (Caltrans 2012).

Six Rivers National Forest Land and Resource Management Plan

The 1995 Six Rivers National Forest *Land and Resource Management Plan* is the guiding land and resource management plan for the SRNF (USFS 1995). The plan outlines forest resource management goals, objectives, standards, and requirements for resource monitoring and evaluation. While the plan

primarily focuses on natural and recreational resource management, the plan does seek to provide safe, efficient, and cost-effective transportation systems to support the U.S. Forest Service (USFS) programs.

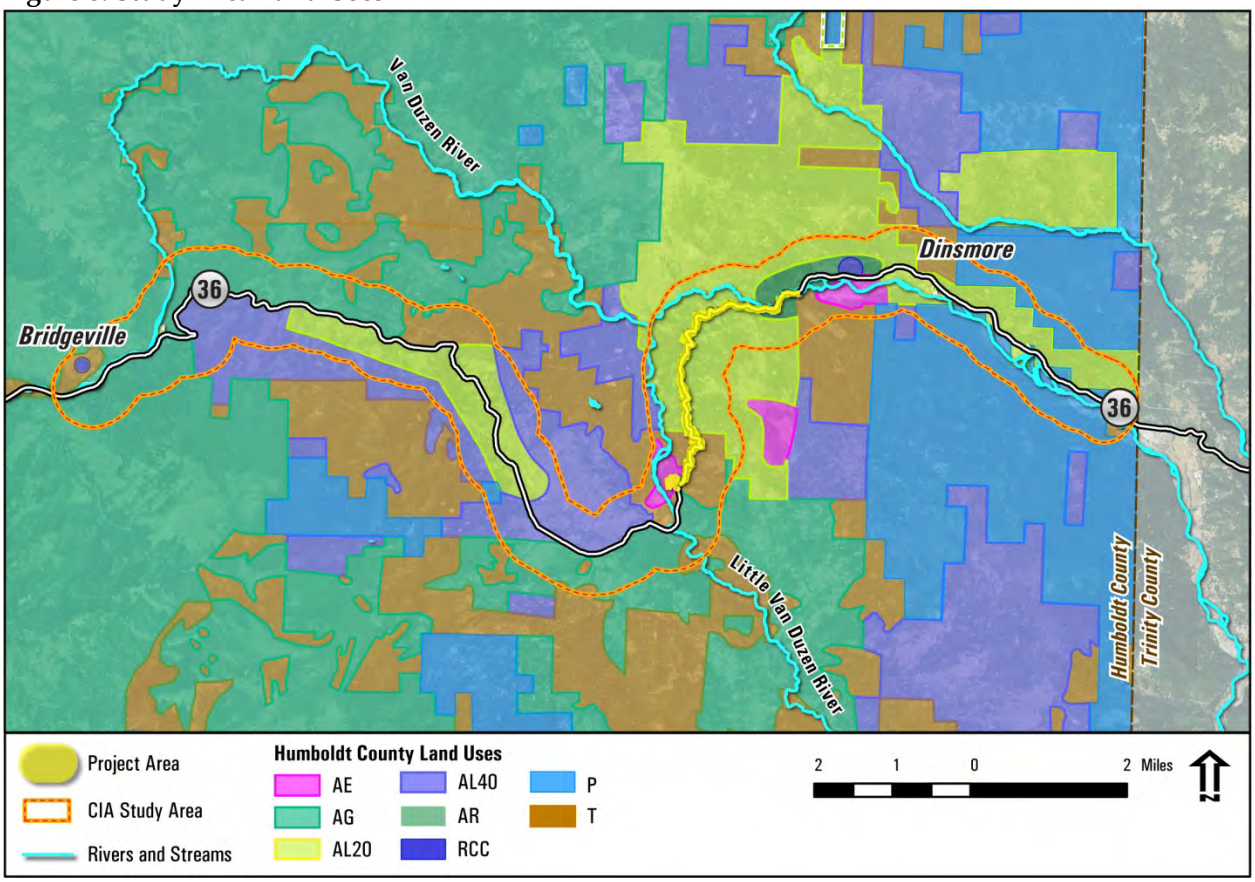
Existing Land Uses and Special Designations

Humboldt County designated land uses surrounding the four-mile project corridor are predominately agricultural-based land uses, with large-lot (20 to 40 acre lots) rural residential parcels (Humboldt County 2013a). Figure 8 displays the land uses along the project corridor and within the study area. Table 3 lists the land uses with a brief description of each land use according to the 1985 Humboldt County *General Plan*. The updated 2012 *Draft General Plan* land use designation maps for the project corridor and study area were not available during the drafting of this document.

Land uses along the project corridor include agriculture exclusive (AE), timber production (TP), agricultural lands (AL), and agricultural rural (AR) (Humboldt County 2013a). Areas depicted as AL20 and AL40 denote dwelling unit restrictions of one dwelling unit per 20 and 40 acres respectively. Parcels along the project corridor are zoned Forestry Recreation-Special Building Site (FR-B-5(40)) and (FR-B-5(20)), Timberland Production (TPZ), and Unclassified (U) (Humboldt County 2013b). The Forestry Recreation-Special Building Site (FR-B-5(40)) and (FR-B-5(20)) denotes areas of the County where timber production, recreation and agriculture are the desirable uses while permitting buildings with specific lot area requirements of 40 acres and 20 acres, respectively (Humboldt County 2013b). Parcels zoned as Timberland Production (TPZ), support the growing and harvesting of timber and accessory compatible uses. See *Farmlands/Timberlands* section in this document for more information on TPZ parcels.

Land uses within the study area include agriculture exclusive (AE), agriculture grazing (AG), agricultural rural (AR), timber (T), rural community center (RCC) and public land (P). The rural community center (RCC) land use is located near the unincorporated towns of Bridgeville and Dinsmore, and designates potential rural commercial areas.

Figure 8: Study Area Land Uses



As part of the 2012 *Draft General Plan*, the proposed rural residential (RR) designation will replace the existing agricultural lands (AL) and agricultural rural (AR) land use categories to more accurately reflect the primary use of the property (Humboldt County 2012a). While updated land use maps and data are unavailable at this time, most, if not all, of the parcels designated as AE within the project area will be re-designated to a rural residential use due to small lot size and lack of commercial agricultural production (Humboldt County 2012b).

Figure 9 displays the zoning of parcels along the project corridor that would be impacted by the proposed project.

Figure 9: Project Area Zoning

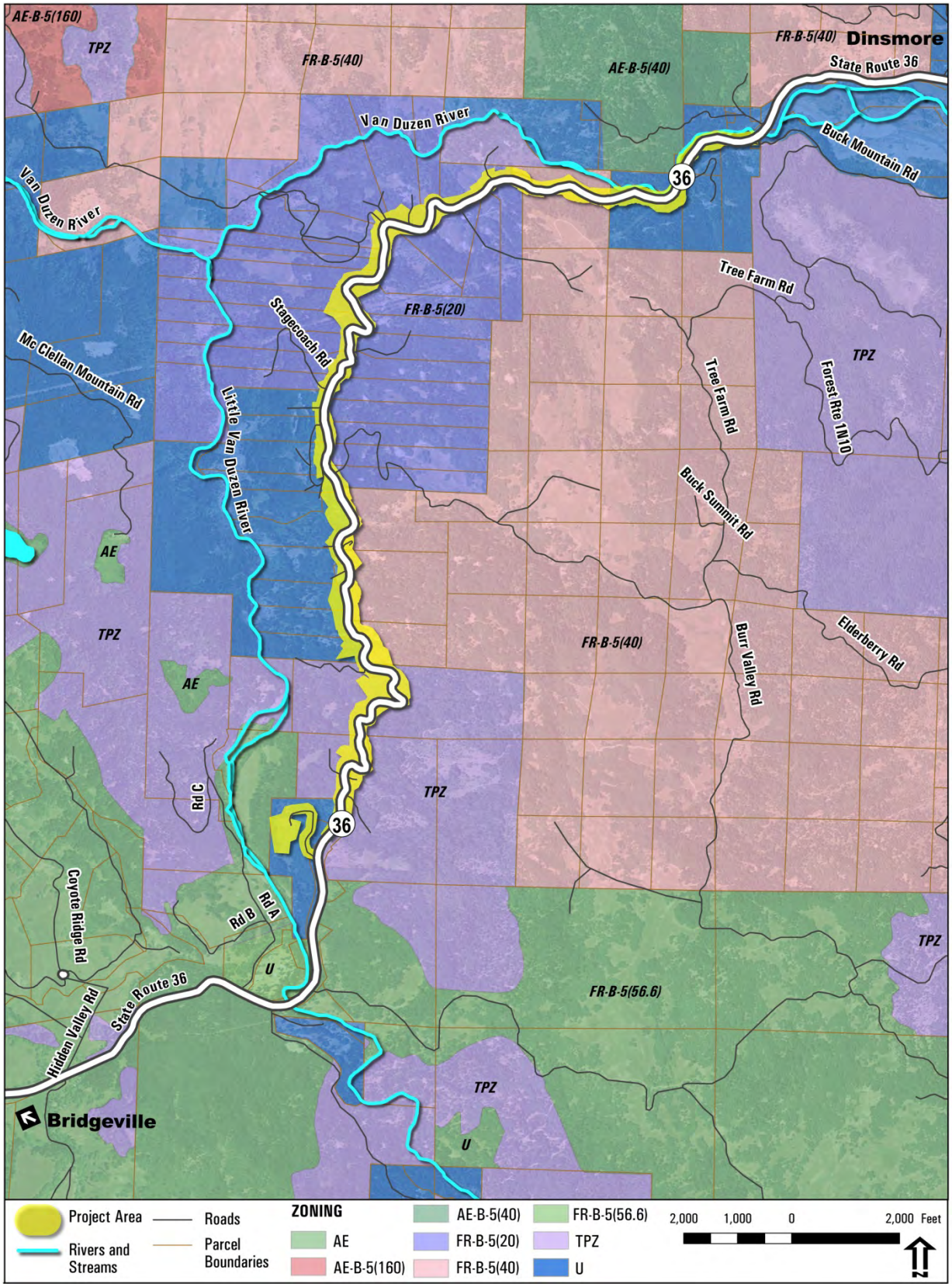


Table 3: Land Uses within the Project and Study Areas

Land Use	Land Use Character	Located within Project Area?	Located within Study Area?
Timber Production (T)	Land that is primarily suitable for the growing, harvesting, and production of timber.	Y	Y
Agriculture Exclusive (AE)	Includes prime agricultural lands as defined by Humboldt County[1].	Y	Y
Agricultural Rural (AR)	Land that is outside of Urban/Rural Community Centers areas; few public services required. Large lot areas on slopes generally less than 30 degrees. The primary and compatible uses include agriculture and timber harvesting under intensive management, single-family residences, cottage industries, educational and religious activities, and recreational uses.	Y	Y
Agricultural Lands (AL)	Lands characterized as remote, steep, and high natural hazard areas with marginal timber, grazing, mining and quarrying, recreational areas, watershed and wildlife areas, and rural residences. The primary and compatible uses include resource production allowing intensive management opportunities, recreational uses, single family residences, and cottage industries.	Y	Y
Agriculture Grazing (AG)	Lands that are not prime agricultural lands, but are in agricultural uses. Lands that are not prime agricultural lands and are not currently being used for agricultural purposes, but are in proximity to agricultural areas. Lands that are not in agricultural production, but that directly contribute to the viability of adjoining viable agricultural land.	N	Y
Public Lands (P)	Land owned by or under the jurisdiction of the federal, state, county or any other district authority or public corporation, or agency thereof.	Y	Y
Rural Community Centers (RCC)	Land located within small unincorporated towns and community centers that provide a variety of community and tourist-oriented goods and services, but that may not have developed identifiable commercial or residential districts. The classification may also be appropriate around a central commercial or industrial area.	N	Y

Source: Humboldt County 1998.

1 The Humboldt County General Plan defines prime agricultural lands by any of the following definitions: A. Land which qualifies for rating as Class I or Class II in the Soil Conservation Service land use capability classifications. B. Land which qualifies for rating 80 through 100 in the Storie Index Rating. (Res. 85-55, 5/7/85). C. Land that has a livestock carrying capacity of one animal unit per acre. D. Land planted with fruit or nut bearing trees, vines, bushes or crops which have a non-bearing period of less than five years and which will normally provide a return adequate for economically viable operations during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production. E. Land capable of producing an unprocessed plant production adequate for economically viable operations. F. Additional lands adjacent to 1, 2, or 3 above which presently or historically have been necessary to provide for economically viable agricultural areas. These lands are included to prevent the establishment of incompatible land uses within an area defined by natural or man-made boundaries.

Wild and Scenic Rivers

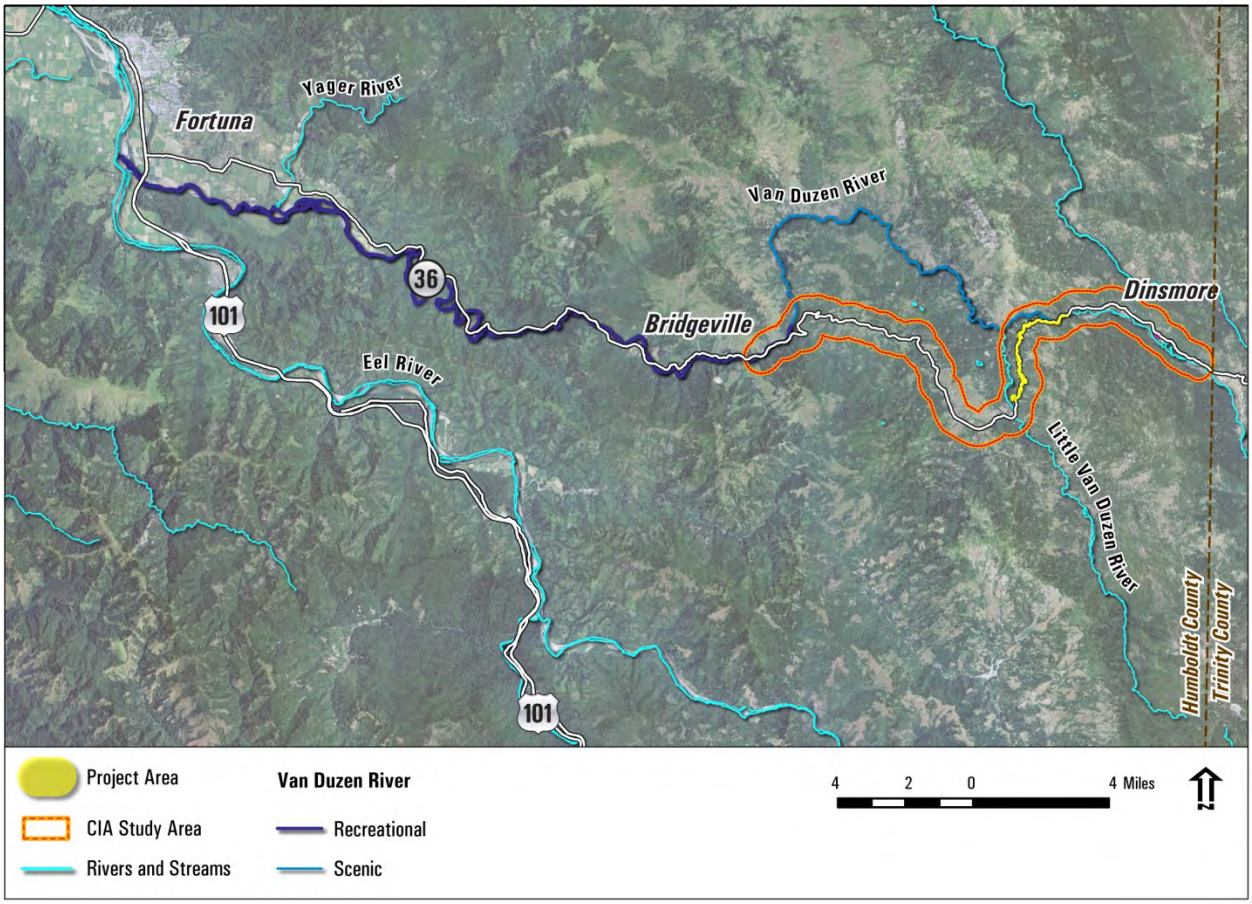
A portion of the Van Duzen River, located in the northeastern section of the study area, is designated a Wild and Scenic River under the National and State of California Wild and Scenic Acts. The National Wild & Scenic Rivers Act (WSRA) (Public Law 90-542; 16 U.S.C. 1271-1287) of 1968 is the nation's primary river conservation law to protect the free flowing character and outstanding values of rivers. The WSRA calls for the protection of specific U.S. rivers that "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values" (16 U.S.C. 1271, p. 1526). The California Wild & Scenic Rivers Act (Public Resources Code Sec. 5093.50 et seq.) was passed in 1972 to preserve designated rivers possessing extraordinary scenic, recreation, fishery, or wildlife values.

The state and federal acts share similar criteria and definitions in regard to the purpose of protecting rivers, the identification of free flowing rivers and extraordinary or outstanding values suitable for protection, establishment of a study process to include rivers in the system, as well as an identical classification system. The primary purpose of both the state and federal acts is to prohibit new water impoundments on designated rivers.

The Van Duzen River was added to the State of California Wild and Scenic River system in 1972 and the National Wild and Scenic River system in 1981 (Coastal Watersheds Planning and Assessment Program 2013). The Van Duzen River is designated as a scenic reach from the Dinsmore Bridge west to the power line crossing above Little Larabee Creek near Bridgeville, California, a distance of approximately 15 miles as shown in Figure 10. From Little Larabee Creek to the confluence with the Eel River, the Van Duzen is considered recreational. Scenic rivers are those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads. An approximate 0.5-mile segment of the Van Duzen River in the northeast portion of the study area is located in proximity to SR 36.

As described in Sec. 5093.56 of the California Public Resources Code (PRC), agencies of the State of California may not assist local, state, and federal agencies in the planning and construction of any dam, reservoir, diversion, or other water impoundment facility that could adversely affect the free-flowing condition and natural character of river segments included in the system (Sec. 5093.56) or of rivers otherwise protected under the Act (Secs. 5093.542, 5093.70). As described in Sec. 5093.60, the Resources Agency (California Department of Natural Resources) is the managing agency for the portion of the Van Duzen River in the study area.

Figure 10: Van Duzen River Scenic and Recreational Designation



3.1.3 Environmental Consequences

No Build Alternative

Under the No Build Alternative, SR 36 would remain in its current alignment. Vehicular mobility and safety would not be improved and existing conditions would continue. The No Build Alternative would not support Humboldt County's *General Plan* goal to provide a safe, efficient, and convenient circulation system. Under the No Build Alternative, existing roadway deficiencies along SR 36 would not support log and forest product transportation as mentioned in the *General Plan*. The No Build Alternative would be consistent with the SR 36 Caltrans RCR for District 1 to "maintain only" SR 36 between PM 24.8 and 45.7. The No Build Alternative would not be consistent with the District 2 TCR to rehabilitate and improve existing conditions to a more acceptable level.

Preferred Alternative

Under the Preferred Alternative, the existing roadway deficiencies along SR 36 would be addressed, improving mobility and enhancing traffic safety for all vehicular travel. Under the Preferred Alternative, no residential or commercial displacements would occur. However, 47 parcels would be directly impacted by partial right-of-way (ROW) acquisitions. ROW acquisitions would conform with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), as amended.

The ROW acquired for the Preferred Alternative would include portions of parcels adjacent to, or in the immediate vicinity of, the existing SR 36. The land uses of the parcels impacted by ROW acquisitions include agriculture exclusive (AE), timber production (TP), agricultural lands (AL), and agricultural rural (AR) uses (Humboldt County 2013). These parcels are zoned Forestry Recreation-Special Building Site (FR-B-5(40)) and (FR-B-5(20)), Timberland Production (TPZ), and Unclassified (U) as shown in Figure 9, above (Humboldt County 2013a). As mentioned in *Existing Land Uses and Special Designations*, many of the parcels within the project area currently designated as agricultural lands (AL), and agricultural rural (AR) land uses would be re-designated to rural residential due to their smaller size and lack of commercial agricultural production (Humboldt County 2012b).

A complete list of all applicable land use and transportation plan goals and policies, and the Preferred Alternative's conformance with those goals and policies, is provided in the *California State Route 36 Improvement Project Community Impact Assessment* (Jacobs 2014a).

Generally, the Preferred Alternative would meet the goals and policies of the Humboldt County *General Plan*. The Preferred Alternative would not result in any substantial land use changes within the project corridor and would not inhibit the viability of agricultural and timber operations in the project vicinity. Improved mobility would support the timber production industry in the vicinity of the study area by improving mobility and safety for large timber transport vehicles. A more detailed discussion specific to farmlands and timberlands is included in the Farmlands/Timberlands section of this document.

The Preferred Alternative would conform with the goals of the HCAOG *Regional Transportation Plan,* which supports balanced mode share, regional economic vitality, and an efficient and safe transportation system. The Preferred Alternative would create shoulders along the project corridor, facilitating vehicular and potentially bicycle movement. The proposed improvements would also support safer goods transport along the route, promoting economic vitality within the region. However, the Preferred Alternative would not necessarily support the HCAOG *Regional Transportation Plan* environmental stewardship goal of reducing single-occupancy-vehicle trips, which is intended to help achieve goals of California Global Warming Solutions Act of 2006 (AB 32) and Sustainable Communities and Climate Protection Act of 2008 (SB 375) (HCAOG 2013).

The Preferred Alternative would support the rehabilitation and goods movement strategies for the SR 36 Caltrans District 1 RCR to improve the safety and reliability of the route. In addition, the Preferred Alternative would support the segment management recommendations of the District 2 Caltrans TCR, which recommend the rehabilitation or reconstruction of narrow roadway sections to improve design speeds.

Finally, the Preferred Alternative would meet the SRNF Forest Management Direction to provide a safe, efficient, and cost-effective transportation system.

Wild and Scenic Rivers

Impacts to Wild and Scenic designated rivers result from changes to the free-flowing characteristics of the river and changes to the river's ability to meet the criteria of a wild, scenic, or recreational river.

For rivers classified as scenic, the following three attributes are analyzed: water resources development, shoreline development, and accessibility (DOI and DOA 1982). Based on these attributes, scenic rivers must be free of impoundments and the shorelines and immediate environment should not show substantial evidence of human activity. However, some development, including structures and

agricultural and timber operations, is permitted along shorelines so long as the development is limited to a relatively short reach of the total designated area. In addition, designated scenic rivers may be accessible by roads that can reach or cross the river. Short stretches of conspicuous or longer stretches of well-screened roads or railroads may occur along rivers designated as scenic.

Most of the proposed roadway improvements would not be visible from the river due to the distance from the river and screening from dense forest between the river and the road. Within the approximately 0.5-mile portion of the project area that is closest to the Van Duzen River, widening the road to provide two 12-foot travel lanes and 4-foot shoulders would result in new cut and fill slopes in some locations and would increase the size of existing cut and fill slopes in some locations. Some of these improvements may be visible from the river, but existing trees would continue to provide a moderate degree of screening. The horizontal alignment of the road would be similar to existing alignment in this area. A retaining wall is proposed in one segment to avoid direct impact to the river channel. The wall, which is anticipated to be approximately 600 feet long, would be constructed above the ordinary high water mark. No in-water work is anticipated. It is anticipated that riparian vegetation may be removed in this location, leaving less visual screening between the road and the river at this location.

Because the Preferred Alternative would not include river impoundments, would not change access to the river, and would result in development along only 600 feet of shoreline, the Preferred Alternative would not have an adverse impact on the free-flowing characteristics of the Van Duzen River or alter the segment's ability to meet the criteria of a scenic river under the WSRA. The managing agency, the California Natural Resources Agency (CRA), was consulted regarding the anticipated visual impacts, and the agency has concurred with this determination (see Appendix B).

3.1.4 Avoidance, Minimization, and/or Mitigation Measures

The Preferred Alternative as proposed is consistent with land use plans, policies, and controls and no mitigation measures to address inconsistencies are warranted. Any impacts would be less than significant.

3.2 GROWTH

3.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. The CEQA 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…"

3.2.2 Affected Environment

Existing conditions and the project's potential to influence or induce growth is discussed in detail in the *California State Route 36 Improvement Project Community Impact Assessment* prepared by Jacobs in March 2014 (Jacobs 2014a).

Humboldt County designated land uses surrounding the four-mile project corridor are predominately agricultural-based land uses, with large-lot (20 to 40 acre lots) rural residential parcels. Land uses along the project corridor include agriculture exclusive (AE), timber production (TP), agricultural lands (AL), and agricultural rural (AR) (Humboldt County 2013a). Land uses within the larger study area include agriculture exclusive (AE), agriculture grazing (AG), agricultural rural (AR), timber (T), rural community center (RCC) and public land (P). Maps with surrounding land uses depicted and more detailed descriptions of these uses are included in the *Land Use* section of this document.

3.2.3 Environmental Consequences

No Build Alternative

Implementation of the No Build Alternative result in a continuation of current roadway conditions except for a continuation of regular maintenance activities. There would be no growth-inducing effects associated with the No Build Alternative as it represents the baseline condition.

Preferred Alternative

In general, potential inducements to growth from a project may include: (1) the generation of short-term and long-term employment; (2) the development of new housing; (3) the improvement of the area's infrastructure; (4) the extension of services to a previously undeveloped area; or (5) stimulus to an area's economy. The substantial contribution of any one of these factors could potentially induce growth in the project area as described in the following discussion. Under the California Environmental Quality Act (CEQA), growth is not considered "necessarily beneficial, detrimental or of little significance to the environment." If the project were capable of contributing to growth inducement, an increase in the population would potentially impact existing community service facilities and require construction of new facilities that would potentially cause significant environmental effects.

Proposed road improvements under the Preferred Alternative, including reconstruction for a consistent-width roadway, minor realignment for curve improvements, drainage improvements, signing, and striping, are being designed to increase roadway safety and operational efficiency. This type of project is not anticipated to trigger new residential development in the project area for the following reasons: (1) the proposed action does not include the development of new housing or population-generating uses; and (2) the proposed action would not significantly affect the economy of the region in ways that would generate significant direct growth-inducing impacts. More specifically, the Preferred Alternative would not extend infrastructure beyond where it currently exists and would merely improve the existing roadway for a short stretch of a 140-mile route (between Red Bluff and Fortuna).

The direct effects of a project on regional growth generally stem from economic growth resulting from labor needs and expenditures. The Preferred Alternative may generate short-term jobs during construction activities. The short-term construction effects would include expenditures that could result in employment of people from the local region. Construction personnel would be required to support proposed roadway improvements, but this short-term activity would not likely generate new long-term local employment opportunities. Therefore, the Preferred Alternative would not result in any long-term

operational effects (i.e., annual expenditures in direct employment of personnel). Accordingly, the Preferred Alternative would not stimulate substantial growth and/or contribute significantly to employment in the region.

A project could indirectly induce growth if it would trigger the construction of new community service facilities that could increase the capacity of infrastructure in an area that currently meets the demands (e.g., an increase in the capacity of a sewer treatment plant or the construction or widening of a roadway which is needed to meet existing demands). The Preferred Alternative would not require the extension of urban infrastructure and/or modifications to existing utility systems to support proposed roadway improvements. No extensions of off-site public roads would be required to provide access to the project area.

3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Impacts would be less than significant and there would be no adverse effect relative to growth inducement as a result of implementation of the Preferred Alternative. Therefore, no mitigation is required.

3.3 FARMLANDS/TIMBERLANDS

3.3.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, 7 United States Code [USC] 4201-4209; and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

The California Environmental Quality Act (CEQA) 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 discourage the early conversion of agricultural and open space lands to other uses.

Impacts to timberland are analyzed as required by the California Timberland Productivity Act of 1982 (CA Government Code Sections 51100 et seq.), which was enacted to preserve forest resources. Similar to the Williamson Act, this program gives landowners tax incentives to keep their land in timber production. Contracts involving Timber Production Zones (TPZ) are on 10-year cycles. Although state highways are exempt from provisions of the Act, the California Secretary of Resources and the local governing body are notified in writing if new or additional right-of-way from a TPZ will be required for a transportation project.

3.3.2 Affected Environment

Farmlands and timberlands were identified and evaluated in the *State Route 36 Improvement Project Community Impact Assessment* prepared for the project (Jacobs 2014a). The following summarizes information available in the full technical report. Humboldt County's mild coastal climate and fertile soils make for productive agricultural and timber operations. Given the project's rural location, land

designated as agriculture and timber production is an important component of the local economy and community character.

Farmland

Humboldt County does not have a comprehensive soil survey, and is currently in the process of having a countywide soil survey produced by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). Therefore, coordination with the NRCS occurred for assistance in completion of the Farmland Conversion Impact Rating (NRCS-CPA-106) form. The NRCS determined that no prime or unique farmland, as defined by 7 CFR 658, exists within the study area, as shown in Appendix B. Therefore, farmlands are no longer discussed in this section.

While county agricultural lands are not included in the federal and state definitions of prime agricultural land, Humboldt County created and utilizes a prime agricultural land definition based on a soil rating system (Humboldt County 2012b). Of the approximately 345,238 acres of land identified as agricultural lands by the Humboldt County geographic information system (GIS), approximately 12 percent, or 42,000 acres, are identified as prime agricultural lands, primarily based upon soils type. County-defined prime agricultural lands are located within the study area and within the project area as shown in Figure 11.

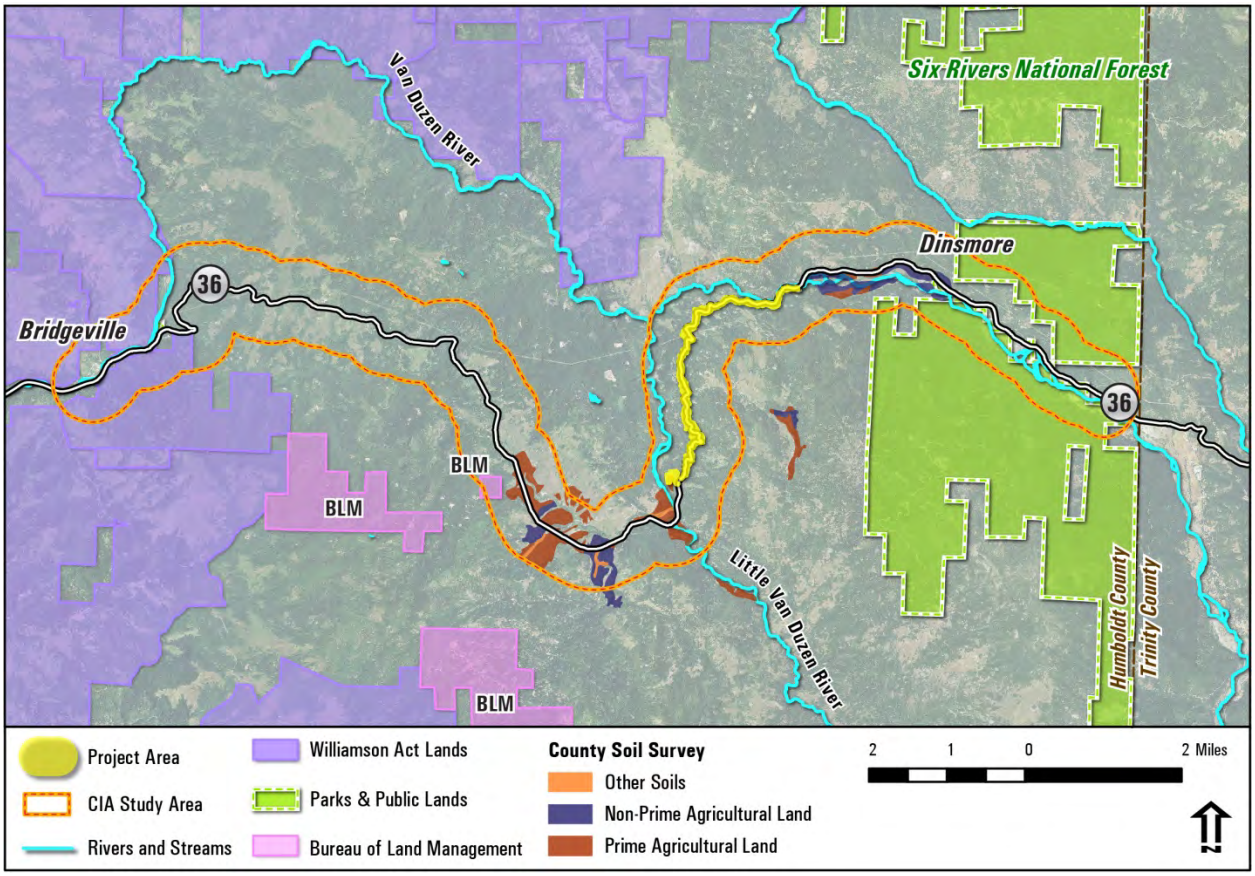
The California Land Conservation Act, better known as the Williamson Act, provides incentives to landowners through reduced property taxes to protect agricultural and open space land from conversion to other uses (CA Department of Conservation 2013). The main purpose of the Williamson Act is to preserve agricultural land and to encourage open space preservation and efficient urban growth. While there are three ranches protected by the Williamson Act located in the vicinity of the study area, there are no Williamson Act contract lands located within the project area. The locations of the Williamson Act ranches are shown in Figure 11 (Humboldt County 2013c).

Timberland

The *California Timberland Productivity Act of 1982 (Government Code Sec. 51110 - 51119.5)* (TPA) was adopted to protect timber operations from being prohibited or restricted due to conflict with surrounding land uses. To accomplish this goal, the TPA directed counties to designate timberlands in their general plans as zoning categories that were devoted to and used for growing and harvesting timber and for other compatible uses. TPZs are restricted in use to the production of timber for an initial 10-year term, providing preferential tax assessments to qualified timberlands.

There are approximately 1.9 million acres of forested land in Humboldt County. Approximately 679,500 acres (or 35 percent) of forested land within the county are public forest lands. Active timber harvesting on private and USFS land is ongoing in the vicinity of the study area. A review of The Department of Forestry and Fire Protection (CAL FIRE) data reveals active timber harvest plans within the study area along Buck Mountain Road near SR 36. As shown in the Figure 9 above, several TPZs (as indicated in purple and zoned “TPZ”) are located in the study area, and one is located in the project area (Jacobs 2014a).

Figure 11: Prime Agricultural Lands and Williamson Act Lands



3.3.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not involve any transfer of land or conversion of uses to a transportation purpose. Therefore, there would be no effects to farmlands or timberlands.

Preferred Alternative

The Preferred Alternative would result in the conversion of land from a TPZ to a transportation use. Per California Government Code §51150 et seq., the prohibitions pertaining to acquisition of TPZ lands for public improvements set forth in Section 51152(a) and (b) do not apply to State Highways per Section 51153(f). However, per Section 51151(b), notification of the conversion should be directed to the Secretary of Resources for the State of California and the Chairman of the Humboldt County Board of Supervisors. Under Section 51155, the Humboldt County Board of Supervisors may need to act with respect to the balance of the property not acquired. Therefore, a copy of the notification letter should also be sent to the attention of the Director of Planning and Building Department for Humboldt County. Caltrans provided this letter to the appropriate agencies at the time of public release of this EA/IS.

Under the Preferred Alternative, impacts to county-defined prime agricultural land would occur at the temporary construction staging area. These impacts would result in temporary disturbance and would not result in total loss of the viability of the land. There would be no impacts to federal or state

recognized prime agricultural lands. While several parcels within the study area are currently under the Williamson Act, the Preferred Alternative would not affect these parcels.

3.3.4 Avoidance, Minimization, and/or Mitigation Measures

The effects on farmlands and timberlands would be less than significant and no mitigation measures are warranted.

COMMUNITY IMPACTS

The Community Impacts section is broken into the following subsections:

- Community Character and Cohesion
- Economic Conditions
- Relocations and Real Property Acquisitions
- Environmental Justice

Information in all of the subsections is summarized from a more in-depth Community Impact Assessment prepared for the project in March 2014.

3.4 COMMUNITY CHARACTER AND COHESION

3.4.1 Regulatory Setting

The National Environmental Policy Act of 1969 (NEPA), as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 United States Code [USC] 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), 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.

3.4.2 Affected Environment

This section evaluates the social characteristics of the study area by analyzing population, age, race and ethnicity, household size and composition, community characteristics, and community services and facilities.

Demographic Characteristics

Demographic characteristics of the affected environment are derived from the 2010 U.S. Census and the 2007-2011 American Community Survey (ACS) 5-year estimates. Demographic data used in this analysis was collected at the U.S. Census Bureau's block group level (block group 10902-1) as shown in Figure 12.

Figure 12: Census Block Groups within Census Tract 10902

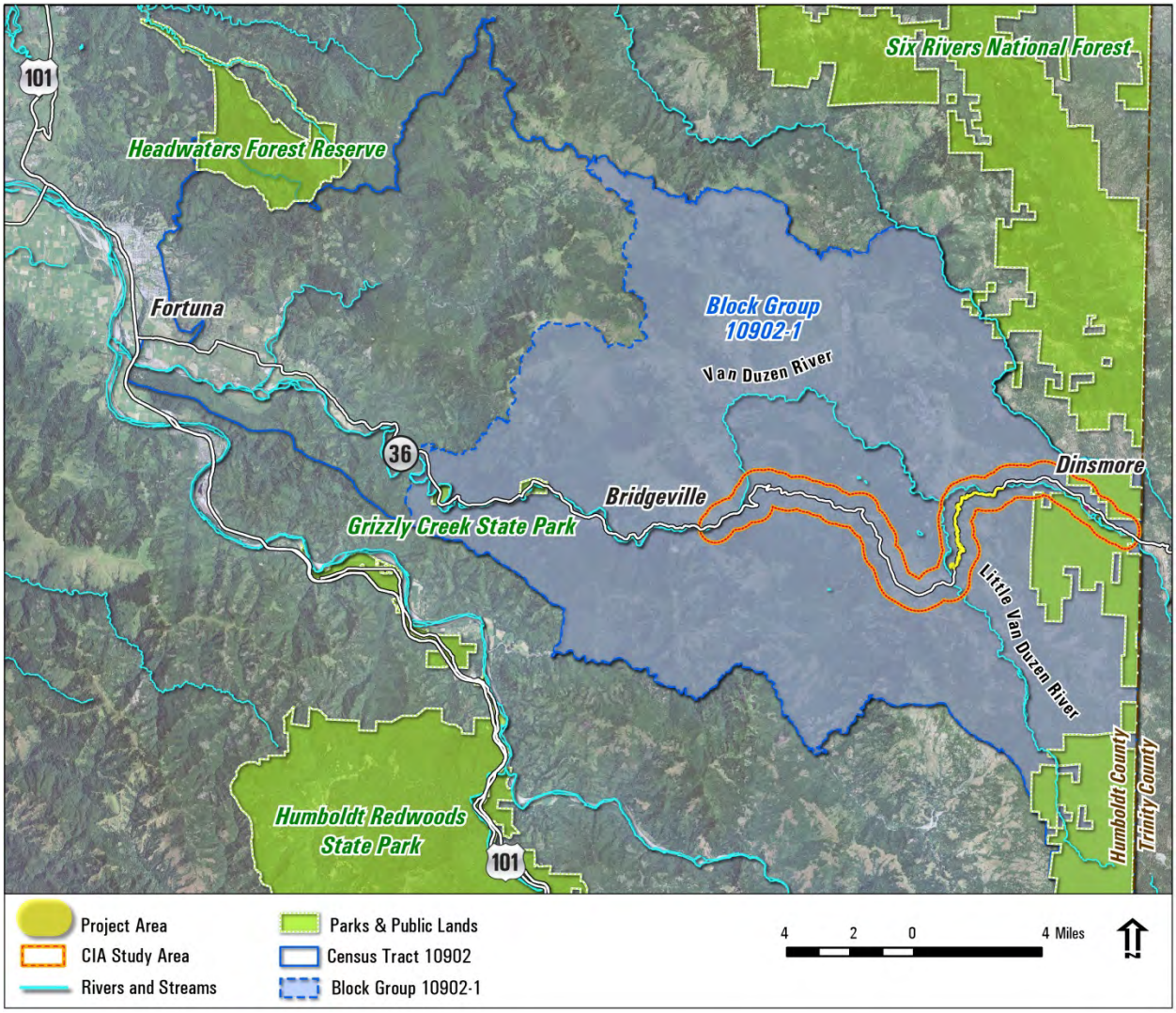


Table 4 shows the population and age characteristics of Humboldt County and Census tract 10902, block group 10902-1 (U.S. Census Bureau 2010 a, 2010b). The percentage of persons under the age of 18 was lower in the demographic study area than Humboldt County. Conversely, the percentage of persons 65 years and older was higher than Humboldt County.

Table 4: Population and Age Distribution

Geographic Area	Population	Age			
		Under 18	Percent	65 and Over	Percent
Humboldt County	134,623	27,061	20.10	17,725	13.17
Census Tract 10902	4,143	892	21.53	573	13.83
Study Area Block Group 1 (10902-1)	678	113	16.67	104	15.34

Source: U.S. Census 2010

Table 5 displays the total number of households, the number of family households, the average household size, and the number of housing units for the state of California, Humboldt County, Census tract 10902, and the study area (block group 10902-1) (U.S. Census 2011a). The percentage of family households in the study area is substantially lower than Census tract 10902 and lower than Humboldt County; however, the average household size is higher in the study area than in Census Tract 10902 and Humboldt County.

Table 5: Household and Housing Units

Geographic Area	Number of Households	Total Family Households	Percent of Family Households	Avg. Household Size
Humboldt County	53,724	31,619	58.85%	2.4
Census Tract 10902	1,526	1,126	73.79%	2.71
Study Area Block Group 1 (10902-1)	265	146	55.09%	2.95

Source: U.S. Census 2011a

Approximately 75 percent of the occupied housing units in the study area were owner occupied, and 25 percent were renter occupied in 2011, as shown in Table 6 (U.S. Census 2011b). The study area had a slightly lower percentage of owner occupied housing units and a slightly higher percentage of renter occupied housing units than the larger census tract. Both the study area and Census tract 10902 had much higher percentages of owner occupied housing units than Humboldt County (U.S. Census 2011b). Vacancy rates in the study area were nearly twice as high as Census tract 10902 and nearly four times higher than Humboldt County (U.S. Census 2011b).

Table 6: Housing Occupancy

Geographic Area	Number of Housing Units	Occupied	Percent	Vacant	Percent
Humboldt County	61,559	53,724	87.65	7,569	12.35
Census Tract 10902	1,937	1,526	78.62	415	21.38
Study Area Block Group 1 (10902-1)	490	265	54.08	225	45.92
		Owner Occupied	Percent	Renter Occupied	Percent
Humboldt County		30,802	57.33	22,922	42.67
Census Tract 10902		1,199	78.57	327	21.43
Study Area Block Group 1 (10902-1)		200	75.47	65	24.53

Source: U.S. Census 2011b

Based on 2010 U.S. Census data, the racial and ethnic composition of the study area is similar to Humboldt County and is predominantly white (U.S. Census Bureau 2010c). For purposes of this analysis, racial and ethnic minority groups are defined as being comprised of people who were categorized as non-white. The racial and ethnic categories used are White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race/Two or More

Races, and persons of Hispanic/ Latino origin. Table 7 depicts the study area's racial and ethnic composition.

Table 7: Racial and Ethnic Composition

Area	Total Persons	White	%	Black or African American	%	American Indian or Alaskan Native	%	Asian	%
Humboldt County	134,623	103,958	77.22	1,393	1.03	6,961	5.17	2,854	2.12
Census Tract 109.02	4,143	3,461	83.54	6	0.14	193	4.66	20	0.48
Study Area Block Group 1 (10902-1)	678	553	81.56	1	0.15	44	6.49	5	0.74

	Native Hawaiian/ Other Pacific Islanders	%	Other Race	%	Two or More Races	%	Hispanic/ Latino	%
Humboldt County	332	0.25	368	0.27	5,546	4.12	13,211	9.81
Census Tract 109.02	5	0.12	21	0.51	121	2.92	316	7.63
Study Area (block group 10902-1)	1	0.15	2	0.29	29	4.28	43	6.34

Source: U.S. Census 2010c

Transit-dependent populations are typically defined as members of households without automobiles. These individuals are much more likely than the population at large to rely on public transportation services for general mobility. Table 8 shows the approximate number of transit-dependent populations in the study area based on 2011 ACS 5-year data. Approximately 2.6 percent of the study area population were members of households without private automobiles compared to 3 percent of the Census tract 10902 and 7 percent of Humboldt County.

Table 8: Transit Dependent Populations

Geographic Area	Number of Households	Households without Private Transportation	Percent
Humboldt County	53,724	3,820	7.11
Census Tract 109.02	1,526	46	3.01
Study Area Block Group 1 (10902-1)	265	7	2.64

Source: U.S. Census 2011c

Community Facilities

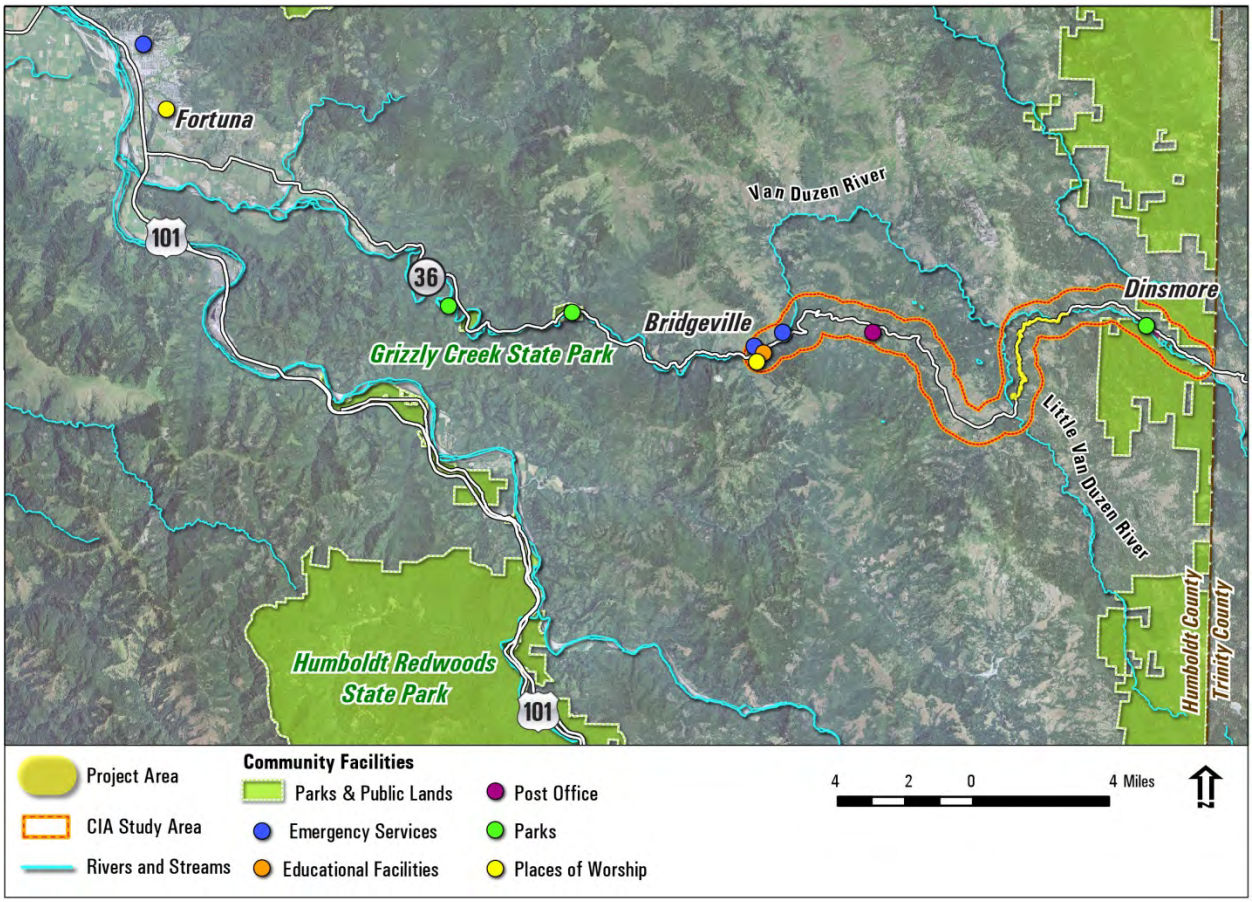
Due to the rural nature of the study area, community facilities in the vicinity are limited. The locations of the facilities within the study area are provided in Table 9 and Figure 13.

Table 9: Community Facilities

NAME	LOCATION
Emergency Services	
Bridgeville Volunteer Fire Department	38741 Kneeland Rd Bridgeville, CA
Department of Forestry and Fire Protection (CAL FIRE) seasonal fire station	38737 Kneeland Rd Bridgeville, CA
Educational Facilities	
Bridgeville Elementary School	38717 Kneeland Road Bridgeville, CA
Post Office	
US Post Office – Bridgeville	24878 California SR 36 Bridgeville, CA
Parks/ Public Lands	
Van Duzen-Pamplin Grove County Park	12 miles east of Highway 101 on California SR 36 Carlotta, CA
Grizzly Creek Redwoods State Park	16949 California SR 36 Carlotta, CA
Six Rivers National Forest	741 California SR 36 Bridgeville, CA
Places of Worship	
Church of Christ	1518 Ronald Ave Carlotta, CA
Bridgeville Baptist Church	48215 Alderpoint Rd Bridgeville, CA

Source: Humboldt County 2012a and Google Maps

Figure 13: Community Facilities in the Vicinity of the Study Area



Educational Facilities

Three school districts provide educational services for students living within the study area: the Bridgeville School District, the South Trinity Joint Unified School District and the Fortuna High School District (Humboldt County Office of Education 2013). The Bridgeville School District and the Fortuna High School District provide primary and secondary education for students living in the majority of the study area. The South Trinity Joint Unified School District provides both primary and secondary education for students in the northeast portion of the study area, with schools located in Trinity County near the unincorporated town of Mad River, California.

Post office

One branch of the United States Post Office is located within the study area in Bridgeville, California.

Parks/ Public Lands

Three parks are located within the study area, all adjacent to SR 36. The Van Duzen-Pamplin Grove County Park is located east of the unincorporated town of Riverside Park, California. The Grizzly Creek Redwoods State Park straddles SR 36 and is located seven miles west of Bridgeville, California. The Six Rivers National Forest is located approximately two miles east from the town of Dinsmore.

Utilities

Electric and gas utility services in the study area are provided by Pacific Gas & Electric (State of California 2007). Sewer and water utility services are not provided by the county, and residents in the study area utilize on-site water and wastewater treatment systems. Trash services are not provided by the county within the study area.

Circulation and Access

SR 36 is classified by Caltrans as a minor arterial, and is a significant, regional, east-west route serving Humboldt County for trips between the Pacific Coast and the Sacramento valley (Jacobs 2013a). SR 36 is a conventional 2-lane highway and serves as a recreational, commercial route and local service route for several small communities, including Carlotta, Bridgeville, Dinsmore, Mad River, and Forest Glen on the west side of I-5. The highway also supports a substantial amount of logging, agricultural, and recreational traffic and serves as access to cattle and sheep ranches in eastern Humboldt County. Eighteen private access points are located along SR 36 within the project area.

Other roads within the study area providing primary access to and from the study area include 2-lane local, county roads and dirt roads managed by Humboldt County and the U.S. Forest Service as well as smaller private access roads.

Bicycles are allowed on the entire length of SR 36, although there are no dedicated bicycle lanes (Jacobs 2013a). Total shoulder widths within the project area range from 0 to 4 feet, with paved shoulder width between 0 and 2 feet (Jacobs 2013a).

Public transportation services are not available within the study area; however, Southern Trinity Health Services provides transportation services for the southeastern portion of the Humboldt County with a mix of fixed route and demand response. A “Dial-a-Ride” service is available Mondays through Fridays for Dinsmore, Mad River, Ruth and Hettenshaw Valley (Jacobs 2013a).

Community cohesion exists among the small communities in the study area in part because no single community has facilities or resources to be totally self-sufficient. SR 36 is a lifeline linking the communities together within the study area and to others outside the study area for emergency services, schools, recreation, housing and employment.

3.4.3 Environmental Consequences

No Build Alternative

Under the No Build Alternative, SR 36 would remain in its current alignment and existing conditions would continue within the project area. No adverse impacts to the community cohesion and community character within the project area would occur.

Preferred Alternative

Implementation of the Preferred Alternative would not adversely affect community cohesion and the community character of the study area. While the Preferred Alternative would realign portions of SR 36 within the project area, the location would be in the immediate vicinity of the existing SR 36 alignment. In addition, as mentioned in the *Land Use* section all private access roads would be replaced and/or realigned in the vicinity of the existing access points. Existing circulation and access patterns within the

study area would not change under the Preferred Alternative. Due to the importance of SR 36 for mobility in the study area, the community would benefit from the improved vehicular safety and mobility as a result of the Preferred Alternative.

The Preferred Alternative would not increase vehicular capacity or adversely impact vehicular circulation within the project area. No pedestrian- or cyclist-related infrastructure is located within the study area, and the Preferred Alternative would not result in adverse impacts to pedestrian or cyclists. The Preferred Alternative could result in up to a five percent increase in traffic (Jacobs 2013a). This increase in traffic would not be perceptible to the average motorist.
Implementation of the Preferred Alternative would not impact existing community facilities within the study area. Existing access to, and parking for, community facilities within the study area would not be impacted.

The Preferred Alternative would result in adverse changes to the existing visual quality of the project area (Jacobs 2013b). Elements of the roadway improvements under the Preferred Alternative that would degrade the existing visual quality include cut and fill slopes, soil nail walls, wire mesh treatments, and rock buttresses. Implementation of the Preferred Alternative would result in an overall moderately high visual quality change (Jacobs 2013b). With implementation of avoidance, minimization, and minimization strategies described under Visual Quality such as revegetation efforts and selecting materials to not be visually intrusive, the Preferred Alternative would result in a moderate adverse change to the project area's visual resources. The degree of effect and change would not be so substantial to adversely affect community cohesion and community character of the study area.

3.4.4 Avoidance, Minimization, and/or Mitigation Measures

Community character and cohesion would be maintained and impacts would be less than significant; therefore, no specific mitigation has been identified. However, avoidance, minimization, and/or mitigation identified for visual quality, real property, and traffic operations will also benefit the local community character.

3.5 ECONOMIC CONDITIONS

3.5.1 Affected Environment

This section describes the economic characteristics of the study area and Humboldt County by analyzing the business activities, employment, and fiscal conditions.

Economy

Humboldt County's economic history first began in the towns of Eureka, Arcata, and Trinidad as a point of arrival and supply center for the gold mining districts on the Klamath, Salmon, and Trinity rivers in the mid-nineteenth century (Van Kirk 2013). The county's economy then shifted to the region's abundant natural resources—trees, salmon, and land. By the 1970s, the environmental movement brought a new perspective to natural resource use and the county transitioned from a resource extraction-based economy to a more diversified economy, with primary industries such as education, health and social services, resource protection and restoration, and government. However, timber production remains strong (Van Kirk 2013).

Although Humboldt County produces approximately 5 percent ($128 million) of the State annual farm goods ($27 billion) (Humboldt County 2012b), the county continues to lead the state in timber

productions. In 2011 Humboldt County produced 24.1 percent of the state's total timber value and ranked 31st out of 58 counties for gross value of agricultural production in 2011 (California Department of Food and Agriculture 2013). However, the timber industry has been in decline the past 20 year due to stricter environmental regulations and fewer trees in private ownership (Humboldt County 2012b). Between 2000 and 2008, Humboldt County's total gross value of timber dropped 25 percent (Humboldt County 2012b).

The timber industry leads the agricultural production for Humboldt County. Nursery and dairy products, and livestock production also comprise a large percentage of the gross dollar value of agricultural production as shown in Table 10.

Table 10: Agricultural Commodities by Gross Value of Agricultural Production, 2011

Leading Agricultural Commodities	Gross Agricultural Value ($1,000)	Percent of Total Agricultural Production
Timber	65,778	28.2
Nursery products, misc.[1]	43,396	18.62
Milk, market, fluid	36,177	15.53
Cattle and calves	33,003	14.16
Cattle, milk cows	18,205	7.81
Livestock products, misc.	10,063	4.32
Milk manufacturing	8,415	3.61
Fish, shell	6,719	2.88
Vegetables, unspecified	3,930	1.69
Hay, other, unspecified	3,903	1.68
Fruits and nuts, unspecified	1,800	0.77
Total Agricultural Value 2011	**233,001**	**100**

[1] Includes trees, shrubs, vines, bulbs, turf, flower, potted plants, foliage plants, bedding plants, and indoor decoratives.

Source: California Department of Food and Agriculture 2013.

While the production and sale of medicinal and illegal marijuana contribute to the county's economy, the precise impact is difficult to determine (Humboldt County 2012b). Growers of both medicinal and illegal marijuana are not included in official agricultural and economic calculations, but the industry's contribution to the county's economy is noticeable. A study conducted by a Humboldt State graduate student in 2011 estimated that marijuana contributes approximately $1.6 billion to the county's economy. The study concluded that if this money were extracted from the Humboldt County economy, the county's economy would experience a 26 percent reduction (Humboldt County 2012b).

Labor Characteristics

Table 11 describes the labor force characteristics of the study area, Census tract 10902, and Humboldt County (U.S. Census Bureau 2011d). The study area has a slightly lower percentage of individuals 16 years and older in the labor force and a higher unemployment rate than Census tract 10902 and Humboldt County.

Table 11: Labor Force Characteristics, 2011

Employment Status	Study Area Block Group 1 (10902-1)		Census Tract 10902		Humboldt County	
	Number	Percent	Number	Percent	Number	Percent
Population of 16 years and older	580	100	3,266	100	110,067	100
In labor force	304	52.4	1,953	59.8	66,048	60.0
Civilian labor force	304	100	1,953	100	65,820	99.6
Employed	275	90.5	1,781	54.5	59,407	54.0
Unemployed	29	9.5	172	5.3	6,413	5.8
Armed forces	0	0	95	29.1	228	0.2

Source: U.S. Census Bureau 2011d

Industry

Within Humboldt County, the education, health, and social services industry represented approximately 25 percent of the labor force, followed by the arts, entertainment, recreation, and food services industry with approximately 12 percent. Similarly, the education, health, and social services industry represented the highest percentage of the labor force in Census Tract 10902 with approximately 27 percent, followed by the construction industry with approximately 13 percent (U.S. Census 2011d), as shown in Table 12. Employment data by industry was not available for the study area at the block group level.

Table 12: Employment by Industry in 2011

Industry	Census Tract 10902		Humboldt County	
	Number	Percent	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	142	7.97	2543	4.30
Construction	238	13.36	4787	8.10
Manufacturing	101	5.67	3132	5.30
Wholesale trade	45	2.53	1215	2.00
Retail trade	185	10.39	6878	11.60
Transportation and warehousing, and utilities	55	3.09	2788	4.70
Information	36	2.02	1199	2.00
Finance, insurance, real estate, and rental and leasing	64	3.59	2893	4.90
Professional, scientific, management, administrative, and waste management services	82	4.60	5091	8.60
Educational, health, and social services	480	26.95	14942	25.20

Industry	Census Tract 10902		Humboldt County	
	Number	Percent	Number	Percent
Arts, entertainment, recreation, accommodation, and food services	152	8.53	7253	12.20
Other services (except public administration)	115	6.46	3246	5.50
Public administration	86	4.83	3440	5.80

Source: U.S. Census 2011d.

Due to the project's rural location, relatively few businesses are located within the study area. Table 13 lists the location of the businesses within the study area and project area. Simmons Natural Body Care is the only known retail business located within the project area. Triumphant Life Camp is a youth camp located within the study area near the intersection of the Little Van Duzen River and SR 36. Commercial and public timber operations are also located within the immediate vicinity of the study area. Sierra Pacific Industries, a licensed timber operator by the State of California, owns land adjacent to the project area and conducts active timber operations. A timber sale operation is also ongoing on USFS land in the vicinity of the study area (Jacobs 2014a).

Table 13: Business within the Study Area

Business	Location
Triumphant Life Camp	37905 California SR 36 Humboldt County, CA
Simmons Natural Body Care	42295 California SR 36 Humboldt County, CA
Dinsmore Store	43819 California SR 36 Humboldt County, CA
Dinsmore Airport	44052 California SR 36 Humboldt County, CA

Source: Google search.

Income

Median household income was lower in the study area than Census tract 10902 and Humboldt County. The study area had a substantially higher proportion of individuals below the U.S. Census Bureau poverty level than Census tract 10902 and Humboldt County (U.S. Census 2011d).

Table 14: Income and Poverty

Geographic Area	Median Household Income	Individuals with Income Below Poverty Level
		Percent
Humboldt County	$40,376	18.4
Census Tract 109.02	$44,556	11.2
Study Area Block Group 1 (10902-1)	$34,183	33.5

[1] In 2011 Inflation adjusted dollars.

Source: U.S. Census Bureau 2011d

3.5.2 Environmental Consequences

Economic impacts result from changes in employment and business activity within the study area. Direct impacts include changes in business access, traffic patterns, employment circumstances, the environment near the business, and loss of available parking. Indirect impacts include changes in property values and loss of tax revenue.

No Build Alternative

Under the No Build Alternative, SR 36 would remain in its current alignment and the existing business and economic conditions would remain unchanged within the study area. No adverse effects are anticipated as a result of the No Build Alternative.

Preferred Alternative

Due to the rural location of the project, there are relatively few businesses within the study area. Commercial and retail businesses within the study area are scattered throughout the study area, with one private business access within the project area. Commercial and public timber operations are also located within the immediate vicinity of the study area.

The Preferred Alternative would not displace any retail, industrial or commercial uses; therefore, no impacts to sales tax revenues are anticipated. As mentioned in the *Land Use* section, ROW from private property would be acquired. However, the total area of land acquired under the Preferred Alternative does not represent a substantial portion of the total taxable land in the study area. Impacts to property tax revenue would be negligible.

Eighteen (18) private rural access roads would be temporarily impacted during construction to realign with the roads with the new SR 36 alignment. Access to the one known business, Simmons Natural Body Care, could be temporarily disrupted. Business parking would not be impacted under the Preferred Alternative. Daily roadway closures within the project area could impact access to commercial timber operations.

The Preferred Alternative is expected to enhance safety and mobility along SR 36 within the project area. These enhancements could benefit large trucks travelling to and from timber operations or other commercial operations in the vicinity of the project area. The enhanced safety and mobility of SR 36 is expected to alleviate existing limitations along the project segment of SR 36 to facilitate the transport of goods and services. Overall, the short-term, construction-related impacts of the Preferred Alternative would be adverse. However, the long term impacts of the Preferred Alternative would be beneficial to the local economy.

3.5.3 Avoidance, Minimization, and/or Mitigation Measures

Economic impacts would be less than significant. Adequate notification of construction related delays and short-term closures will be provided to the traveling public, local government, and emergency service providers.

A Construction Management Plan will be developed and implemented for the project that will identify the locations of temporary detours, road closures and delays, signage use and placement, and advanced notification procedures.

3.6 Relocations and Real Property Acquisition

3.6.1 Regulatory Setting

Caltrans' Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP 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 [USC] 2000d, et seq.). Please see Appendix C for a copy of Caltrans' Title VI Policy Statement.

3.6.2 Affected Environment

There are approximately 51 privately-owned parcels adjacent to the highway within the project area. The existing right-of-way width varies throughout the project and is, in general, between 40 feet to 100 feet. From HUM MP 36.1 to HUM MP 37.3, Caltrans has existing rights that extend 20 feet of each side of the roadway's centerline. The remainder of the route, from HUM MP 37.3 to HUM MP 40.5, right-of-way extends 50 feet each side of centerline.

3.6.3 Environmental Consequences

Table 15: Summary of Right-of-Way Impacts lists anticipated acquisitions based on preliminary design. This is based on preliminary design only, and will be further refined as the design process progresses. A total of 47 parcels are anticipated to be impacted, which would result in a total of approximately 33 acres of permanent right-of-way impacts. These permanent right-of-way transfers would be needed for construction and maintenance of the proposed improvement. All acquisitions are partial, and no relocations are anticipated. No residential homes or businesses would be acquired. One non-commercial barn structure adjacent the roadway is anticipated to be impacted. This structure is located on Parcel 210-191-005.

Table 15: Summary of Right-of-Way Impacts

TAX SCHEDULE NO.	NET ACQUISITION (ACRES)	PARTIAL OR FULL	STRUCTURE IMPACTED? (YES OR NO AND TYPE)
210-101-011	0.10	Partial	No
210-101-012	4.05	Partial	No
210-192-012	1.50	Partial	No
210-101-003	1.56	Partial	No
210-192-004	3.78	Partial	No
210-192-020	0.63	Partial	No
210-231-020	2.37	Partial	No
210-192-019	0.72	Partial	No
210-192-018	0.73	Partial	No
210-231-005	1.12	Partial	No

TAX SCHEDULE NO.	NET ACQUISITION (ACRES)	PARTIAL OR FULL	STRUCTURE IMPACTED? (YES OR NO AND TYPE)
210-192-007	0.05	Partial	No
210-192-017	0.18	Partial	No
210-192-016	1.20	Partial	No
210-221-017	0.46	Partial	No
210-191-005	0.22	Partial	Yes – Noncommercial Barn
210-192-014	0.18	Partial	No
210-192-013	0.26	Partial	No
210-191-006	0.17	Partial	No
210-191-006	0.06	Partial	No
210-191-046	0.01	Partial	No
210-191-045	0.01	Partial	No
210-191-008	0.05	Partial	No
210-191-009	0.44	Partial	No
210-191-010	0.18	Partial	No
210-191-029	0.08	Partial	No
191-028-000	0.04	Partial	No
210-191-027	0.04	Partial	No
210-191-011	0.17	Partial	No
210-191-026	2.87	Partial	No
210-191-025	1.02	Partial	No
210-191-013	0.81	Partial	No
210-191-024	0.21	Partial	No
210-191-014	1.06	Partial	No
210-191-043	0.22	Partial	No
210-191-041	0.04	Partial	No
210-191-039	0.01	Partial	No
210-191-037	0.94	Partial	No
210-191-015	1.47	Partial	No
210-191-018	0.30	Partial	No
210-191-016	0.15	Partial	No
210-191-017	0.44	Partial	No
210-221-001	0.72	Partial	No
210-201-017	0.11	Partial	No

TAX SCHEDULE NO.	NET ACQUISITION (ACRES)	PARTIAL OR FULL	STRUCTURE IMPACTED? (YES OR NO AND TYPE)
210-201-018	1.35	Partial	No
210-201-019	0.05	Partial	No
210-201-016	0.25	Partial	No
210-201-025	0.41	Partial	No
	TOTAL = 32.76 ac		

Temporary right-of-way impacts in the form of temporary construction easements would also be needed for access, staging, and other temporary construction activities. A total of approximately 10 acres of temporary construction easements are anticipated.

If the approximate seven-acre potential mitigation site is also used, a temporary construction easement possibly in the form of a Special Use Permit would be obtained from the U.S. Forest Service.

3.6.4 Avoidance, Minimization, and/or Mitigation Measures

FHWA will attempt to reduce and minimize the amount of right-of-way required for implementation of the Preferred Alternative. Impacts to real property would be less than significant. ROW acquisition will follow provisions of the following to ensure fair and consistent treatment of ROW acquisitions:

- Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 (P.L. 91-646) as amended by the Uniform Relocation Act Amendments of 1987 (P.L. 100-17); and
- 49 CFR Part 24, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-assisted Programs.
- Implement a comprehensive community outreach program, including ongoing outreach and coordination with affected property owners to minimize the impacts of access disruption or alterations as part of both project design and during construction.

3.7 ENVIRONMENTAL JUSTICE

3.7.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2011, this was $18,530 for a family of three.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project Caltrans' commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

In 2012, the DOT published a final DOT order (DOT Order 5310.2(a)) that updates the DOT's original Environmental Justice Order, DOT Order 5310.2 (1997). DOT Order 5310.2(a) describes how the objectives of environmental justice will be integrated into planning and programming, rulemaking, and policy formulation. The order sets forth steps to prevent disproportionately high and adverse effects on minority or low-income populations through Title VI analyses and environmental justice analyses conducted as part of Federal transportation planning and NEPA provisions. It also describes the specific measures to be taken to address instances of disproportionately high and adverse effects and sets forth-relevant definitions.

Order 6640.23(a), FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, updates FHWA Order 6640.23 (1998) and establishes policies and procedures for the FHWA to use in complying with Executive Order 12898.

DOT Order 5310.2(a)) defines a "disproportionately high and adverse effects on minority and low-income populations" as an adverse effect that:

- Is predominately borne by a minority population and/or a low-income population or;
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority and/or non-low-income population.

3.7.2 Affected Environment

According to the *CEQ's Environmental Justice: Guidance Under the National Environmental Policy Act (EJ Guidance for NEPA)*, a population is identified as minority if "either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." The term "meaningfully greater" is not defined in this guidance.

CEQ and USDOT define minority as persons self-identifying as any one of the following U.S. Census categories for race and ethnicity: Black/African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, or Hispanic (USDOT 2011). Additionally, for the purposes of this analysis, minority also includes all other non-white racial categories that were added in the most recent Census, such as "some other race" and "two or more races." As shown in Table 16, the study area does not meet the definition of a minority population as defined by CEQ. None of the block groups in the study area are 50 percent minority and the percentage of minorities in each block group is less than that of the county and the state.

Table 16: Percent Minority

Geographic Area	Total Population	Minority	
		Number	Percent of Total Population
State of California	37,253,956	22,297,703	59.85
Humboldt County	134,623	30,665	22.78
Census Tract 10902	4,143	682	16.46

Geographic Area	Total Population	Minority	
		Number	Percent of Total Population
Study Area Block Group 1 (10902-1)	678	125	18.44

Source: US Census 2010c

CEQ and DOT define "low income populations" as persons whose median household income is at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines (USDOT 2011). The HHS estimated the poverty level in 2011 for a family of three in California to be $18,530. Block group 10902-1 has an average household size of 2.95 persons and median household income of $34,183, which exceeds the HHS poverty level and does not meet the CEQ and DOT definition of low-income.

While the median household income for block group 10902-1 is above the HSS poverty level, US Census data indicates the percentage of individuals below the poverty line within block group 10902-1 is meaningfully greater than census tract 10902 and Humboldt County (see Table 17). Due to the large geographic size of block group 10902-1 and lack of comprehensive socio-economic data at the Census block level, the location of low-income households within the study area cannot be identified. Therefore, for the purposes of this analysis, it is assumed the study area contains the same concentration of low-income households as block group 10902-1 and an analysis of effects was completed.

Table 17: Income and Poverty

Geographic Area	Median Household Income	Individuals with Income Below Poverty Level
		Percent
Humboldt County	$40,376	18.4
Census Tract 109.02	$44,556	11.2
Study Area Block Group 1 (10902-1)	$34,183	32.5

[1] In 2011 Inflation adjusted dollars.

Source: U.S. Census Bureau 2011d

3.7.3 Environmental Consequences

No Build Alternative

The No Build Alternative would provide no long-term improvements to the roadway. No adverse effects would result, nor would the beneficial safety and operational improvements.

Preferred Alternative

The determination of whether or not the effects of the proposed project are disproportionately high and adverse depends on whether (1) the effects of the project are predominantly borne by a minority or low-income population, or (2) the effects of the project are appreciably more severe or greater in magnitude on minority or low-income populations compared to the effects on non-minority or non-low-income populations. According to DOT Order 5610.2(a), "in making determinations regarding disproportionately high and adverse effects on minority and low-income populations, mitigation and

enhancement measures that will be implemented and all offsetting benefits to the affected minority and low-income populations may be taken into account…" (FHWA 2012).
Potential adverse impacts as a result of the Preferred Alternative include:

- partial right-of-way acquisitions,
- conversion of existing agricultural and timber land uses, and
- construction-related impacts including traffic and access disruptions and increased noise and dust generation.

Partial acquisitions would occur and are distributed along the entire project corridor. The project has been designed to successfully avoid any full property acquisitions or displacements. All partial acquisitions would conform to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), as amended. Beneficial effects of the projects from improved safety and operations would also benefit the entire project area and all people, including EJ populations. The implementation of a Construction Management Plan would reduce the adverse construction-related impacts from construction delays and short-term closures. The conversion of existing agricultural and timber land uses would not result in a loss in viability of the land, nor likely lead to a future conversion of additional land. Visual impacts would occur for users of the roadway however measures will be applied such that the long-term visual impact would be minimized.
Overall, potentially adverse impacts as a result of the Preferred Alternative would be minor after the implementation of avoidance, minimization and/or mitigation measures. The proposed project would not result in disproportionately high and adverse impacts on minority or low-income populations.

3.7.4 Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Preferred Alternative will not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice.

3.8 UTILITIES/EMERGENCY SERVICES

3.8.1 Affected Environment

Utilities located in the project area include overhead power lines and underground telephone facilities. The telephone facilities are owned and maintained by AT&T and are located immediately adjacent to the roadway nearly the entire length of the project. The overhead power lines are owned and maintained by Pacific Gas and Electric (PG&E), and sporadically occur within the project area.

Police protection and traffic enforcement in the study area are provided by the Humboldt County Sheriff's Office and the California Highway Patrol. The Humboldt County Sheriff's Office has jurisdiction over all unincorporated areas of the county (Humboldt County Sheriff's Office 2003). The closest station to the study area is approximately 45 miles northwest of the study area in Eureka, California (Humboldt County Sheriff's Office 2003). The California Highway Patrol (CHP) has jurisdiction over all California state routes, US highways, interstate highways, and freeways in the state (CHP 2012). The closest CHP station to the study area is located approximately 53 miles northwest of the study area in Arcata, California, approximately eight miles north of Eureka, California (CHP 2014). The closest emergency medical facility is the Redwood Memorial Hospital, located approximately 25 miles west of the study area in Fortuna, California. The Bridgeville Volunteer Fire Department located in Bridgeville provides fire protection services within the study area (Humboldt County 2013). In addition, a Department of Forestry

and Fire Protection (CAL FIRE) seasonal fire station is located in Bridgeville and a CAL FIRE Unit Headquarters is located in Fortuna, California.

3.8.2 Environmental Consequences

No Build Alternative

The No Build Alternative would not involve any construction; as such, there would be no conflicts with utilities. There would also be no temporary impacts to emergency services. The safety and operational problems on this stretch of SR 36 would continue, which in turn may also negatively affect reliable and timely access of emergency service providers.

Preferred Alternative

The Preferred Alternative would improve safety and operations of the roadway in the project area and provide more reliable access for emergency service providers. There may be short-term, adverse impacts during construction due to the potential for delays through the project area in the event of an emergency. Though short-term closures are anticipated for the traveling public, emergency access, if necessary, will be accommodated throughout construction. Impacts will be minimized through close coordination between the project construction team and area emergency service providers.

It is anticipated that the Preferred Alternative would require the full relocation of the buried telephone line for the length of the project. This is due to its location immediately adjacent to the roadway and the widening and realigning to occur as a result of the project. Portions of the overhead power line would also need to be relocated in isolated areas. It is anticipated that relocated utilities can be accommodated within the project area surveyed for environmental resources and impacts associated with the relocation are similar in scope and nature to the environmental effects included in this EA/IS. No additional avoidance, minimization, and/or mitigation measures for individual environmental resources related to utility relocation only have been identified thus far. FHWA and Caltrans will continue to coordinate with AT&T and PG&E, the affected utility service providers, prior to and during construction.

3.8.3 Avoidance, Minimization, and/or Mitigation Measures

Project design will continue to consider the effects to utilities. Conflicts with existing utilities will be minimized in design to the extent practicable. Impacts to utilities and emergency services would be less than significant.

Coordination will continue with AT&T and PG&E to ensure all conflicts are identified in design and necessary utility relocations are scheduled to minimize potential service disruptions.
It is anticipated that relocated utilities can be accommodated within the project area surveyed for environmental resources and impacts associated with the relocation are similar in scope and nature to the environmental effects included in this EA/IS. No additional avoidance, minimization, and/or mitigation measures for individual environmental resources related to utility relocation only have been identified thus far.

A Construction Management Plan will be developed and implemented that will identify the locations of temporary detours and signage to facilitate traffic within the area. The Construction Management Plan will specify timeframes for roadway and lane closures. Emergency services such as fire, police, and medical will also be notified one to two weeks in advance of any lane or roadway closures.

In the event of an emergency, emergency vehicles will be accommodated through the project area.

3.9 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

3.9.1 Affected Environment

Existing traffic and transportation conditions and an analysis of the estimated conditions under both the No Action and Preferred Alternative scenario was documented in the *State Route 36 Improvement Project Traffic Impact Report* (Jacobs 2013a). A summary of the existing conditions is included below. Forecasted conditions are included under *Environmental Consequences*.

Existing Conditions

Within the project limits, the existing roadway has narrow travel lanes that vary in width. Some sections or roadway lack a center stripe and are barely wider than a single traffic lane. There are little to no shoulders, sharp horizontal and vertical curves, and the advisory speed limits vary from 15 to 25 mph. The average collision rate (from June 2008 through June 2011) within the project limits (HUM MP 36.1 to HUM MP 40.5) is 29 percent higher than the statewide average for similar facilities.

Roadway Network

State Route 36

SR 36, classified by Caltrans as a minor arterial, is a significant regional, east-west route serving Humboldt County for trips between the Pacific Coast and the Sacramento valley. SR 36 is a conventional two-lane highway and is important as both a recreational and commercial route as well as providing a local service route for nearby small communities. Route 299 to the north and Route 20 to the south are possible alternatives in case of closure due to weather conditions or construction. With Route 299 located 30 miles north along US 101 and Route 20 located 117 miles south along US 101, neither facility provides a convenient alternate route during closures of SR 36.

SR 36 generally serves small, sparsely populated communities. The highway also supports a substantial amount of logging, agricultural and recreational traffic and serves as access to cattle and sheep ranches in eastern Humboldt County. The route originates at its junction with US 101 just south of Fortuna, CA and proceeds along the Van Duzen River Valley through Grizzly Creek State Park, crossing I-5 in Red Bluff, and proceeding to its terminus at the junction with Route 395 in Susanville, CA.

State Route 299 West of Redding

Route 299, west of Redding, is a possible alternative for SR 36 between I-5 and US 101. This section of Route 299 extends from US 101 across the Humboldt, Trinity and Shasta Counties. It is primarily a rural two-lane conventional highway, passing through several communities where it serves as the "main street." Some of the issues in this section include: sharp curves and steep terrain that prevent truck access, limited shoulder widths, few passing opportunities, winter weather conditions and seasonal congestion in Weaverville. The speed limit along the route varies from 25 to 45 mph.

State Route 20 West of Williams

Route 20, west of Williams, is a possible alternative for SR 36 between I-5 and US 101. This section of Route 20 provides highway access to inland lakes as well as to the Mendocino Coast for visitors from inland areas. It is primarily a rural two-lane conventional highway. Recreational trips occur on Route 20

primarily in the months from May to September. The route is used by local residents (mostly near Willits and Fort Bragg) with some commercial activity as well. The speed limit along the route varies from 45 to 55 mph, with reductions down to 25 mph through some communities.

Existing Traffic Volumes and Operations

Existing Traffic Volumes

The existing (2013) traffic volumes provided by the *Office of Travel Forecasting and Modeling* (Caltrans 2013) were used for the traffic analysis. The existing average annual daily traffic (ADT) and peak hour volumes on SR 36 in Humboldt County (from HUM MP 36.0 to HUM MP 41.0) are shown in Table 18 below:

Table 18: Existing (2013) Traffic Volumes

Route	County	Post Mile	Average Annual Daily Traffic	Peak Hour
SR 36	HUM	36.0 – 41.0	1,070	140

Source: Caltrans Office of Travel Forecasting and Modeling 2013
Note that Table traffic volumes include traffic in both directions.

Capacity Analysis and Level of Service Methodology

The set of procedures and methodologies used for estimating the traffic-carrying ability of various transportation facilities is broadly referred to as capacity analysis. Common outputs of capacity analysis are estimates of the level of service (LOS) for a given facility. LOS is a qualitative measure describing operational conditions within a traffic stream, generally in terms of such services measures as: speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six LOS are defined for each type of facility analyzed. Letters designate each level, from "A" to "F", with LOS "A" representing the best operating conditions and LOS "F" as the worst.

Two-lane highways functioning as access routes to Class I facilities, serving as scenic or recreational routes, or passing through rugged terrain (where high-speed operation would be impossible), are assigned to Class II. According to the *Highway Capacity Manual* (HCM 2010), Class II highways are highways where motorists do not necessarily expect to travel at high speeds. SR 36, within the project limits, parallels the Van Duzen River which is federally designated as a Wild & Scenic River. The area is densely forested and extremely steep with geologically unstable hillsides. Therefore, SR 36 in the project limits is assumed to be a Class II highway for traffic analysis purposes. The LOS for Class II highways is defined only in terms of *percent time spent following*. This term is defined as the average percentage of travel time that vehicles must travel in platoons behind slower vehicles due to inability to pass. The criteria (break points) for LOS for a Class II two-lane highway are shown in Table 19 below:

Table 19: Vehicle LOS for Class II Two-Lane Highways

Level of Service (LOS)	Percent Time Spent Following
A	< 40 %
B	> 40-55 %
C	> 55-70 %
D	> 70-85 %

Level of Service (LOS)	Percent Time Spent Following
E	> 85 %

Source: Highway Capacity Manual (HCM 2010), Exhibit 15-3

HCM 2010 defines the percent time spent following thresholds for LOS A through LOS E. At LOS F, the demand flow in one or both directions would exceed the capacity of the segment. Passing would be virtually impossible and the heavy congestion would exist on the segment.

Existing Traffic Operations

The LOS analysis results indicate that SR 36 is operating at LOS B status during peak hours.

Existing Bicycle Facilities

Bicycles are allowed on the entire length of SR 36; despite the fact that there are no dedicated bicycle facilities. The total shoulder width within the project limit ranges from 0 to 4 feet, with treated shoulders ranging from 0 to 4 feet; however, for the majority of SR 36, the treated shoulders are between 0 and 2 feet.

Existing Transit-Regional

Southern Trinity Health Services (STHS) provides transportation services for the southeastern portion of the Humboldt County with a mix of fixed route and demand response. A public transit service, "Dial-a-Ride", is available Mondays through Friday for Dinsmore, Mad River, Ruth and Hettenshaw Valley. These transit routes are located east of the project limits and likely would not be impacted by the SR 36 improvement project.

Accident History

The collision history from June 2008 through June 2011 has been obtained from Caltrans. Caltrans maintains an accident database called the Traffic Accident Surveillance and Analysis System (TASAS). The information from the TASAS database (Caltrans 2013) was used for general planning purposes and as an indicator of how the collision rate of a particular segment compares to the collision rate averages on similar routes in the state. Table 20 provides collision data for the study segment of SR 36. Table 21 provides the collision rates for SR 36 in the project area as compared to the collision rate averages on similar routes statewide.

Table 20: Collision Data within Project Limits

Analysis Year	Mile Post	Length (miles)	# Accidents	Avg. # Accidents /Mile	Reported Accidents/ mile/year
2002-2011[1]	HUM 36.1-40.5	4.4	19	4.32	0.43
2008-2011[2]	HUM 36.1-40.5	4.4	12	2.73	0.68

[1]Source: SR 36 Transportation Concept Report, January 2012.
[2]Source: Table B of the California Department of Transportation TASAS database (from 06/30/08 through06/30/11).
Note: The table above reflects *reported accidents* only.

Table 21: Comparison of Collision Rate Averages

Analysis Year	Mile Post	Actual Collision Rates on Segment		Statewide Average for Highway Type	
		Fatal + Injury	Cumulative	Fatal + Injury	Cumulative
1997-2002[1]	HUM 36.1-40.5	1.06	1.24	1.12	2.22
2004-2008[2]	HUM 24.8-45.68	1.02	1.83	1.00	1.98
2008-2011[3]	HUM 36.1-40.5	1.34	2.29	0.89	1.78

[1]Source: Table B of the California Department of Transportation TASAS Database (from 10/01/97 through 09/31/02).
[2]Source: Caltrans SR 36 Transportation Concept Report, January 2012 (from 01/01/04 through 12/31/08).
[3]Source: Table B of the California Department of Transportation TASAS database (from 06/30/08 through 06/30/11).

During the analysis period from June 2008 through June 2011, a total of 12 collisions were reported. These collisions resulted in no fatalities and seven injuries. The 12 reported collisions occurred at separate locations. There was no evidence of a high-probability collision area within the project limits. The primary reasons for collisions are listed below:

- Four were the result of unsafe speeds
- Four were the result of improper turns
- Three involved other violations
- The primary collision factor for one crash was unknown

The weather and daylight conditions are listed below (some collisions were recorded without any of these conditions noted while others may have more than one of these conditions noted):

- Five collisions occurred under dark, low-visibility conditions
- Five collisions occurred when the road surface was snowy/icy
- Two collisions occurred while it was snowing

Five of the collisions involved single vehicles that struck fixed objects, and five vehicles overturned.

The actual average collision rate within the project limits is 29 percent higher than the statewide average. However, segment collision rates higher than the statewide average do not necessarily indicate that corrective actions are warranted. Collision rates can be greatly influenced by the length of the segment as well as the time period that is measured.
It should also be noted that the Mad River Ranger District of Six Rivers National Forest and Caltrans have indicated to FHWA that many accidents in the project area go unreported. During site visits, FHWA has observed: a number of abandoned vehicles off the road off the embankments, remnants of side view mirrors on the round, tire tracks on the shoulders (indicating swerving) and vehicle rub marks on tree bark adjacent to the road. It is likely that the remote location of the project area contributes to unreported accidents.

3.9.2 Environmental Consequences

No Build Alternative

The No Build Alternative for purposes of the traffic analysis represents future traffic conditions assuming a continuation of existing facility conditions. It represents modeled traffic volumes that can be expected in future conditions without any project improvements which can serve as the baseline for comparison to modeling results of the Preferred Alternative. The results of No Build or No Action Alternative modeling are presented below.

Opening Year Traffic Volumes/Operations

Travel Forecasting

According to the *Caltrans Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002), if a traffic model is not available to determine the future forecasts, historic growth rates and current trends can be used to project future traffic volumes. The historic growth rate on SR 36 is considered to be 1.0-1.5% per year as documented in *the State Route 36 Transportation Concept Report* (Caltrans 2012).

Opening Year (2017) No Action Alternative Traffic Volumes

Applying the conservative 1.5% yearly growth rate to the existing (2013) ADT and peak hour volume, the opening year (2017) No Action Alternative (without project improvements) traffic volumes are estimated below:

- 2017 No Action Alternative ADT: 1,150
- 2017 No Action Alternative peak hour: 150 vehicles per hour (vph)

Opening Year (2017) No Action Alternative Traffic operations

The input data used to conduct the existing (2013) conditions traffic analysis was utilized to analyze the opening year (2017) No Action Alternative traffic operations. The opening year (2017) No Action Alternative traffic volume forecasts were used.

The capacity analysis results illustrated in Table 22 indicate that the study corridor would operate at LOS B during the peak hour assuming the opening year (2017) No Action Alternative traffic projections. A slight increase in *the percent spent following* is observed compared to the existing (2013) conditions traffic analysis results.

Table 22: Opening Year (2017) No Action Alternative Level of Service (LOS)

Scenario	Peak Hour Volume (vph)	Directional Split (%)	Percent Time Spent Following (%)	Volume to Capacity Ratio (v/c)	Level of Service (LOS)
Opening Year (2017) No Action Peak Hour	150	60/40	41.9%	0.08	B

Source: Appendix A, HCS Analysis, Jacobs (2013)

Preferred Alternative

As stated earlier, the purpose of this project is to enhance traffic safety while improving mobility for vehicular travel. The project would realign and widen the existing highway between HUM MP 36.1 and HUM MP 40.5 to attain two 12-foot wide travel lanes and 2- to 4-foot paved shoulders. In addition, the project would include new signing and pavement delineation and acquisition of new right-of-way.

The proposed project is being designed to generally operate around 30 mph. The design currently reflects a 4-foot paved shoulder, however, the shoulder width could be reduced to 2-foot as means of reducing cost. The traffic analysis was conducted assuming 2-foot shoulder to obtain more conservative results. Widening the shoulders to 4-foot within the project limits would be expected to have a minor beneficial effect as compared to implementing 2-foot shoulders.

Opening Year (2017) Project-Only Trip Attraction

The roadway improvements within the project limits are not expected to attract many additional trips on SR 36. Much of the existing travel in the study segment consists of daily commuting within and between the communities for work, school, local area services and retail. Goods movement on the route is primarily based on the area's natural resources (timber and gravel).

The route experiences recreational travel in the summer months because it provides access to numerous attractions. The roadway improvements limited to the study segment (4.4 miles) would not attract a substantial number of additional trips because the SR 36 alignment has other identified constraints such as landslides, falling rocks, mountain passes, substandard roadway widths and geometric alignments. For the purpose of this traffic analysis, it was assumed that the proposed roadway improvements would attract 5% additional traffic on SR 36. This would result in the following additional trips in the corridor.

- Increase in the Annual Daily Traffic (ADT): 55 daily trips
- Increase in the Peak Hour traffic: 10 trips

Opening Year (2017) Preferred Alternative Traffic Volumes

Assuming the proposed roadway improvements would attract 5% additional traffic on SR 36, the opening year (2017) Preferred Alternative (No Action Alternative + project-only) traffic volume estimates are documented below. For ease of comparison to the baseline, in parentheses there are the No Action estimates as described above under the No Build Alternative:

- Opening year (2017) Preferred Alternative Annual Daily Traffic: 1,205
  (Compared to (2017) No Action ADT of 1,150)
- Opening year (2017) Preferred Alternative peak hour: 160 vehicles per hour (vph)
  (Compared to (2017) No Action peak hour of 150 vph)

Opening Year (2017) Preferred Alternative Traffic Operations

The following improvements were assumed within the project limits to analyze the opening year (2017) Preferred Alternative traffic operations:

- Travel Lane Width: Two 12-foot lanes
- Shoulder Width: 2-foot treated shoulder
- Advisory Speed: 35 mph (AASHTO-equivalent to Caltrans 30 mph speed)

The LOS analysis results (refer to Table 23) indicate that the study corridor would operate at LOS B during the peak hour assuming the opening year (2017) Preferred Alternative traffic projections. The capacity and LOS results remain nearly the same compared to the opening year (2017) No Action Alternative. Table 23 below provides a summary of this information.

Table 23: Opening Year (2017) Preferred Alternative Level of Service (LOS) Compared to No Action

Scenario	Peak Hour Volume (vph)	Directional Split (%)	Percent Time Spent Following (%)	Volume to Capacity Ratio (v/c)	Level of Service (LOS)
Opening Year (2017) No Action Peak Hour	150	60/40	41.9%	0.08	B
Opening Year (2017) Preferred Alternative Peak Hour	**160**	**60/40**	**42.9**	**0.09**	**B**

Source: Appendix A HCS Analysis, Jacobs (2013)

It is important to note that the Preferred Alternative would improve the operating speed of this segment from 15-20 mph to approximately 30 mph. Therefore, while a slight increase in the *percent time spent following* may result from the increased traffic, the average speed traveled by those motorists is expected to increase, thereby reducing travel times and improving mobility.

Opening Year (2017) Preferred Alternative Safety Evaluation

The proposed geometric improvements are expected to improve safety within the project limits. Improvements, such as improved curve banking and wider shoulders, would help keep vehicles on the roadway, likely reducing the run-off-road and fixed object collisions. The widened shoulders and lanes would also improve the ability to recover if a motorist leaves the lane. Additionally, widening of the roadway to accommodate two 12-foot lanes would reduce the likelihood of head-on collisions. The project is being designed to operate around 30 mph. The current advisory speed within the project segment varies from 15 to 25 mph. Other safety improvements include centerline and edge striping, centerline rumble strips and the use of spiral transitions. In addition, clear zones throughout the corridor would be improved. The improved cross-sectional elements are likely to reduce accidents resulting from unsafe operating speeds. Overall, the preferred alternative would have less speed variance, meaning fewer sharp curves, and is therefore likely to reduce overturning crashes within the project limits.

FHWA-CFLHD used the *FHWA Interactive Highway Safety Design Model*, a road safety analysis program, to predict the number of crashes for the No Action Alternative and the Preferred Alternative for the years 2017 and 2037. These values were then compared to the California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) 2010 database for County and State-wide average crash rates for unincorporated state highways. FHWA's analysis indicates that the proposed design would reduce the crash rate by nearly a factor of 10 in comparison to the No Action Alternative. The projected crash rate of 0.7 crashes per mile per year would be less than half of the 2010 County average and approximately one-fourth of the 2010 State-wide average for unincorporated state highways. Table 24 displays the summary of this analysis.

Table 24: Summary of Interactive Highway Safety Design Model Analyses

	No Action Alternative	Preferred Alternative	Humboldt County	Statewide
Total Crashes between 2017 and 2037	599	59	541	41443

Crash Rate (crashes/mile/year)	6.6	0.7	1.6	2.7
Crash Rate (per million vehicle miles)	10.2	1.1	n/a	n/a

Sources: California Highway Patrol Statewide Integrated Traffic Records System, FHWA Interactive Highway Safety Design Model
Note: The data indicated above is forecasted based on average crash rates based on roadway design features and ADT.

Pedestrian/Bicycle Travel Impacts

No dedicated bicycle and pedestrian facilities exist in the project area. The project area is located in the rural area with very little pedestrian and bicycle activity where pedestrians and bicyclists typically use county roads that lack sidewalks and bicycle lanes. The Preferred Alternative would slightly improve conditions for pedestrian and bicyclists by widening the roadway and adding paved shoulders.

Horizon Year Traffic Volumes/Operations

Travel Forecasting

According to the Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans 2002), when a general plan build-out model is not available, the closest future forecast model year to build-out should be used. Assuming the 20-year design period, the closest future model year data available was for year 2037. Therefore, 2037 was assumed to be the horizon year for future traffic analysis.

Horizon Year (2037) Project-Only Trip Attraction

Similar to the opening year (2017) Preferred Alternative analysis, it was assumed that the proposed roadway improvements would attract 5% additional traffic on SR 36. This would result in the following additional trips in the corridor.

- Increase in the ADT: 70 daily trips
- Increase in the peak hour: 10 trips

Horizon Year (2037) Preferred Alternative Traffic Volumes

Assuming the proposed roadways improvements would attract 5% additional traffic on SR 36, the horizon year (2037) Preferred Alternative (No Action Alternative + project-only) traffic volumes are documented below. For ease of comparison to the baseline, in parentheses are the No Action estimates as described above under the No Build Alternative:

- Horizon year (2037) Preferred Alternative ADT: 1,390
  (*Compared to (2037) No Action Alternative ADT of 1,320*)
- Horizon year (2037) Preferred Alternative peak hour: 190 vph
  (*Compared to (2037) No Action Alternative peak hour of 180 vph*)

Horizon Year (2037) Preferred Alternative Traffic Operations

Similar to the opening year (2017) Preferred Alternative analysis, the following improvements were assumed within the project limits to analyze the horizon year (2037) Preferred Alternative traffic operations:

- Travel Lane Width: Two 12-foot lanes

- Shoulder Width: 2-foot treated shoulder
- Advisory Speed: 35 mph (AASHTO-equivalent to Caltrans 35 mph speed)

The LOS analysis results in Table 25 indicate that the study corridor would operate at LOS B during the peak hour assuming the horizon year (2037) Preferred Alternative traffic projections. The capacity and LOS results remain the same compared to the horizon year (2037) No Action Alternative except for a slight 1% increase in the *percent time spent following* is observed due to the 5% additional traffic attracted in the corridor. Again, this should not be considered an adverse project-related impact, as it would not be perceptible to the average motorist.

Table 25: Horizon Year (2037) Preferred Alternative Level of Service (LOS) Compared to No Action

Scenario	Peak Hour Volume (vph)	Directional Split (%)	Percent Time Spent Following (%)	Volume to Capacity Ratio (v/c)	Level of Service (LOS)
Horizon Year (2037) No Action Peak Hour	180	60/40	44.8%	0.10	B
Horizon Year (2037) No Action Peak Hour	190	60/40	45.8%	0.10	B

Source: Appendix A, HCS Analysis, Jacobs (2013)

As in the 2017 operations analysis, it is perhaps more important to note that the Preferred Alternative would improve the operating speed of this segment from 15-20 mph to approximately 30 mph. So once again, while a slight increase in percent time spent following may result from the increased traffic, the length of road traveled in this segment would reduce by 0.5 mile and the average speed traveled by those motorists is expected to increase, thus reducing overall travel times and improving mobility.

Horizon Year (2037) Preferred Alternative Safety Evaluation

The safety benefits of the Preferred Alternative for the horizon year (2037) are the same as described under "Opening Year (2017) Preferred Alternative Safety Evaluation."

Construction Impacts

Construction of the proposed realignment and widening of the existing highway within the project limits is expected to cause disruption to traffic depending upon the time of travel. During construction, the proposed closure times are: Monday through Friday, 8am to 12pm and 1pm to 5pm. If necessary, night closures may also occur from 9pm to 6am. During periods when the temporary closures are not in place, one lane of traffic would remain open during construction with a maximum 30-minute delay. Approval by the District 1 Lane Closure Review Committee will be required for any full or partial highway closures of SR 36 which exceed 30 minutes of total travel delay time to the traveling public. Consideration of other potential delays and closures in the area would be considered prior to approval to ensure no major disruptions to regional traffic would occur. Travel times through the project area would increase during construction and queue buildups may occur near the work zone due to temporary closures or reduced speeds and interaction of construction traffic with vehicular traffic.

During weekday closures, parallel and connecting routes can serve as an alternative for travelers. However, the two closest State Highway alternatives are SR 299 to the north and SR 20 to the south,

which are both many miles away and would require lengthy detours. SR 3 could also serve as a north-south connector between SR 36 and SR 299.

Due to the limited amount of pedestrian and bicycle activity along SR 36 through the project area and lack of existing pedestrian and bicycle facilities, construction impacts to these travel modes are anticipated to be negligible. However, temporary closures that would apply to vehicles are also anticipated to apply to pedestrians and cyclists for safety reasons.

3.9.3 Avoidance, Minimization, and/or Mitigation Measures

No adverse traffic impacts are expected due to the proposed roadway improvements in the study segment along SR 36 and no permanent mitigation measures are required. Construction of the proposed improvements is expected to cause disruption to traffic depending upon the time of travel. Impacts to traffic and transportation would be less than significant with the following measures being implemented to minimize the effects to the traveling public:

- Adequate notification of construction related delays and short-term closures will be provided to the traveling public, local government, and emergency service providers.
- A Construction Management Plan will be developed and implemented for the project that will identify the locations of temporary detours, road closures and delays, signage use and placement, and advanced notification procedures.

3.10 VISUAL AND AESTHETICS

3.10.1 Regulatory Setting

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

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

3.10.2 Affected Environment

The following discussion summarizes the evaluation of existing visual resources as described in a technical report entitled *California State Route 36 Improvement Project Visual Impact Assessment* (Jacobs 2013b). An assessment of potential effects to the visual environment was also included in this technical report, which is summarized below in *Environmental Consequences*.

Aesthetics and visual resources are generally defined as the natural and built features of the landscape visible from public view that contribute to the public's appreciative enjoyment of the environment. This section describes the visual environment so that the potential future visual impact to the environment due to changes resulting from the proposed action can be assessed. The goal is to characterize the

aesthetic condition of the project site, including all onsite structures and facilities, and assess how the condition would be altered by implementation of the project.

The evaluation of visual resources in the context of environmental analysis typically addresses the contrast between visible landscape elements. Collectively, these elements comprise the aesthetic environment, or landscape character. The landscape character is compared to the proposed project's visual qualities to determine the compatibility or contrast from the proposed action.

Views are defined as visual access to, or visibility of, a natural or built landscape from an observer viewpoint. Views are characterized by their distance from the viewer, either foreground, middle-ground, or background. Foreground views are those immediately presented to the viewer, and include objects at close range that tend to dominate the view. Middle-ground views occupy the center of the view shed and generally include objects that are the center of attention if they are sufficiently large or visually different from adjacent visual features. Background views include distant objects and other objects that form the horizon. Objects in the background eventually fade to obscurity with increasing distance. In the context of the background, the skyline can be an important visual context because objects above this point are highlighted against the typically blue background.

A view shed, or visible area, is the total range of views experienced from an observer's viewpoint. A view shed is defined by landscape features that define or obstruct sightlines, or the line of sight between an observer and a viewed object. Views may be partially or entirely obstructed by topography, buildings and structures, and/or vegetation. The closer an intervening obstruction is to the observer, the more it will obstruct the view shed. Accordingly, a small obstruction in the foreground of a view will block proportionally more than a relatively large obstruction in the middle or background. Likewise, a topographically flat landscape constrains visibility by placing the observer and surroundings at the same elevation, reducing the size of the view shed and rendering views subject to obstruction by even small intervening objects.

Project Setting and Existing Visual Resources

Study Area

SR 36 serves as a major east/west connection between Red Bluff to the east and Fortuna and Eureka to the west and is included in the 70-mile stretch of SR 36 that is eligible for designation as a California Scenic Highway. It is not currently officially designated a scenic highway. The project corridor is located in a remote area characterized by steep, heavily forested hills, with mature trees and other vegetation typically growing immediately adjacent to the roadway. The nearest communities are located outside the study area, and include the small towns of Bridgeville located approximately nine miles to the west, and Dinsmore, which is located northeast of the study area.

Tall forests block distant views from the road through much of the project corridor, although some areas have sparser, low-lying vegetation and grasses that allow for intermittent views of distant wooded hills and open sky. Power poles, power lines, signage residences, access roads and roadway pull-offs are visible from the roadway in a few locations. Since the existing roadway was built in a mountainous area, views of cut slopes on the upslope side of the road are fairly common throughout the corridor. These slopes range in appearance from rocky vegetated side slopes with exposed roots, to steeper slopes vegetated with grasses, shrubs, trees; exposed rock; and exposed sparsely vegetated soil or stacked rock treatments (rock buttresses). Despite the presence of these human-made visual intrusions, roadway traveler views in the project corridor are dominated by the surrounding natural landscape. Many

segments of SR 36 within the project corridor consist of a narrow, winding road through dense forests, creating a closed-in visual experience for roadway travelers.

Within the project corridor, unstable slopes and landslides have damaged portions of the roadway over time, thus resulting in roadway segments with substandard widths that lack two full lanes with no shoulders, guardrails and no center stripe. As a result, the roadway configuration within the project corridor is inconsistent with connecting segments of SR 36, which have a wider pavement with two lanes, center stripe and shoulders.

Except for the proposed wetland mitigation site located on Six Rivers National Forest land, the land within the study area is privately owned. According to the 2002 Humboldt County Existing Land Use Map (Humboldt County 2002), the major land uses within the study area include: timber production, rural residential areas, vacant land and public land.

The Van Duzen River is located within the study area and is in proximity to approximately 0.5 miles of the roadway in the northeastern portion of the study area.

Landscape Unit

The project corridor's visual environment can be divided into distinct landscape units that contain visual characteristics such as landforms, land cover or human-made development that help define the unit's boundaries. Landscape units can be thought of as "outdoor rooms," each with distinct visual characteristics (FHWA 1981). The project corridor is encompassed by one landscape unit-Forestland. This landscape unit is characterized by forested and vegetated areas along the roadway with limited human-made elements, such as roadway cut slopes, power poles, power lines, roadway signage, residences, gated private roads and roadway pull-out areas. The Forestland Landscape Unit is shown on Figure 14 below. Photos of the existing conditions at different key observation points were taken so that they could be evaluated against the proposed action. Figure 14 identifies the locations of the key observation points.

View Shed

A view shed is the total visible area from a single or multi-observation position. View sheds are areas seen from highways, trails, towns or other viewer locations (USDA 1995). The majority of the project corridor is characterized by a narrow, winding roadway with dense forests and other vegetation located adjacent to the roadway. Although the views of distant wooded hillsides are intermittently available along the corridor, many distant views are blocked by tall, dense forest growth. Due to this presence, the view shed established for this study includes the roadway corridor as well as the adjacent vegetation. The Forestland Landscape Unit is included within this view shed, as can be seen in Figure 14.

Scenic Routes, Visual Landmarks and Important Vistas

Scenic Route

This section describes the existing visual character of this 70-mile segment of SR 36 to help assess how the proposed project may affect SR 36's overall conditions within the project corridor.

There have been various forms of human-made modifications to the natural landscape. They are visually evident throughout the SR 36 corridor and vary in both type and level of visual contrast. Such visual intrusions include: access roads, a range of varying cut slopes, guardrails, power poles and power

lines, signage and scattered rural residences and private access roads which are evident in the following photos.

Visual Landmarks and Vistas

No important vistas or local officially designated landmarks were identified within the project corridor. According to the Historical Resources Evaluation Report (JRP 2013), no historic resources were identified in the project corridor.

Visual Quality of Project Corridor by Viewpoint

Viewpoints were established to determine the existing visual quality for views within the project corridor. These were used in order to develop visual simulations for further analysis. Seven key observation points (KOP) were selected to represent typical views that may be seen or valued by the project's viewer group, which can be seen in Figure 14 earlier in the section. All KOPs are located within the one landscape unit identified in the project corridor as the Forestland Landscape Unit. Visual simulations were prepared for four of the KOPs based in photographs taken by the study team (unless otherwise noted). The KOP locations were selected to represent the potential change to visual quality that may be caused by various elements of the proposed project. The viewpoint images and their applicable evaluation criteria are provided in Table 26 below. The existing visual quality is presented below in Environmental Consequences of the Preferred Alternative with a side-by-side comparison.

Figure 14: Key Observation Point Photo Locations, Landscape Unit and Evaluation Criteria Locations

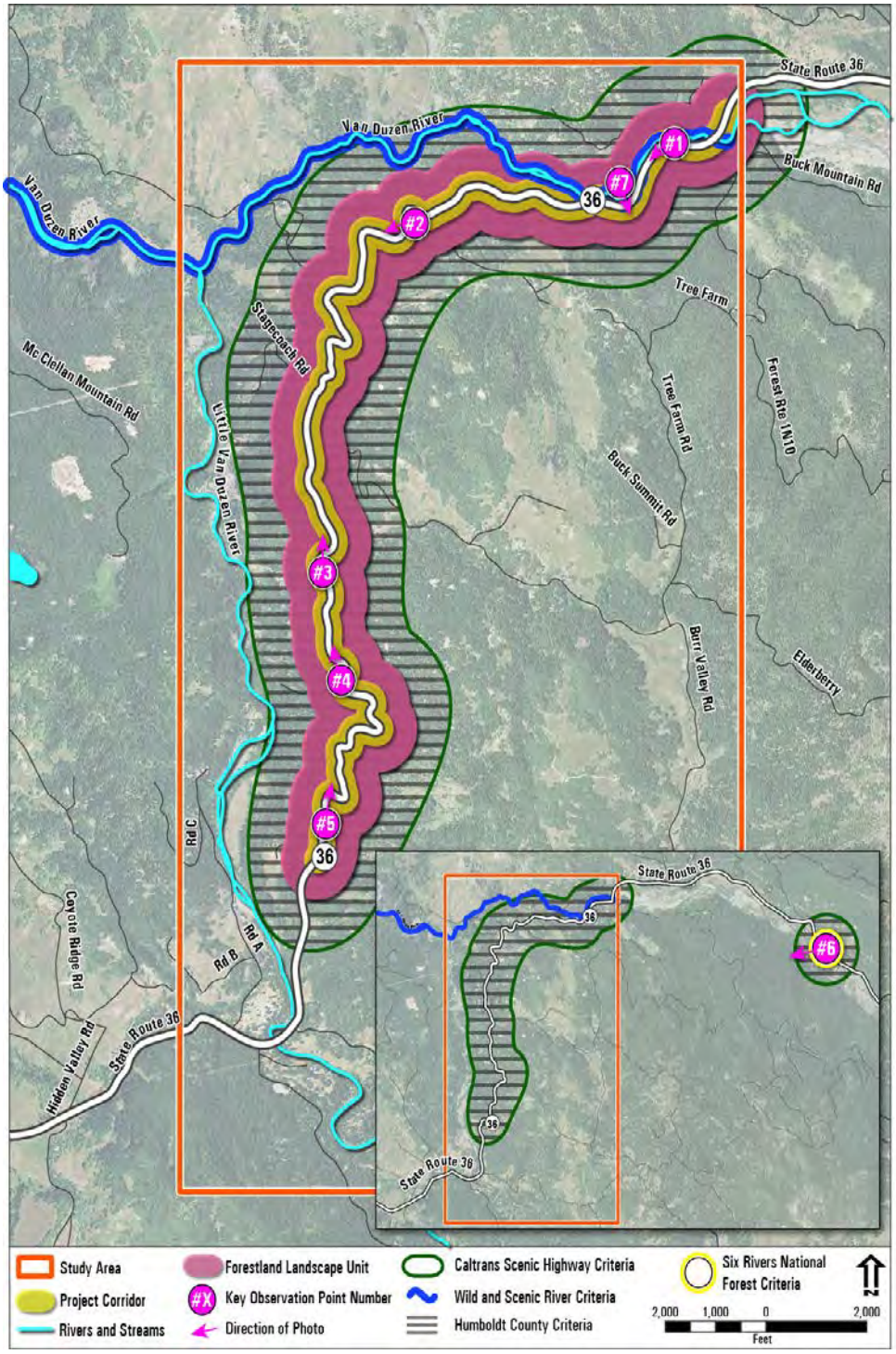


Table 26: Applicable Criteria for Key Observation Points

VIEWPOINT	APPLICABLE EVALUATION CRITERIA
Viewpoint #1	▪ FHWA ▪ Caltrans Scenic Highway Guidelines ▪ Humboldt County
Viewpoint #2	▪ FHWA ▪ Caltrans Scenic Highway Guidelines ▪ Humboldt County
Viewpoint #3	▪ FHWA ▪ Caltrans Scenic Highway Guidelines ▪ Humboldt County
Viewpoint #4	▪ FHWA ▪ Caltrans Scenic Highway Guidelines ▪ Humboldt County
Viewpoint #5	▪ FHWA ▪ Caltrans Scenic Highway Guidelines ▪ Humboldt County
Viewpoint #6	▪ FHWA ▪ Caltrans Scenic Highway Guidelines ▪ Humboldt County ▪ Six Rivers National Forest
Viewpoint #7	▪ FHWA ▪ Humboldt County

3.10.3 Environmental Consequences

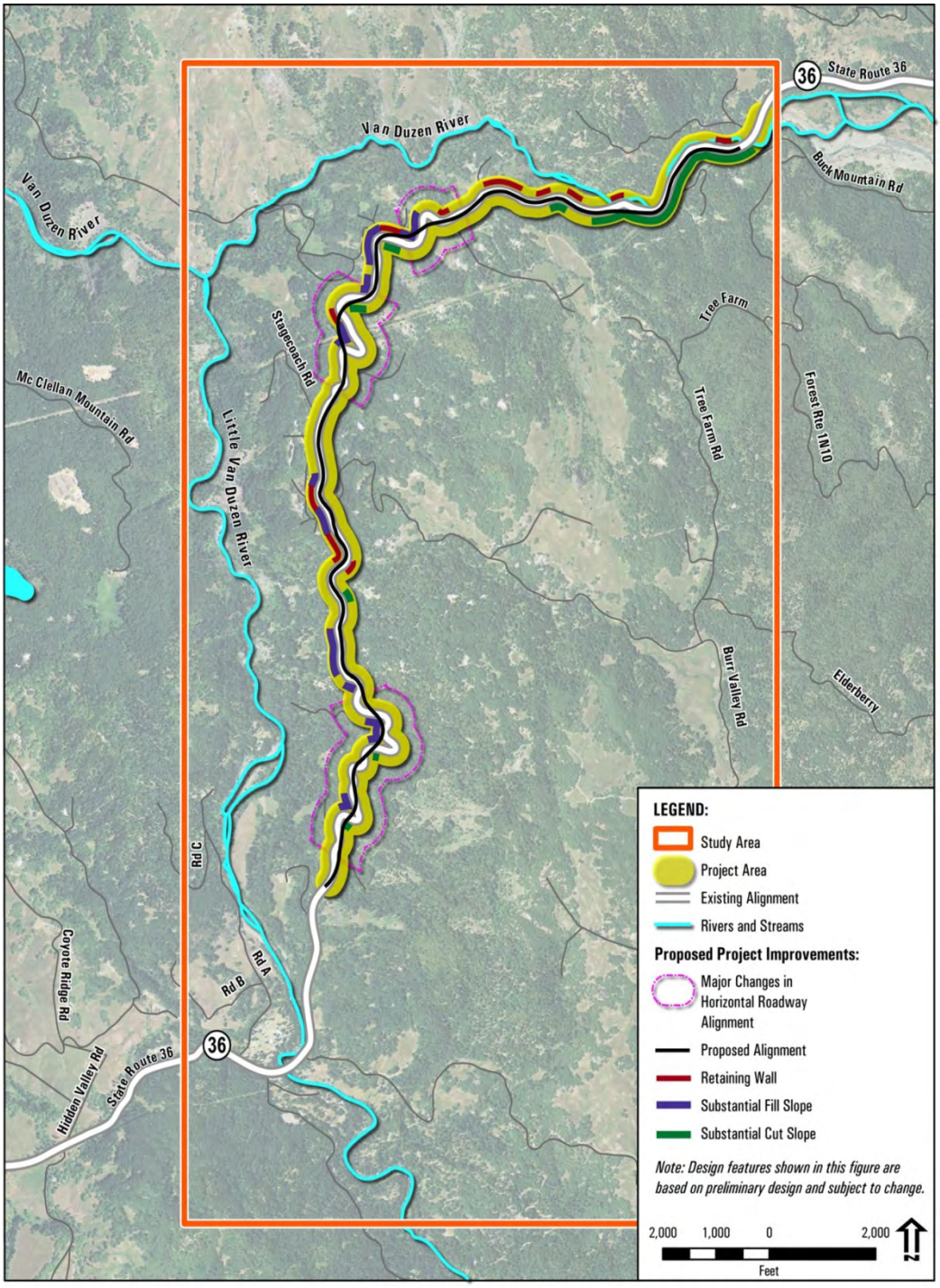
No Build Alternative

The No Build Alternative would be a continuation of existing conditions and there would be no measurable visual changes to the existing conditions as presented in the seven key observation points above. Existing conditions in relation to that of the Preferred Alternative is presented below.

Preferred Alternative

The Preferred Alternative would involve road widening and road realignment in various areas throughout the project corridor. These improvements would require cut slopes, fill slopes, retaining walls, and slope stabilization treatments at various locations within the project corridor (see Figure 15). Retaining walls and fill slopes would be located downhill from the road and not be visible for project motorists. Cut slopes and slope stabilization treatments will be used on the uphill side of the road and will be visible to project motorists. The term "slope stabilization treatment" refers to three possible slope treatments: (1) rock buttresses with 1 to 1.5 slope gradient, (2) soil-nail walls, or (3) cut slope with wire mesh. Visual impacts resulting from these improvements were assessed according to the applicable FHWA, California Scenic Highway, Humboldt County and Six Rivers National forest (SRNF) criteria. These proposed improvements represent preliminary design and may change as design progresses. However, the types and magnitude of changes are represented below.

Figure 15: Proposed Improvements within Project Corridor



Visual changes were determined by assessing change in the Forestland Landscape Unit's visual quality based on the changes depicted for each KOP, and then predicting viewer response to that change. Seven KOPs were selected to represent typical views that may be seen or valued by the project's viewer groups. All visual changes were considered from the perspective of the project viewer groups and their sensitivity toward the visual environment. Changes to visual resources were assessed by review of the proposed project design, focusing on areas of proposed cuts and fills and road realignment. Views of

natural resources (native trees and forests, wooded hillsides, wetlands) are considered scenic and valuable to the local community, as stated in the local and state scenic highway program for which SR 36 is eligible. Project design drawings were incorporated into existing condition photographs of four KOPs and were used to create visual simulations of the proposed project. Images of "existing" and "post-construction" conditions were compared and analyzed to determine if changes in the visual quality of each viewpoint would occur. The evaluation of visual changes is based on a preliminary 15 percent complete design. For this reason, the photo simulations in this section do not show all design details, such as roadside drainage, signage, etc. The project's impacts on the visual quality of the Forestland Landscape Unit based on the selected viewpoints within that landscape unit are described below.

Method to Identify Visual Character

Visual character is descriptive and non-evaluative, which means it is based on defined attributes that are neither good nor bad in themselves. A change in visual character cannot be described as having good or bad attributes until it is compared with the viewer response to that change. If there is public preference for the established visual character of a regional landscape and resistance to a project that would contrast that character, then changes in the visual character can be evaluated.

Method to Assess Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the view shed. The FHWA states that this method should correlate with public judgments of visual quality well enough to predict those judgments. This approach is particularly useful in highway planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating each adverse impact that may occur as a result of a project. The three criteria for evaluating visual quality can be defined as follows:

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

Methods of Predicting Viewer Response

Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes brought about by a highway project.

Viewer sensitivity is defined both as the viewers' concern for scenic quality and the viewers' response to change in the visual resources that make up the view. Local values and goals may confer visual significance on landscape components and areas that would otherwise appear unexceptional in a visual resource analysis. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of its visual goals. Analysts can learn about these special resources and community aspirations for visual quality through citizen participation procedures, as well as from local publications and planning documents.

Viewer exposure is typically assessed by measuring the number of viewers exposed to the resource change, type of viewer activity, duration of their view, speed at which the viewer moves, and position of the viewer. High viewer exposure heightens the importance of early consideration of design, art, and architecture and their roles in managing the visual resource effects of a project.

Method of Assessing Project Impacts

The visual impacts of project alternatives are determined by assessing the visual resource change due to the project and predicting viewer response to that change. Visual resource change is the sum of the change in visual character and change in visual quality.

The viewer response to project changes is the sum of viewer exposure and viewer sensitivity to the project as determined in the preceding section.

The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

Definition of Visual Impact Levels

Low: Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.
Moderate: Moderate adverse change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices.
Moderately High: Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.
High: A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

Viewpoint #1: Area in Northeast Portion of Corridor-Facing Southwest

This viewpoint represents an area of substandard width with no center stripe that would be improved to two, 12-foot lanes with 4-foot shoulders and new striping. The roadway elevation would be raised between 0.0 and 2.5 feet. A high cut slope with a wire mesh cut slope treatment is also anticipated in this area.

KOP #1: Area in northeast portion of corridor, looking southwest Before Construction View

KOP #1: After Construction View

FHWA Criteria

The Preferred Alternative's likely effects on the visual quality rating for Viewpoint #1, based on FHWA criteria of vividness, intactness and unity are described below:

- **Vividness**: Vividness is slightly reduced but remains high.
- **Intactness**: Intactness rating is reduced from high to moderately low.
- **Unity**: Unity rating is reduced from moderately high to moderately low.

- **Overall Visual Quality Rating**: The overall visual quality rating for this KOP would be reduced from high to moderate/average.

California Scenic Highway Criteria

Visual changes that would occur in Viewpoint #1 are mostly inconsistent with the California Scenic Highway program criteria. The tall cut slop with wire mesh treatment will create a highly noticeable human-made visual intrusion on the views of the forest, resulting in a strong visual change to the area's natural beauty. Vividness, intactness and unity would be reduced, and the overall change in visual quality would be substantial.

Humboldt County Criteria

Viewpoint #1 is mostly inconsistent with Humboldt County's scenic criteria. It continues to provide views of the county's characteristic scenic beauty; however, those views are intruded upon by the tall cut slop, which is visually dominant in this view. Views of forested areas remain in this view, but they are less prominent than the existing condition.

Viewpoint #2: Area in Northern Portion of Project Corridor-Facing West

This viewpoint represents an area of substandard width with no center stripe that would be improved to two, 12-foot lanes with 4-foot shoulders and new striping. Roadway improvements would involve changes in roadway elevation, raising the roadway up to 12 feet in some areas and lowering the roadway up to 7 feet in other areas. This viewpoint also depicts an area of roadway realignment and cut slopes with rock buttress treatments.

KOP #2: Area in northern portion of project corridor looking west Before Construction View

KOP #2: After Construction View

FHWA Criteria

The Preferred Alternative's likely effects on the visual quality rating for Viewpoint #2, is based on FHWA criteria of vividness, intactness and unity, which are described below:

- **Vividness**: Vividness would be reduced from moderately high to moderate/average.
- **Intactness**: Intactness rating would be reduced from moderately high to moderate/average.
- **Unity**: Unity rating would be reduced but remain moderate/average.
- **Overall Visual Quality Rating**: The overall visual quality rating for this KOP would be reduced from moderately high to moderate/average.

California Scenic Highway Criteria

Visual changes that would occur in Viewpoint #2 are partially consistent with the general California Scenic Highway program criteria. The rock-covered cut slopes create a visual intrusion; but impacts to the scenic natural qualities of this view are moderate because of the use of natural rock material. Views of natural vegetation remain, but views of human-made elements are slightly more dominate than the existing conditions. Although vividness, intactness and unity would be reduced, the overall changes in visual quality would be moderate.

Humboldt County Criteria

Viewpoint #2 is partially consistent with Humboldt County's scenic criteria. Modifications made to the natural topography in the form of a cut slope with a rock buttress treatment present a less natural appearance than existing vegetated cut slopes. The cut slopes is graded to somewhat blend with the existing land contours. Views of the surrounding natural landscape remain.

Viewpoint #3: Area in Central Portion of Project Corridor-Facing Northwest

This viewpoint represents an area of substandard width that would be improved to two, 14-foot lanes with 4-foot shoulders and new striping. Roadway improvements would involve changes in roadway elevation, raising the roadway up two feet in some areas and lowering the roadway up to four feet in other areas. This viewpoint also illustrates an area of cut slopes treated with a soil-nail wall.

KOP #3: Area in central portion of project corridor looking northwest Before Construction View

KOP #3: After Construction View

FHWA Criteria

The Preferred Alternative's likely effects on the visual quality rating for Viewpoint #3, is based on FHWA criteria of vividness, intactness and unity, which are described below:

- **Vividness**: Vividness is reduced but remains moderate/average.
- **Intactness:** Intactness rating is reduced but remains moderate/average.
- **Unity:** Unity rating is reduced but remains moderate/average.
- **Overall Visual Quality Rating:** The overall visual quality rating for this KOP would be slightly reduced but would remain moderate/average.

California Scenic Highway Criteria

Viewpoint #3 is partially consistent with Caltrans' California Scenic Highway program criteria. The slightly wider roadway and concrete-covered soil-nail wall on the cut slope create a stronger visual intrusion than the existing roadway and cut slope, increasing the visual presence of human-

made elements. However, these visual intrusions do not dominate the view, as views of trees in the middle-ground and background remain. These visual changes do not significantly impact the scenic qualities of Viewpoint #3. Although vividness, intactness and unity would be slightly reduced, the overall change in visual quality would be moderate.

Humboldt County Criteria

Viewpoint #3 is partially consistent with Humboldt County's scenic criteria. The concrete-covered soil-nail wall is inconsistent with the surrounding natural landscape. However, scenic views of the surrounding vegetation in the middle-ground and background are retained.

Viewpoint #4: Area in Southern Portion of Project Corridor-Facing North

This viewpoint represents an area of substandard width with no center stripe that would be improved to two, 12-foot lanes, with 4-foot shoulders and new striping. Roadway improvements would be involve changes in roadway elevation, raising the roadway five feet in some areas and lowering the roadway up to six feet in other areas. This viewpoint also illustrates an area of cut slopes with rock buttress treatments.

KOP #4: Area in southern portion of project corridor looking north Before Construction View

KOP #4: After Construction View

FHWA Criteria

The Preferred Alternative's likely effects on the visual quality rating for Viewpoint #4, based on FHWA criteria of vividness, intactness and unity, are described below:

- **Vividness**: Vividness rating would be reduced from high to moderate/average.
- **Intactness**: Intactness rating would be reduced from moderately high to moderate/average.
- **Unity**: Unity rating would be reduced from moderately high to moderate/average.
- **Overall Visual Quality Rating**: The overall visual quality rating for this KOP would be reduced from moderately high to moderate/average.

California Scenic Highway Criteria

Viewpoint #4 is partially consistent with Caltrans' California Scenic Highway program criteria because scenic views of the surrounding forest would remain. The wider roadway and rock buttress wall on the cut slope create a stronger visual intrusion than the existing roadway and cut slope. Although the trees adjacent to the roadway would be removed and the roadway would be more dominant in this view, the natural landscape would still be seen from the roadway. The vividness, intactness and unity qualities of this view would be reduced, resulting in a high visual change.

Humboldt County Criteria

The visual changes associated with Viewpoint #4 would be partially consistent with Humboldt County's scenic criteria. The widened road and the rock buttress wall on the cut slope would be more prominent in this view compared to the exiting conditions. Although the visual effect of the overhanging tree canopy would be eliminated, this area would continue to provide views of surrounding trees and would continue to portray the County's characteristic scenic beauty.

Viewpoint #5: Southern Portion of Project Corridor-Facing North

No visual simulation was prepared for Viewpoint #5. This viewpoint represents the southern portion of the project corridor, with tight curves, substandard width and no center stripe. It would be improved to two, 12-foot lanes with 4-foot shoulders and new striping. Additionally, there would be extensive roadway realignment to straighten curves, which would require cut slopes. Changes in roadway elevations would also occur throughout this area.

KOP #5: Existing Conditions
Southern portion of project corridor looking north

FHWA Criteria

The Preferred Alternative's likely effects on the visual quality rating for Viewpoint #5 is based on FHWA criteria of vividness, intactness and unity, which are described below:

- **Vividness**: Vividness would be reduced from high to moderately high.
- **Intactness**: Intactness would be reduced from high to moderately high.
- **Unity**: Unity rating would be reduced from high to moderate/average.
- **Overall Visual Quality Rating**: The overall visual quality rating for Viewpoint #5 would be reduced from high to moderately high.

California Scenic Highway Criteria

Visual changes in this area represented by Viewpoint #5 would be partially consistent with Caltrans' California Scenic highway program criteria. The roadway widening, removal of vegetation adjacent to the roadway, and cut slopes would introduce human-made modifications to the natural landscape. The visual enclosure created by tall trees abutting the roadway throughout this portion of the project corridor would be reduced. Views would continue to be dominated by the natural landscape, although the natural components within those views would change. The roadway realignment may open distant views of areas beyond the roadway that are not currently visible to travelers, where trees are less dense or where more open areas are present. Thus, it would potentially create a break in the dense forest

pattern. The natural landscape would largely continue to showcase the region's characteristic scenic beauty. Vividness, intactness and unity would be reduced, with the overall change in visual quality being substantial.

Humboldt County Criteria

Visual changes in this area represented by Viewpoint #5 would be partially consistent with Humboldt County's criteria. Roadway widening, removal of vegetation adjacent to the roadway and new cut slopes would introduce human-made modifications to the natural landscape. Views of the Forestland landscape unit character would continue to be prominent. This area would continue to provide views of forested hillsides, and would continue to portray the county's characteristic scenic beauty.

Viewpoint #6: Proposed Wetland Mitigation Site

KOP #6: Existing Conditions
Proposed Wetland Mitigation Site East of Study Area

No visual simulation was prepared for Viewpoint #6. This section describes visual changes that would occur for the proposed wetland mitigation site that is located within SRNF. The site may be used to create wetlands to mitigate wetland impacts resulting from the project. If it is determined that this site is appropriate for that purpose, the creation of wetlands would likely involve site excavation in order to reach the groundwater, thus providing moist soils and a wetland hydrology environment, which is key to the survival of wetland vegetation. Once the appropriate landform, finished ground elevation and soil moisture to support wetland vegetation is achieved, the area would be planted and seeded with wetland vegetation to replace the wetland functions impacted by project construction.

FHWA Criteria

The Preferred Alternative's likely effects on the visual rating for Viewpoint #6, based on FHWA criteria of vividness, intactness and unity, are described below:

- **Vividness**: Vividness rating would increase slightly from moderately low to moderate/average.
- **Intactness**: Intactness rating would improve from moderately low to moderate/average.
- **Unity**: Unity rating would improve from moderately low to moderate/average.

- **Overall Visual Quality Rating**: The overall visual quality rating for this KOP would improve from moderately low to moderate/average.

California Scenic Highway Criteria

Earthwork associated with the creation of a new wetland would sculpt the site to achieve a natural appearance that would blend with the surrounding natural landscape. Viewpoint #6 would continue to provide views of wooded hillsides in the distance, with the new natural wetland portraying the county's characteristic scenic beauty. Therefore, visual changes for Viewpoint #6 would be fully consistent with Humboldt County scenic criteria.

SRNF Visual Quality Objectives

The proposed wetland mitigation site currently does not fully meet the Level 2 "Retention" status. The wetland that would be created would replace views of a flat highly disturbed site with views of a natural-appearing landform and native vegetation that would repeat the form, line, color and texture found in the surrounding landscape. Views of human activities would be minimized with perhaps only the existing power poles and power lines remaining to be seen by SR 36 travelers. Human activities on the site would not be evident to the casual forest visitor. Therefore, creation of the proposed wetland would meet the "Retention" status, which would be an improvement over the existing conditions.

Viewpoint #7: View of SR 36 from Van Duzen River Recreationists

No visual simulation was prepared for Viewpoint #7, which would be visible only to people boating down the river from an upstream public access point or to private landowners, as no public access point to the river exists within the project area. This viewpoint represents an area where a retaining wall would be built downslope from the roadway. In the northern portion of the study area where approximately 0.5 miles of the roadway are in proximity to the Van Duzen River, the current level of preliminary design calls for most of the road widening to occur toward the upslope side of the existing roadway, and not toward the river. The road centerline would shift away from the river, but due to the road widening the edge of the roadway would largely remain at its existing location. Cuts would be required on the upslope side of the roadway in this area, the tallest of which would be required on the upslope side of the roadway in this area, being over 80 feet high. The vertical profile of the road would be raised between 4 to 8 feet to elevate the road out of the 100-year floodplain and reduce the amount of cut on the upslope side of the road. Fill slopes would be constructed along the river side of the roadway in certain areas throughout this 0.5 mile portion of the project corridor, requiring removal of some roadside vegetation. Some areas would require more extensive fill slopes on the river side of the roadway, requiring a higher level of vegetation removal. No direct impacts to the river would occur.

A retaining wall and guard rail is proposed to minimize a new fill slope at a location downhill of the roadway. This would require removal of the row of trees between the road and the river. The existing slope is approximately 20 feet high. The wall would be approximately 5 to 10 feet high and 600 feet in length. The wall is currently proposed to be a soldier pile wall, which stabilizes and retains soil on steep fill slopes by using vertical steel piles with horizontal panels consisting of wood, steel or precast concrete that are inserted and stacked behind the front pile as the wall is constructed. Another wall option being discussed in this area is a mechanically stabilized earth wall.

KOP #7: Existing Conditions
View of SR 36 from Van Duzen River Recreationists

FHWA Criteria

The Preferred Alternative's likely effects on the visual quality rating for Viewpoint #7, based on FHWA criteria of vividness, intactness and unity are described below:

- **Vividness**: Vividness would be reduced from moderately high to moderate/average.
- **Intactness**: Intactness rating would be reduced from high to moderate/average.
- **Unity**: Unity rating would be reduced from moderately high to moderate/average.
- **Overall Visual Quality Rating**: The overall visual quality rating for this KOP would be reduced from high to moderate/average.

Humboldt County Criteria

This viewpoint is mostly inconsistent with Humboldt County's scenic criteria. The new human-made elements, in the form or a retaining wall and tall cut slope, would modify the natural landform to a larger degree than the existing conditions, and provide a stronger visual contrast to the surrounding natural landscape. Removal of the existing roadside trees would reduce the screening of vehicles traveling along the roadway. However, views of tall, steep hillsides would still remain and the proposed improvements would not block views of the surrounding scenic natural landscape.

Night-Time Lighting or Glare Impacts

The Preferred Alternative would not introduce new sources of light beyond those seen today; therefore, no impacts from night-time lighting or glare are anticipated.

Construction Impacts

Construction of proposed improvements would result in temporary visual changes during the construction phase. Visual impacts would include views of construction equipment operations,

increased traffic from construction workers traveling to and from the site, material stockpiling, equipment storage and construction signing. If night-time construction activities occur, they may temporarily add new sources of light and glare for residents and roadway travelers during nighttime hours.

Summary of Visual Quality Impacts

FHWA Criteria

A general assessment of the project's impact to the visual quality of the exiting setting and viewer group's typical viewpoints was made by comparing the change of each viewpoint's visual quality ratings, which has been summarized in Table 27.

Table 27: Visual Quality Rating Changes by Viewpoint

Viewpoint	Visual Quality Category Existing Condition (numeric ranking)	Visual Quality Category After Project Construction (numeric ranking)	Change in Visual Quality Category (numeric ranking)	Magnitude of Change in Visual Quality*
Viewpoint #1	High (5.6)	Moderate/Average (4.4)	Degrade (-1.2)	High change
Viewpoint #2	Moderately High (4.6)	Moderate/Average (3.8)	Degrade (-0.8)	Moderate change
Viewpoint #3	Moderate/Average (4.4)	Moderate/Average (3.6)	Degrade (-0.8)	Moderate change
Viewpoint #4	Moderately High (5.5)	Moderate/Average (3.6)	Degrade (-1.9)	High change
Viewpoint #5	High (5.8)	Moderately High (4.8)	Degrade (-1.0)	High change
Viewpoint #6	Moderately Low (3.1)	Moderate/Average (4.0)	Improve (+0.9)	High change
Viewpoint #7	High (5.7)	Moderate/Average (3.9)	Degrade (-1.8)	High change

Note: The Visual Impact Assessment provides more detail on numeric rankings shown.

*Qualitative assessment based on numeric rankings (low change = 0.0-0.5, moderate change = 0.51-0.99, high change = 1.0 and above)

Based on the changes in viewpoint visual quality listed in Table 27, the project would: improve the visual quality for Viewpoint #6, result in a moderate degradation of visual quality for Viewpoints #2 and #3 and would degrade the visual quality to a higher degree for Viewpoints #1, #4 and #7. Overall, the project would degrade the existing visual quality of the project setting. The avoidance and minimization strategies, that will be discussed, would reduce the adverse visual changes that would result from the project.

California Scenic Highway Program and Humboldt County Criteria Impact Summary

The approximate 4-mile segment of SR 36 within the project corridor represents approximately 5 percent of the 70-mile SR 36 corridor that is eligible for designation as a California Scenic Highway. Construction of the existing roadway through the hilly project corridor required cuts into the hillsides, which are seen today by SR 36 travelers as non-vegetated slopes, rocky soil with exposed tree roots, or other cut slope treatments such as rock buttresses (stacked rocks). Similar to the adjacent segments of SR 36, human activity is randomly evident throughout the project corridor in the form of residential buildings and fencing, vehicle pull-out areas, bridges, power poles and power lines, guardrails, access roads, gated private roads and signage. However, SR 36 traveler views continue to be dominated by the natural landscape, as the existing visual intrusions do not detract from the quality of those views.

Several portions of SR 36 within the project corridor have substandard widths that lack two full lanes with no shoulders or center stripe, creating views of a narrow, winding road. The Preferred Alternative would change these views to a wider and straighter road with two full lanes, shoulders and new striping. The Preferred Alternative would also introduce new views of fresh cut slopes and views of slope stabilization treatments seen by motorists and potentially one new retaining wall seen by river recreationists. However, implementation of the avoidance and minimization strategies would help to limit the adverse visual impact of these visual changes. In addition, seeding of the disturbed slopes would restore a more natural appearance over time as the vegetation grows and fills in bare disturbed ground. Despite the visual changes that would result from the proposed action, roadway traveler views through most of the project corridor and river recreationist views along the Van Duzen River would continue to be dominated by views of the natural landscape much as they are today.

The impact evaluation for each KOP indicates that without avoidance and minimization strategies, the project overall would be partially consistent with the Humboldt County and Caltrans California Scenic Highway criteria. The Preferred Alternative is not anticipated to adversely affect SR 36's eligibility for designation as a California Scenic Highway because the project corridor represents approximately 5 percent of the 70-mile segment of SR 36 that is eligible for designation. Travelers on SR 36 would be accustomed to the types of human-made alterations to the natural landscape proposed within the project corridor, and the proposed improvements would be mostly consistent with Caltrans and Humboldt County scenic criteria after the avoidance and minimization strategies are implemented.

Six Rivers National Forest Impact Summary

The wetland area that may be created near SR 36 within SRNF would replace views of a flat, highly disturbed site with views of a natural-appearing landform and vegetation that would repeat form, line color and texture that are found in the surrounding landscape. Additionally, views of human activities would be minimized; therefore, the Preferred Alternative would meet the visual quality objective of "retention" established by the SRNF for this area.

Predicting Viewer Response

Viewer response was predicted from an analysis of the viewer's sensitivities and the viewer's exposure. These elements combine to form a prediction of how the project viewer groups may react to the visual change resulting from the project.

Due to the existing scenic nature of SR 36, viewer sensitivity to visual changes along the highway would generally be high. The sensitivity of roadway travelers on SR 36 may vary depending on the nature of

their trip. Resident motorists would have the highest sensitivity of all roadway travelers because they travel this route frequently and are familiar with the visual qualities of the area. Recreational tourists may also have a high sensitivity because the nature of their trip is recreation and/or pleasure, while locals who live in the immediate area may also be sensitive due to frequently experiencing previous views. Other motorists may have a lower sensitivity to visual changes as they move quickly through the project corridor. River recreationists would have sensitivity to visual changes because they would move through the study area at a slower pace and the purpose of their visit is recreation.

When predicting viewers' response to the visual changes resulting from the project, it is important to consider community policies for the protection of scenic resources. These policies include protecting views of the natural environment and minimizing loss of vegetation. For this reason, the viewpoint's visual ratings (Table 27) were studied further with consideration of the viewing audience's perspective.

The response of roadway travelers to the change in visual quality for Viewpoints #1, #2, #4 and #5 is predicted to be high primarily because of the local resident travelers' familiarity with the road. The proposed change would be close to the viewer and be a dominant element of the travelers' view. Additionally, some of the travelers would be tourists who would be more sensitive to these types of changes along a route that is eligible for state and county scenic roadway status. The response of roadway travelers to changes in visual quality for Viewpoint #3 is predicated to be moderate because, although visual changes would slightly lower the visual quality rating overall, the visual changes would not dominate views of the natural landscape. Roadway traveler response to visual quality changes for Viewpoint #6 is predicted to be low because the visual quality for this viewpoint is expected to improve. River recreationists' response to visual quality changes for Viewpoint #7 is predicted to be moderately high because of their recreation activities, but their sensitivity to views of the new human-made roadway elements would be lower than roadway travelers because there are fewer numbers of river recreationists than SR 36 motorists, hence the frequency and duration of river recreationist's views of the proposed project would be less. River recreationists would see the proposed project only within segments of their middle and background view in the river's natural setting.

3.10.4 Avoidance, Minimization, and/or Mitigation Measures

The project design seeks to minimize the amount of road realignment while meeting the purpose to enhance traffic safety and improve mobility for vehicular travel. In areas where changes in the vertical and horizontal profile of the road are necessary, the project design includes various types of slope stabilization treatments that serve to limit the extent of cut and fill slopes, thereby minimizing the amount of vegetation removal needed to improve the roadway.

Implementation of the following additional measures would offset the adverse visual changes that would result from the proposed roadway improvements, reducing impacts to less than significant:

- Minimize the size of cut slopes to the extent practicable.
- Minimize tree removal to the extent practicable.
- Design cut slopes to blend into the adjacent natural topography.
- Select material, color, and texture of slope stabilization treatments (rock buttresses with 1 to 1.5 slope gradient, soil-nail walls, or cut slope with wire mesh) to blend with the natural environment. These measures will be determined during final design by a qualified landscape architect. Wire mesh slope treatment will not be made of galvanized metal wire.

- Specify the rock type, color, and source for use in rock buttresses to minimize the visual intrusion. These will be specified during final design and approved prior to use.
- Cover rock buttresses with at least an 8-inch depth of soil and seed with native grasses to the extent practicable without jeopardizing slope stability.
- Where practical, use a regraded cut slope covered with wire mesh and seed with native grasses instead of a concrete-covered soil nail wall to minimize the visual intrusion caused by a concrete wall.
- Break up asphalt on obliterated road areas, and remove where practicable.
- Use excess excavated soil to create a natural landform on obliterated road sites. Apply at least 2.5-foot depth of salvaged topsoil and native grass seed to the landform.
- Revegetate all abandoned roadway segments and adjacent disturbed land that is capable of sustaining vegetation with native vegetation.
- Revegetate with native trees and shrubs as close as possible to the new roadway without compromising safety (no plantings in clear recovery zone, sight triangles or at base of slopes).

The following measures will minimize potential adverse effects during project construction:

- Visually screen construction staging areas if located adjacent to residences
- If nighttime construction is needed, direct construction lights inward toward the construction site to minimize glare for residents and motorists near construction areas

PHYSICAL ENVIRONMENT

3.11 FLOODPLAINS

3.11.1 Affected Environment

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

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

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

When available, flood hazard boundary maps created by the National Flood Insurance Program (NFIP) and flood insurance studies for the project area are used in order to determine the limits of the 100-year floodplain and the extent of encroachment. The Federal Emergency Management Agency (FEMA) and Federal Highway Administration (FHWA) guidelines have identified the base (100-year) flood as a flood of having a one-percent probability of being equaled or exceeded in any given year. The base floodplain is the area of a 100-year flood hazard within a given county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that the projects can cause no rise in the regulatory floodway, and a one-foot cumulative rise for all projects in the base (100-year) floodplain.

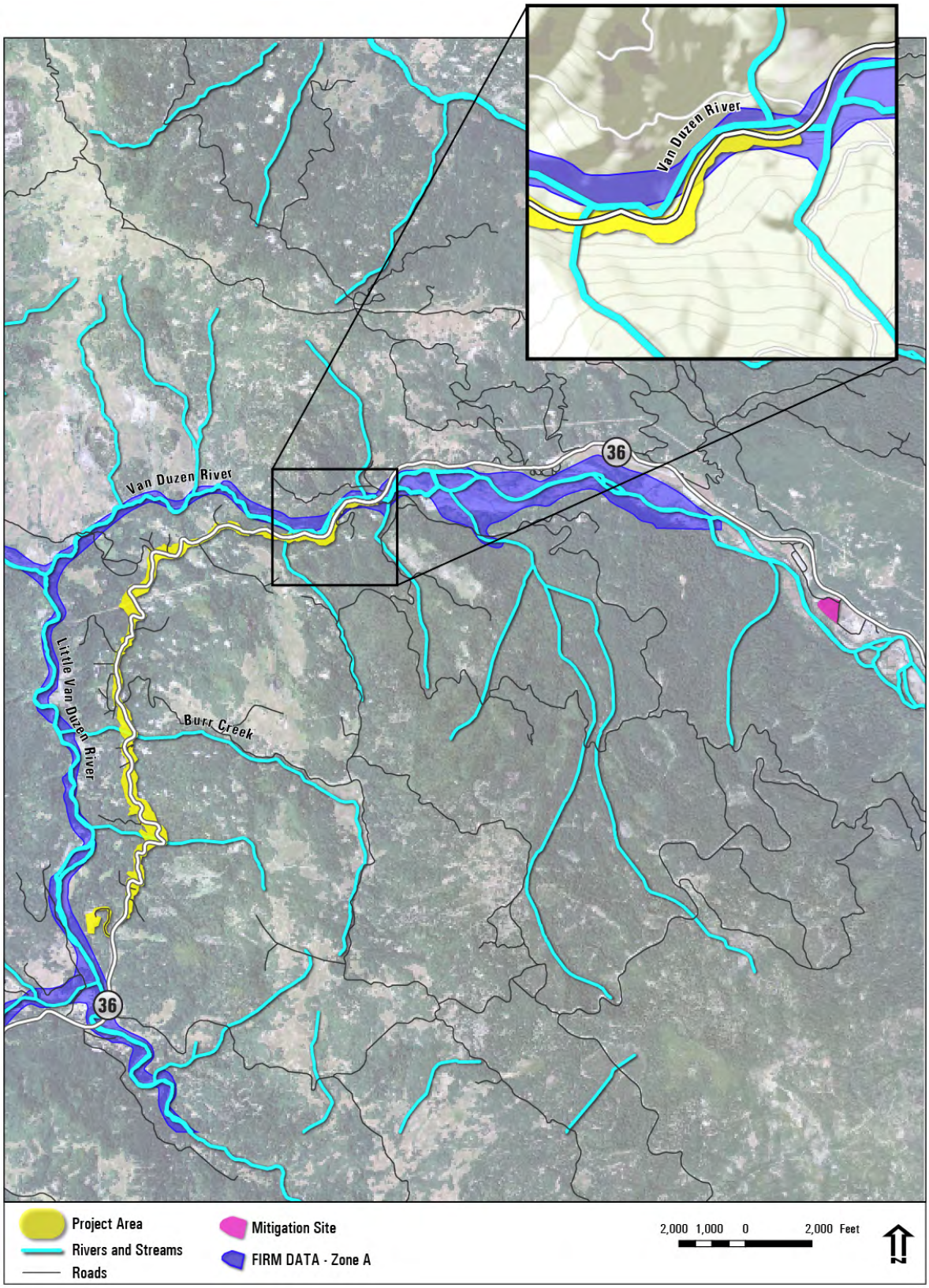
FHWA has prepared an *Intermediate Hydraulics Report* for the project that identified the existing hydrologic and hydraulic conditions in the project area, analyzed the effects of the proposed road realignment on the existing floodplain limits, and provided recommendations for proposed stream culvert sizes (FHWA 2013c).

According to the FEMA FIRM map, the study area of the Van Duzen River is defined as a Zone A floodplain (see Figure 16, below). FEMA Zone A maps only estimate the limits of the base floodplain (100-year flood). No engineering studies were conducted and no base flood elevations were determined by FEMA. To determine any impacts of the proposed conditions, an existing-conditions hydraulic model must be developed and compared to the proposed conditions model. If there is more than a one foot increase in the base flood elevations between the existing and proposed conditions models, a Conditional Letter of Map Revision (CLOMR) must be submitted to FEMA. Once the CLOMR is approved by FEMA, the project may be constructed and a Letter of Map Revision (LOMR) would then be submitted to FEMA within 60 days of the end of construction (FHWA 2013c).

Because the bridge is not proposed to be replaced, a hydraulic analysis was conducted to define the downstream floodplain water surface elevations that currently exist and determine if the current road alignment is overtopped. The purpose of the analysis is to identify the baseline to confirm a no-rise condition or no significant impact in the 100-year water surface due to the proposed roadway realignments as well as to ensure there is no significant rise in surface water elevation.

The U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center River Analysis System (HEC-RAS) version 4.1, 2010 software was used to analyze the existing hydraulic conditions and to determine the existing floodplain boundaries. It has been reported that an area of the roadway approximately 2000 feet downstream of the existing bridge has experienced flooding after major storms. The existing conditions HEC-RAS model did show that the 100-year flood event overtopped the road in the area of concern (approximately 1900 feet downstream of the bridge) (FHWA 2013c).

Figure 16: Zone A Floodplain in Van Duzen River Region



3.11.2 Environmental Consequences

No Build Alternative

Implementation of the No Build Alternative would result in a continuation of current roadway conditions and would not involve roadway reconstruction or realignment actions. Periodic spot maintenance that is necessary for continued drivability would occur under this alternative. The No Build Alternative does not produce any changes to the existing roadway and thus would not result in any changes to the existing floodplain or base flood elevation. The roadway would continue to be overtopped in the vicinity of the Van Duzen River (approximately 1900 feet downstream of the bridge) by approximately two feet of water in a 100-year event.

Preferred Alternative

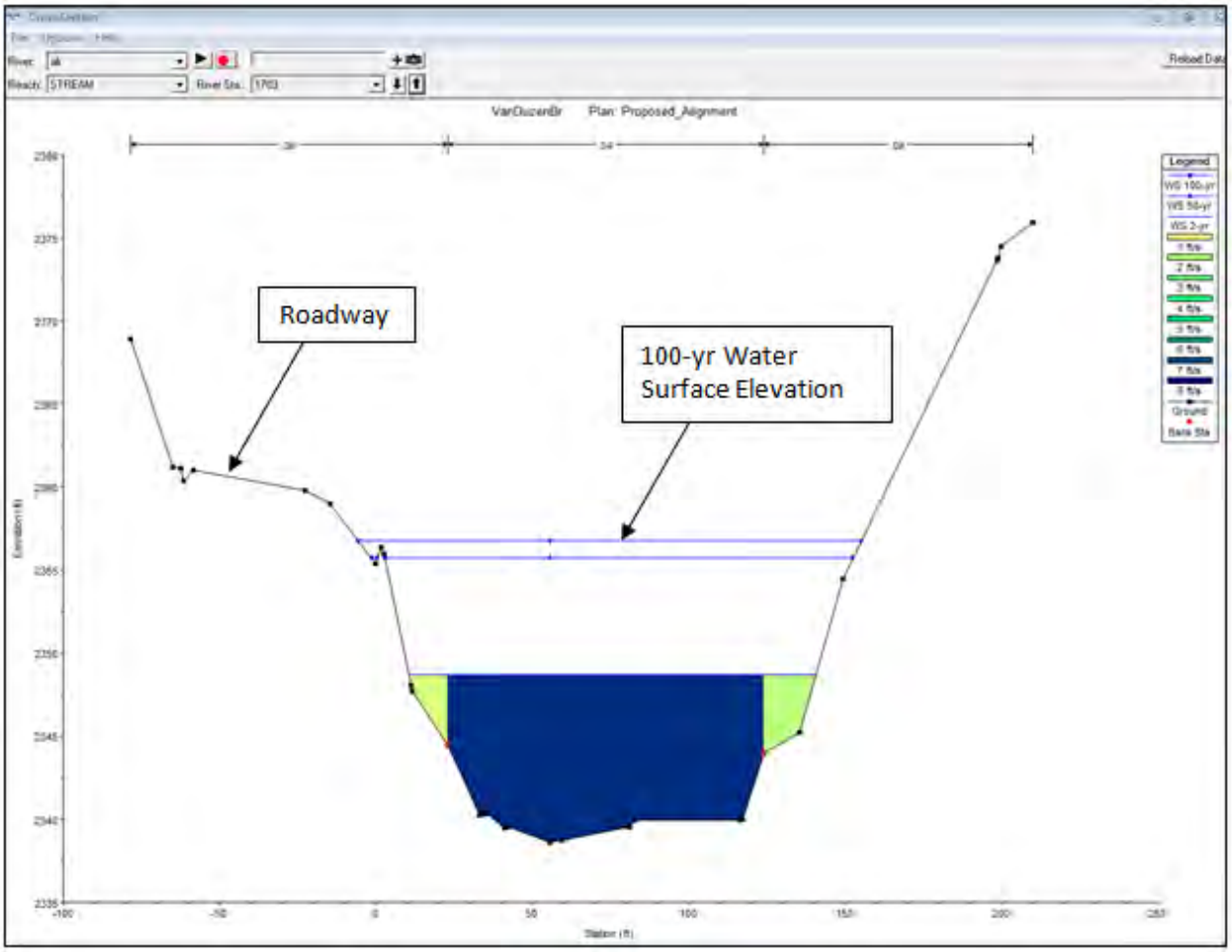
A hydraulic model and analysis was performed by a FHWA hydraulic engineer to determine the effects of the proposed realignment on the chance of inundation (flooding) during the 100-year flood as well as any rise to the existing surface water elevation. The analysis determined that the new alignment would cause no significant rise in the 100-year water surface elevation. Additionally, the river cross sections between 1325 and 1703 will no longer be overtopped. The largest rise in surface water elevation occurs at river station 2192, and was determined to be 0.03 feet, which is well below the one-foot rise requirement. The proposed realigned roadway is also outside the 100-year floodplain (FHWA 2013c). This can be seen in Table 28 below and is also depicted in Figure 17.

Table 28: Difference in Water Surface Elevations between Existing and Proposed Conditions

River Station	Existing Water Surface Elevation (ft)	Proposed Re-Alignment Water Surface Elevation (ft)	Difference in Water Surface Elevations (ft)
5076	2373.53	2373.53	0
4854	2373.28	2373.28	0
4635	2367.80	2367.80	0
4365	2368.90	2368.90	0
4067	2367.44	2367.44	0
4013	2367.77	2367.77	0
Bridge			
3965	2366.10	2366.10	0
3915	2362.99	2362.99	0
3816	2362.32	2362.32	0
3697	2362.43	2362.43	0
3435	2361.17	2361.18	0.01
3292	2361.94	2361.95	0.01
3008	2360.71	2360.72	0.01

River Station	Existing Water Surface Elevation (ft)	Proposed Re-Alignment Water Surface Elevation (ft)	Difference in Water Surface Elevations (ft)
2810	2360.03	2360.03	0
2491	2359.48	2359.48	0
2192	2358.44	2358.47	**0.03**
1703	2356.81	2356.80	-0.01
1325	2351.80	2351.80	0
1101	2350.52	2350.52	0

Figure 17: Water Surface Elevation at River Station 1703



Due to the minimal impact to the floodplain, the proposed realignment does not constitute a significant floodplain encroachment as defined in 23 CFR 650.105(q); subsequently, there are no special mitigation measures that are necessary in order to minimize the impacts or restore and preserve natural and beneficial floodplain values. The hydraulic modeling presented above has been based on preliminary

design. The model will be continually monitored as project design progresses to ensure there continues to be less than a one-foot rise, and results coordinated with the local floodplain administrator. Precautions to limit the influence of floodplain impacts have been and will continue to be considered throughout the design process.

Because there is no significant encroachment that would occur from the Preferred Alternative, FHWA has determined that this alternative is acceptable under Executive Order 11988 for the protection of floodplains.

3.11.3 Avoidance, Minimization, and/or Mitigation Measures

Mitigation is not required due to the lack of significant adverse impacts to the floodplain that would arise from the realignment of the roadway proposed in the Preferred Alternative.

3.12 WATER QUALITY AND STORM WATER RUNOFF

3.12.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source[2] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

[2] A point source is any discrete conveyance such as a pipe or a man-made ditch.

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[3] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters

[3] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water." The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans' MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed

project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP).

FHWA-CFLHD, as the agency responsible for construction management oversight for this project, is responsible for obtaining the NPDES permit and for signing certification statements (when necessary). FHWA is also responsible for ensuring that all permit conditions are included in the construction contract and fully implemented in the field.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

3.12.2 Affected Environment

The following section summarizes the evaluation of the existing water quality in the area to serve as a baseline for comparison to the Preferred Alternative. Information is summarized from the following technical report prepared for the project: *California State Route 36 Improvement Project Water Quality Assessment Report* (Jacobs 2014b).

Hydrology

Regional Hydrology

The project is located in the North Coast Region, which consists of all basins draining into the Pacific Ocean from the California-Oregon State line to the southerly boundary of the watershed of the Estero de San Antonio and Stemple Creek in Marin and Sonoma Counties (NCRWQCB 2011). The area under study is located within the Eel River Basin, the Van Duzen watershed, as well as the Upper Van Duzen River sub-basin. This northern region accounts for 30% of the runoff for the entire state, most of which is produced between the months of November to March. The Van Duzen River watershed is approximately 367 square miles and contains 808 miles of streams throughout Humboldt County (Humboldt County 2002). Due to the basin's high drainage density (2.2 miles of stream channel per square of mile of basin), the rivers in the basin are more likely to experience water levels that will rise and fall quickly during a flood event (CDFW 2012).

The land in the surrounding Van Duzen River is highly mountainous with elevations approaching 5,900 feet. The Van Duzen River flows 75 miles from its headwaters (source), to where it drains into the Eel River below, and eventually out letting to the Pacific Ocean. The Little Van Duzen River joins the Van Duzen River near the city of Dinsmore and continues to flow north-west (CDFW 2012).

According to the National Wild and Scenic Rivers Act (WSRA) of 1968 and California Wild and Scenic River Act, a section of the Van Duzen River is designated as a scenic and recreational river within the study area. The Van Duzen qualifies under this act since it "posess[es] outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values" (16 U.S.C. 1271, p.1526). These areas include a 15-mile scenic reach from the Dinsmore Bridge to the Little Larabee Creek (CDFW 2012), with part of the reach falling within the bounds of the project area. The Van Duzen is listed federally as a tributary of the Eel River, while the State considers the Van Duzen River a separate listed entity.

The establishment of illegal and legal marijuana growing operations in the basin is becoming more frequent and is depleting water resources. Water use by growers is not currently regulated, as is the condition in the mining and logging industries, and no Best Management Practice's (BMP) exist for such activities. Due to this lack of regulation, growers use water resources by diverting water to use at their sites at their own discretion. It is estimated that a 10,000 square foot outdoor marijuana farm uses about 250,000 gallons of water over the course of five months. Research has shown that even during expected high flow seasons, rivers are experiencing atypical low flows (CDFW 2012n.d.a).

Figure 18 below shows the location of the Van Duzen River, the Little Van Duzen River, Burr Creek, Butte Creek as well as additional tributaries and streams within the study area. The southwest portion of the project would take place within the Burr Creek and other unnamed drainages that fall under the jurisdiction of the United States Army Corps of Engineers (USACE) and the California North Coast

Regional Water Quality Control Board (NCRWQCB). The road eventually crosses the Van Duzen River; however, it is beyond the study area limits.

Local Hydrology

Storm water acts in a manner in which it generally flows off of roads into nearby streams and tributaries that drain into larger rivers in the area. Many streams and tributaries drain into the Little Van Duzen River, including the Burr and Butte Creeks, which run northwest towards the Van Duzen River. When the Little Van Duzen joins the Van Duzen River, the river's flow is nearly doubled. The Van Duzen River eventually drains into the Eel River further west. Overall, the flows peak in the winter following rainfall events and decline near the end of the dry summer season. Peak flows are more extreme today than in the past due to increased logging activity in the area, which subsequently reduced the soil moisture retention (CDFW).

The project area is generally rural and there are no subsurface storm water drainage conveyance facilities (i.e. system of catch basins and drainage pipes) that currently exist.

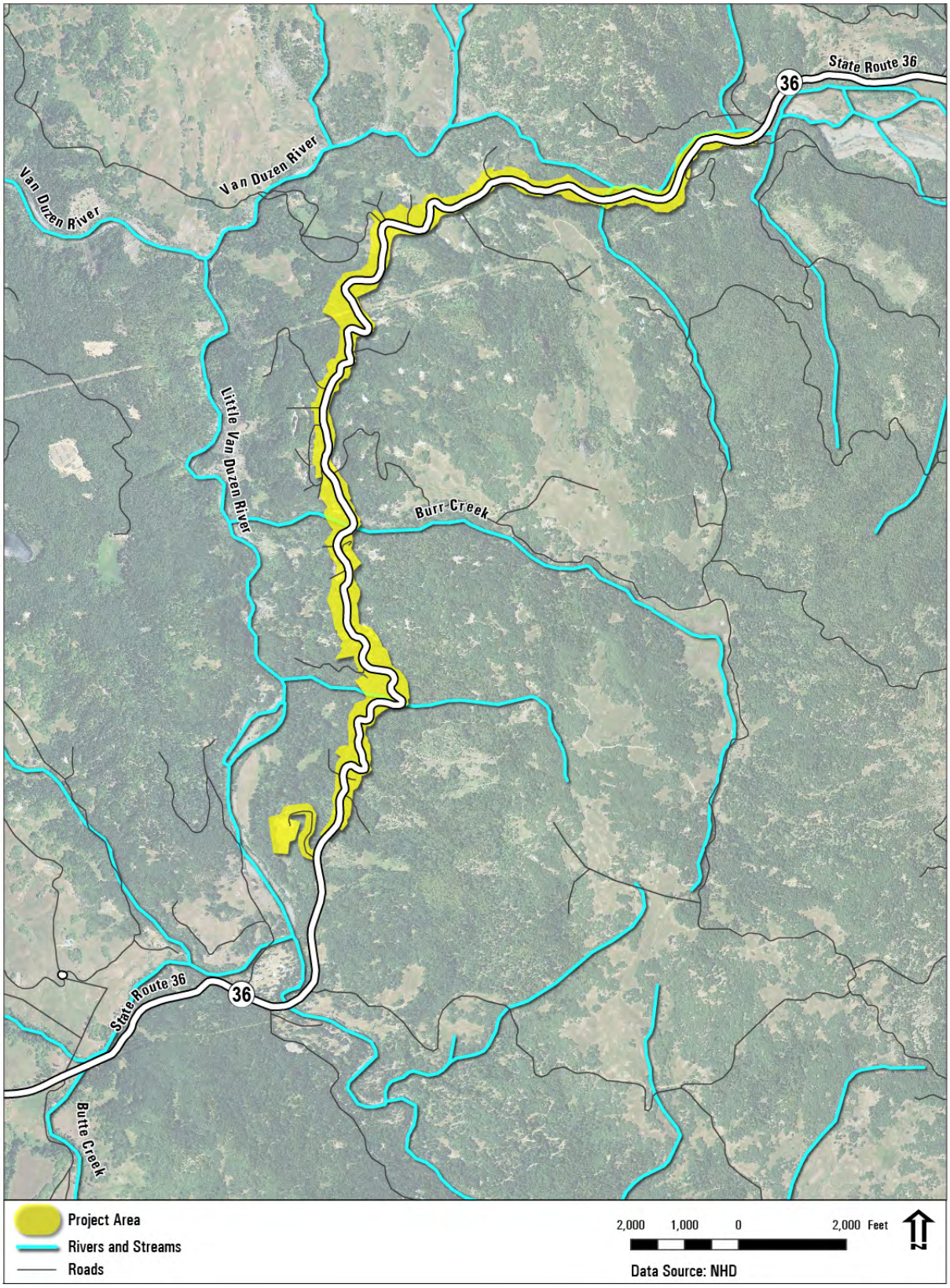
Floodplains

The project area begins just north of the location where SR 36 crosses the Little Van Duzen River and ends just south of the road's crossing at the Van Duzen River. The project area is within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) map panel number 0600601400B in Humboldt County. The majority of the project area is within Zone C, located outside of the 100-year floodplain and defined as an area of minimal flooding. The nearest areas of flooding shown on the FEMA maps are areas adjacent to the Van Duzen River and Little Van Duzen River. The project area's northern-most limit appears to encroaches within the 100 year floodplain area associated with the Van Duzen River, which is shown as FEMA Zone A on the FIRM. This information is discussed in more detail in the *Floodplains* section of this document.

Climate and Precipitation

The climate of Humboldt County is typically moderate with hot, dry summers and mild winters with considerable precipitation. Rainfall generally occurs every month, with averages between 40 and 100 inches per year, with the majority falling between November and March. Temperatures range from 32°F in the winter to 80°F in the summer on the coast and reaching 100°F in the inland areas (Humboldt County 2013).

Figure 18: Regional Hydrology Map



Groundwater Hydrology

Groundwater reserves in Humboldt County are often of poor quantity as well as quality. They often do not contain enough water in the late summer and fall, during the dry season. Wells often have high total dissolved solids (TDS) content and levels of iron, boron and manganese. High TDS is often from: carbonate deposits, seawater intrusion, storm water, agricultural runoff and waste water discharge (Humboldt County 2007).

The project is in the Eel River Valley groundwater basin, which is divided into minor basins. The northern portion of the study area appears to be within the Dinsmore Town Area Groundwater Basin (Basin number 134) and the southwest portion of the project in near the Larabee Valley Groundwater Basin in Humboldt County (Humboldt County 2007).

Topography

The study area is located amidst steep, hilly terrain with relatively unstable soils. Elevation ranges from 2,360 to 2,940 feet above sea level within the project area. The project is expected to require large, steep cut-slopes and embankments in order to meet the needs of the new roadway. Generally, runoff flows from the roadway into adjacent ditches and rivers, streams and tributaries.

Soils Erosion Potential

The Van Duzen River Basin has an underlying layer of bedrock that has gone through tectonic deformation, which makes the area unstable and prone to erosion. Additionally, ample winter rains and human-caused disturbances add to the erodibility of the area (CDFW 2012). Steep slopes (>30%) make up approximately 51 percent of the Van Duzen River Basin's terrain, which complicates stabilizing ground disturbance in the area. Erosion from the aforementioned factors affects both water quality and quantity by introducing sediment to water ways (CDFW 2012).

The most recent Natural Resources Conservation Service (NRCS) Soil Survey for the study area was reviewed in order to identify which soil types are mapped in the study area (McLaughlin and Harradine 1965; USDA 1957). Table 29 below summarizes the mapped soil types and associated characteristics. This is the only information available for soils in the study area, but soils may not be completely the same as they were in 1957 when the survey was completed.

Table 29: NRCS Soil Types and Associate Characteristics in the Study Area

Soil Series Symbol	Soil Series Name	Slope	Permeability	General Drainage	Vegetation
752	Yorkville	<30–50%, hilly to steep	Slow	Imperfect	Grasses and other associated herbaceous plants (includes meadows).
81Y	Distinct soil of limited extent	30–50%, hilly to steep	Slow	Imperfect	Bare or litter-covered ground, essentially devoid of vegetation, and herbaceous plants that are bushy in size and character of growth.

Soil Series Symbol	Soil Series Name	Slope	Permeability	General Drainage	Vegetation
812	Hugo	<30–>70%, hilly to very steep	Moderately rapid	Good to excessive	Bare or litter-covered ground, essentially devoid of vegetation, California black oak, Douglas-fir, Tanoak, Madrone, herbaceous plants that are bushy in size and character of growth, and Oregon white oak.
834	Hulls	30–50%, hilly to steep	Moderate	Good	Oregon white oak and California black oak.
839	McMahon	<30–50%, hilly to steep	Slow	Imperfect	Grasses and other associated herbaceous plants (includes meadows) and Oregon white oak.
849	Tyson	<30–70%, hilly to very steep	Moderate	Good to excessive	Oregon white oak and California black oak.

Sources: McLaughlin and Harradine 1965 and USDA 1957.

Water Quality

Existing Quality Conditions

The Van Duzen River is listed on the CWA's Section 303(d) list due to impairment to water quality by sediment. The Van Duzen River is impaired from its high concentration of sediment and silt, with approximately 585 miles being affected (NCRWQCB 2003). The EPA and NCRWQCB have developed and established a Total Maximum Daily Load (TMDL) for sediment for three segments of the Van Duzen River. The project location is in the Upper Basin segment above Bridgeville. The priority of the river was designated as "medium" by the RWQCB. Sedimentation is the cause for 59 percent of listed impaired waters in the North Coast Region and is primarily caused by construction, mining, agriculture, confined animal operations, timber harvesting, and other earth-disturbing activities (Humboldt County 2007). The Upper Van Duzen River sub-basin was found to have 1,162 $yard^3/mile^2/year$ of sediment load from natural processes, 33 $yard^3/mile^2/year$ from road and skid trails, and 238 $yard^3/mile^2/year$ from timber harvests (CDFW 2012). The ten-year rolling average TMDL for the upper basin is 1,264 $yard^3/mile^2/year$ (EPA 1999).

The primary water quality use concern for the Van Duzen River is the impairment of suitable habitat for California Coastal (CC) Chinook salmon, Southern Oregon/Northern California Coastal (SONCC) coho salmon, and Northern California (NC) steelhead. Habitat is compromised through the introduction of sediment from various sources. The Van Duzen River is still recovering from the flood in 1964, which introduced a dramatic influx of sediment and detrimentally altered anadromous fish habitat. California Department of Fish and Wildlife (CDFW) stream surveys found that embeddedness levels in habitats are greater than 50%, which indicates there are high fine sediment levels that may affect spawning grounds for fish (CDFW 2012).

An emerging water quality issue in California is the effects of illegal and legal marijuana grow operations. The operations are not currently regulated and no BMPs exist for such activities. Therefore, growers utilize water resources and pollute at their own discretion. These operations pose a water quality threat in addition to the depletion of water resources. Pollutants such as fuel, fertilizers, herbicides, pesticides, rodenticides, construction debris, and human waste commonly make their way to water ways in the Van Duzen River and surrounding tributaries. Additionally, growers create roads and clear cut forests, which add to existing sedimentation problems (CDFW 2012n.d.a).

Beneficial Uses for Surface Waters and Groundwater

Water quality control must include beneficial water uses that have been identified for hydrologic areas and specific water bodies. Water quality standards serve the purposes of the CWA Sections 101 (a)(2) and 303(c) and the Federal Anti-degradation Policy. The North Coast Region has identified several existing and potential water beneficial uses for all regions, and also by watershed. The Van Duzen watershed and Bridgeville Hydrologic subarea has 16 existing and beneficial uses identified, listed below:

- Municipal and Domestic Supply
- Agricultural Supply
- Industrial Service Supply
- Groundwater Recharge
- Freshwater Replenishment
- Spawning, Reproduction, and/or Early Development
- Navigation
- Hydropower Generation
- Water Contact Recreation
- Non-Contact Water Recreation
- Commercial and Sport Fishing
- Warm Freshwater Habitat
- Cold Freshwater Habitat
- Wildlife Habitat
- Rare, Threatened, or Endangered Species
- Migration of Aquatic Organisms

Existing uses include any beneficial uses attained after November 28, 1985 (NCRWQCB 2011). Two potential beneficial uses for the subarea include Aquaculture and Industrial Process Supply. The Porter-Cologne Water Quality Control Act, Section 13050(f) states:
"Beneficial uses of the waters of the state that may be protected against water degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves."

Highway Runoff Quality Assessment

In 2003, Caltrans completed a Discharge Characterization Study Report to perform storm water runoff quality monitoring and to help guide the design and implementation of treatment and monitoring programs. Table 30 below lists the typical pollutants found on state highways.

Table 30: Statistics for Typical Pollutants on Highway Facilities

Pollutant Category	Parameter	Mean Concentration
Conventional	DOC	18.7 mg/L
	EC	93.1 µS/cm
	Hardness as CaCO3	36.5 mg/L
	pH	7.1
	TDS	87.3 mg/L
	Temperature	12.5 deg. C
	TOC	21.8 mg/L
	TSS	112.7 mg/L
Hydrocarbons	Oil & Grease	4.95 mg/L
	TPH (Diesel)	3.72 mg/L
	TPH (Heavy Oil)	2.71 mg/L
	As, dissolved	1.0 µg/L
	As, total	2.7 µg/L
	Cd, dissolved	0.24 µg/L
	Cd, total	0.73 µg/L
	Cr, dissolved	3.3 µg/L
	Cr, total	8.6 µg/L
	Cu, dissolved	14.9 µg/L
	Cu, total	33.3 µg/L
	Hg, total	36.7 ng/L
	Ni, dissolved	4.9 µg/L
	Ni, total	11.2 µg/L
	Pb, dissolved	7.6 µg/L
	Pb, total	47.8 µg/L
	Zn, dissolved	68.8 µg/L
	Zn, total	187.1 µg/L
Microbiological	Fecal Coliform	1132 MPN/100 ml
	Total Coliform	13438 MPN/100 ml
Nutrients	NH3-N	1.08 mg/L

Pollutant Category	Parameter	Mean Concentration
	NO3-N	1.07 mg/L
	Ortho-P, dissolved	0.11 mg/L
	P, total	0.29 mg/L
	TKN	1.90 mg/L
Pesticide and Herbicide	Diazinon	0.13 µg/L
	Diuron	4.60 µg/L
	Glyphosphate	19.61 µg/L
Semi-Volatile Organics	Pyrene	0.05 µg/L

Note: DOC = dissolved organic carbon, EC = electric conductivity, TDS = total dissolved solids, TOC = total organic carbon, TSS = total suspended solids, TPH = total petroleum hydrocarbons, TKN = total Kjeldahl nitrogen.
Source**:** Partial Excerpt from Caltrans *Discharge Characterization Study Report*, November 2003.

In its *BMP Retrofit Pilot Program*, completed January 2004, Caltrans studied the performance and cost of a wide range of structural BMPs for effectiveness in treating storm water runoff from existing facilities. Table 31 below lists Caltrans approved and tested BMPs and the expected effluent concentrations. The results and associated removal efficiencies are listed below.

Table 31: Removal Efficiencies From BMPs For Highway Facilities

Device	TSS (Influent 114 mg/L)		Total Phosphorus (Influent 0.38 mg/L)		Total Zn (Influent 355 ug/L)	
Austin Sand Filter	7.8	93%	0.16	58%	50	86%
Delaware Sand Filter	16.2	86%	0.34	11%	24	93%
EDB Unlined	36.1	69%	0.24	37%	139	61%
EDB Lined	57.1	50%	0.31	18%	132	63%
Wet Basin	11.8	90%	0.54	INCREASE	37	90%
Infiltration Basin	0	-	0	-	0	-
Infiltration Trench	0	-	0	-	0	-
Biofiltration Swale	58.9	49%	0.62	INCREASE	96	73%
Biofiltration Strip	27.6	75%	0.86	INCREASE	79	78%
Storm Filter™	78.4	31%	0.30	18%	333	6%
MCTT	9.8	91%	0.24	37%	33	91%
CSD®	68.6	40%	0.28	26%	197	45%

Note: TSS = total suspended solids.
Source**:** Partial Excerpt from Caltrans *BMP Retrofit Pilot Program*, January 2004

Based upon this monitoring program, roadways generally generate the following potential or expected pollutants:

- Sediment / turbidity;
- Nutrients, including ammonia, nitrate (nitrogen), total phosphorus, dissolved ortho-phosphate;
- Organic compounds, including total dissolved solids, total suspended solids, dissolved organic carbon, and total organic carbon;
- Trash and debris;
- Oxygen-demanding substances;
- Bacteria;
- Oil and grease;
- Pesticides; and
- Metals, including arsenic, cadmium, chromium, copper, lead, nickel, and zinc.

Treatment BMPs have varying levels of effectiveness in treating specific pollutants. FHWA-CFLHD will consider the data above when developing appropriate water quality treatment solutions for the project.

Biological Communities

Special Status Species

The streams and rivers near the study area may contain Southern Oregon/Northern California Coastal (SONCC) Coho salmon, California Coastal (CC) Chinook salmon, and Northern California (NC) steelhead, all of which are threatened. SONCC Coho salmon and NC steelhead both have designated critical habitat near the study area. The entire Van Duzen hydrologic unit is SONCC Coho salmon critical habitat, but the species is unlikely to exist because of a natural barrier downstream near Bridgeville, Salmon Falls, that blocks their ability to migrate to streams and rivers in the study area. SONCC Coho salmon have passed the barrier in previous years, but have not been noted at the study area in the last ten years. Like SONCC Coho salmon, CC Chinook salmon are unable to pass Salmon Falls, and are therefore unlikely to exist in streams and rivers in the study area in most years. They do not have critical habitat near the study area and therefore do not require any special protection measures. Although NC steelhead critical habitat and winter and summer ranges are not mapped within the portion of the Van Duzen River in proximity to the project area, there is potential habitat located in this half-mile stretch of the river and thus the potential for the species to occur there. However, sediment control BMPs will be employed in order to reduce the potential for any impacts to individuals in the area. A Biological Assessment was prepared and results of this analysis are presented in the *Threatened and Endangered Species* section of this document.

Stream/Riparian Habitats

Nine streams and rivers exist in the area, including the Van Duzen River, the Little Van Duzen River, Burr Creek, Butte Creek and five other unnamed streams. All streams and rivers are bordered by riparian zones that are comprised of native and non-native plants and trees. Riparian and stream zones are essential habitat for many wildlife species, including the threatened fish species mentioned earlier.

Wetlands

Wetlands are essential habitat for many wildlife species near the project area and are critical for filtering runoff and reducing hazardous materials that enter downstream water resources. Many wetlands exist in the study area and would be impacted by construction, including: vegetated wetland roadside

ditches, depressional wetlands, riverine wetlands, seeps, springs and slope wetlands. A seven-acre potential mitigation site for impacts to wetlands within the project area is being considered adjacent to the Van Duzen River, 1.7 miles southeast of Dinsmore. FHWA is evaluating the potential to create new wetland habitat with connectivity to the Van Duzen River at this site.

Fish Passage

Two barriers exist near the project that impact fish passage. Salmon Falls is a natural barrier near Bridgeville on the Van Duzen River that prohibits the passage of SONCC Coho salmon and CC Chinook salmon most years. Eaton Roughs is also a natural barrier, located on the Van Duzen River past the confluence with the Little Van Duzen River and prohibits the passage of NC steelhead most years.

3.12.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not result in an increase in impervious area or result in any change to vegetative cover in the project area. Therefore, the No Build Alternative would not result in new long-term impacts.

Preferred Alternative

Pollutants of concern during operation of a transportation facility include those noted previously in the Highway Runoff Quality Assessment. Because the project involves widening and realigning an existing facility, it would result in a permanent increase of impervious surfaces and a loss of vegetative cover; consequently, there would be a permanent increase in runoff and pollutant loading. The project would increase the impervious area from 15.5 to 17.4 acres, resulting in a total increase of 1.9 acres. However, the project would result in a net decrease in the length of the road from 4.4 miles to 3.9 miles. This increase in impervious surface would increase storm water velocity and volume throughout the project area. The project would also benefit the current storm water drainage system by improving the stability of the road, underdrains and buttresses.

Without avoidance and minimization measures, the project would be expected to result in short- and long-term impacts to water quality. These impacts include:

- Sediment: Excessive sedimentation degrades aquatic habitat. Suspended sediment increases turbidity and reduces aquatic plant life productivity. Suspended sediment can also cause reduction in dissolved oxygen levels which can be fatal to aquatic species.
- Metals: Metals that bind to suspended solids and decaying organic matter can persist in the environment for long periods of time. These metals can be transferred from one organism to another in aquatic species and cause contamination of water supplies.
- Nutrients: Excessive nutrients, particularly nitrogen and phosphorous, can cause extreme algal growth which can be toxic to certain aquatic organisms. Algal blooms and subsequent die-off causes large variations in dissolved oxygen levels and in some cases can cause fish kills.
- General Construction: Construction vehicles can remove vegetation and deposit sediment onto surrounding roads, which can later cause erosion and allow for sediment to wash into waterways. Construction site debris, if not prevented or removed regularly, can blow away in the wind or wash away into waterways

- Storm Water: Vegetation removal and increased impervious areas at construction sites can increase storm water runoff velocity and volume, causing accelerated erosion. The increased impervious area collects increased pollutant loading. Increased velocity in channelized waterways exacerbates erosion and sedimentation. The combination of these factors can result in transport of more contaminants to waterways.

Without avoidance and minimization measures, the impacts listed above can have an adverse effect on water quality. An increase in sedimentation would also result from construction. Potential sedimentation of waterways is likely to increase the most in the northeastern portion of the project site between HUM MP 39.87 and HUM MP 40.40, where vegetation removal during construction would occur very near the Van Duzen River. Sedimentation of waterways is also expected from construction of culverts in Burr Creek (HUM MP 37.60) and an unnamed stream (HUM MP 36.79). Flows from these two waterways move west into the Little Van Duzen River and would carry sediment and runoff from the roads to the river.

Under the NPDES General Construction Permit, a SWPPP would be required and erosion and sediment control BMP's for "high risk" work areas, such as in streams or waterways, would be identified in the SWPPP. If BMPs are properly selected and implemented, then no adverse water quality impacts are expected during construction of the project.

Operation of the facility is subjected to the requirements of Caltrans's NPDES Permit. As part of these requirements, Caltrans must:

- Consider approved Design Pollution Prevention (DPP) and Treatment Control BMPs for the project area; and
- Construct DPP and Treatment Control BMPs, where feasible

In addition, the project is subject to the requirements of the CGP as they relate to post-construction hydrologic conditions. Long-term or permanent BMPs are required to be implemented such that the constructed condition mimics the hydrology, time of concentration and drainage density as existed prior to construction. Non-structural controls, such as swales, vegetation and detention basins are preferred to structural controls and should be implemented to meet the conditions of the CGP. If non-structural controls are found to be inadequate, or if structural controls will produce greater reduction in water quality impacts, then structural controls may be utilized.

Currently, storm water runoff from the project area is not conveyed off-site as there is no existing traditional drainage infrastructure (i.e. catch basins and underground piping). Storm water flows generally off of roads into nearby streams and tributaries that drain into larger rivers in the area.

3.12.4 Avoidance, Minimization, and/or Mitigation Measures

Impacts to water quality would be less than significant with the below measures implemented.

Avoidance and Minimization Measures

Preventing potential impacts to water quality as a result of construction takes priority over mitigation. CFLHD has created many avoidance and minimization measures to prevent impacts from occurring in their own Standard Specifications for the Construction of Roads and Bridges on Federal Highways (referred to as FP-03). Additionally, Section 402 of the CWA requires projects to acquire permits for

various activities in order to avoid and minimize impacts. Treatment BMPs must be implemented to target the areas of concern in the storm water runoff from the project area and where feasible, DPP and Treatment Control BMPs would be incorporated. Implementation of DPP and Treatment Control BMPs would mitigate adverse impacts to water quality from facility operation. BMPs aimed to minimize impacts before and during construction are listed below:

- The area beyond the construction limits will not be disturbed. Trees, shrubs or vegetated areas temporarily damaged by construction operations will be re-vegetated.
- Certified weed free permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, contract permits, FP Section 107, FP Section 157 and SCR Section 157 will be provided.
- Before grubbing and grading, all sediment controls around the perimeter of the project, including filter barriers, diversion and settling structures will be constructed.
- Temporary erosion control measures will be maintained in working condition until the project is complete or the measures are no longer needed.
- CFLHD will conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable State and local seed and noxious weed laws.
- Additional measures, including a storm water pollution prevention plan, that are required by CWA Section 402 (NPDES) and are routinely included in FHWA projects, will be addressed.

Mitigation Measures

Caltrans's SWMP is the guidance document for compliance with the NPDES permit requirement for discharge. As part of the SWMP, the CFLHD will incorporate selected Constructions Site, DPP, and Treatment Control BMPs into the final design of the project. Compliance with the requirements of the SWMP is required for mitigation of potential short-term and long-term impacts. CFLHD also will implement the following measures, per their own FP-03:

- Turf establishment will be applied to finished slopes and ditches within 14 days after completion.
- Seeded areas will be protected and cared for, including watering when needed until final acceptance. All damages to seeded areas will be repaired by reseeding, re-fertilizing and re-mulching.
- All spills of petroleum products, hazardous materials, or other chemical/biological products released from construction related vehicles or equipment, will be properly cleaned up, mitigated and remedied, if necessary.
- In general, when gasoline, diesel fuel, antifreeze, hydraulic fluid or any other chemical contained within the vehicle is released to the pavement or the ground, proper, corrective, clean-up and safety actions specified in the SWPPP will be immediately implemented. All vehicles with load rating of two tons or greater will carry, at minimum, enough absorbent materials to effectively immobilize the total volume of fluids contained within the vehicle.
- Leaks will be repaired immediately on discovery. Equipment that leaks will not be used. Oil pans and absorbent material will be in place prior to beginning repair work. The contractor will be required to provide the "on-scene" capability of catching and absorbing leaks or spillage of

petroleum products including antifreeze from breakdowns or repair actions with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP will be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids will be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.

CFLHD is evaluating other BMPs considering variables such as drainage areas, impact locations and BMP effectiveness, and will include additional BMPs in the final design plans. These BMPs will be implemented as necessary. Potential BMPs that have been discussed with the RWQCB include vegetated buffer strips, vegetated swales and a constructed detention or retention basin.

3.13 GEOLOGY AND SOILS

3.13.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also 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. Recommended seismic response parameters are based on the (AASHTO) LRFD Bridge Design Specifications, 5th edition, 2010, with data from the Caltrans 2007 Fault Database.

3.13.2 Affected Environment

FHWA analyzed existing conditions in the project area and developed preliminary recommendations for proposed activities based on site conditions and geotechnical risks. Information presented in this section is summarized from FHWA's *Preliminary Geotechnical Recommendations Report* that was prepared in July 2013.

Geology

The project is located close to the city of Dinsmore and travels along the steep north and west facing slopes above the Van Duzen River at elevations between 2300 to 2900 feet. The project area is located within the Central and Eastern Belts of the Franciscan Complex in the Coast Range Geologic Province. The project site is underlain by the mélange and broken formation of the Central Belt Franciscan Complex and the metagraywacke of Hammerhorn Ridge of the Eastern Belt of the Franciscan Complex. The Broken Formation generally consists of metasandstone and meta-argillite with terrain exhibiting well channeled side hill drainages. The Mélange formation consists of meta-shale and metasandstones that are prone to land movement when highly fractured. The Metagraywacke of Hammerhorn Ridge is composed of relatively coherent quartzo-feldspathic metagraywacke and meta chert with terrain exhibiting steep colluvial slopes (FHWA 2013d).

Geologic Hazards

There are geologic hazards that exist from both the natural environment, as well as from the existing construction of the roadway. The major geologic hazards that are prevalent in the project area include:

landslides, slope instability at cut and fill slope locations, rock fall, and seismic events. Landslides, active and dormant, are encountered along the majority of the alignment from MP 37.35 to MP 39.50, and generally appear to be large scale landslides. They generally appear to be slow moving, with movement rates approximately less than one foot a year; however, accelerated movement likely occurs during periods of high groundwater. Evidence of cut and fill slope instability was observed in the project area, as well as active rock fall in isolated locations. Neither the geologic maps nor the site observations showed indications that there is naturally occurring asbestos in the area (FHWA 2013d).

Seismic Considerations

There are several known large active faults within the vicinity of the project site. According to the "Caltrans 2007 Fault Database" the feature controlling ground shaking at this site is the Cascadia Subduction Zone; it is located 40 miles to the west and is capable of generating an earthquake with a magnitude of 8.3. The next influential faults are the Big Lagoon- Bald Mountain and Trinidad faults; located 22 miles and 24.5 miles, respectively, to the northwest. Both of these faults are part of the Mad River Fault Zone and are capable of generating a 7.5 magnitude earthquake. The closest known active fault is the reverse style Little Salmon-Yager Fault located approximately 4 miles west of the project, capable of generating an earthquake with a magnitude of 7.0. Another regional fault of interest is the Bartlett Springs fault; located 19 miles to the southeast and capable of generating a 7.2 magnitude earthquake.

There are two mapped faults that cross the alignment within the project area, the unnamed fault at Burr Creek and the Mule Ridge Fault Zone (Garberville Quadrangle, McLaughlin and others, 2000). The unnamed fault at Burr Creek is estimated to run east-west along the approximate alignment of Burr Creek (PM 37.6). The Mule Ridge Fault Zone is northwest-southeast trending and interpreted to cross the roadway alignment at approximately PM 39.0. These faults are not listed in the Caltrans 2007 Fault Database.

Recommended seismic response parameters are based on the (AASHTO) LRFD Bridge Design Specifications, 5th edition, 2010, and represents horizontal peak ground acceleration (PGA) with 7 percent probability of exceedance in 75 years (approximately 1000-year return period). The Burr Creek crossing, near the middle of the project, was selected as a representative location for the probabilistic horizontal acceleration values for slope stability and earthquake induced landslide analysis corresponding to 40.4675º N latitude and -123.6540º W longitudinal. Based on the borings at the landslide locations, the average time-weighted shear wave velocity for the top 100 feet (VS100) of subsurface materials was estimated between 600 and 1,200 feet per second. Therefore, the site soils are classified as Class D according to the site class definitions specified in Table 3.10.3.1-1 of AASHTO.

The recommended spectral acceleration coefficient values for probabilistic design with a return period of 1000 years were calculated using the USGS (2008) version 2.10, “Seismic Design Parameters” program provided with the AASHTO LRFD Bridge Design Manual.

Based on the acceleration coefficient values, the project site is assigned to seismic hazard Zone 4 according to Table 3.10.6-1 in AASHTO. Seismic hazard zones reflect the variation in seismic risk in different regions needing different requirements for design as depicted in Table 4.7.4.3.1-1 in AASHTO. Due to the high seismic parameters, seismic design is anticipated to control slope stability analysis. Due

to the shallow bedrock observed in some portions of the site, lower seismic parameters may be selected for design of structures and embankments on a site-by-site basis (FHWA 2013d).

3.13.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not involve reconstruction or realignment of the roadway. Regular maintenance activities would continue, as well as maintenance on an as-needed basis to address frequent landslides and other deficiencies. Frequent repaving and patching activities would continue to occur in response to maintaining a drivable surface in areas of frequent landslide movement and slumping.

Preferred Alternative

The Preferred Alternative would involve temporary effects to soils and geology during construction such as excavation, grading, leveling, and placement of fill. The Preferred Alternative aims to address the geologic issues in the project area to the extent that it is cost effective for the project. Existing areas of embankment and cut slope distress would be addressed to improve site conditions and the longevity of the roadway. Mitigation of the larger slide mass is not likely feasible; therefore, mitigating and/or avoiding the smaller active lobes of the slides is the primary focus of project design. Possible landslide mitigation measures include the following: avoidance, reduce driving forces, increase resisting forces, increase internal shear strength, and maintenance approach. Each measure has substantial cost considerations as well as engineering and cost limitations. In general due to the large scale and deep seated nature of the known landslides, avoidance and increasing resisting forces may not be feasible. Reducing the driving force and a maintenance approach, or likely a combination of the two, are likely to have the highest cost/benefit ratio for the project. Strategic design of surface and subsurface drainage features will be a significant component in managing landslide movement. Subsurface drainage components are likely to include underdrain and horizontal drains in areas of instability. This would improve conditions compared to the No Build Alternative; however, maintenance would still be required.

Substantial cuts and fills will be required due to the steep nature of the topography and current lack of roadway width. Depending on the suitability of material, there may be opportunities for reuse of onsite material generated from excavations. Embankment design will be closely evaluated as design progresses to ensure adequate slopes are constructed that maintain slope stability as well as facilitating vegetation growth. When embankments are steepened, special treatments will be applied such as retaining walls or reinforced soil slopes (RSS) with proper seeding and erosion control. Wall selections have been preliminarily identified, which are presented in Figure 3 in Chapter 2. Alternatives; however these locations and types are subject to change as more advanced design and geotechnical investigation occurs.

Due to the prevalence of seismic conditions, seismic design is anticipated to control slope stability analysis. However, with the presence of shallow bedrock in certain sections of the site, a lower seismic parameter may be selected for the design of the associated structures and embankments at certain sites.

Due to the highly fractured bedrock, loose colluvial material overlying bedrock, steep terrain, and proposed slope heights, it is not feasible to design a cut slope that would completely prevent future rock fall events. However, rock fall can be mitigated using a variety of techniques such as containment with mesh and bolts, catchment basins, fences, and maintenance. Rock scaling and appropriate mitigation treatment in areas of potential rock fall will be further investigated and incorporated into the project as design progresses.

3.13.4 Avoidance, Minimization, and/or Mitigation Measures

Geotechnical analyses will continue as design progresses to ensure the same or improved factor of safety. Minimization and mitigation techniques will be incorporated into the design to ensure adequate slope stability, improved drainage conditions, rock fall protection, if warranted, and so that future landslide repair areas are minimized to the extent possible. With these measures incorporated into the design, impacts would be less than significant.

3.14 PALEONTOLOGICAL RESOURCES

3.14.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects. This project involves federal funding from the Federal Lands Highway Program, as well as local agency matching funds from Caltrans. The project area is located on Caltrans right-of-way and privately-owned lands, as well as a potential wetland mitigation site that is located on land owned by the U.S. Forest Service. Therefore, the following federal and state laws will apply to this project.

16 United States Code (USC) 431-433 (the "Antiquities Act") prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the Department of Government having jurisdiction over the land. Fossils are considered "objects of antiquity" by the Bureau of Land Management, the National Park Service, the Forest Service, and other federal agencies.

16 United States Code (USC) 470aaa (the Paleontological Resources Preservation Act) prohibits the excavation, removal, or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands.

23 United States Code (USC) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.

23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

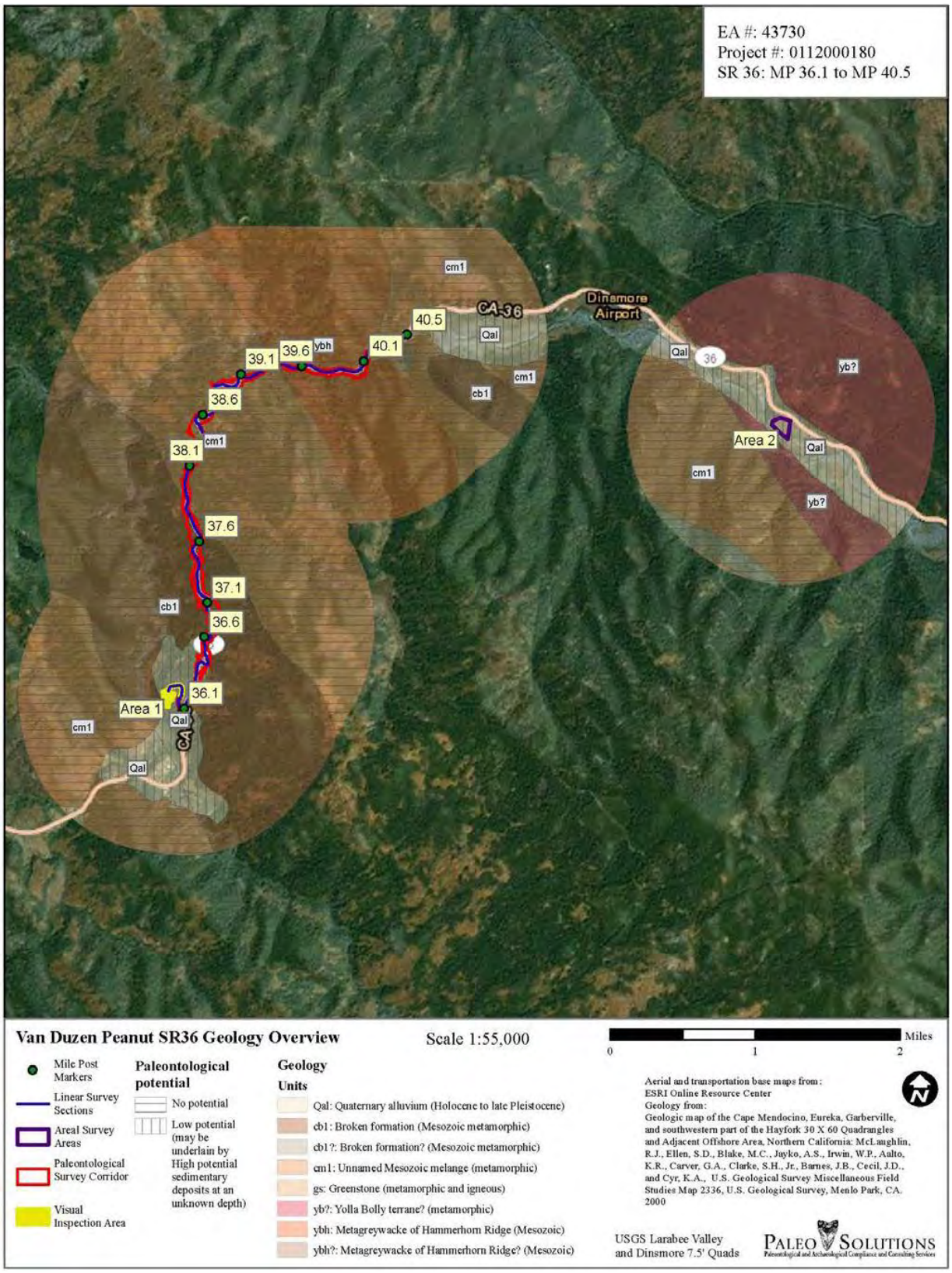
Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA). No specific regulations in the Humboldt County General Plan address paleontological resources. No local rules or regulations address paleontological resources for the Project area.

3.14.2 Affected Environment

A Paleontological Identification and Evaluation Report were prepared for the project by Paleo Solutions, Inc. in December 2013 and are combined into one report. This report was prepared to evaluate the paleontological sensitivity of the project area and is summarized below. Paleo Solutions, Inc. completed a records search, literature review, geologic map review and a field survey. According to museum records, no previously recorded fossil localities are located within 30 miles of the project area. In addition, no paleontological resources were observed during the pedestrian field survey completed for the project on July 19 and 20, 2013 (Paleo Solutions 2013).

The project area is underlain by the Franciscan Complex. This area of Humboldt County is characterized by steep and inaccessible mountain terrain. The topography of the project area is characterized by moderate hills and slopes along steep valleys. Six geologic units are mapped within the project area; five of which are metamorphic and one is sedimentary (see Figure 19). These units are described in detail below. Quaternary alluvium has been subdivided into young Quaternary alluvium (Holocene age) and old Quaternary alluvium (Pleistocene age). Five of the geologic units in the project area have low paleontological sensitivity and one, Quaternary alluvium, has high sensitivity. Generally, quaternary alluvium may have low sensitivity due to its young age at the surface, but may include older Holocene and Pleistocene sediments with high sensitivity at depth (see Figure 19) (Paleo Solutions 2013). Furthermore, alluvial terraces have high sensitivity, and the Holocene-Pleistocene boundary sediment in particular is highly sensitive.

Figure 19: Geologic units and their sensitivities on the Van Duzen-Peanut SR 36 project corridor



Note: Alluvial terraces are not shown on above figure.

Quaternary alluvium (Qal; Holocene and Pleistocene age)
This unit consists of clay, silt, sand, gravel and boulders which were deposited in stream beds, alluvial fans, terraces, floodplains, and ponds. The Holocene age alluvium has a low paleontologic potential because of the relatively young age of these deposits (less than 10,000 years old) and as such, are unlikely to contain *in situ* fossils. However, Pleistocene age alluvial deposits are listed because sediments of late Pleistocene and older Holocene age may occur at depth within the project area or when alluvial terraces are present. This is the case in the proposed staging area and potential mitigation site (Areas 1 and 2 on map, see Figure 19).

There is typically no way to discern the age of surficial sedimentary deposits in the field other than the presence of age diagnostic fossils, and sedimentation rates are highly variable and hence unreliable indicators of age. Therefore, areas where construction excavations will disturb alluvium as determined from a preliminary review of the geotechnical borehole data, and based on consultation with Caltrans, are elevated to high paleontological potential using Caltrans guidelines (Paleo Solutions 2013).

A preliminary review of geotechnical borehole data suggests that Quaternary sediments (clay, silt, sand, gravel) overlie the metamorphic bedrock units, and deeper excavations into these sediments could potentially disturb scientifically significant fossils. Sixty four borehole logs from geotechnical investigations conducted along the length of the project alignment were examined. Of these, 22 have sediments ranging from eight to 20 feet thick, 33 have sediments ranging from 20 to 40 feet thick, seven have sediments ranging from 40 to 60 feet thick, one has 100 feet of sediments overlying metamorphic bedrock, and one has bedrock at the surface. Alluvial deposits were not identified in subsurface investigations of the proposed alignment. Overburden materials encountered consisted of colluvial, residual and landslide deposits (Kleinfelder 2014). Alluvium was identified in the eight borings at the potential wetland mitigation site (Area 2). Seven of the borings were terminated in the alluvium between 25 and 26.5 feet below ground surface. One boring penetrated the alluvium with a thickness of 19.5 feet from 13 to 22.5 feet below ground surface. Alluvium is also likely present at the proposed staging area (Area 1) as it is an elevated terrace, though no geotechnical data was obtained in this area.

Unnamed Mesozoic Melange (cm1)
This late Cretaceous to late Jurassic mélange is characterized by predominantly penetratively sheared, locally tuffaceous, meta-sandstone and meta-argillite. It exhibits lumpy, rounded, poorly incised topography. The unnamed Mesozoic melange has low paleontological potential (Paleo Solutions 2013).

Broken Formation (cb1)
This formation consists of bedded to massive, locally folded, rarely conglomeratic metasandstone and meta-argillite, with minor amounts of highly sheared rocks (FHWA 2013d). It exhibits sharp-crested topography with well-incised drainages. The broken formation has low paleontological potential (Paleo Solutions 2013).

Yolla Bolly Terrane (yb)
The Yolla Bolly (also known as the Yolla Bolla) terrine consists predominantly of quartzofeldspathic metagraywacke with minor intercalated metachert and metavolcanic rocks (FHWA 2013d). While this unit may locally contain fossilized radiolarians, it has low potential for scientifically significant (and non-redundant) paleontological resources using Caltrans guidelines (Paleo Solutions 2013).

Metagraywacke of Hammerhorn Ridge (ybh)
This Cretaceous to Jurassic-aged unit has been determined by some authors to be a subdivision of the Yolla Bolly Terrane. It is characterized by a fine metamorphosed clay matrix with poorly developed larger grains and some metachert and metavolcanic rocks. This unit is highly metamorphosed and has a low paleontological potential because it was formed under extreme temperatures and pressures (Paleo Solutions 2013).

3.14.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not involve subsurface disturbance in previously undisturbed areas; therefore, this alternative has no potential to disturb scientifically important paleontological resources.

Preferred Alternative

The geology of the area chiefly consists of low sensitivity geologic units having low potential for fossils. The potential for adverse impacts is therefore unlikely in most portions of the project area (between MP 36.6.and MP 40.5). In addition, shallow excavations in other portions of the project area (where underlain by Recent (Holocene) age younger Quaternary alluvium) also have a low potential to yield *in situ* paleontological resources. However, in these areas deeper excavations (which vary by depth and location) may locally be underlain by older alluvial deposits of Pleistocene and early Holocene age which, if present, would have a higher potential to contain fossils (high potential under Caltrans guidelines). This potential may exist in deeper excavations at the following locations:

- Proposed staging area and its access road at MP 36.09
- From MP 36.09 to 36.2
- From MP 36.25 to MP 36.55
- Potential mitigation site at MP 43.68

Geotechnical drilling investigations were performed and no alluvial deposits were identified in subsurface investigations of the proposed alignment. Overburden materials encountered consisted of colluvial, residual and landslide deposits (Kleinfelder 2014).
Table 32 and Table 33, as well as
Figure 19 above summarize the project area and the fossil potential based on the geology of the area.

Table 32: Geology of block survey areas (staging and materials yards) for the SR 36 project

Survey Area	Unit Description	Fossil Potential	Acreage
Area 1	Qal: Quaternary alluvium (Holocene to Pleistocene)	Low potential Holocene *High potential Pleistocene	3.81
Area 2	Qal: Quaternary alluvium (Holocene to Pleistocene)	Low potential Holocene *High potential Pleistocene	7.11
Area 2	yb: Yolla Bolly Terrane (Mesozoic)	*Low potential	7.11

*Holocene/Pleistocene boundary may be impacted at an unknown depth and at the elevated terrace; in Area 2, Mesozoic Yolla Bolly Terrane may also be impacted at depth. In Area 2 high potential exists where low-lying terrace may be encountered below fill.

Table 33: Geology of the linear survey areas for the SR 36 project

Unit Description	Fossil Potential	Miles
Qal: Quaternary alluvium (Holocene to Pleistocene)	Low potential Holocene *High potential Pleistocene	0.78**
cb1: Broken Formation (Mesozoic metamorphic)	Low potential	1.38
cm1: Unnamed Mesozoic melange (metamorphic)	Low potential	1.81
ybh: Metagreywacke of Hammerhorn Ridge (Mesozoic)	Low potential	0.87

**Along the main alignment, alluvium was not encountered reducing the fossil potential.

Paleontological potential exists primarily in Area 1, a potential staging area, and Area 2, a proposed wetland mitigation site. Area 1 received only limited field review based on safety concerns. Based on review of aerial data, the site is an uplifted Quaternary terrace which has the potential to contain significant paleontological resources. If the site is to be used for storage of equipment and materials, a thorough field investigation will be performed by a qualified paleontologist or a geologist with a background in paleontology before grading and/or excavation. If the site is used a qualified monitor will also be present for any grading activities for initial site preparation and site reclamation post-use.

At Area 2, the potential wetland mitigation site, there are low-lying terraces that contain sediment that is older than active alluvium in the river. The site is highly disturbed with fill material placed from past roadway projects; however, the extent of fill is unknown. Borings indicate the depth of fill is 9 to 15 feet thick based on gradation of soils. The natural fluvial sediment is Holocene, possibly Pleistocene in the subsurface, and has the potential to contain significant paleontological resources. Groundwater levels are approximately 11 to 15 feet below ground surface and levels will continue to be monitored over time to identify the appropriate depth of excavation to help ensure successful wetland mitigation. A paleontologist or a geologist with experience in paleontology will be present during excavation into native soils at Area 2. A Paleontological Mitigation Plan will be developed to outline specific protocols of monitoring as well as inadvertent discovery procedures.

3.14.4 Avoidance, Minimization, and/or Mitigation Measures

The potential to encounter *in situ* fossils exists in two areas of the project. With implementation of the below measures, impacts would be less than significant.

- Area 1 received only limited field review based on safety concerns. If the site is to be used for storage of equipment and materials, a thorough field investigation will be performed by a qualified paleontologist or a geologist with a background in paleontology before grading and/or excavation. If the site is used a qualified monitor will also be present for any grading activities for initial site preparation and site reclamation post-use.

- A paleontologist or a geologist with experience in paleontology will be present during excavation into native soils at Area 2.
- A project-specific Paleontological Mitigation Plan (PMP) will be prepared by a qualified principal paleontologist (MS or PhD in paleontology). The PMP will identify precise monitoring locations, as well as fossil salvage, laboratory preparation, museum curation, and notification procedures following unanticipated paleontological discoveries.
- Paleontological monitors, under the direction of the qualified principal paleontologist, will be on site to inspect cuts for fossils at all times during original ground disturbance involving sensitive geologic formations (as specified in the PMP).
- If fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas may be halted or diverted by FHWA to allow the prompt recovery of fossils.
- Fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections.
- A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.

3.15 HAZARDOUS WASTE/MATERIALS

3.15.1 Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

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

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

3.15.2 Affected Environment

An Initial Site Assessment (ISA) was prepared for the project by Jacobs Engineering in September 2013 (Jacobs 2013c). Preparation of the ISA included the following activities:

1. A review of federal and state regulatory records to determine if area properties have faced or are currently facing any regulatory actions, fines, or violations.
2. A review of historic aerials and topographic maps of the project site and surrounding areas to visually identify previous land uses.
3. Site inspection, including a visual inspection for indications of soil and surface water contamination and other hazards, and an evaluation of the environmental condition of the areas surrounding the project.
4. Interviews with staff from FHWA and the USFS familiar with the project site and surrounding area.

Database Review

A regulatory database search report was conducted to identify sites of potential environmental concern within the applicable search distances for each database (within one mile depending on the database). A database search can identify areas that have known or documented environmental conditions that may affect soil or ground water within the project area. A targeted property was selected and used to search the proposed corridor limits as well as the proposed mitigation site located to the north and northeast of the project. According to the EDR database report, the target property was not listed in the databases searched by EDR. In addition, there were no sites listed within one mile from the proposed project corridor improvements.

EDR listed 32 sites as “orphan sites” within the vicinity of the project centered on SR 36, north of the northern project termini and Forest Route 1N30. The term “orphan sites” means that EDR could not

pinpoint the location of the sites for some reason. There was one site located adjacent to the proposed project corridor that was analyzed in detail.

Orphan Site – 40500 SR 36
This site was listed in the EDR report as a recycler of waste with a *de minimis* volume of material (0.22 tons of hydrocarbon solvents (benzene, hexane, Stoddard, etc.). During the site reconnaissance, miscellaneous items such as washers/dryers, hot water tanks, vehicles, household goods, wood debris, and ladders were identified on site. It appeared these items were staged for recycling of materials or to be sold as scrap. No solvents were observed during the site reconnaissance. This site does not pose a risk to the project due to the *de minimis* amount of solvents reported on site.

Additional databases reviewed on-line included the California Department of Resources Recycling and Recovery (Cal Recycle) Solid Waste Information System (SWIS), the California Department of Toxic Substance Control's (DTSC) ENVIROSTOR Database, and the State Water Resources Control Board's (SWRCB) GeoTracker Database. There were no additional listed sites identified within the study area in the on-line databases mentioned above.

Review of Historical Information

Historical information reviewed for this project included historic aerial photographs, historic topographic maps, and oil and gas maps. Historic aerial photographs from 1947, 1972, 1983, 1988, 1998, 2005, 2009, 2010, and 2012 were reviewed to assess historic land uses and identify potential evidence of hazardous substance releases. SR 36 was observed on the 1947 aerials. However, the surrounding land was mostly vacant and undeveloped with dense vegetation cover. The 1972, 1983, and 1988 aerials are similar to the 1947 aerials with an increase in local roadways and minor development. In addition, these aerials depict activity on the proposed mitigation site as well as the adjacent site to the south. The 1998 aerials depict an increase in development along SR 36 with land uses and density similar to current conditions. The proposed mitigation site appeared to be graded in 1998. Aerials dated 2005 – 2012 appeared to have similar land uses as present day near the proposed mitigation site (Jacobs 2013c).

Topographic maps from 1951, 1977, and 2012 were also reviewed. The 1951 topographic map depicts SR 36 with minor development adjacent to the project corridor. Also noted on this map was minor development in the Town of Dinsmore and the Dinsmore Airport. The 1977 topographic map is similar to the 1955 map. However, a structure was identified on the proposed mitigation site as well as structures on the adjacent property to the south (Jacobs 2013c).

Site Reconnaissance

Jacobs conducted site inspections of the proposed project corridor and the surrounding properties in July 2013. The proposed project corridor and adjacent properties were inspected for obvious or potential sources of environmental contamination that would have potential to impact the proposed project. The following summarizes potential RECs observed on properties that may be partially acquired and/or used during construction. Specific location information and photographs are included in the Initial Site Assessment prepared for the project (Jacobs 2013c).

Construction Staging Area

A construction staging area is proposed on a portion of a parcel on the southern end of the project area. The area is free of debris and other materials with the exception of one small wood debris pile and a ladder. The remaining area consists of an open meadow/field. There is an unpaved road/driveway on this parcel to access a private residence. Multiple campers were observed on the private residence property. The construction staging area would be located at the end of the road past the residence. Two aboveground storage tanks (AST) were observed along the access road/driveway, which appeared to have a volume capacity of approximately 500 gallons or less. However, it appeared these tanks were used to store water (not fuel) to support irrigated crops. A storage tank truck was also noted by the residence. There are multiple sheds, buildings, and debris throughout the residence property, but none within the proposed construction staging area.

This site does not pose a risk to the project since the ASTs observed on site do not appear to be used to store hazardous materials and the debris pile did not appear to contain RECs.

Private Residence

This parcel contains a private residence. Observations from the site reconnaissance included household and automobile debris piles consisting of appliances, car tires and seats, etc. There were no RECs observed in the debris piles. Therefore, this site does not pose a risk to the project.

Private Residence and Vacant Land

This privately-owned parcel contains a residence and vacant land. Observations from the site reconnaissance included multiple discarded household and construction-related debris piles. Debris piles were also noted along the power line right-of-way adjacent to the residence, which consisted of roofing shingles, building materials, fiber board, car tires, and household debris. Traces of asbestos and/or lead-based paint could be present in the debris piles. However, this site does not pose a risk to the project since any trace of asbestos and/or lead-based paint is assumed to be *de minimis*.

Private Residence

This parcel contains one occupied private residence and an adjacent undeveloped parcel of private property. There were no RECs observed on the occupied private residence property. At the undeveloped private property, camping supplies and other household items were observed on site. The undeveloped private property appeared to be adjacent to but outside of the proposed construction footprint. Four sealed deep cycle batteries (DCS-100L, 12V 100AH) were observed on the ground, uncovered, but in good condition with no noticeable leaks or cracks. This site does not pose a risk to the project because the batteries did not appear to be leaking and were not observed within the construction footprint (Jacobs 2013c).

Mitigation Area

This parcel may be used as a proposed mitigation area through a temporary construction easement of Special Use Permit from the USFS. The parcel is located adjacent to SR 36 approximately ½ mile southeast of MP 43.116, east of the project corridor improvements. This site was identified as a potential REC because it appeared material was buried on site, backfilled, re-graded, and potentially re-seeded. Based on interviews with FHWA and USFS in August 2013, the proposed mitigation area was used to store soil and rock material from construction activities on a previous project in 1996. The material consisted of solid waste (soil and rock) and is not known to contain hazardous materials.

Observations from the site reconnaissance included multiple discarded household and construction-related debris piles adjacent to the proposed mitigation area. Debris consisted of tires, car parts, electronic components, construction debris, etc. (Jacobs 2013c).

This site does not pose a risk to the project because based on FHWA and USFS interviews, the material buried on site is not associated with any RECs (Jacobs 2013c).

3.15.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not involve reconstruction or realignment of the roadway and would only involve regular maintenance actions. There are no known risks of hazardous materials contamination or exposure associated with the No Build Alternative.

Preferred Alternative

Based on the environmental database research, interviews, review of historic maps, and site reconnaissance of the project area, there are no known recognized environmental concerns (RECs) located on sites within the project area. As discussed in the *Geology and Soils* section of this EA/IS, neither the geologic maps nor the site observations showed indications that there is naturally occurring asbestos in the area. Interviews indicated that excess soils from nearby roadway projects were buried at the potential mitigation site; however, there is no known presence of contaminated material.

The Preferred Alternative would involve sizeable cuts and fills and exposure of soils and materials that may not have been visible during a site reconnaissance. Although no sites were identified as having known RECs that would pose a risk to the project, contamination could still be encountered during construction activities. Recommendations from the Initial Site Assessment for the project will be followed, including contractor training on recognizing signs of possible contamination and appropriate protocol in such instances. In addition, a materials management plan will be prepared for the project to ensure materials are handled accordingly if encountered during construction activities.

3.15.4 Avoidance, Minimization, and/or Mitigation Measures

Impacts related to hazardous materials would be less than significant. The following measures would be implemented to avoid or minimize the potential for effects.

If any staining within the construction limits, odoriferous scents, or other indication of hazardous material is encountered by the construction contractor, operations at the discovery site will be suspended and FHWA will be immediately notified. Any such discovery will be investigated by qualified personnel and treated in accordance with Federal, State, and local regulations. Standard best practices will also be implemented during the handling and transport of hazardous materials.

Construction personnel will be trained to recognize signs of possible contamination in soil such as odors and staining. In addition, a materials management plan will be prepared for the project to ensure hazardous materials are handled accordingly if encountered during construction activities.

Owners of subsurface utilities will be contacted in areas where excavation is to be conducted in order to assess whether any of the utilities are contained in Transite™ asbestos pipe. If subsurface utilities are

determined to be housed in Transite™ asbestos pipe, and the utilities need to be relocated for the project, special handling, and possibly asbestos abatement would be required.

3.16 AIR QUALITY

3.16.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (PB) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

Under the conformity provisions of the CAA, regionally significant and federally funded projects located in designated non-attainment or "maintenance" areas (former nonattainment) must demonstrate conformity to State Implementation and Maintenance Plans. To determine if a project demonstrates conformity to the State Implementation and Maintenance Plans, a project must be included in a Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), and not cause or contribute any new violation of NAAQS. Conformity with the CAA takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

At the regional level, an air quality model is run to determine whether or not the implementation of projects included in the RTPs would conform to emission budgets or other tests showing that attainment requirements of the CAA are met.

At the project level, a "hot spot" analysis may be required if an area is designated as a "non-attainment" or "maintenance" area for CO and/or PM.

The California Environmental Protection Agency Air Resources Board (CARB) and local air pollution control districts are responsible for ensuring that California State Ambient Air Quality Standards (SAAQS) are met for certain pollutants and averaging periods. The state standards are even more stringent than federal standards.

Air Quality compliance within Humboldt County is also under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). The NCUAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws.

The NCUAQMD has not established specific construction-related emission thresholds. Therefore, the significance thresholds defined in *Rule 110 New Source Review (NSR) and Prevention of Significant Deterioration (PSD)* were used for this project and are summarized in

Table 34: Significance Thresholds

Pollutant	Significance Thresholds	
	Daily (pounds per day)	Annual (tons per year)
Carbon monoxide	500	100
Fluorides	15.0	3.0
Hydrogen sulfide	50.0	10.0
Lead	3.2	0.6
Nitrogen oxides	50.0	40.0
Particulate matter (PM10)	80.0	15.0
Particulate matter (PM2.5)	50.0	10.0
Reactive organic compounds	50.0	40.0
Reduced sulfur compounds	50.0	10.0
Sulfur oxides	80.0	40.0
Sulfuric acid mist	35.0	7.0
Total reduced sulfur compounds	50.0	10.0

Source: NCUAQMD 2013

3.16.2 Affected Environment

Climate Conditions

Climate along the northern coast of California is typically characterized by cool summers with frequent fog and mild winters with high amounts of rain because the ocean helps to moderate temperatures year-round. However, inland areas, including the project area, often experience very hot, dry summers and cold snowy winters.

According to the Western Regional Climate Center (WRCC), the closest, most representative monitoring station is located south to southeast from the proposed project site in Mad River, California. Table 35 summarizes the average monthly temperature and precipitation data from 1981-2010 for the project area. Snowfall data was not available from years 1981-2010. Historic precipitation and snowfall data

was available from years 1942-1988. The average annual mean for precipitation and snowfall in Mad River is 60 inches and 45 inches respectively.

Table 35: Temperature and Precipitation (1981-2010) for Mad River, California

Month	Temperature (°F)		Precipitation (inches)
	Average Maximum	Average Minimum	Average
January	48.1	27.3	11.03
February	48.5	28.8	16.60
March	50.3	30.2	10.78
April	56.3	31.7	5.16
May	69.7	38.3	1.85
June	82.0	45.7	0.51
July	88.4	48.7	0.14
August	89.9	49.0	0.56
September	80.1	43.2	2.13
October	67.7	36.0	5.17
November	55.2	35.0	17.50
December	43.0	29.3	15.79
Annual	65.1	37.1	87.21

Source: WRCC 2013

Existing Air Quality Conditions

Humboldt County is in attainment for all NAAQS, non-attainment for the state PM_{10} standard, and attainment or unclassified for all other state standards. The county's sunny climate, pollution-trapping mountains and valleys, along with the growing population, all contribute to the exceedance of the state PM_{10} standard. The NCUAQMD maintains a network of air quality monitoring sites throughout Humboldt County. There are three monitoring stations in the county where particulate matter samples are collected, all of which are in the city of Eureka approximately 30 north to northwest from the proposed project. There are no monitoring stations near the project. According to data collected from 2009 to 2012, PM_{10} levels in the city of Eureka are currently below the state standard of 50 $\mu g/m^3$. However, an exceedance of 61 $\mu g/m^3$ was observed in 2010 at one of the stations resulting in Humboldt County not meeting the SAAQS.

The state and federal criteria air pollutant standards, effects, and typical sources, including respirable particulate matter (PM_{10}) for which Humboldt County is in non-attainment for the state standard, are presented below in Table 36.

Table 36: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State [8] Standard	Federal [8] Standard	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3) [2]	1 hour 8 hours	0.09 ppm 0.070 ppm	--- [4] 0.075 ppm (4^{th} highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm [1] 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Respirable Particulate Matter (PM_{10}) [2]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 --- [2] (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$) [2]	24 hours Annual 24 hours (conformity process [5]) Secondary Standard (annual; also for conformity process [5])	--- 12 µg/m^3 --- ---	35 µg/m^3 12.0 µg/m^3 65 µg/m^3 15 µg/m^3 (98^{th} percentile over 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm [6] (98^{th} percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours	0.25 ppm --- 0.04 ppm	0.075 ppm [7] (99^{th} percentile over 3 years) 0.5 ppm [9]	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if

Pollutant	Averaging Time	State [8] Standard	Federal [8] Standard	Principal Health and Atmospheric Effects	Typical Sources
					ultra-low sulfur fuel not used.
Lead (Pb)[3]	Monthly Rolling 3-month average	1.5 µg/m^3 ---	--- 0.15 µg/m^3 [11]	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes

Adapted from Sonoma-Marin Narrows Draft EIR and California ARB Air Quality Standards chart (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter; ppb=parts per billion (thousand million)

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

2 Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. Annual $PM_{2.5}$ NAAQS tightened from 15 µg/m^3 to 12 µg/m^3 December 2012 and secondary annual standard set at 15 µg/m^3.

3 The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

4 Prior to 6/2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still be in use in some areas where 8-hour ozone emission budgets have not been developed, such as the S.F. Bay Area.

5 The 65 µg/m^3 $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. The 15 µg/m^3 annual $PM_{2.5}$ standard was not revoked when the 12 µg/m^3 standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved

SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

6 Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause re-designation to nonattainment in some areas after 2016.

7 EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of 9/2012.

8 State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.

9 Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

10 Standards no longer apply in CA starting in 2013 (1 year after designations to attainment/unclassified statewide) were completed. Do not use or quote any more. Will be removed in 2013 edition of this table.

11 Lead NAAQS are not considered in Transportation Conformity analysis.

Greenhouse Gases and Climate Change:
Greenhouse gases do not have concentration standards for that purpose. Conformity requirements do not apply to greenhouse gases.

Mobile Source Air Toxics

In addition to the regulated pollutants described above, FHWA also considers Mobile Source Air Toxics (MSATs) in project analyses. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics are the result from engine wear or from impurities in oil or gasoline. Air toxics are pollutants that may result in an increase in mortality ore serious illness, or that may pose a potential hazard to human health. The health effects of air toxics include: cancer, birth, defects, neurological damage, damage to the body's natural defense system and diseases that lead to death.

3.16.3 Environmental Consequences

No Build Alternative

The No Build Alternative would result in a continuation of current roadway conditions and maintenance activities and would not involve reconstruction or realignment of the roadway. There would be no measurable changes to air quality from the baseline conditions presented above.

Preferred Alternative

Transportation Conformity

The project is located in an attainment/unclassified area for all current National Ambient Air Quality Standards (NAAQS). Therefore, conformity requirements do not apply.

Particulate Matter

A quantitative particulate matter (PM) hot-spot analysis is required under the EPA Transportation Conformity rule for projects of air quality concern (POAQC) as described in the EPA's Transportation Conformity Final Rule of December 2010 (EPA 2010). The proposed project does not meet the definition of a POAQC as defined in EPA's Transportation Conformity Guidance because the project would not construct or expand a route that serves a significant volume of diesel truck traffic, would not result in a significant increase in diesel traffic, and would not affect a congested intersection (LOS D or worse) with

a significant increase in diesel traffic. Diesel emissions are the primary source of PM_{10} concentrations. Diesel vehicles along SR 36 within the proposed project area comprise approximately 6 percent of the total traffic on SR 36 in the project area and are expected to remain the same for future 2037 conditions. This does not represent a significant number of diesel vehicles or significant increase in diesel vehicles as defined in EPAs Transportation Conformity Guidance. Therefore, a PM_{10} hot-spot analysis is not required and this project would not cause or contribute to any violation of the NAAQS or SAAQS.

Mobile Source Air Toxics

Based on the traffic impact analysis completed for this project, it is anticipated that the proposed improvements to enhance traffic safety and improve mobility for vehicular travel will attract an additional 70 vehicles trips to SR 36 on average each day (Jacobs 2013a). This slight increase would have negligible effects on MSATs in the study area. Additionally, this project would not result in any meaningful changes in vehicle mix, roadway location, or any other factor that would cause an increase in MSAT impacts. Therefore, no further analysis for MSATs is required.

Construction

Construction activities are a source of dust and exhaust emissions that can have substantial impacts on local air quality (i.e., exceed state air quality standards for ozone, CO, PM_{10}, and $PM_{2.5}$). Construction of the proposed project is expected to last no more than two years. Therefore, long-term construction-related impacts are not anticipated. However, short-term impacts are anticipated. These include emissions resulting from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and roadway paving activities. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. Construction traffic on unpaved surfaces, especially at construction staging areas, would be the major generator of dust emissions for the proposed project.

Construction-related emissions were calculated for this project using the Sacramento Metropolitan Air Quality Management District (SMAQMD) Roadway Construction Emission Model (RCEM) to estimate the levels of criteria pollutants that would be associated with project construction. The road construction model is a public-domain spreadsheet model that enables users to estimate emissions using a minimum amount of project-specific information. The model estimates emissions for load hauling (on-road heavy-duty vehicle trips), worker commute trips, construction site fugitive dust (PM_{10} and $PM_{2.5}$), and off-road construction vehicles. Although exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to major dust-generating activities, which include grubbing/land clearing and grading/excavation.

Table 37 summarizes emissions associated with the proposed project construction using the SMAQMD RCEM.

Table 37: Estimated Construction Emissions (Unmitigated)

Construction Year	Daily Average Emissions				
	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
2015	15.2	80.2	161.5	105.4	27.25
Threshold	50	500	50	80	50
Exceeds Threshold?	No	No	**Yes**	**Yes**	No

Note: PM emissions include both exhaust and fugitive dust.
Source: SMAQMD RCEM

As shown in Table 37, NO_x and PM_{10} emissions associated with the proposed project construction are anticipated to exceed the NCUAQMD thresholds of significance for construction-related criteria air pollutants and precursors. Detailed emissions calculations from the model are provided in the project's Air Quality Technical Report (Jacobs 2014c). Control measures to reduce temporary construction-related emissions are discussed below in the avoidance and minimization section.

In addition to potential air quality impacts of criteria pollutants, naturally occurring asbestos could be encountered during construction activities. The Initial Site Assessment and Preliminary Geotechnical Recommendations Report prepared for this project concluded the proposed project area does not contain serpentine and therefore naturally occurring asbestos is not likely (Jacobs 2013c). Therefore, an analysis of naturally occurring asbestos was not conducted for this project.

3.16.4 Avoidance, Minimization, and/or Mitigation Measures

Construction activities and unpaved roads are a major contributor to fugitive dust (PM_{10}) emissions. Practical measures to control dust, such as watering of construction areas, will be incorporated into the plans and specifications for the construction phase of the project in accordance with NCUAQMD rules and regulations.

With implementation of the below measures, impacts to air quality would be less than significant. These include requiring all construction contractors to:

- Ensure that all construction equipment is properly tuned and maintained.
- Cover haul trucks when transferring materials.
- Install trackout control devices at access points to minimize trackout dirt.
- Minimize idling time to save fuel and reduce emissions and conform to applicable local air quality regulations.
- Have an operational water truck on site at all times. Water would be applied to control dust as needed to prevent dust impacts off site.
- Use existing power sources or clean-burning fuel generators rather than temporary power generators.

Although the measures listed above are directed at reducing PM_{10} emissions, these measures also have the benefit of reducing ozone precursors, carbon monoxide, as well as toxics.

3.17 NOISE

3.17.1 Regulatory Setting

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

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The CEQA noise analysis is included at the end of this section.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement, federal regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. Under 23 CFR 772.7, projects are categorized as Type I, Type II, or Type III projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type III project is a project that does not meet the classifications of a Type I or Type II project.

Under 23 CFR 772.13, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

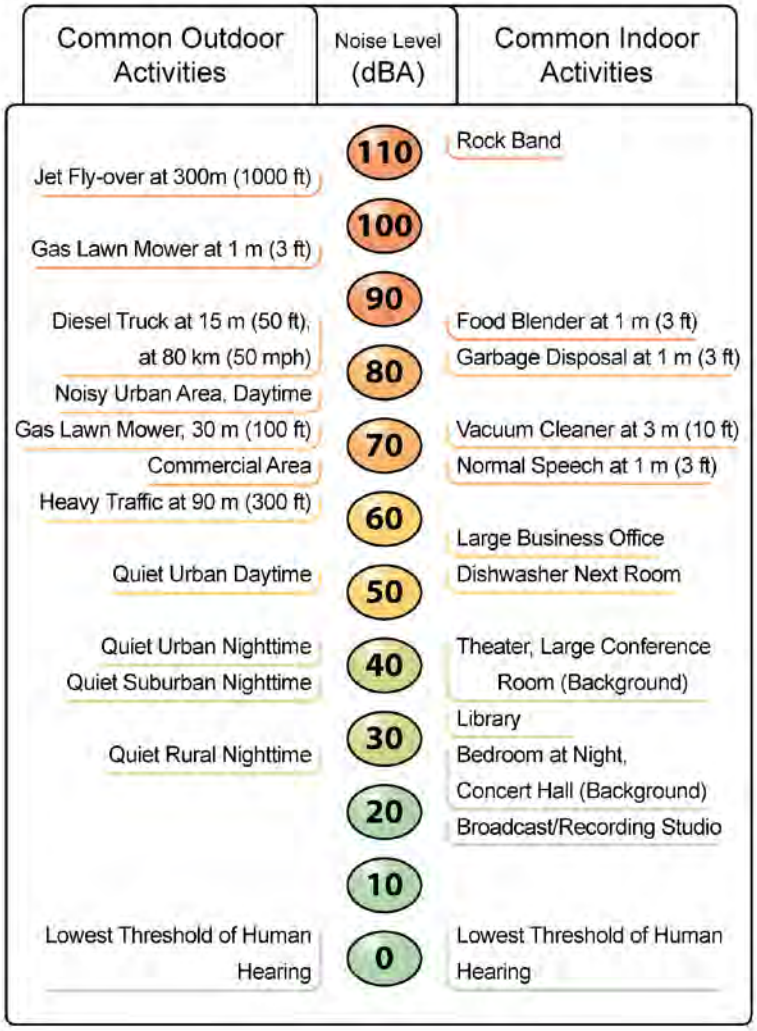
Table 38: Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
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[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums,

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
		campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.
[1] Includes undeveloped lands permitted for this activity category.		

Figure 20 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Figure 20: Noise Levels of Common Activities



According to Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC (Caltrans 2011).

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible.

3.17.2 Affected Environment

A Traffic Noise Study Report was prepared for the project by Jacobs Engineering in February 2014 (Jacobs 2014d). Field measurements and observations of the existing noise environment were collected

to serve as the baseline condition, and future noise levels were modeled for the No Build and Preferred Alternative.

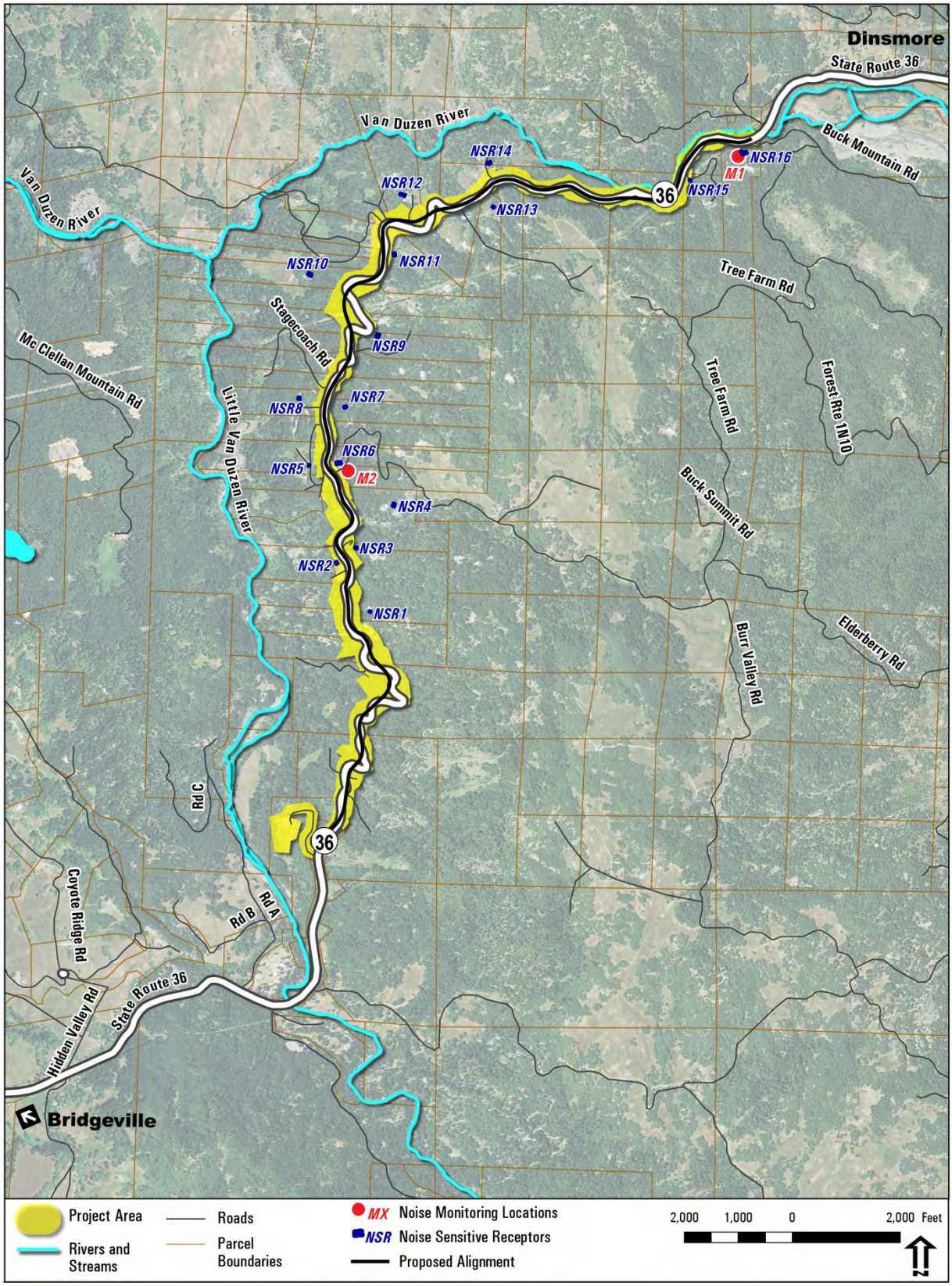
The study area is rural with scattered residential development. The noise environment in the study area is predominantly influenced by automobile and truck traffic noise along SR 36.

Three short-term noise measurements were collected within the project area at locations that represent the existing noise environment. Figure 21 depicts the locations of the field noise measurements and Table 39 summarizes the results.

Table 39: Field Recorded and Model Predicted Noise Levels

Meter No.	Site Location	Address	Field Recorded Noise Levels Leq(h) (dBA)	TNM Predicted Noise Levels Leq(h) (dBA)	Difference Leq(h)
M1	Single Family Resident	Parcel #21020125	54	54	0
M2	Single Family Resident	Parcel #21019105	54	52	-2

Figure 21: Field Noise Measurement Locations



3.17.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not involve reconstruction or improvement of the roadway. This alternative represents the predicted traffic noise levels that would occur without the project. Results of the noise modeling analysis in comparison to the Preferred Alternative are presented below in Table 40 under the environmental consequences for the Preferred Alternative.

Preferred Alternative

The preliminary design of the Preferred Alternative was reviewed in relation to noise sensitive receptors in the project area. The scope of the proposed project and the extent of horizontal and vertical alignment changes do not meet the criteria for a Type I project as defined in 23 CFR 772. However, traffic noise modeling was conducted for the project to help support the NEPA/CEQA analysis in this EA/IS and the considerations for potential impacts to sensitive wildlife species that may occur in the project area. Discussion of potential impacts of noise on special status species is included in the *Threatened and Endangered Species* section of this EA/IS.

The approved FHWA Traffic Noise Model (TNM 2.5) was used to predict existing (2013), No Build (2037), and Build (2037) conditions. The basic inputs to noise modeling include roadway network layout, site characteristics, traffic volume projections, fleet mix, and vehicular operating speeds. Roadway and receptor geometry were included based on a civil design CAD file and aerial photography. Table 40 summarizes the traffic noise modeling results for existing and future conditions. The modeled noise receptors are shown above on Figure 21.

Under existing and future conditions, modeling results indicate noise levels would not approach or exceed the NAC or result in a substantial increase over existing conditions.

Table 40: Existing and Future Noise Levels

Receptors	NAC (dBA)	Existing (2013) Noise Levels (dBA)	No Build (2037) Noise Levels (dBA)	Build (2037) Noise Levels (dBA)	Difference (dBA)	Noise Impact Requiring Abatement Consideration
NRS 1	66	43.3	44.3	44.6	+1.3	No
NRS 2	66	50.3	51.2	52.7	+2.4	No
NRS 3	66	47.9	48.8	50.2	+2.3	No
NRS 4	66	38.6	39.5	39.9	+1.3	No
NRS 5	66	44.2	45.1	45.8	+1.6	No
NRS 6	66	49.5	50.4	53.5	+4.0	No
NRS 7	66	45.0	45.9	48.2	+3.2	No
NRS 8	66	41.9	42.7	43.6	+1.7	No
NRS 9	66	49.6	50.5	45.7	-3.9	No
NRS 10	66	36.8	37.7	39.3	+2.5	No

Receptors	NAC (dBA)	Existing (2013) Noise Levels (dBA)	No Build (2037) Noise Levels (dBA)	Build (2037) Noise Levels (dBA)	Difference (dBA)	Noise Impact Requiring Abatement Consideration
NRS 11	66	47.1	48.1	52.2	+5.1	No
NRS 12	66	39.9	40.9	42.7	+2.8	No
NRS 13	66	44.7	45.6	49.1	+4.4	No
NRS 14	66	41.6	42.6	44.4	+2.8	No
NRS 15	66	43.4	44.4	48.7	+5.3	No
NRS 16	66	47.6	48.6	53.0	+5.4	No

CEQA Noise Significance

The existing noise levels at residential sites in the project area range from 36.8 to 50.3 dBA. Noise levels from an increase in traffic would generally only be perceptible to the human ear if there was an increase of greater than 3 dBA. There are seven receptor locations that would have an increase over existing conditions greater than 3 dBA, with the largest increase being 5.4 dBA. The locations for which there would be a minor perceptible change are those that are over 42 dBA under the existing conditions. These changes would represent only a minor increase over existing conditions and would not be considered a significant noise impact under CEQA.

Construction

Construction activities associated with the proposed project would temporarily elevate noise levels in the proposed project area. Noise resulting from construction activities would depend on the different types of equipment used, the distance between construction noise sources and sensitive noise receptors, and the timing and duration of noise-generating activities. The entire construction period for the proposed project is anticipated to last approximately two years. Construction activities would be temporary and would occur during daytime and possibly nighttime hours.

Construction activities for the proposed project would require the use of heavy equipment such as backhoes, blasting, cranes, drills, excavators, impact hammers, and trucks. Construction noises at off-site receptor locations would be dependent on the loudest piece of equipment operating at the moment. According to the FHWA Roadway Construction Noise Database (FHWA 2005), noise levels from most pieces of equipment used for this project would range from 75 to 84 dBA at a distance of 50 feet. Impact equipment, such as blasting and impact hammers, can generate louder noise levels in the range of 90 to 94 dBA. Table 41 below summarizes pieces of construction equipment that would operate during each construction phase and the maximum noise levels at varying distances.

Table 41: Noise Attenuation (Point Source) for Standard Construction Equipment

Equipment Type	Impact Device (Y/N)	Actual Measured Average Lmax (dBA) at 50 ft	Noise Attenuation (Point Source)				
			Lmax (dBA) at 100 ft	Lmax (dBA) at 200 ft	Lmax (dBA) at 400 ft	Lmax (dBA) at 800 ft	Lmax (dBA) at 1600 ft
Backhoe	No	78	70.5	63	55.5	48	40.5
Blasting	Yes	94	86.5	79	71.5	64	56.5
Chain Saw	No	84	76.5	69	61.5	54	46.5
Compressor (air)	No	78	70.5	63	55.5	48	40.5
Concrete Mixer Truck	No	79	71.5	64	56.5	49	41.5
Concrete Pump Truck	No	81	73.5	66	58.5	51	43.5
Concrete Saw	No	90	82.5	75	67.5	60	52.5
Crane	No	81	73.5	66	58.5	57	43.5
Drill Rig Truck	No	79	71.5	64	56.5	49	41.5
Excavator	No	81	73.5	66	58.5	51	43.5
Front End Loader	No	79	71.5	64	56.5	49	41.5
Grader	No	85	77.5	70	62.5	55	47.5
Tele Lift	No	75	67.5	60	52.5	45	37.5
Mounted Impact Hammer (hoe ram)	Yes	90	82.5	75	67.5	60	52.5
Pickup Truck	No	75	67.5	60	52.5	45	37.5
Rock Drill	No	81	73.5	66	58.5	51	43.5
Scraper	No	84	76.5	69	61.5	54	46.5

Source: FHWA's Roadway Construction Model Database (2005) and FHWA Construction Noise Handbook (2006)

The noise levels presented in Table 41 represent maximum noise levels adjusted for time-usage factors and would not be continuous noise emissions. Construction equipment use would be intermittent throughout the course of a normal work period.

Construction of the proposed project would mainly affect residential properties adjacent to the proposed project. Construction activities, including use of impact equipment, would occur approximately 140 feet from the nearest residence. As noise would diminish at a rate of approximately 7.5 dBA per doubling of distance (with excess attenuation), noise associated with the loudest source of construction noise (blasting and impact hammers) would result in noise levels less than 86.5 dBA Lmax at the nearest residence. Based on the other types of construction equipment expected to be used for the project, construction noise levels at the nearest residence would range from 67.5 to 82.5 dBA Lmax.

3.17.4 Avoidance, Minimization, and/or Abatement Measures

Impacts from noise would be less than significant. The Preferred Alternative would not result in noise impacts that require abatement. However, the following minimization measures will be employed to minimize short-term construction-related impacts:

- The contractor will be restricted to not exceed 86 dBA at 50 feet from the job site between the hours of 9 pm and 6 am.
- All equipment shall be fitted with adequate mufflers according to manufacturers' specifications.
- Adjacent residences to project construction activities will be notified in advance of construction work.

BIOLOGICAL ENVIRONMENT

3.18 NATURAL COMMUNITIES

3.18.1 Affected Environment

The primary sources of information used in this analysis included site evaluation and habitat analysis, published reports and scientific literature, as presented in the *California State Route 36 Improvement Project Final Biological Assessment* (Jacobs 2014e, f), *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g), and in the *California State Route 36 Improvement Project Final Wetlands, Waters of the U.S. and Riparian Area Delineation Report* (Jacobs 2014h).

This section discusses natural communities of concern within the project area that include upland forests, riparian areas, and aquatic habitats. The focus of this section is on biological communities, not individual plant or animal species. Wetlands are discussed separately in the *Wetlands and Other Waters* section of this document. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration.

The project area consists of Douglas-fir and Douglas-fir-tanoak forests, canyon-live oak woodlands, perennial and annual grasslands, and riparian areas. Upland forests are primarily vegetated with douglas-fir (*Pseudotsuga menziesii*) and tanoak *(Lithocarpus densiflora*), which forms the *Douglas Fir-Tanoak Series* (CNPS 1995). This community type covers the majority of the project area. The proportion of these two species depends on aspect, elevation, soil type, and historical fire regime. Commonly occurring associate species in the Douglas-fir-tanoak forests include swordleaf fern (*Polystichum munitum*), madrone (*Arbutus menziesii*), little Oregon-grape (*Berberis nervosa*), oceanspray *(Holodiscus discolor*), creeping snowberry (*Symphoricarpos mollis*), and western poison-oak (*Toxicodendron diversilobum*). Pockets of the *Canyon Live Oak Series* are present within the Douglas Fir-

Tanoak series, often represented by a single, dominant tree accompanied by shrubby volunteers. *Canyon Live Oak Series* is commonly associated with sandstone, schist, and volcanic-derived soils.

Grasslands, representing the California Annual Grasslands and Introduced Perennial Grassland Series, are a relatively minor habitat type in the project area supporting a combination of native and exotic species. Grasslands are located in open areas within the project area including within the proposed construction staging area, proposed mitigation area, and adjacent to SR 36. Common grasses include ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus rubens*), soft chess (*Bromus hordeaceus*), stork's bill (*Erodium* spp.), slender wild oat (*Avena barbata*), and common rye grass (*Festuca perennis*).

Riparian woodland areas located along drainages and within the floodplains of the Little Van Duzen and Van Duzen Rivers are vegetated by the Mixed Willow and White Alder Series (CNPS 1995). The Mixed Willow Series is located in drainages in close proximity to SR 36 and is dominated by arroyo willow (*Salix lasiolepis*) and Scouler willow (*Salix scouleriana*). The *White Alder Series* is commonly found near freshwater riparian corridors near areas of intermittent flooding, including seeps. Within the project area, this series is primarily located in the floodplains of the Van Duzen and Little Van Duzen Rivers, and tributary drainages. In the project area, bigleaf maple (*Acer macrophyllum)* and Oregon ash (*Fraxinus latifolia*) are the most prevalent tree species within the *White Alder Series*. Other commonly occurring understory species include snowberry (*Symphoricarpos* sp.), poison oak, strawberry (*Fragaria* sp.), sticky willy (*Galium aparine*), St. John's wort (*Hypericum perforatum*), sedges (*Carex* spp.) and rushes (*Juncus* spp.).

The project area lies within the Eel River Basin, the Van Duzen River watershed, and the Upper Van Duzen River sub-basin. Numerous waterways exist within the watershed and near the project (Figure 18, above). The Van Duzen River is located along SR 36 in the northern portion of the project area and is the largest waterway of concern for the project. The Little Van Duzen River, located to approximately 0.35 mile west of the project area, flows northwest where it merges with the Van Duzen River approximately a half mile west of the project area. Three streams are crossed by the project area: Unnamed Streams 1 and 2 and Burr Creek. Additionally, there are numerous unnamed intermittent tributaries that cross the project area. The Van Duzen and Little Van Duzen rivers provide habitat for special-status wildlife such as salmonids, foothill yellow-legged frog, Southern torrent salamander, tailed frog, northwestern pond turtle, and Wawona riffle beetle. The Van Duzen and Little Van Duzen rivers have historically provided habitat for Southern Oregon/Northern California Coastal (SONCC) Coho salmon, California coastal (CC) Chinook salmon, and Northern California (NC) steelhead, which are listed as threatened under the Endangered Species Act (ESA). However, natural barriers along these rivers have prevented use of the project area by these salmonid species as discussed in the *Threatened and Endangered Species* section. The smaller perennial and intermittent streams generally do not provide optimum habitat for the special-status salmonid, amphibian, or reptile species but do provide habitat for non-listed amphibian, fish and invertebrate species.

The riparian areas and the forested communities within the project area also provide for important wildlife migration corridors. SR 36 currently intersects a migratory deer winter range as defined by Humboldt County, which extends five miles to the north and 5-10 miles to the south of the project area (Humboldt County 2002). Deer winter ranges serve as important habitat necessary to allow the migratory animals to escape winter weather and survive to the spring.

3.18.2 Environmental Consequences

This section analyzes the impacts on natural communities of concern and wildlife corridors within the project area. The focus of this section is on native vegetative communities, not individual plant species. The evaluation includes a discussion of habitat fragmentation or the effects of dividing sensitive habitat 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. Wetlands are also discussed below in *Wetlands and Other Waters of the U.S.* section.

Impacts on natural communities were evaluated and determined qualitatively based on the professional judgment of FHWA staff and consultants. The primary sources of information used in this analysis included site evaluation and habitat analysis, published reports and scientific literature, as presented in the *California State Route 36 Improvement Project Biological Assessment* (Jacobs 2014e, f), *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g), and in the *California State Route 36 Improvement Project Final Wetlands, Waters of the U.S. and Riparian Area Delineation Report* (Jacobs 2014h).

The study area evaluated includes the environmental survey limits within which potential permanent and temporary disturbance could occur.

No Build Alternative

Implementation of the No Build Alternative would result in a continuation of current roadway conditions and ongoing maintenance. The No Build Alternative would not result in any activities or impacts to natural communities that differ from existing conditions.

Preferred Alternative

Construction activities along SR-36 would result in the loss and disturbance of native Douglas fir, grassland, and canyon oak vegetation. Construction along the Van Duzen River, Burr Creek and two unnamed streams would result in the disturbance and loss of riparian habitat.

Under this alternative, based on the clearing limits of the 15 percent design, an estimated 53.7 acres of vegetated land could potentially be disturbed by the project. The project would increase the area of impervious surface from approximately 15.5 acres to 17.4 acres, resulting in an increase of 1.9 acres of permanent impervious surface. The Preferred Alternative would involve clearing and grubbing of vegetation adjacent the roadway within the construction limits to allow for construction of the roadway in a new alignment and associated clear zone and the development of cut banks and fill slopes. This loss of vegetation would be permanently maintained as roadway, cut banks, fill slopes, and other areas permanently un-vegetated or maintained as low vegetation. Within the project limits, vegetative structure and habitat availability and quality would be reduced. The surrounding area in the project vicinity is primarily undeveloped forest, so the amount of habitat loss represents only a fraction of comparably suitable habitat in the vicinity of SR 36. Temporarily disturbed habitats during the construction activities would be re-vegetated and restored. FHWA will re-vegetate temporarily disturbed areas with native plant species.

The amount of riparian area that would be disturbed during construction would be approximately 0.49 acres. Construction activities may temporarily interrupt wildlife use of the immediate project area

during winter migration. However, the intact forest and riparian habitat adjacent to the project area would be available. Riparian areas temporarily impacted would be re-vegetated thereby limiting the long-term effect of construction activities on use of the habitat by wildlife.

In addition, the proposed action would not measurably affect long-term movement corridors of wildlife in the proximity of SR 36. The operating speed for the Preferred Alternative would be about 30 mph, and sight distance would be improved under this alternative. The majority of the route would stay on or close to existing alignment. Although the operating speed would increase slightly under the Preferred Alternative, the road would still be curvilinear in nature and as such naturally constrains driver speeds. Improvements to sight distance and providing a clear zone would help to minimize the potential for wildlife/vehicle collisions. Any roadway presents the potential for vehicle collisions with wildlife; however, compared to existing conditions there would be no measurable changes. The slight increase in traffic volume ADT would be minor and would not substantially increase the risk to migrating wildlife. Therefore, the project is not expected to adversely affect wildlife migration routes.

3.18.3 Avoidance, Minimization, and or Mitigation Measures

Impacts would be less than significant with the following measures that have been developed to avoid or minimize potential adverse impacts to natural communities.

- Cut and fill slopes that are capable of sustaining vegetation will be re-seeded with native plant species.
- Topsoil will be salvaged from within the construction limits where slopes permit and be redistributed prior to re-vegetation.
- The following standard management requirements will be implemented to prevent introduction of noxious weeds:
    - All heavy equipment will be cleaned prior to entering the project area;
    - All open-bodied trucks entering the project area will be covered when loaded; and
    - All imported plant material used for erosion control and road maintenance will be certified weed free.

3.19 WETLANDS AND OTHER WATERS

3.19.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (CWA) (33 USC 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. 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 CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).
The USACE issues two types of 404 permits: standard and general permits. There are two types of general permits, regional permits and nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of standard permits: individual permits and letters of permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's standard permits. For standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

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

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife (CDFW), the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW 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 USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see the *Water Quality and Storm Water Runoff* section for additional details.

3.19.2 Affected Environment

The following discussion summarizes the evaluation of existing Waters of the U.S and riparian resources and potential effects to these resources that could occur with implementation of either the No Build Alternative, or the Build Alternative. Additional information on the assessment of these resources is available in the *California State Route 36 Improvement Project Final Wetlands, Waters of the U.S. and Riparian Area Delineation Report (*Jacobs 2014h).

Water resources evaluated in this document include: 1) wetlands, as defined by and under jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act; 2) other Waters of the United States (WUS) as also defined by the USACE, including streams, lakes, and other surface waters; and 3) riparian areas, defined as the transitional zone between upland and aquatic ecosystems which includes some but not all of the three wetland criteria. Wetland delineations were performed in accordance with the 1987 USACE Manual (Wetland Training Institute) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010). Wetlands were mapped using Global Positioning System, and the data was incorporated digitally into FHWA project files. The surveys were conducted in the project corridor, at potential construction staging locations located near the southern end of the project corridor, and a potential mitigation site located east of the project corridor.

Wetlands

Based on the Cowardin classification system (Cowardin 1998), the majority of the wetlands within the project area are considered palustrine emergent or palustrine scrub-shrub. The palustrine emergent and palustrine scrub-shrub wetlands can be further subdivided into categories based on landscape context, hydrology, physical and biotic structure. The following three categories of wetlands are present within the project area: depressional; seeps, springs, and slope; and vegetated swales.

Depressional wetlands are located in topographic lows or flats that do not typically have outgoing surface drainage except during heavy rainfall or flooding events. Precipitation is the main a source of water and many are seasonal, lacking surface water ponding or saturated conditions during dry years (CRAM 2013). Depressional wetlands were identified within the survey area. These wetlands were typically located within grassy open areas or breaks in woodlands and were supported by a combination of precipitation and groundwater.

The majority of the wetlands within the project area were classified as seep, spring, and slope wetlands. These wetlands are supported primarily by groundwater, and located on hillsides.

Wetland vegetated swales in the project area are characterized by perennial and annual wetland vegetation, and are supported by ephemeral hydrology from runoff as well as groundwater seepage from surrounding slopes. They are located adjacent to the roadside in minor depressions, and flow from these features is conveyed via culverts under SR 36 into down gradient waters of the U.S., and eventually into the Little Van Duzen River. There were vegetated swales that were not associated with a channel and those that were associated with a channel.

Other Waters of the U.S.

Other WUS within the project area were divided into two categories, roadside channels and those that generally cross the project area and continue down-gradient towards the Little Van Duzen River. Roadside channels within the project area are generally located on the up-gradient side of SR 36 and drain through culverts into wetlands or other WUS located on the down-gradient side of SR 36. The roadside channels are typically flat-bottomed, and have signs of seasonal flow including shelving and wracking. The Cowardin classification for these other WUS is riverine, intermittent, streambed, and mud. Other WUS that cross the project area are rocky and have signs of seasonal flow. The Cowardin classification for these other WUS is riverine, intermittent, streambed, and cobble.

Riparian Areas

Riparian areas were observed along the banks of the Little Van Duzen and Van Duzen Rivers as well as adjacent to the drainages flowing into these rivers. The width of the riparian areas varies based on steepness of slopes surrounding channels, regularity of flow within channels, and presence of seepage on surrounding side slopes.

Table 42 provides a summary of the wetlands, WUS, and riparian areas located within the project area. FHWA will request a preliminary jurisdictional determination for the project, which assumes all wetlands and other WUS surveyed in the project are considered jurisdictional WUS.

Table 42: Wetlands, Waters of the U.S., and Riparian Areas within the Project Area

Feature Type	Wetland Area (Acreage)	Other WUS (Acreage)	Riparian Area (Acreage)	Total Area (Acreage)
Depressional Wetlands	0.510	N/A	N/A	0.510
Seep, Slope, Spring Wetlands	2.061	N/A	N/A	2.061
Wetland Vegetated Swales	0.274	N/A	N/A	0.274
Wetland Vegetated Swales with Adjacent Other WUS	0.043	0.085	N/A	0.128
Channels	N/A	1.302	N/A	1.302
Roadside Channels	N/A	0.130	N/A	0.130
Riparian Area	N/A	N/A	3.340	3.340
Total Acreage (Acres)	**2.888**	**1.517**	**3.340**	**7.745**

3.19.3 Environmental Consequences

No Build Alternative

Under the No Build Alternative, wetlands, other WUS, and riparian areas will continue to function in the current configuration. There would be no effect to these resources.

Preferred Alternative

Based on the preliminary Preferred Alternative roadway design, permanent and temporary impacts to jurisdictional wetlands, other WUS, and riparian areas are anticipated. The majority of the wetlands proposed for impacts are the group classified as vegetated swales/linear roadside wetlands/wetland complexes. These features have apparently formed from the roadway surficial drainage, and their main function is to convey water along the roadside to a down-gradient area. Most of the onsite other WUS that would be impacted include the roadside drainages, which also function as water conveyance systems from roadway surficial drainage through culverts to a downstream receiving water. Under the Preferred Alternative, Table 43 below identifies the approximate anticipated impacts to jurisdictional wetlands, WUS, and riparian areas. The Preferred Alternative has been designed thus far to avoid and minimize wetlands to the greatest extent practicable. Design is still in the preliminary stages and the numbers presented below are approximate. Efforts to minimize impacts will continue through final design.

Table 43: Extent of Impacts to Wetlands and Other Waters of the U.S.

Jurisdictional Water Type	Permanent Impacts (Acre)	Temporary Impacts (Acre)	Permanent Impacts (Linear Feet)	Temporary Impacts (Linear Feet)	Total
Wetlands	1.03	0.29	N/A	N/A	1.32 acres
Other WUS	N/A	N/A	6,570	850	7,429 linear feet
Riparian	0.49	0	N/A	N/A	0.49 acres

3.19.4 Sections 404 and 401 Permitting Measures

The location of jurisdictional wetlands, other WUS, and riparian areas were assessed and delineated as described previously. Throughout the planning process, avoidance and minimization efforts are being applied to reduce impacts, whenever practical as described below. However, the terrain in the project area does not allow for total avoidance of jurisdictional features. Therefore, the following will be required:

- A Section 404 Individual Permit application and a Section 401 Water Quality Certification application, under the Clean Water Act, will be submitted to the USACE and the RWQCB, respectively, requesting permission to impact jurisdictional features.
- FHWA will compensate for the permanent loss of jurisdictional features through onsite and offsite wetland and riparian compensatory mitigation at the least at a 1.5:1 ratio, as agreed upon through the permit terms and conditions. A mitigation and monitoring plan will be developed and submitted with the permit applications to the USACE and RWQCB documenting measures to ensure successful mitigation. FHWA will be responsible for ensuring all permit terms and conditions are met.
    - Onsite mitigation efforts include restoring relict channels and wetlands along the current alignment that were historically impacted by the roadway. Upon completion of

the onsite restoration measures, the areas will be enhanced by planting wetland and/or riparian species along or within the features.

- An approximate seven-acre tract of land, located roughly 3.15 miles to the southeast of the project area, was selected as a mitigation area to offset impacts to waters of the U.S. and state associated with the project. This site was chosen based on the location within the same watershed and sub-area (Eel River Hydrologic Unit Code (HUC) 18010105 and Bridgeville Hydrologic Sub-Area), the terrain, surficial hydrologic connectivity to the directly-adjacent Van Duzen River, shallow sub-surface water table, and the proposed feasibility of the site for successful wetland and stream mitigation potential. The proposed mitigation area was used for native soil waste material generated during roadway construction along SR 36 and a natural landslide that covered the roadway within the general vicinity, both of which occurred during the latter 1990s. The waste material raised the elevation two to five feet across the site on average; thereby, providing the height needed to excavate material for water storage in the wetland areas and channelize the flow to create streams throughout the site. Eight groundwater piezometers were installed onsite to evaluate the depth of water below the ground surface (bgs) across the mitigation area. Groundwater levels range from 12 to 18 feet bgs, which is anticipated to assist (during perched water table events) in water storage within the excavated area. Although water will not be directly diverted from the adjacent Van Duzen River, overflow during high flow and flood events will also provide an additional water supply for the mitigation area. This area was also chosen based on the permanent availability of the site to be protected as a wetland and stream mitigation area under a permanent covenant.
- Upon completion of the onsite and offsite compensatory mitigation areas and long-term monitoring success criteria (a minimum of five years and/or deemed successful per the approved permit and mitigation plan requirements), the compensatory mitigation will reduce the project-associated impacts to less than significant.

3.19.5 Avoidance, Minimization, and/or Mitigation Measures

With the following measures, impacts would be less than significant. As stated previously, avoidance and minimization efforts will be detailed in full within the permit application and include, but are not limited to the following:

- The roadway alignment is being designed to follow the existing alignment as much as possible.
- The slopes are steepened to reduce and/or avoid impacts to jurisdictional features.
- The proposed alignment will be shifted in allowable areas to reduce and/or avoid impacts to jurisdictional features.
- Reinforced soil slopes and/or walls will be utilized in practicable areas along the roadway to reduce the slope and avoid impacts to jurisdictional features.

A Section 404 permit and Section 401 Water Quality Certification will be obtained, and FHWA will ensure all permit terms and conditions are met, including offsets to permanent wetland impacts.

In addition, to ensure excavated soil is not disposed of in a manner or location to create indirect effects to other environmental resources (such as, wetlands and other waters), FHWA will require that the

excavated soil be used onsite to the extent practicable, or properly disposed of in an approved and permitted location.

3.19.6 Only Practicable Finding

According to the U.S. Department of Transportation's (DOT) 5660.1A, the federal policy dictating implementation of EO 11990, new construction located in wetlands is to be avoided unless there is no practicable alternative to the construction and the proposed action includes all practicable measures to minimize harm (DOT 1978). As stated previously, the terrain within the project area does not allow for total avoidance of jurisdictional features based on the Preferred Alternative. Extensive design and planning approaches to avoid and minimize jurisdictional features have been put in place.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in jurisdictional features and that the proposed action includes all practicable measures to minimize harm to jurisdictional features that may result from such use.

3.20 PLANT SPECIES

3.20.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have 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 provided 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 (FESA) and/or the California Endangered Species Act (CESA). Please see the *Threatened and Endangered Species* section in this document for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA 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 California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

3.20.2 Affected Environment

Information provided in this section was based on the *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g). Database searches on the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS), and USFS websites provided lists of special-status plant species that potentially occur in Humboldt County and in or near the project area. Botanic surveys were conducted in April and June 2013.

The online database review identified 51 state or forest service designated special-status plant species with potential to occur in the project area (see
Table 44). Based on evaluation of suitable habitat requirements, including elevation and geographic range of the species, and species occurrence information for the project area, one CNPS state listed species, Pacific gilia (*Gilia capitata* spp. *Pacifica*), is present within the project area. This species is rated as "fairly" endangered, threatened, or rare (1B.2) by CNPS. One population, totaling approximately 352 square feet in size, is located on the boundary of the 15 percent design limits and within the project impact area.

Table 44: Forest Service and State-listed Plant Species

Common Name	Scientific Name	Status ST/CNPS/USFS	Potential to Occur
Vascular Plants			
Beegum onion	*Allium hoffmanii*	-/4.3/-	N
Sonoma manzanita	*Arctostaphylos canescens ssp. sonomensis*	-/1B.2/-	N
Howell's Manzanita	*Arctostaphylos hispidula*	-/4.2/-	N
Klamath arnica	*Arnica spathulata*	-/4.3/-	N
Rattan's milk-vetch	*Astragalus rattanii var. rattanii*	-/4.3/-	N
Oregon bensoniella	*Bensoniella oregana*	-/1B/FSS	N
Tracy's collomia	*Collomia tracyi*	-/4.3/-	N
Oregon goldthread	*Coptis laciniata*	-/2B.2/-	N
Clustered lady's-slipper	*Cypripedium fasciculatum*	-/4.2/-	N
Mountain lady's slipper	*Cypripedium montanum*	-/4.2/-	N
Oregon fireweed	*Epilobium oreganum*	-/1B.2/-	N
Humboldt county fuchsia	*Epilobium septentrionale*	-/4.3/-	N
Mad River fleabane daisy	*Erigeron maniopotamicus*	-/1B.2/FSS	N
Giant fawn lily	*Erythronium oregonum*	-/2B.2/-	N
Coast fawn lily	*Erythronium revolutum*	-/2B.2/-	N
Wayside aster	*Eucephalus vialis*	-/1B.2/FSS	N
Minute pocket moss	*Fissidens pauperculus*	-/1B.2/FSS	N
Pacific gilia	*Gilia capitata ssp. pacifica*	-/1B.2/-	Y

Common Name	Scientific Name	Status ST/CNPS/USFS	Potential to Occur
Yolla Bolly mountains. bird's-foot trefoil	*Hosackia yollabolliensis*	-/1B.2/-	N
California globe mallow	*Iliamna latibracteata*	-/1B.2/FSS	N
Small groundcone	*Kopsiopsis hookeri*	-/2B.3/-	N
Two-flowered pea	*Lathyrus biflorus*	-/1B.1/-	N
Redwood lily	*Lilium rubescens*	-/4.2/-	N
Heart-leaved twayblade	*Listera cordata*	-/4.2/-	N
The Lassics lupine	*Lupinus constancei*	-/1B.2/FSS	N
South Fork Mtn. lupine	*Lupinus elmeri*	-/1B.2/-	N
Running-pine, club moss	*Lycopodium clavatum*	-/4.1/-	N
Three-ranked hump moss	*Meesia triquetra*	-/4.2/-	N
Elongate copper moss	*Mielichhoferia elongata*	-/2B.2/FSS	N
The Lassics sandwort	*Minuartia decumbens*	-/1B.2/FSS	N
Leafy-stemmed miterwort	*Mitellastra caulescens*	-/4.2/-	N
Howell's montia	*Montia howellii*	-/2B.2/-	N
Seacoast ragwort	*Packera bolanderi var. bolanderi*	-/2B.2/-	N
Fungi	*Phaeocollybia olivacea*	-/1B.2/FSS	N
White-flowered rein orchid	*Piperia candida*	-/1B.2/-	N
California pinefoot	*Pityopus californica*	-/4.2/-	N
Slender bog orchid	*Platanthera stricta*	-/4.2/-	N
Trailing black currant	*Ribes laxiflorum*	-/4.3/-	N
Tracy's sanicle	*Sanicula tracyi*	-/4.2/-	N
Pale yellow stonecrop	*Sedum laxum ssp. flavidum*	-/4.3/-	N
Maple-leaved checkerbloom	*Sidalcea malachroides*	-/4.2/-	N
Siskiyou checkerbloom	*Sidalcea malviflora ssp. Patula*	-/1B.2/-	N
Robust false lupine	*Thermopsis robusta*	-/1B.2/-	N

Common Name	Scientific Name	Status ST/CNPS/USFS	Potential to Occur
Beaked tracyina	*Tracyina rostrata*	-/1B.2/FSS	N
Humboldt County wyethia	*Wyethia longicaulis*	-/4.3/-	N
Non-Vascular Plants			
Fungi	*Dendrocollybia racemosa*	2/-/FSS	N
Buxbaumia moss	*Buxbaumia viridis*	1/2B.2/FSS	N
Pacific fuzz wort	*Ptilidium californicum*	-/4.3/-	N
Fungi	*Sowerbyella rhenana*	2/-/FSS	N
Methuselah's beard, beard lichen	*Usnea longissima*	2/-/FSS	N

CNPS = California Native Plant Society
1B = List 1B (Plants rare and Endangered in California and elsewhere.)
2 = List 2 (Plants rare, Threatened, or Endangered in California but more common elsewhere.)
3 = List 3 (need more information, a review list)
4 = List 4 (Plants of limited distribution [Awatch list.])

FSS – Forest Service Sensitive Species;

"-" = No Listing Status

N – No. Indicates that the project area does not meet species' habitat or elevation requirements and/or the species was not observed during 2013 field surveys. Y – Yes. The species was observed within project area during 2013 field surveys.

Sources: Calflora 2013, CNPS 2013

3.20.3 Environmental Consequences

The following is an analysis of impacts of the proposed action on state species of special concern, CNPS rare and endangered plants, and Forest Service sensitive species. Please see the *Threatened and Endangered Species* section in this document for detailed analysis of federal- and state-listed threatened and endangered species.

Impacts on plant species were evaluated and determined qualitatively based on the professional judgment of FHWA staff and consultants. The primary sources of information used in this analysis included site evaluation and habitat analysis, published reports and scientific literature, as presented in the *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g).

The study area evaluated includes the clearing limits (i.e., vegetation removal, clearing, and grubbing) within which potential permanent and temporary disturbance could occur.

No Build Alternative

Implementation of the No Build Alternative would result in a continuation of current roadway conditions as well as routine maintenance activities. The No Build Alternative would not result in any activities or impacts to plant species that differ from existing conditions.

Preferred Alternative

One CNPS state listed species, Pacific gilia, is present within the project area. One population of Pacific gilia, located within a 352 square foot area, is located on a rocky outcropping on a grassy slope. This population occurs in two clusters, both of which are within the construction disturbance area. One area, totaling 315 square feet, is located approximately ten feet from the clearing limits and 50 feet from the planned roadway. The other area, totaling 37 square feet, is on the boundary of the 15 percent design clearing limits and is approximately 33 feet from the planned roadway. The roadway design will be modified to avoid impacts to Pacific gilia through steepening of slopes. The population would be fenced and avoided during construction activities. Monitoring during construction would occur to confirm that this population is not being impacted.

3.20.4 Avoidance, Minimization, and or Mitigation Measures

With implementation of protection measures, impacts would be less than significant. Measures identified above in the *Natural Communities* section would also apply to plant species. In addition, the following measures have been developed as part of this analysis to avoid or minimize potential adverse impacts Pacific gilia as a result of consultation with CDFW.

- Pacific gilia would be fenced and avoided during construction activities. Monitoring during construction would occur to confirm that this population is not being impacted. Coordination with CDFW will continue as design progresses.

3.21 ANIMAL SPECIES

3.21.1 Regulatory Setting

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

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- State laws and regulations relevant to wildlife include the following:
- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Golden eagles (*Aquila chrysaetos*) are protected as a raptor migrant species by the Migratory Bird Treaty Act (MBTA), by the Bald and Golden Eagle Protection Act (BGEPA), and considered a "fully protected" species under California Fish and Game Code Sections 3511, 4700, 5050, and 5515.

3.21.2 Affected Environment

Information on wildlife species with potential to occur within the project area is summarized from the *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g).

The forest provides habitat for nearly 300 known species of terrestrial wildlife including invertebrates, mammals, birds, reptiles and amphibians. Wildlife species expected to occur in the vicinity of the proposed project alignment include those species commonly associated with California mixed conifer forests, shrub communities, wetlands, and riparian corridors. These species include large mammals such as Roosevelt elk (*Cervus canadensis*), black-tailed deer (*Odocoileus hemionus columbianus*), black bear (*Ursus americanus*), coyote (*Canis latrans*), and raccoon (*Procyon lotor*). Various bird species in the area include songbirds, eagles, hawks, and owls. During the field reconnaissance, turkey vultures (*Cathartes aura*) were commonly seen soaring above the project area. Cooper's hawk (*Accipter cooperii*) and red-tailed hawks (*Buteo jamaicensis*) were seen in the southern portion of the project area. Several songbirds were heard and seen in the project area, including lazuli bunting (*Passerina amoena*) and Western tanager (*Piranga ludoviciana*). Waterfowl such as wood ducks, mallards, and common mergansers reside near rivers and streams in the vicinity of the project area.

Streams and rivers provide habitat for turtle and frog species and many fish species (Humboldt County 2002, Miles and Goudey 1998). The Van Duzen River supports important populations of Chinook (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*), winter run and summer run steelhead, which are addressed in the Threatened and Endangered Species Section of this document, and resident rainbow trout (*O. mykiss*). Many non-game species are also present on the forest, and likely to occur in the Van Duzen River and Little Van Duzen River. Species include the golden shiner (*Notemigonus crysoleucas*), Sacramento pikeminnow (*Ptychochelilus grandis*), and sculpin species (University of California 2014).

The potential for special status species to occur within the project area was determined through database searches on the California Department of Fish and Wildlife (CDFW), California State Office, California Natural Diversity Database (CNDDB), and USFS websites. Wildlife and habitat surveys were conducted in July 2013. Table 45 provides the list of special status species with potential to occur within the project area and their habitat requirements. Based on the evaluation of habitat requirements, only the long-legged myotis (*Myotis volans*) is unlikely to occur in the project area due to a lack of suitable habitat and is not analyzed further for project effects. Habitat for the remaining special status animal species is present within the project area.

Table 45: Special Status Species with Potential to Occur in the Project Area

Scientific Name (Common Name)	Status ST/USFS	Habitat Requirements	Potential to Occur
Birds			
Accipiter gentilis (northern goshawk)	SSC/FSS	Within, and in vicinity of, coniferous forest. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspen.	Suitable habitat may be present.
Aquila chrysaetos (golden eagle)	FP/-	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Suitable habitat may be present.
Falco peregrinus anatum (American peregrine falcon)	FP/-	Near wetlands, lakes, rivers, on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Suitable habitat is present within the study area.
Pandion haliaetus (osprey)	WL/-	Ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in tree-tops within 15- miles of good fish-producing body of water.	Suitable habitat may be present.
Mammals			
Arborimus pomo (Sonoma tree vole)	SSC/-	North Coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood and montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir.	Suitable habitat may be present.
Martes pennanti pacific (Pacific fisher)	SC/FSS	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Suitable habitat is present within the project area.
Bassariscus astutus (Ringtail cat)	FP/-	Widespread throughout California. Occurs in riparian habitats, brush stands of forest and shrub, at low to middle elevations.	Suitable habitat may be present.
Corynorhinus townsendii (Townsend's big-eared bat)	SC/-	Found throughout California in all habitat but alpine and subalpine. Abundant in mesic habitats, and may be found throughout the year.	Suitable habitat may be present.

Scientific Name (Common Name)	Status ST/USFS	Habitat Requirements	Potential to Occur
Martes americana humboldtensis (Humboldt marten)	SSC/FSS	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Suitable habitat may be present.
Myotis evotis (long-eared myotis)	SSC/-	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Suitable habitat may be present.
Myotis volans (long-legged myotis)	SSC/-	Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts.	Suitable habitat not present in project area.
Reptiles			
Emys marmorata (western pond turtle)	SSC/FSS	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Need basking sites such as sandy banks or grassy open fields.	Suitable habitat is present within the project area.
Amphibians			
Ascaphus truei (Pacific tailed frog)	SSC/-	Occurs in montane hardwood-conifer, redwood, Douglas-fir, and ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees Celsius.	Suitable habitat may be present.
Rana boylii (foothill yellow-legged frog)	SSC/-	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Suitable habitat may be present.
Rhyacotriton variegatus (southern torrent salamander)	SSC/-	Coastal redwood, Douglas fir, mixed conifer, montane riparian and montane hardwood-conifer habitats. Old-growth forest.	Yes. Suitable habitat may be present.
Insects			
Atractelmis wawona (Wawona riffle beetle)	SSC/-	Aquatic; found in riffles of rapid, small to medium clear mountain streams. Strong preference for submerged aquatic mosses.	Suitable habitat is present within the project area.

Federal Status (USFS) – FSS – Forest Service Sensitive Species; State of California Status: SC – State Candidate; FP – Fully Protected; SSC – Species of Concern; WL-Watch List

"-" = No Listing Status

Sources: CNDDB 2013

Migratory Bird Species

Migratory bird species were the most frequent wildlife documented during field observations. According to the USFWS (2008), there are 31 migratory bird species within Bird Conservation Region 5 where the project area is located. The project area provides suitable nesting habitat for seven of these species identified in Table 46. The complete list of species can be found in Appendix D of the biological evaluation prepared for the project (Jacobs 2014g).

Table 46: Migratory Bird Species with Nesting Potential in the Project Area

Common Name	Scientific Name	Nesting Potential in the Project Area
Bald eagle	*Haliaeetus leucocephalus*	Y
Northern goshawk	*Accipiter gentilis*	Y
Long-billed curlew	*Numenius americanus*	Y
Black swift	*Cypseloides niger*	Y
Olive-sided flycatcher	*Contopus cooperi*	Y
Willow flycatcher	*Empidonax traillii*	Y
Purple finch	*Haemorhous purpureus*	Y
Source: USFWS 2008		

3.21.3 Environmental Consequences

Impacts on animal species were evaluated and determined qualitatively based on the professional judgment of FHWA staff and consultants. The primary sources of information used in this analysis included site evaluation and habitat analysis, published reports and scientific literature, and the *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g).

The study area evaluated includes the environmental study area and clearing limits (i.e., vegetation removal, clearing, and grubbing) within which potential permanent and temporary disturbance could occur.

No Build Alternative

Implementation of the No Build Alternative would not result in vegetation removal or construction activities. The No Build Alternative would not result in any activities or impacts to animal species that differ from existing conditions.

Preferred Alternative

Construction traffic, equipment operation, and short-term noise associated with construction activities would temporarily affect wildlife behavior in the project area. Construction activities requiring vegetation removal would potentially affect reproduction if vegetation removal occurred during the breeding period. Mortalities and injury to specific animals are more likely to occur for smaller, less

mobile species (i.e., rodents and lizards). Noise and construction impacts would be limited to the specific portion of the project and surrounding areas during construction. However, noise from construction activities would potentially affect species' abilities to communicate and identify predators and prey. Larger wildlife (mule deer, coyote, and bear) would likely avoid the immediate area when project-related activity is occurring. Most wildlife would likely return to the area and resume normal activities once construction is complete.

Improvements to SR 36 would be limited to safety and would not include an increase in traffic capacity (i.e., constructing additional lanes). Some small increase in traffic volume due to growth in the region and from roadway improvements (projected ADT of 1,070 vehicles in 2013 and 1,390 vehicles in 2037) would be expected. However, any increase in traffic would be minor and would not likely increase the potential for wildlife/vehicle collisions.

As discussed above in the *Natural Communities* section, the operating speed of the Preferred Alternative is about 30 mph, and sight distance would be improved under this alternative. The majority of the route would stay on or close to existing alignment. Improvements to sight distance and providing a clear zone would help to minimize the potential for wildlife/vehicle collisions. Any roadway presents the potential for vehicle collisions with wildlife; however, compared to existing conditions there would be no measurable changes. No new disruptions in habitat connectivity would be added as a result of the Preferred Alternative.

Construction activities in the proximity of the Van Duzen River, Burr Creek and intermittent streams that cross the project area and along road widening and realignment segments may result in the loss of some wildlife habitat. Loss of habitat would be through the direct removal of vegetation to construct the project. The Preferred Alternative would involve clearing and grubbing of vegetation adjacent the roadway within the construction limits to allow for construction of the new roadway and associated clear zone. The project would also involve the development of cut banks and fill and stabilization of hillsides. Approximately 54 acres of vegetated land could potentially be disturbed by the project and an estimated 2 acres of land would be converted to impervious surface. Temporarily disturbed habitats would be re-vegetated and restored. The surrounding area in the project vicinity is primarily undeveloped forest, so the amount of habitat loss represents only a fraction of comparably suitable habitat in the vicinity of SR 36.

Degradation of habitat could also occur within streams, wetland habitat, riparian habitat, and drainages through erosion and sedimentation caused by project construction activities. The open, disturbed areas created along the edges of the new road would be susceptible to noxious weed invasion, which would degrade additional habitat. However, in compliance with sections 107 and 157 of FHWA's Standard Specifications (FHWA 2003), all projects must limit disturbance to project sites, comply with all applicable permits conditions, including a U.S. Army Corps of Engineers (USACE) permit, follow a contract erosion control plan, and implement appropriate best management practices. With compliance of these established FHWA guidelines, implementation of the proposed recommendations described below, and adherence to permit conditions, changes/losses of habitat would not be substantial. Over the long term, there would be a reduction in soil erosion and sediment delivery to nearby aquatic features due to paving the roadway and stabilization of slopes in the project area. Roadway associated drainage features are to be improved to provide for long term soil stability and erosion protection.

Forest Service Sensitive and State Species of Special Concern

Birds

The northern goshawk, golden eagle, osprey, and peregrine falcon may occur in the project area as there is suitable habitat and/or known occurrences of the species. These species may use the trees within the project area for foraging and roosting. Goshawks and ospreys may also use the larger trees in the project area for nesting habitat. The project area falls completely within a "sensitive" peregrine falcon location with a known nest location, as identified by the CDFW. Peregrine falcons have been seen performing courtship displays in the vicinity of the project area (CDFW 2013a). Golden eagles do not typically use trees for nesting and prefer open landscapes for foraging. The project area could provide suitable habitat for nesting golden eagles, though the absence of wide, open landscape may preclude utilization.

Trees may be removed in the project area that could be used for perching, roosting, or nesting of these raptor species. Vegetation removal would occur between September 15 and February 28, which would avoid the breeding and nesting season for migratory birds. Pre-construction surveys of northern goshawks, ospreys, golden eagles, and peregrine falcons would occur, and FHWA will coordinate the results of the survey with the CDFW to determine if, based on the results of the survey, protection measures are warranted. This would help avoid or minimize potential impacts to nesting species. Types of protection measures for these species that may be implemented are included below in *Avoidance, Minimization, and/or Mitigation Measures* below. The Preferred Alternative may impact northern goshawks, ospreys, golden eagles, and peregrine falcons, but is not likely to lead to a trend toward federal listing (or loss of local viability) for any of these species.

Mammals

The project area contains Pacific fisher habitat. Much of the habitat quality is not ideal because old growth forests are not present; however, the area contains trees with old growth characteristics. Numerous residences in the vicinity of the project area, as well as past timber clearing activities for harvest or utility line installation, have fragmented the forest cover and degraded the habitat by reducing the amount of overall old-growth. Project planned vegetation removal would decrease the availability of potential habitat. Additionally, noise from construction and blasting could affect individuals. The critical period for fisher is March 1st through July 31st, which includes the natal period from March 1st to May 15th and the maternal denning period from May 16th through July 31st (Dunn 2014). Tree removal will be conducted outside of the critical period for fisher. In addition, prior to tree removal, trees of sufficient size within the project footprint will be evaluated and ranked to assess potential wildlife trees that could provide denning habitat. Trees that meet DBH requirements and have large limbs (greater than 12 inches in diameter), cavities (6 feet high and 2 feet wide), entrances 6 inches high and 12 inches long, hollows, and basal hollows will be considered to be "suitable habitat trees." Trees identified as "suitable habitat trees" will be numbered using tags and marked with paint, and will be systematically removed in a manner to avoid removal of a fisher occupied tree. The Preferred Alternative may impact this species, but is not likely to lead to a trend toward federal listing (or loss of local viability). Impacts relative to the California Endangered Species Act are also discussed in the below *Threatened and Endangered Species* section.

The Sonoma tree vole is endemic to northwestern California including Sonoma, Humboldt, Del Norte and Trinity Counties (NatureServe 2013). The Sonoma tree vole prefers coniferous forests, primarily those with Douglas-fir (Reid 2006), which occur within the project area. Sonoma tree voles are a

primary food source for the northern spotted owl (NatureServe 2013) which was found present in the project area during the 2013 field surveys indicating Sonoma tree voles may be present. Due to this species' dependence on Douglas-fir, construction related removal of Douglas-fir trees may affect the vole. Cutting of old-growth trees would be avoided to the extent possible. Nesting and breeding for the Sonoma tree vole may occur year-round, therefore construction may affect important breeding activities through noise and tree removal. Limiting tree removal for part of the year will avoid part of this species' breeding season and therefore is likely to reduce effects to this species. Avoidance, minimization, and/or mitigation measures mentioned above for the Pacific fisher would also reduce the potential for adverse effects to the Sonoma tree vole. The Preferred Alternative may impact this species, but is not likely to lead to a trend toward federal listing (or loss of local viability).

The project area overlaps with the species range for the Humboldt marten. Martens use late-successional, mesic, coniferous forests as habitat with dense canopy closure, and complex ground structure. Tree removal may impact existing habitat within the project area. To avoid impacts during important life events, tree removal along SR 36 would be scheduled for winter months outside the marten's breeding season. Although the species may exist near the project area, it is unlikely to exist within the project impact area. This species is known to avoid areas such as open grasslands and clear cut forests, both of which exist within and surrounding the project area. Additionally, Humboldt marten occupy large ranges and prefer contiguous, old growth coniferous forests. Individuals are unlikely to utilize the poor habitat adjacent to the existing, open roadway even if it lies in an individual's home range. The Preferred Alternative may impact the Humboldt marten, but is not likely to lead to a trend toward federal listing (or loss of local viability) for this species.

The ringtail cat (*Bassariscus astutus*) is a fully protected species in California. The range for the ringtail cat overlaps with the project area and spans the majority of California. Ringtail cats prefer rocky areas desert scrub, chaparral, pine-oak woodlands, and coniferous forests close to riparian habitats (NatureServe 2013, CDFW 2013b). They are usually found within 0.6 miles of permanent water (CDFW 2013b). They tend to den in rocky outcrops, hollow trees, abandoned buildings, brush piles, snags, woodrat nests, or abandoned burrows (NatureServe 2013, CDFW 2013b). The species breeds from February to May with the majority of activity taking place from March to April (NatureServe 2013). Ringtail cat may be found in the coniferous and pine-oak woodlands surrounding the project area. Riparian areas are also present near the project area and provide habitat for the species. The species may incur impacts from the removal of trees and vegetation which may provide foraging and denning habitat. Additionally, noise and vibrations from construction may impact individuals present in the area. To minimize the potential for effect, tree removal will occur outside the breeding season. Preconstruction surveys to assess specific suitable denning habitat will also occur and methods for tree removal discussed above for the Pacific fisher will also minimize the potential for adverse effects. The Preferred Alternative may impact the ringtail cat, but is not likely to lead to a trend toward federal listing (or loss of local viability) for this species.

Three bat state species of concern were evaluated for potential to occur within the project area. Suitable habitat for the long-legged myotis is not present within the project area and therefore there would be no effect on this species. Suitable habitat does occur within the project area for the Townsend's big-eared bat and long-eared myotis. The long-eared myotis is found in coniferous forests of high mountains, in buildings, roosting under tree bark, structures, or in caves. Townsend's big-eared bats require basal hollows of large trees, cover from caves, mines, tunnels, buildings, or other structures for roosting. Suitable roosting habitat is less common within the direct project footprint, but tree

removals will be outside of the reproductive period to avoid impact to individuals. There is also one barn structure that may provide suitable habitat in the project area that may be removed under the Preferred Alternative. This structure will be scheduled for removal outside of maternity roosting season (April 1st through August 15th) to the extent possible. If removal is necessary in the maternity roosting time frame, the structure will be surveyed according to a protocol developed in consultation with CDFW to ensure no bats are disturbed. Although blasting is not anticipated, if necessary it will be conducted outside of sensitive periods with established buffers as described below (see *Avoidance, Minimization and/or Mitigation Measures*, below). Furthermore, structures just outside the project area provide suitable roosting habitat for this species. The Preferred Alternative may impact the Townsend's big-eared bat and long-eared myotis but is not likely to lead to a trend toward federal listing (or loss of local viability) for these species. A discussion relative to the California Endangered Species Act is also included below under *Threatened and Endangered Species*.

Reptiles

The western pond turtle may potentially occur in and near the Little Van Duzen or Van Duzen Rivers as there is suitable habitat. This species occupies permanent pools, lakes, streams, and irrigation ditches throughout California at elevations up to 4,690 feet (CDFW 2013b). This species lives in water bodies but requires vegetated land for thermoregulation, breeding, and protection from predators.

Based on this species' life history, western pond turtle would most likely utilize the area in or around the Little Van Duzen or Van Duzen Rivers. No in-stream work is planned for these rivers, but construction is planned near the Van Duzen River in the northern portion of the project area where turtles were documented as occurring in the late 1980s (CDFW 2013b). Because western pond turtles utilize permanent water bodies, in-stream work in intermittent Burr Creek and other tributaries that bisect the project area is not expected to affect this species. Sediment and runoff could affect individuals in the Van Duzen River; however, project-specific storm water BMPs would minimize these negative effects. The Preferred Alternative may impact western pond turtles but is not likely to lead to a trend toward federal listing (or loss of local viability) for this species.

Amphibians

The foothill yellow-legged frog, Pacific tailed frog, and Southern torrent salamander could occur within the project area based on the presence of suitable habitat in the Little Van Duzen and Van Duzen Rivers. The intermittent tributaries that cross the project area do not provide suitable habitat for these species. There would be no direct impacts to suitable habitat for these species as construction activities would not take place in the Van Duzen and Little Van Duzen Rivers. Sediment and runoff could impact individuals present in these waterways; however, project-specific storm water BMPs would minimize the potential for adverse effects. The Preferred Alternative may impact Pacific tailed frogs, foothill yellow-legged frogs, and Southern torrent salamanders but is not likely to lead to a trend toward federal listing (or loss of local viability) for these species.

Invertebrates

The Wawona riffle beetle may occur in the project area as there is suitable habitat and/or known occurrences of the species. Wawona riffle beetle is found in small to medium mountain streams of clear, clean water at elevations between 2,000 and 5,000 feet (CDFW 2013a). Therefore, the Wawona riffle beetle may occur anywhere in or near the Little Van Duzen or Van Duzen Rivers.

Limited life-cycle data complicates understanding the potential project effects to this species. However, in-water work is not planned for the Van Duzen or Little Van Duzen Rivers. Construction work in Burr Creek and other intermittent drainages may potentially affect this aquatic beetle, although these drainages provide low quality habitat because they do not have regular running water within the stretches that intersect the project area. Increased sediment and erosion resulting from construction may negatively affect Wawona riffle beetles in the Little Van Duzen or Van Duzen Rivers. Storm water BMPs designed to reduce erosion and potentially contaminated run-off during rain events would minimize effects to the beetle. The Preferred Alternative may impact Wawona riffle beetle, but is not likely to lead to a trend toward federal listing (or loss of local viability) for this species.

3.21.4 Avoidance, Minimization, and or Mitigation Measures

Measures have been developed as part of this analysis to avoid or minimize potential adverse impacts to animal species. With implementation of these measures, impacts would d be less than significant.

- Tree removal will occur from September 16th to January 31st to avoid the primary nesting season for birds protected under MBTA (e.g., Northern goshawk, golden eagle, peregrine falcon, and osprey), the breeding and denning periods for the Humboldt marten (March to August) and Pacific fisher (March 1st to July 31st), the long-eared myotis' pupping season (May to July), the northern spotted owl breeding and nesting season (February 1st to September 15th), the breeding and birthing season for ringtail cat (February to June), and the Townsend's big-eared bat pupping season (May through June).
- Prior to tree removal, hardwoods dead or alive, standing or downed and greater than 18 inches Diameter at Breast Height (DBH) and conifers dead or alive, standing or downed and greater than 22 inches DBH within the project footprint will be evaluated and ranked using a System for Assessing Potential Wildlife Trees (FHWA 2014). The Scorecard will include the following:
    - Tree species (Hardwood/Conifer)
    - Only trees greater than 18 inches DBH will be assessed
    - Cavity/Basal Hollow/Hollow
    - Broken top
    - Large limb
- Trees that meet DBH requirements and have large limbs (greater than 12 inches in diameter), cavities (6 feet high and 2 feet wide), entrances 6 inches high and 12 inches long, hollows, and basal hollows of sufficient size for relevant species will be considered to be "suitable habitat trees." Trees identified as "suitable habitat trees" will be numbered using tags and marked with paint.
- "Suitable habitat trees" will be assessed for species presence prior to removal. Trees will be systematically removed so that surrounding trees are removed the day prior to "suitable habitat trees". This disturbance will encourage animal species to leave "suitable habitat trees" planned for removal. "Suitable habitat trees" will then be removed the following day so as to prevent the potential for direct injury or mortality.
    - If a resting individual is identified in a tree, downed log, or stump, the area will be rechecked every 24-hours for up to 3 days or until the individual has relocated. If the

individual is still present on the third consecutive day, the area will then be rechecked once a week until it has relocated.

- If trees do not contain sensitive species, "suitable habitat trees" will be removed the following day so as to prevent the potential for direct injury or mortality.

- Prior to conducting tree assessments or presence/absence surveys, biologists will consult with CDFW and USFWS for information on these species (i.e., sightings or presence of any tracked individuals near the project area).
- A system for assessing "Potential Wildlife Trees" and survey results will be provided to CDFW for review prior to any tree limbing, vegetation removal, or other ground- or vegetation-disturbing project activities at the project site.
- Pre-construction sensitive raptor surveys will be conducted during the nesting season (typically March to September) prior to construction. Survey methods will be developed in coordination with CDFW. If active sensitive raptor nests are identified during the nesting season, FHWA will identify and implement appropriate measures to protect the species in consultation with CDFW. These measures may include, but are not limited to, establishing a no-disturbance buffer zone around the breeding site, biological monitoring of the breeding site, and delaying construction activities in the vicinity of the breeding site until the young have dispersed. If necessary, the extent of the no-disturbance buffers shall be determined by a wildlife biologist in consultation with CDFW and shall depend on the level of noise or construction disturbance, line of sight between the breeding site and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the active site until after the breeding season, or until a qualified wildlife biologist determines that the young have fledged (usually late-June to mid-July). Within this buffer, construction activities shall be avoided during the identified species breeding season. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon the breeding site during construction.
- The one building structure in the project area anticipated for removal will be scheduled for removal outside of bat maternity roosting season (April 1st through August 15th) to the extent possible. If removal is necessary in the maternity roosting time frame, the structure will be surveyed according to a protocol developed in consultation with CDFW prior to removal to ensure no bats are disturbed.
- Use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) will not occur from February 1st through July 9th within 50 meters (165 feet) of the areas identified as NSO nesting/roosting habitat.
- If blasting occurs from August 15th to February 28th, it will avoid the primary breeding and denning season for Pacific fisher (March 1 to July 31) and the Townsend's big-eared bat maternity roosting season (April 1 to August 15). If blasting is proposed between March 1st and August 15th, surveys of "suitable habitat" within a 165-foot buffer of the blasting location will be required. Tree and habitat surveys would adhere to standards outlined above. If no suitable habitat trees or suitable roosting structures exist within the 165 foot buffer of the blasting site, blasting restrictions for the two species will be lifted.
- Prior to construction, workers will receive Worker Environmental Awareness Training (WEAT) to be conducted by a qualified biologist. WEAT will include, but is not limited to, identification of

relevant biological resources (e.g., special-status species that may be found in the project area) and an overview of conservation measures and avoidance and mitigation measures that are required during construction activities. Handouts summarizing information presented during WEAT and relevant contact information will be provided to the workers.

- Areas of SR 36 that would no longer be in use would be reclaimed and re-vegetated.
- Degraded areas impacted from construction-related activity would be re-planted with local, native species. Shrubs and herbaceous perennials and annuals would be seeded and planted along riparian corridors where impacts and vegetation removal occur.
- No in-water work within the Van Duzen River will be conducted as part of the project.
- In Burr Creek and unnamed drainages and other intermittent drainages, work will be conducted during no- to low-flow periods of the year.
- The project will undergo occasional weather-related shutdowns during high precipitation or melting events when there is a greater likelihood for erosion and sediment release.
- Effects to riparian areas will be avoided and minimized to the greatest extent practicable during construction to reduce loss of shading and structure along the Van Duzen River.
- FHWA will prepare and implement an erosion control and restoration plan to control short- and long-term erosion and sedimentation effects, and to restore vegetation and stabilize soils in areas affected by construction activities.
- FHWA will comply with the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. FHWA will also comply with the California Stormwater BMP Handbook (2009) specifically addressing procedures for the proper use, storage, and disposal of materials and equipment on temporary construction pads that minimize or eliminate the discharge of potential pollutants to a watercourse (NS-14 in handbook) and procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses (NS-15 in handbook).
- All equipment will be stored, repaired, maintained, and fueled away from stream banks.
- Erosion and sediment will be controlled through riparian and upland plant seeding and through BMPs for erosion and sediment control as indicated by the FHWA Erosion Control Plan. Excess tree and branch materials from logging will be chipped and used for erosion control.

3.22 THREATENED AND ENDANGERED SPECIES

3.22.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Endangered Species Act: 16 USC Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies are required to consult with USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA 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 may include

a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a no effect finding. Section 3 of FESA 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 (CESA), California Fish and Game Code Section 2050, et seq. CESA 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. CDFW is the agency responsible for implementing CESA. California includes "Candidates" for state listing on its list of Endangered and Threatened Animals of California. A state Candidate species is one that the Fish and Game Commission (FGC) has formally declared a candidate species. Section 2080 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." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both the federal and state Endangered Species Acts requiring a Biological Opinion under Section 7 of the federal Endangered Species Act, CDFW may also authorize impacts to state threatened or endangered species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

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

3.22.2 Affected Environment

The following discusses the federally- and state-listed threatened and endangered species that may be found within the project area or affected by the proposed action. Additional information on the assessment of biological resources is available in the *California State Route 36 Improvement Project Biological Assessment* (Jacobs 2014e, f), and the *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g).

Database searches on the CDFW, CNDDB, CNPS, USFWS, and USFS websites provided lists of threatened, endangered, and candidate species, and state species of concern that potentially occur in Humboldt County and in or near the project area. Field surveys were also conducted in April and June 2013 for botanic resources and in July for wildlife resources and habitat assessments.

The online database review identified five plant species protected under the federal and/or state Endangered Species Acts with potential to occur in the project area (see Table 47). Based on evaluation of suitable habitat requirements, including elevation and geographic range of the species, and species occurrence information for the project area, no federal- or state-listed threatened or endangered plant species or habitat is present within the project area (
Table 47).

Table 47: Federal and State Listed Vascular Plants

Common Name	Scientific Name	Status FED/ST	Potential to Occur
Menzies' wallflower	*Erysimum menziesii*	FE/CE	No. The project area does not meet species' habitat or elevation requirements. Species not observed during field surveys.
Beach layia	*Layia carnosa*	FE/CE	No. The project area does not meet species' habitat or elevation requirements. Species not observed during field surveys.
Western lily	*Lilium occidentale*	FE/CE	No. The project area does not meet species' elevation requirements. Species not observed during field surveys.
Prairie penny-cress	*Thlaspi californicum Kneeland*	FE/-	No. The project area does not meet species' habitat requirements.
Humboldt County milk-vetch	*Astragalus agnicidus*	-/CE	No. The project area does not meet species' habitat requirements.
FE = Federally-listed Endangered; CE = California State-listed Endangered "-" = No Listing Status			

Nine federal threatened, endangered, proposed, or candidate wildlife species with the potential to occur within the project area were identified from a literature review of species habitat requirements, occurrence records, range and distribution maps, and on-site habitat assessments. The federally listed species with potential to occur within the project area are listed in Table 48. Based on the evaluation of habitat requirements, three of the species are unlikely to occur in the project area due to a lack of suitable habitat and are not analyzed further for project effects. These species include the marbled murrelet (*Brachyramphus marmoratus*), green sturgeon (*Acipenser medirostris*), southern eulachon (*Thaleichthys pacificus*), and Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Habitat for the remaining federal- and state-listed animal species is present within the project area.

Table 48: Federal and State Listed Threatened or Endangered Wildlife Species

Scientific Name (Common Name)	Status FED/ST	Habitat Requirements	Potential to Occur
Birds			
Strix occidentalis (Northern spotted owl)	FT/SC	Older forests which contain structural characteristics required for nesting, roosting, and foraging. Specifically, habitat includes a multi-layered, multi-species canopy with moderate to high canopy closure. The stands typically contain a high incidence of trees with large cavities and other types of deformities; large snags (standing dead trees); an abundance of large, dead	Yes. Suitable habitat is present and the species has been historically documented in the vicinity of the project area.

Scientific Name (Common Name)	Status FED/ST	Habitat Requirements	Potential to Occur
		wood on the ground; and open space within and below the upper canopy.	
Brachyramphus marmoratus (Marbled murrelet)	FT/SE	Marbled murrelets spend the majority of their lives on the ocean, but come inland to nest. They generally nest in old-growth forests, characterized by large trees, multiple canopy layers, and moderate to high canopy closure. Nests are typically located close to the ocean so the birds can fly to and from nest sites.	No. Suitable habitat is not present.
Coccyzus americanus occidentalis (Western yellow-billed cuckoo)	PT/CE	Breed in large blocks of riparian habitats, particularly woodlands with cottonwoods and willows. Observed in Humboldt County near mouth of the Eel River.	No. Suitable habitat is not present.
Mammals			
Martes pennanti pacific (Pacific fisher)	FC/SC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest (CNDDB 2013).	Yes. Suitable habitat present.
Corynorhinus townsendii (Townsend's big-eared bat)	-/SC	Found throughout California in all habitat but alpine and subalpine. Abundant in mesic habitats, and may be found throughout the year.	Yes. Suitable habitat may be present.
Fish			
Oncorhynchus mykiss Northern California Steelhead	FT/-	Found along the entire Pacific Coast. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates free of excessive silt.	Yes. Potential effects may occur as a result of the proposed project.
Oncorhynchus tshawytscha California Coastal Chinook salmon	FT/SE	Found from the Bering Strait area off Alaska south to Southern California. Spend from 3 months to 2 years in freshwater before migrating to estuarine areas as smolts and then into the ocean to feed and mature.	Yes. Potential effects may occur as a result of the proposed project.

Scientific Name (Common Name)	Status FED/ST	Habitat Requirements	Potential to Occur
Oncorhynchus kisutch Southern Oregon/Northern California Coastal Coho salmon	FT/ST	The first half of their life cycle rearing and feeding in streams and small freshwater tributaries. Spawning habitat includes small streams with stable gravel substrates. The remainder of its life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean. The species has been identified in the Van Duzen River.	Yes. Potential effects may occur as a result of the proposed project.
Acipenser medirostris Green sturgeon	FT/-	Oceanic waters, bays, and estuaries.	No. Suitable habitat is not present.
Thaleichthys pacificus Southern eulachon	FT/-	Found in Klamath River, Mad River, and Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and substrates of pea-sized gravel, sand and woody debris.	No. Suitable habitat is not present.

FC- Federal Candidate; FE – Federal Endangered; FT – Federal Threatened; PT- Federal Proposed Threatened
SC – State Candidate ; SE – State Endangered; ST – State Threatened;
Sources: USFWS 2013; CDFW 2013a

3.22.3 Environmental Consequences

This section analyzes the impacts of the proposed action on federally-listed threatened, endangered, proposed for listing and candidate species, and state-listed threatened or endangered species. Federally listed, proposed, and candidate species and state listed species potentially present in the project vicinity are shown above in Table 47 and Table 48.

Impacts on threatened and endangered were evaluated and determined qualitatively based on the professional judgment of FHWA staff and consultants, and quantitatively based on construction drawings and in consultation with the USFWS and NMFS. The primary sources of information used in this analysis included site evaluation and habitat analysis, published reports and scientific literature, as presented in the biological assessments (Jacobs 2014e, f), biological evaluation (Jacobs 2014g), and in the Wetlands, Waters of the U.S. and Riparian Area Delineation Report (Jacobs 2014h) prepared for the project.

The study area evaluated includes the environmental survey area for potential direct and indirect disturbance, including both direct vegetation removal (i.e., clearing limits) and area of potential indirect auditory or visual disturbances and potential downstream water quality impacts.

No Build Alternative

Implementation of the No Build Alternative would not result in vegetation removal or direct construction activities. The No Build Alternative would not result in any activities or impacts to threatened and endangered species that differ from existing conditions.

Preferred Alternative

Plants

Four federal and state endangered plant species were identified as having the potential to occur in the project area (see
Table 47). Based on evaluation of suitable habitat requirements, including elevation and geographic range of the species, and species occurrence information for the project area, no federal- or state-listed threatened or endangered plant species or habitat is present within the project area. No listed planted were detected during initial botanical surveys. Therefore the Build Alternative will be no effect on Menzies' wallflower, beach lavia, western lily, prairie penny-cress, or the Humboldt County milk-vetch.

Animals

Suitable habitat of the Western US DPS of yellow-billed cuckoo includes willows, dense understory vegetation, high humidity, wooded foraging spaces over 25 acres, and slow-moving waterways. FHWA and Jacobs biologists evaluated habitat conditions with the USFWS and determined that no such habitat exists within the project area. Therefore, the Preferred Alternative would not impact populations, individuals, or suitable habitat of western yellow-billed cuckoo.

Marbled murrelets spend the majority of their lives on the ocean, but come inland to nest. They generally nest in old-growth forests, characterized by large trees, multiple canopy layers, and moderate to high canopy closure. In discussion with the USFWS, it was indicated that it was unlikely there is habitat for marbled murrelet as they typically do not occur as far east as the project area (Jacobs 2014g). Furthermore, the project area is outside the marbled murrelet conservation zone, thus there would be no effect on the species from the proposed project.

The project area contains suitable Pacific fisher and Townsend's big-eared bat habitat. These state candidate species are discussed in detail above under *Animal Species*.

The proposed project is located within an area that has historically been used by the northern spotted owl (NSO). California Department of Fish and Wildlife (CDFW) NSO detection records in the Spotted Owl Observation Data Set from the California Natural Diversity Database (CNDDB) identified that numerous spotted owl observations have occurred in the vicinity of the project and three activity centers are located less than a ½ mile from SR 36. NSO surveys were conducted in 2013 for the project area, focusing on areas that were identified as nesting and roosting habitat. These surveys identified a resident NSO near the southern portion of the project area, which indicates the presence of an activity center nearby.

The project may adversely affect NSO. Potential effects would include: mortality, harm, failed breeding attempts, displacement, loss of forage and/or foraging potential, loss of shelter/cover, loss of suitable nesting or roosting habitat, foraging habitat, increased habitat fragmentation, and temporary noise and visual disturbance during construction. Construction noise and vegetation removal are the primary

disturbances that would result from the project and would directly and indirectly affect NSO nesting and roosting habitat and disrupt foraging activities.

Because the project design is preliminary, the amount of vegetation removal was reviewed under two scenarios with the USFWS to accommodate design refinements without necessitating additional Section 7 consultation.

1. 15 percent design scenario: It is assumed that all vegetation within the project clearing limits (i.e., vegetation removal, clearing and grubbing) would be removed. The clearing limits analyzed in this document are defined by the 15% level of project design and include areas of permanent and temporary disturbance. These limits are anticipated to change to some degree as the design is refined during the final design process.

2. Project area scenario: The project area was defined by FHWA early in the design process as the boundary within which potential permanent and temporary disturbance could occur from project-related activities. It is not anticipated that the clearing limits would exceed the project area at any location as the project design progresses. Nor is it anticipated that the clearing limits would encompass the full extent of the project area. The total area of direct disturbance is anticipated to be similar to the clearing limits of the 15 percent design. The intent of analyzing the impact of full vegetation removal within the project area is to identify potential effects to NSO if vegetation removal beyond the clearing limits of the 15 percent design were to occur.

For the purposes of this EA/IS, the 15 percent design scenario generally captures the scope and magnitude of impacts and therefore is what is discussed further in this document. Minor changes are anticipated in final design therefore the USFWS is considering the project area scenario in their development of a Biological Opinion. Under the 15 percent design scenario, it is anticipated the project would disturb approximately 64 acres throughout the entire project area; consisting of approximately 18 acres of nesting and roosting habitat, 29 acres of foraging habitat, and 17 acres of not suitable habitat. Under this scenario, approximately 2 acres of nesting and roosting habitat would be removed, and 1 acre of foraging habitat would be removed within the core area for the activity center. This translates into a loss of 0.6 percent and 0.2 percent respectively of the available habitat in that area. Approximately 760 acres of combined nesting/roosting and foraging habitat would remain within the core area of the activity center.

Sound disturbance may rise to the level of harassment for NSO within 50 meters (165 feet) of project activities (USFWS 2006). Although suitable nesting, roosting and foraging habitat exists within that distance, any NSO that utilize suitable habitat adjacent to the road corridor may be conditioned to noise from vehicle traffic (Delaney and Grubb 2004, USFWS 2006). While project-related noise could cause NSO to avoid the immediate project areas during periods of active construction or elevated noise levels, these effects are anticipated to be minimal. The likelihood that birds will be occupying habitats within 50 meters (165 feet) of the project area is low, and noise levels would not greatly exceed levels that currently exist along SR 36.

NSO can also be affected by visual disturbances from project-generated activities. No active nest sites have been identified within 100 meters of the project area and therefore no direct visual disturbances are anticipated as a result of the project.

Tree and vegetation removal would be scheduled to take place outside the NSO nesting season (i.e., outside the period from February 1 to September 15), which would minimize effects to NSO that may be occupying the project area during the nesting season. However, based on the presence of a resident NSO in the vicinity of the project area, the removal of suitable habitat, elevated noise levels during construction, and the duration of construction; the project may affect and is likely to adversely affect NSO.

FHWA has completed formal Section 7 consultation with the USFWS for the project. The USFWS has issued a Biological Opinion dated May 21, 2014 to FHWA and has concluded that the impacts to NSO are adverse, but not likely to jeopardize the continued existence of the species. There is no critical habitat for the NSO in the project area and therefore none would be adversely modified or destroyed.

Five federally-threatened fish species were evaluated for potential effects as a result of the proposed action. Suitable habitat is not present within the project area for the southern eulachon or the green sturgeon. Therefore there will be no effects on these species.

SONCC Coho salmon, CC Chinook salmon and NC steelhead spend portions of their lifecycles in streams and small freshwater tributaries. Spawning habitat for these species consists of gravel substrates free of excessive silt. Critical habitat for the SONCC Coho salmon and the CC Chinook salmon does not occur in the reach of the Van Duzen or Little Van Duzen rivers located near the project area. Critical habitat for SONCC Coho Salmon extends up the Van Duzen River to a natural barrier, Salmon Falls, which is approximately 9.5 miles downstream from the project area. Critical habitat for CC Chinook salmon is located within the Van Duzen River approximately 23 miles downstream of the project area. Research indicates these two species have not been found in the streams and rivers in the vicinity of the project area in over ten years. Furthermore, Salmon Falls presents an obstruction to pass and therefore it is unlikely for either species to occur within the vicinity of the project area.

Critical habitat for NC steelhead is located within the Van Duzen River approximately 0.34 mile downstream of the project area as well as in the Little Van Duzen River, approximately 0.35 mile west of the project area. The distribution of this species within the Van Duzen River is restricted by a natural barrier, Eaton Roughs, which is located upstream from the confluence with the Little Van Duzen River. However, NC steelhead have been known to pass this barrier and there is the potential for the species to occur in the reaches of the Van Duzen River near the project area.

Work will be conducted within Burr Creek and unnamed drainages for culvert installation. However, these are intermittent drainages and work will be conducted during no- to low-flow periods of the year. No in-water work within the Van Duzen River is anticipated as a result of the project. Therefore, effects are limited to fish habitat degradation where vegetation removal would be required near the Van Duzen River. This could reduce the habitat functionality by reducing shading and cover, and cause fish that occupy this stretch of the river to avoid these areas. In addition, sedimentation and chemical-laden runoff from SR 36 construction has the potential to introduce sediment and debris into downstream habitats for the above-mentioned species. Permanent and temporary erosion and sediment control BMPs will be installed to help minimize effects to the waterways. Therefore, the project will have no

effect to the SONCC Coho salmon or the CC Chinook Salmon or their critical habitat. The project may affect, but is not likely to adversely affect NC steelhead or their critical habitat.

Based on the above effect determinations, FHWA participated in informal Section 7 consultation with NMFS. In a letter dated June 27, 2014, NMFS concurred with FHWA's may affect, not likely to adversely affect determination for NC steelhead or its designated critical habitat.

State Candidate Species Impacts under the California Endangered Species Act (CESA)

In 2013 the California Fish and Game Commission changed the designation of three species from Species of Special Concern (SPC) to Candidates for state Threatened or Endangered Species (SC) status: northern spotted owl (December 13, 203), Pacific fisher (March 11, 2013) and Townsend's big-eared bat (December 11, 2013). During the period of their candidacy, unauthorized "take," as defined by the California Fish and Game Code, Section 1-89.1 (hunt, pursue, catch, capture, or kill) is not allowed.

Northern Spotted Owl (NSO): The proposed project is located within an area that has historically been used by the NSO. Numerous NSO observations are recorded in the Spotted Owl Observation Data Set from the California Natural Diversity Database (CNDDB), and three activity centers are located less than a ½ mile from SR 36. NSO surveys for the project area in 2013 identified a resident NSO near the southern portion of the project area, indicating an NSO activity center nearby.

Potential impacts include planned vegetation removal, which could impact individuals and decrease the availability of potential habitat; in addition, noise from construction could affect individuals. Take of NSO, as defined by the Fish and Game Code, would be avoided by removing trees and vegetation outside of the NSO nesting season (February 1 to September 15, working from September 16 to January 31). Approximately 2 acres of nesting and roosting habitat would be removed, and 1 acre of foraging habitat would be removed within the core area for the activity center. This translates into a loss of 0.6 percent and 0.2 percent respectively of the available habitat in that area. Approximately 760 acres of combined nesting/roosting and foraging habitat would remain within the core area of the activity center. The amount of habitat removal is very small (<0.0 1 percent) in relation to the total amount of habitat available in the California Klamath province (USFWS 2014).

The Preferred Alternative will not result in state-defined take of NSO. It may reduce habitat available for this species, but the amount is negligible compared to available habitat. During tree removal activities, attempts will be made to avoid removing large, mature trees to the greatest extent practicable to reduce loss of habitat. It will be offset by restoration and revegetation of areas of SR 36 that would no longer be in use. Degraded areas impacted from construction-related activity would be re-planted with local, native species. Use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) would not occur from February 1 – July 9 within 50 meters (165 feet) of the areas identified as NSO nesting/roosting habitat. According to the USFWS, after July 9 auditory or visual disturbances would not be expected to result in abandonment of the breeding effort, disruption of nesting activities, or premature dispersal of juveniles from the nest (USFWS 2014). If construction noise includes blasting, time delay detonation initiators will be used to separate large blasts into a series of discrete, short duration, smaller blasts. This would minimize the potential effects to the species by reducing the amount of elevated noise levels.

Pacific Fisher: The area contains trees with old growth characteristics that would be suitable for the Pacific fisher; however, much of the habitat quality is not ideal. Numerous residences in the vicinity of the project area, as well as past timber clearing activities for harvest or utility line installation, have fragmented the forest cover and degraded the habitat by reducing the amount of overall old-growth. Potential impacts include planned vegetation removal, which would decrease the availability of potential habitat and could impact individuals resting in them; in addition, noise from construction could affect individuals. These impacts will be avoided by conducting tree removal outside of the critical period for fisher, which is March 1st through July 31st; this includes the natal period from March 1st to May 15th and the maternal denning period from May 16th through July 31st (Dunn 2014). If use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) is proposed between March 1st and August 15th, surveys of "suitable habitat" within a 165-foot buffer of the location will be required. Tree and habitat surveys would adhere to standards outlined above. If no suitable habitat trees or suitable roosting structures exist within the 165 foot buffer of the noise source, noise restrictions for the Pacific fishers will be lifted. In addition, prior to tree removal, trees of sufficient size within the project footprint will be evaluated and ranked to assess potential wildlife trees that could provide denning habitat. Trees that meet DBH requirements and have large limbs (greater than 12 inches in diameter), cavities (6 feet high and 2 feet wide), entrances 6 inches high and 12 inches long, hollows, and basal hollows will be considered to be "suitable habitat trees." Trees identified as "suitable habitat trees" will be numbered using tags and marked with paint, and will be systematically removed in a manner to avoid removal of a fisher occupied tree. The Preferred Alternative will not result in harm of Pacific fishers. It may reduce habitat available for species, but the amount is negligible compared to available habitat. It will be offset by restoration and revegetation of areas of SR 36 that would no longer be in use. Degraded areas impacted from construction-related activity would be re-planted with local, native species. Shrubs and herbaceous perennials and annuals would be seeded and planted along riparian corridors where impacts and vegetation removal occur.

Townsend's Big-eared Bat: Suitable habitat occurs within the project area for the Townsend's big-eared bat, which requires large basal hollows, caves, mines, tunnels, buildings, or other structures for maternity roosts. Suitable roosting habitat is less common within the direct project footprint, and there is suitable roosting habitat just outside of the project area. Potential impacts include planned vegetation removal, which would decrease the availability of potential habitat; in addition, noise from construction could affect maternity colonies. Impacts will be avoided by removing tree outside of the reproductive period (April 1st through August 15th). There is also one barn structure that may provide suitable habitat in the project area that may be removed under the Preferred Alternative. This structure will be scheduled for removal outside of maternity roosting season (April 1st through August 15th) to the extent possible. If removal is necessary in the maternity roosting time frame, the structure will be surveyed according to a protocol developed in consultation with CDFW to ensure no bats are disturbed. Furthermore, there are numerous structures just outside the project area which provide suitable roosting habitat for this species. Although construction noise above an Lmax at 50 feet of 90 decibels is not anticipated, if necessary it will be conducted outside of sensitive periods with established buffers as described in *Avoidance, Minimization and/or Mitigation Measures* (Chapter 3 and Appendix E). The Preferred Alternative will not result in harm of Townsend's big-eared bat; it may reduce habitat available for the species, but the amount is negligible compared to available habitat. It will be offset by restoration and revegetation of areas of SR 36 that would no longer be in use. Degraded areas impacted from construction-related activity would be re-planted with local, native species.

3.22.4 Avoidance, Minimization, and or Mitigation Measures

Impacts would be less than significant with measures that have been developed to avoid or minimize potential adverse impacts to threatened and endangered species.

- Tree removal will not be conducted along the project corridor within the areas identified as nesting/roosting habitat during the nesting season (February 1 – September 15). This would minimize the potential for direct effects to the species by not allowing removal of a nesting or roosting tree during the breeding season.
- During tree removal activities, attempts will be made to avoid removing large, mature trees to the greatest extent practicable to reduce impacts to NSO.
- Use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) would not occur from February 1 – July 9 within 50 meters (165 feet) of the areas identified as NSO nesting/roosting habitat. This would minimize the potential effects to the species by reducing the amount of elevated noise levels which may rise to the level of harassment.
- Areas of SR 36 that would no longer be in use would be reclaimed and re-vegetated.
- Degraded areas impacted from construction-related activity would be re-planted with local, native species. Shrubs and herbaceous perennials and annuals would be seeded and planted along riparian corridors where impacts and vegetation removal occur.
- The Five Counties Initiative, which includes Humboldt County, is a program whose goal is to improve the recovery of salmonids in Northern California. The program developed a manual that outlines county road maintenance project BMPs that aim to reduce effects on SONCC Coho salmon, CC Chinook salmon, and NC steelhead (FCSCP 2002). This manual will be consulted when construction begins and more specific plans are in place for the design of the project. The manual can be found online, at: http://www.5counties.org/roadmanual.htm.
- No in-water work within the Van Duzen River will be conducted as part of the project.
- Work within Burr Creek and unnamed drainages and other intermittent drainages will be conducted during no- to low-flow periods of the year.
- The project will undergo occasional weather-related shutdowns during high precipitation or melting events when there is a greater likelihood for erosion and sediment release.
- Effects to riparian areas will be avoided and minimized to the greatest extent practicable during construction to reduce loss of shading and structure along the Van Duzen River.
- FHWA will prepare and implement an erosion control and restoration plan to control short- and long-term erosion and sedimentation effects, and to restore vegetation and stabilize soils in areas affected by construction activities.
- FHWA will comply with the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. FHWA will also comply with the California Stormwater BMP Handbook (2009) specifically addressing procedures for the proper use, storage, and disposal of materials and equipment on temporary construction pads that minimize or eliminate the discharge of potential pollutants to a watercourse (NS-14 in handbook) and procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses (NS-15 in handbook).

- All equipment will be stored, repaired, maintained, and fueled away from stream banks.
- Erosion and sediment will be controlled through riparian and upland plant seeding and through BMPs for erosion and sediment control as indicated by the FHWA Erosion Control Plan. Excess tree and branch materials from logging will be chipped and used for erosion control.
- The monitoring and reporting requirements outlined in the USFWS-issued Biological Opinion will be adhered. These include: reporting the progress of the project and its impacts on the NSO to the USFWS prior to December 31 of each year, for the duration of the project. FHWA shall provide the following:

  1) A description of the amount of suitable NSO habitat to be removed when project design is complete.
  2) A summary of construction activities that occurred during the past year including dates and equipment used.
  3) The results of any future NSO surveys.

- As described in the Biological Opinion, any dead or injured NSO must be reported to the USFWS Law Enforcement Division (916-414-6660), or to the Arcata Fish and Wildlife Office (707 -822-7201), as soon as possible, and turned over to the Law Enforcement Division or a game warden or biologist of the California Department of Fish and Wildlife for care or analysis. The USFWS is to be notified in writing within three working days of the accidental death of, or injury to, a NSO, or of the finding of any dead or injured NSO, during implementation of the proposed project. Notification must include the date, time, and location of the incident or discovery of a dead or injured NSO, as well as any pertinent information on circumstances surrounding the incident or discovery. The USFWS contact for this written information is Bruce Bingham, Field Supervisor, Arcata Fish and Wildlife Office.

3.23 INVASIVE SPECIES

3.23.1 Regulatory Setting

On February 3, 1999, President Clinton signed E.O. 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. 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." FHWA guidance issued August 10, 1999 directs the use of the State's invasive species list currently maintained by the California Invasive Species Council to define the invasive species that must be considered as part of NEPA analysis for a proposed project.

3.23.2 Affected Environment

Information in this section is summarized from the *California State Route 36 Improvement Project Biological Evaluation* (Jacobs 2014g).

The project area was surveyed the presence of California-listed noxious weeds. Six noxious weeds were found in the project area, including: Canada thistle (*Cirsium arvense*), common Russian thistle (*Salsola tragus*), Klamathweed (*Hypericum perforatum*), medusahead (*Taeniatherum caput-medusae*), scotch thistle (*Onopordum acanthium*), and yellow starthistle (*Centaurea solstitialis*). Klamathweed, also

known as common St. John's Wort, was the dominant weed in the project area and covered 40 percent of the mitigation site at low densities. Canada thistle was found in the project area at high, medium, and low densities and found predominantly in the SR 36 right-of-way. Medusahead was only found in the mitigation site in low, medium, and high concentrations and was found throughout 90 percent of the mitigation site.

3.23.3 Environmental Consequences

This section discusses the potential for the project to result in the spread of invasive species. Impacts on invasive species were evaluated and determined qualitatively based on the professional judgment of FHWA staff and consultants. The study area evaluated includes the environmental survey limits, which is the area identified as having potential for permanent and temporary disturbance.

No Build Alternative

Implementation of the No Build Alternative would not result in any activities that would promote the spread of invasive species that differ from existing conditions.

Preferred Alternative

The project would not be expected to have any permanent impacts on native wildlife species and would therefore not encourage the spread of invasive wildlife species. The Preferred Alternative would require vegetation removal, including riparian and wetland habitats. Removal of native vegetation could potentially encourage the spread of invasive plant species, which often thrive in disturbed conditions. In addition, invasive plants may be spread from construction activities and could exacerbate the existing weed problem in the project area.

Individuals and machinery may carry seeds from infested locations to other areas. Additionally, seed mixes used for vegetation often contain non-native seeds, which can introduce new weed species and spread those invasive species already present. With implementation of avoidance and mitigation measures such as ensuring weed-free seed and cleaning of construction equipment, the project would not result in adverse impacts as a result of the spread of invasive plants.

3.23.4 Avoidance, Minimization, and or Mitigation Measures

Impacts related to invasive species would be less than significant. Measures have been developed as part of this analysis to avoid or minimize potential adverse impacts associated with the spread of invasive plant species.

- Cut and fill slopes that are capable of sustaining vegetation will be re-seeded with a native plant seed mix.
- The following standard management requirements will be implemented to prevent introduction of noxious weeds:
    - All vehicles and equipment entering the project area must be clean of noxious weeds and are subject to inspection. All construction equipment will washed to thoroughly remove all dirt, plant, and other foreign material prior to entering the project area.
    - All open-bodied trucks entering the project area will be covered when loaded; and

- All imported plant material used for erosion control and road maintenance will be certified weed free.

3.24 CUMULATIVE IMPACTS

3.24.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed 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 agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

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

3.24.2 Methodology

A technical report entitled California State Route 36 Improvement Project Cumulative Impact Assessment was prepared for the project and serves as the supporting documentation for this section. The cumulative impact assessment focuses on resources for which this project has measurable impacts or those resources that may be in poor or declining health. For this SR 36 project, the following resources were identified for closer analysis for the cumulative impact assessment:

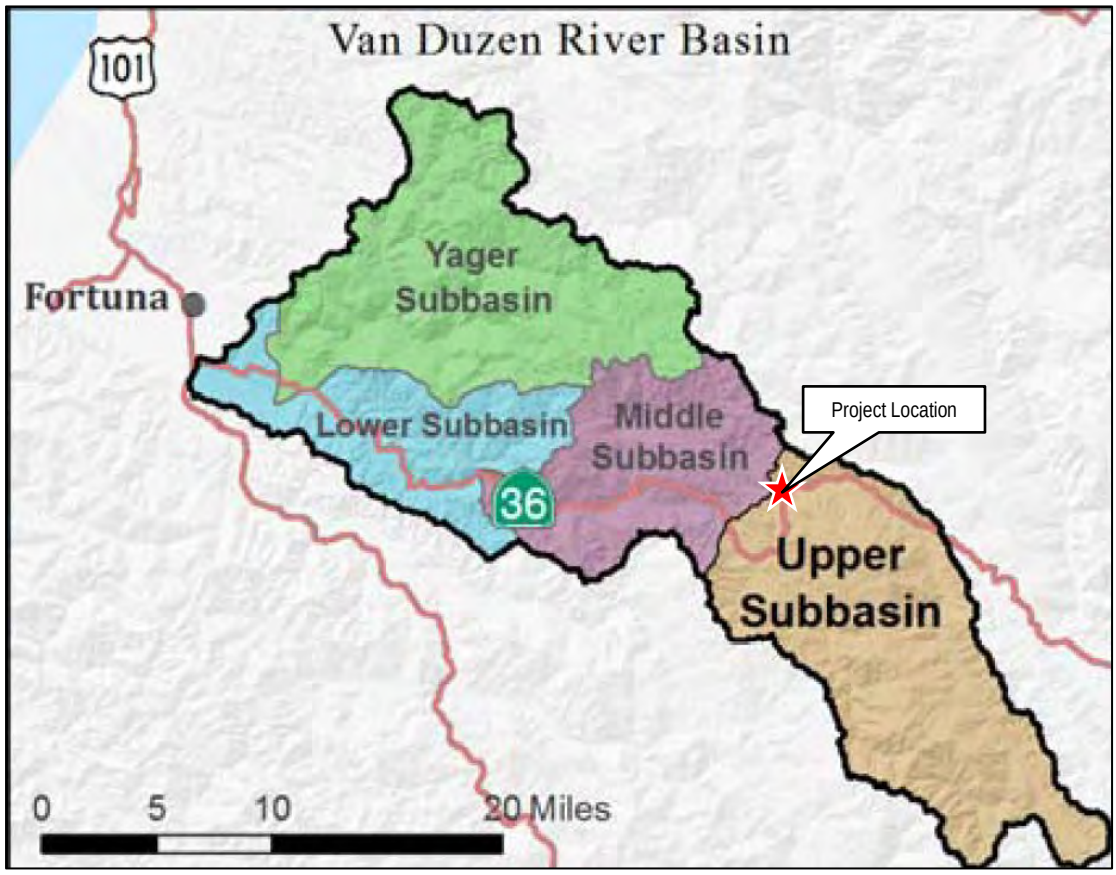
- Water quality
- Visual quality
- Special status species, included threatened and endangered species
- Wetlands
- Wild and scenic rivers

Cumulative impacts are considered within geographic and temporal boundaries. To clearly understand the health of a resource, it must be viewed within its appropriate geographical context. The following study area boundaries were defined for each resource:

- Water Quality: Van Duzen River Basin (see Figure 22)

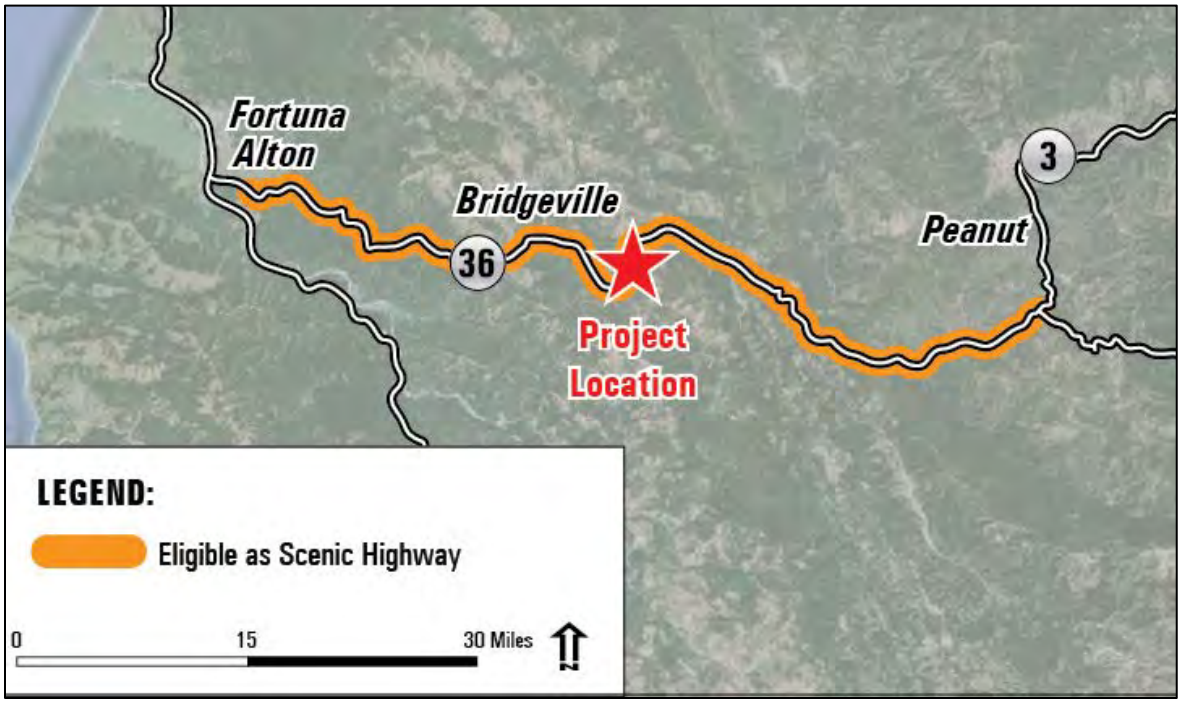
- Visual Quality: Approximately 350 feet on either side of the 70-mile segment of SR 36 that is eligible for California Scenic Highway designation (SR 36 from SR 101 near Alton (HUM 0.0) to SR 3 near Peanut (TRI 28.7) (see Figure 23)
- Special Status Species: Van Duzen River Basin (see Figure 22)
- Wetlands: Van Duzen River Basin (see Figure 22)
- Wild and Scenic Rivers: Middle Van Duzen River Sub-basin (see Figure 22) for scenic designation (Dinsmore Bridge west to approximately Little Larrabee Creek)

Figure 22: Van Duzen River Basin and Sub-basins



Source: CWP 2012

Figure 23: Eligible California Scenic Highway Segment



3.24.3 Affected Environment

Current Health and Historical Context

This section describes the current health, condition, or status of each resource listed above through its historical context. A historical context provides an understanding of how the resource reached its current state. Once the current state of each resource is determined, the effect of future actions, as well as the proposed project, can be assessed.

In several cases, a single action has had effects on multiple resources. For example, past logging activities have affected erosion, which in turn affects water quality and wetlands, as well as special status species that rely on them. In such cases, the actions are not repeated but referred to.

Water Quality

Shortly after arriving in the mid-1800s, Euro-American settlers began cutting timber in the Van Duzen River Basin to clear the land for farming, livestock grazing, and wood products. The timber industry continued to grow and soon became the major land use in the Van Duzen River Basin. A large amount of the basin's forests had been cut by the 1960s, and an extensive road and skid trail network had been cut into the landscape. Tremendous disturbance occurred to the basin's soils from clear cutting, building

and using an extensive network of logging roads, and using tractors to move logs. As a result, the area's ecosystem became more susceptible to the effects of storm damage (CWP 2012).

Historically large storms and subsequent floods in 1955 and 1964 triggered widespread avalanching (fall or slide of a large mass down a mountainside), which caused excessive erosion and sediment inputs in the Van Duzen River system. Miles of tractor skid trails and haul roads for the timber industry caused substantial ground disturbance that contributed to hill slope instability and erosion. Many roads were built on unstable slopes, which caused hill slope erosion, stream diversions, and gully erosion, thereby inputting additional sediments into streams. Tectonic activity, combined with abundant winter rains and human disturbances, also contributed to excessive erosion and large sediment inputs. Eroded soils and logging debris caused large-scale changes in the Van Duzen River and tributaries. These sediment loads led to listing of the Van Duzen River as sediment impaired under the Clean Water Act in 1999 (CWP 2012).

In the 1980s, the U.S. Forest Service (USFS) began an aggressive in-stream and riparian restoration program in Six Rivers National Forest to help rivers recover from the 1955 and 1964 floods. From 1990 to the present, actions in Six Rivers National Forest focused on fixing high risk road problems through decommissioning and road storm proofing (USFS 2013a). Similarly, the *Six Rivers National Forest Land and Resource Management Plan,* developed in 1995, emphasized maintaining and restoring ecosystem health. The plan included an Aquatic Conservation Strategy to restore and maintain ecological health of watersheds and aquatic ecosystems. The strategy included improvements to existing culverts, bridges, as well as other stream crossings and directives to minimize sediment delivery to streams from roads, putting high priority on correcting road drainage problems that degrade riparian resources (USFS 1995).

Since 1990, several projects have occurred in the vicinity of the Van Duzen River under various agencies. Some of these projects were extractive and many were restorative, including permitting sand gravel extractions from floodplains, restoring and enhancing streams, stabilizing riverbanks, developing a Watershed Management Plan administered by the State Water Resources Control Board, protecting salmonid habitat, controlling road-related erosion, repairing and replacing bridges, developing crossings for timber harvesting, replacing culverts, and altering streambeds (State of CA 2011).

Various water rights apply within the Van Duzen River Basin. A total of approximately 540 acre-feet per year is licensed and 40,000 acre-feet are permitted in the basin (CWP 2012). Therefore, current use is well below what is permitted. Two small hydro-electric power generating facilities (1 and 2 megawatt) are located in the Middle Sub-basin (CWP 2012). These facilities do not likely measurably affect water resources, but may affect special status species, discussed below.

Land owners, stakeholders, and other interested parties have formed watershed groups and land conservancies to maintain and/or improve the basin's resources. Projects are focused on reducing erosion and sediment delivery to streams by improving road conditions and watercourse crossings, stabilizing stream banks, improving in stream habitat, and facilitating fish passage. The majority of these projects have been on private lands (CWP 2013b). In addition, the USFS is actively engaged in sediment related management. Erosion continues to be a problem for older, poorly designed USFS roads built prior to the 1970s. At 4.4 miles/square mile, road density in the Van Duzen River Basin currently exceeds a USFS target of no more than 2.5 miles/square mile (CWP 2012).

Although recent actions have been taken to address past land uses, passage of Proposition 215 in 1996 and SB420 in 2003 led to an increasing number of large marijuana growers on private lands (CWP 2012). Illegal water diversions, unpermitted clear cutting, grading, and road building that support large marijuana agriculture operations are impacting the environment. Growers use a substantial amount of water, affecting water flows in the Van Duzen River and its tributaries. A moderate sized operation uses approximately 250,000 gallons during a five-month growing season. Growers also contribute pollutants such as fuel, fertilizers, herbicides, pesticides, rodenticides, construction debris, and human waste in Van Duzen River and surrounding waters (CWP 2012, CDFW n.d.a).

Humboldt and Trinity Counties have restrictions on marijuana growing activities. Humboldt County allows one medical marijuana harvest per year and land owners may cultivate up to 99 plants in a 100 square-foot area both indoors and outdoors (Humboldt County 2003). Cultivation and harvesting of medical marijuana in Trinity County is an unauthorized land use unless the person conducting the activity is a qualified patient or caregiver per state law. In such circumstances, the amount of cultivation and harvesting is restricted to no more than eight plants (Trinity County n.d.). However, legal and illegal marijuana growers are not regulated regarding water use and water pollution.

Visual Quality

The past actions described above, particularly those resulting from timber harvesting, adversely affected the area's visual resources. Conversely, some actions contributed to preservation of the area's visual quality. The California Land Conservation Act of 1965 (the Williamson Act) enabled local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use, which would preclude development that could impact scenic views. Some of these lands are in proximity to the project corridor.

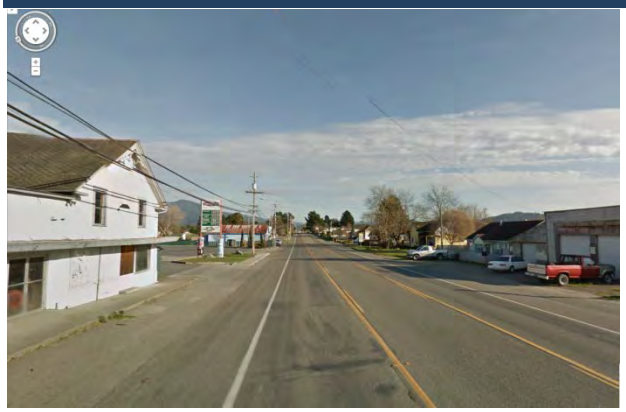
In recognition of the area's scenic qualities, SR 36 is currently eligible for official designation as state scenic highway from Route 101 near Fortuna to Trinity County line (Humboldt County 2012a). Over the years, Caltrans has performed several projects along various sections of SR 36 within the study area, primarily related to repairs (Caltrans n.d.). A search of past Caltrans projects indicates that the majority were related to emergency repairs or maintenance/rehabilitation (e.g., "rehabilitate pavement," "scour prevention," "repair fire damage," "repair slides and slipouts," etc.). Some projects included replacement or installation of guardrails or retaining walls, and some realignments have occurred.

SR 36 links rural communities and small urban areas. Development along the route is limited, with some scattered rural residences and small rural communities where SR 36 serves as a "main street." Traveling east from Highway 101, SR 36 passes through agricultural pastureland, rolling terrain with mixed conifer forests and private timberlands (Caltrans 2012). A virtual "drive-through" along SR 36 from Highway 101 east approximately 35 miles to the project area shows few obvious man-made elements associated with the highway (see Figure 24). The route passes through residential areas for the first several miles. The terrain is primarily flat and open, and residences and small businesses flank the roadway, some with fences and landscaping. Guardrails appear occasionally along the road. After about seven miles, the landscape becomes densely forested with evergreens. From this point to the project area, occasional glimpses of the Van Duzen River can be seen, particularly where it is crossed by the road, and the landscape alternates between forests and open fields. Residences, telephone poles, a transmission line, and numerous pullouts can be seen at various points along the route to the project area. Several cut slopes exist, which consist of re-vegetated dirt. The first (and largest) manmade rock buttress appears at

Bridgeville. A few smaller buttresses occur between Bridgeville and the project area, but the majority of cut slopes consist of re-vegetated dirt (Google 2011, 2012).

The route passes through Van Duzen-Pamplin Grove County Park and Grizzly Creek Redwoods State Park approximately 12 to 17 miles east of Highway 101 as it follows the federally designated Wild and Scenic Van Duzen River (see Figure 23). Visitors are attracted to both parks by their stands of redwood trees. The Van Duzen park has three major redwood groves and campgrounds. Grizzly Creek includes Cheatham Grove, a stately grove of impressive redwoods with lush groundcover and a dense layer of ferns. These two parks enhance the visual quality of the area by preserving redwood groves. As the route continues east, the terrain becomes more mountainous and the grades more substantial (Caltrans 2012).

Figure 24: Highway Features along SR 36 West of Project Area



SR 36 near Hydesville approximately 2.5 miles east of Highway 101, west of project area.

Typical re-vegetating cut slopes west of project area.

Approaching Grizzly Creek Redwood State Park west of project area; partial view of Van Duzen River on right.

Rock buttress along SR 36 west of the project area.

Source: Google 2011, 2012.

Traveling approximately 37 miles east of the project area to the intersection with SR 3, the topography varies considerably more, with several climbs and descents (see Figure 25). Views are more open where the road climbs. Vegetation is more deciduous at lower elevations and evergreen at higher elevations. The Mad River Ranger District of the Six Rivers National Forest crosses SR 36 east of Dinsmore. A large

gravel operation exists just west of Van Duzen Road; few residences can be seen on the east side of the project area. Steeper cut slopes and rock buttresses, as well as signed slide areas, are more common than west of the project area. Rock buttresses vary in size and some appear to be re-vegetating. Several sections of guardrails, pullouts, curbs, rock cut slopes, and re-vegetating dirt cut slopes exist. Crib walls can be seen occasionally below the roadway. A rock-faced retaining wall parallels SR 36 on the ascent to South Fork Mountain Summit (Google 2011, 2012). According to the Visual Impact Assessment prepared for this project, the existing visual intrusions do not detract from the quality of views along the route (Jacobs 2013b).

Figure 25: Highway Features along SR 36 East of Project Area

Curb and tree regrowth on cut slope east of project area.

Re-vegetating rock buttress east of project area.

Guardrail and sustained buttress along SR 36 ascent east of project area.

Rock buttress slide into SR 36 shoulder, east of project area.

Rock buttress and rock-faced retaining wall east of project area.

Guardrail, typical cut slope, and crib wall (metal retaining wall) east of project area.

Source: Google 2011, 2012.

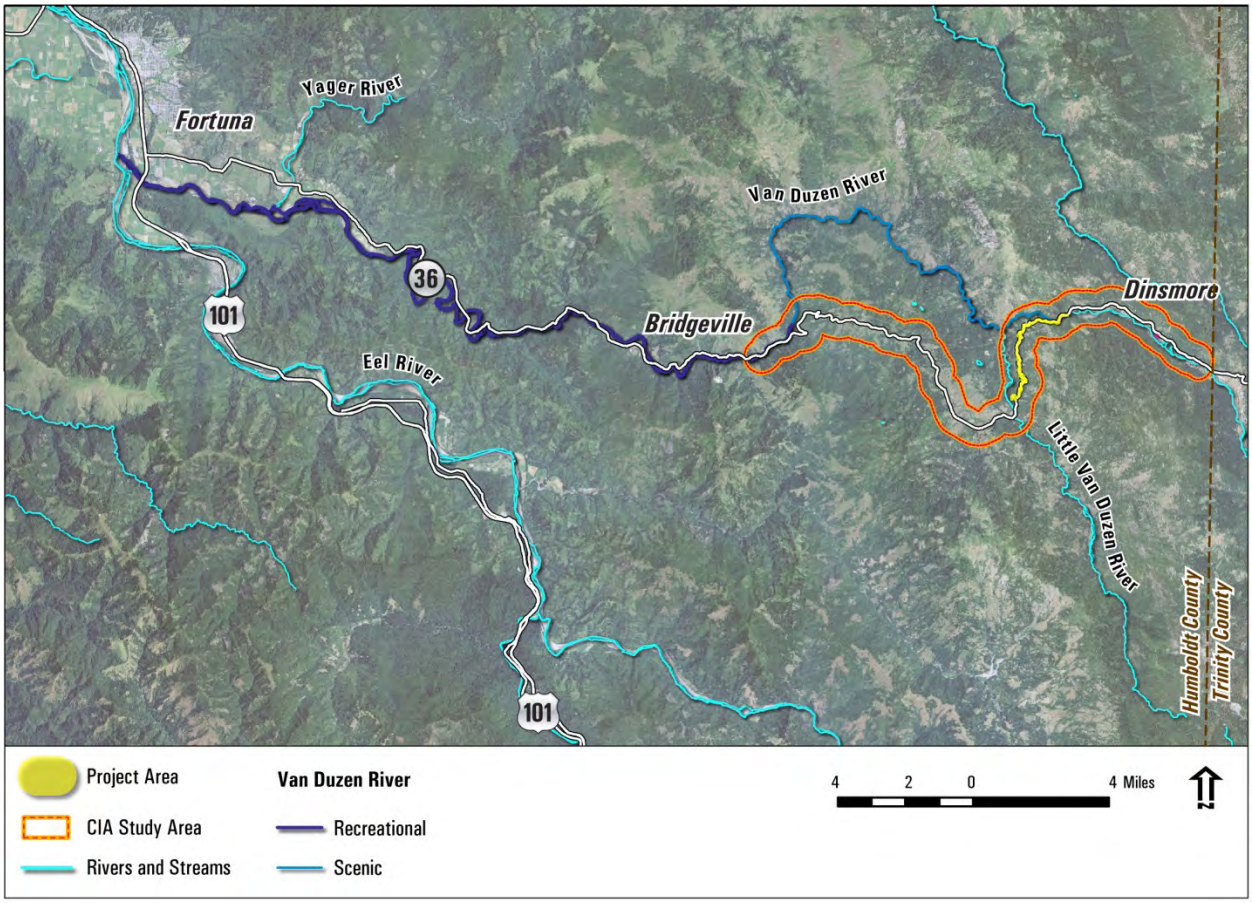
Population changes can affect visual quality by influencing the built environment. Humboldt County's population growth rate increased in the late 1980s and early 1990s. However, the pace of rural development has been slow to moderate (Humboldt County 2012a), allowing the area to retain its primarily rural setting.

Wild and Scenic Rivers

The Van Duzen River was added to the State Wild and Scenic River system in 1972. The river was designated as a scenic reach from the Dinsmore Bridge west to Little Larrabee Creek, a distance of approximately 15 miles. The Van Duzen River was designated as recreational from Little Larrabee Creek west to the confluence with the Eel River. In 1981, those river reaches also received National Wild and Scenic River designation. These designations mandated preservation of the river in its free-flowing condition and protection of the river's immediate environments (CWP 2013b). All of these designations are west of the project area.

Figure 26 shows these designations, as well as the Community Impact Assessment (CIA) study area, under which impacts to the river's designations were analyzed in the EA/IS.

Figure 26: Van Duzen River Wild and Scenic River Designation



Special Status Species

The activities described for *Water Resources*, above, affected special status species in the study area. Timber harvest affected stream communities and native species through increased rates of erosion and sedimentation of aquatic habitats, change in soil moisture regimes, increased precipitation runoff rates and flooding potential, increased temperatures of aquatic habitats that may negatively impact salmonid growth and favor the growth of exotic fish species, increased potential for exotic plant invasion, and overall fragmentation of aquatic habitat. Pollution caused by industrial and agricultural activities affected native species and habitats by negatively altering the growth, reproduction, and survival of many species. Logging activity removed trees that were integral for maintaining riparian, stream, and upslope forest ecosystems. Grazing has had multiple negative effects on native species and remains prevalent in the Van Duzen River Basin (CWP 2012).

Fish/Salmonids

Chinook Salmon, Southern Oregon/Northern California Coast (SONCC) Coho Salmon, and Northern California (NC) Steelhead are listed under the Endangered Species Act (ESA) as threatened (USFWS 1990). Water storage, withdrawal, conveyance, and diversions for agriculture, flood control, domestic, and hydropower purposes greatly reduced or eliminated accessible habitat and/or resulted in mortality of juvenile salmonids. Modification of natural flow regimes resulted in increased water temperatures; changes in fish community structures; depleted flows necessary for migration, spawning, rearing, and

flushing of sediments from spawning gravels; gravel recruitment; and transport of large woody debris. Dams caused increased mortality of adults and juvenile salmonids, and attempts to mitigate adverse impacts of these structures have had limited success. Land use activities associated with logging, road construction, urban development, mining, agriculture, and recreation substantially altered fish habitat quantity and quality. Introduction of non-native species and modification of habitat resulted in increased predator populations and salmonid predation in numerous river and estuarine systems (NOAA n.d.). Sediment loads from the upper basin may be impacting spawning gravel and pool habitat for steelhead in downstream reaches (EPA 1999). Climate change has affected and is expected to continue to affect salmonids (CWP 2012).

Avian

Northern spotted owl is listed as threatened under the ESA "due to loss and adverse modification of suitable habitat as a result of timber harvesting and exacerbated by catastrophic events such as fire, volcanic eruption, disease, and wind storms" (USFWS 1990). Since listing of the northern spotted owl, competition with the barred owl (*Strix varia*) and fire have become greater threats than previously believed. New potential threats of unknown magnitude include West Nile virus and the sudden oak death tree disease (USFWS 2011a). Though loss of habitat due to timber harvest has been greatly reduced on federal lands over the past two decades, many populations of spotted owls continue to decline, even with extensive maintenance and restoration of spotted owl habitat in recent years. Although managing sufficient habitat is important for the spotted owl's recovery, securing habitat alone will not recover the spotted owl. Competition from the barred owl poses a significant and complex threat to the spotted owl (USFWS 2011b). Rodenticides used by marijuana growers are also impacting northern spotted owls, which primarily feast on rodents rather than a wider range of prey. One study of dead owls by University of California researchers found that 50 percent tested positive for rat poison (Earth Island Journal 2013).

Terrestrial

In addition to the species above that are listed under the ESA, state listed species that may be cumulatively affected include Pacific fisher (*Martes pennanti pacifica*), Sonoma tree vole *(Arborimus pomo)*, southern torrent salamander *(Rhyacotriton variegatus)*, and Pacific gilia *(Gilia capitata ssp. Pacifica)*. The fisher is considered absent from or extremely rare in up to 43 percent of historical range encompassing the coast redwood area of California from Marin County to southern Humboldt County. By the early 1990s, fisher populations declined extensively due to fur trapping. Habitat loss and modification from timber activities described above, as well as land use changes related to mining and grazing, also resulted in population declines (CDFW 2010). A Habitat Conservation Plan (HCP) developed in 1988 provides protection for the fisher on forest lands near Scotia, which could include the Van Duzen River Basin to the east (USFWS 2013b).

The Sonoma tree vole has experienced extensive loss and fragmentation of habitat within its range. Timber harvest and clearing of trees for agriculture and home sites have substantially reduced available habitat and fragmented populations. Construction of roads and power lines has also contributed to the loss of habitat and fragmentation and isolation of populations (CDFW n.d.b).

The southern torrent salamander has been impacted by the rapid loss of late serial forests due to timber harvesting (Welsh and Lind 1996). Localized population decreases have subjected the salamander to extirpation due to past forest management activities. Ninety percent of the total range of the southern torrent salamander has undergone rapid and large-scale harvesting of timber or has potential to be

harvested, and lack of protection for the species on those lands places the viability of the species at risk. Localized extinction as a result of continued timber harvest, habitat degradation and fragmentation, and genetic isolation has led to petitioning for listing the species under the ESA. The HCP mentioned above for the fisher and a Candidate Conservation Agreement developed in 2007 provide specific protection measures for the salamander in Humboldt and Trinity Counties (USFWS 2013c).

The same past actions described for other resources, such as logging, have had adverse effects on the Pacific gilia through direct mortality and habitat destruction. Currently, the Pacific gilia is threatened by development, recreational activities, road construction, and logging (CNPS 2010). The Six Rivers National Forest has a goal to manage sensitive plant species to "maintain the health and well-being of threatened, endangered and sensitive species and their habitats." While the USFS does not specifically list the Pacific gilia for protection, the Forest Service does include a goal to "manage other botanical resources on a sustainable basis" (USFS 1995). Within the Van Duzen River Basin, the plant has been found in the vicinity of Bridgeville on the north side of the Van Duzen River and SR 36, and near the intersection of SR 36 and Highway 101 (UCJEPS 2013).

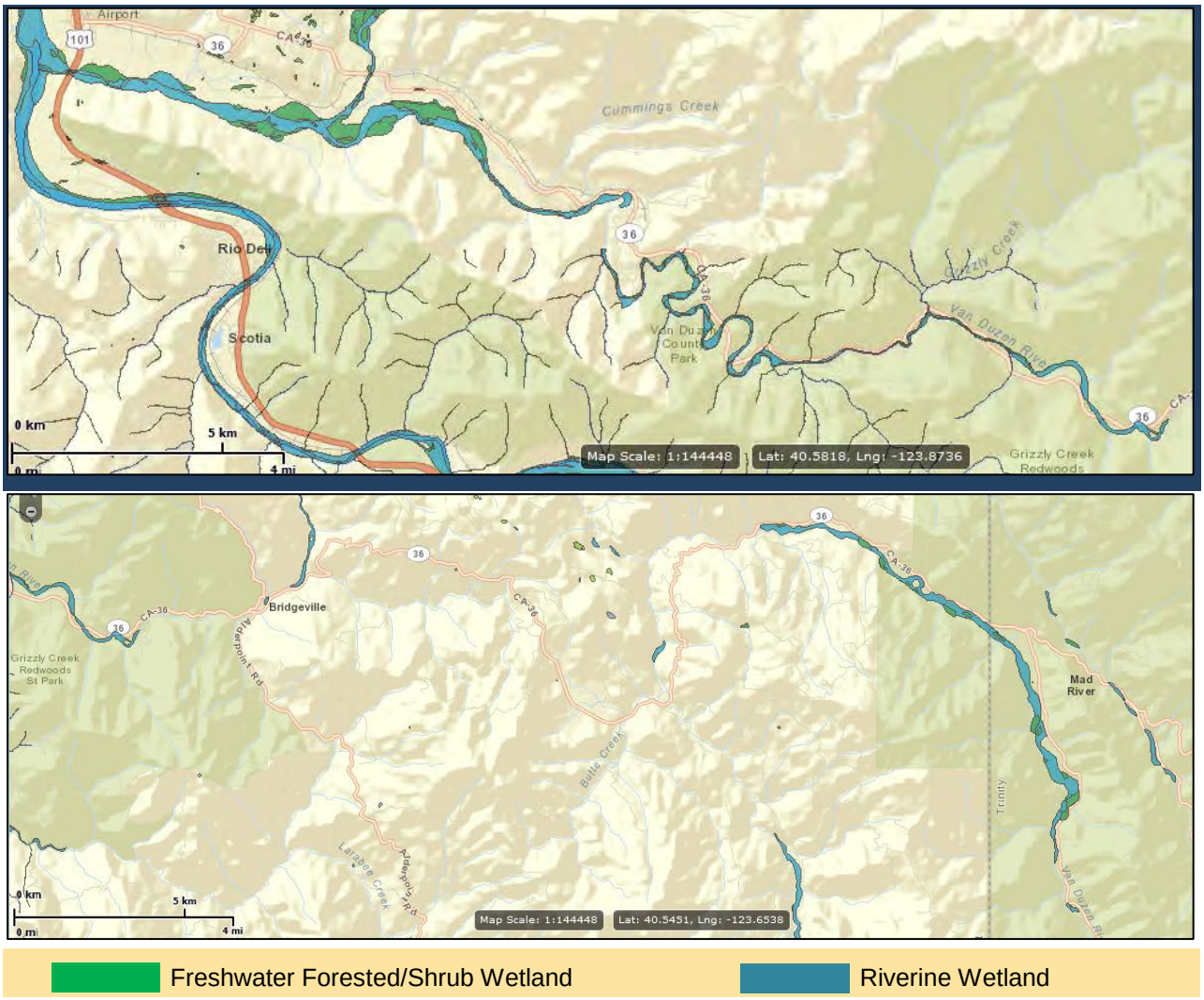
The *Six Rivers National Forest Land and Resource Management Plan* developed in 1995 emphasized maintaining and restoring ecosystem health. The plan included an Aquatic Conservation Strategy to restore and maintain ecological health of watersheds and aquatic ecosystems. The plan also designated Special Habitat and Managed Habitat Management Areas to provide habitat for species dependent on late-successional and old-growth forests, including threatened and endangered species (USFS 1995).

Wetlands

The past actions described for Water Resources, above, have also affected the area's wetlands. Federal, state, and local policies to drain, fill, or convert wetlands to more "productive" use was prevalent in California as recently as the 1970s. Many of California's wetlands were converted to agricultural and urban uses, and water that had naturally flooded the wetlands was diverted for other needs. California has experienced an 85 to 90 percent reduction in wetlands statewide, representing the greatest percentage loss in the nation (CA Resources Agency 1998).

U.S. Fish & Wildlife Service National Wetlands Inventory data shows that wetlands in the study area generally follow the Van Duzen River and its tributaries, sometimes paralleling or crossing SR 36 (see Figure 27). This particularly occurs from Carlotta east to approximately Fish Creek, and from approximately 1.0 mile west of Dinsmore to the intersection with Van Duzen Road (CR 511). Larger areas of wetlands occur on the east end of SR 36 from Highway 101 to Flanigan Creek (just east of Carlotta), but are located approximately 500 feet or more from the roadway. Wetlands cross the roadway at five creek crossings within the study area, primarily at the eastern end of the study area (USFWS 2013a).

Figure 27: Nationals Wetlands Inventory Map



Source: USFWS 2013a

California has enacted legislation to address loss of wetlands in the state, and has much broader jurisdiction to regulate water resources than the federal government. California's 1993 Governor's Executive Order W-59-93 (i.e., the "California Wetland's Policy") requires "no net loss of wetlands" (CRWQCB 2006). This policy was enacted to "ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California" (CNRA 1998). Although several roadway improvement projects were implemented in the past 10 years to repair or upgrade sections of SR 36 within the study area, any resulting impact to wetlands would have been mitigated in compliance with this policy, resulting in either no net loss of wetlands or a potential gain.

Present and Other Reasonably Foreseeable Future Actions

This section identifies other current and reasonably foreseeable future transportation and non-transportation actions within the study. Identified transportation projects are summarized in Table 49 and other types of actions are discussed as they relate to each of the resources included in this analysis.

The focus is on actions that are likely or probable, rather than merely possible, as directed by FHWA guidance.

Table 49: SR 36 Roadway Projects

Year	SR 36 Roadway Projects
2013	• Near Bridgeville, 2 miles west of Van Duzen River Bridge. Emergency repair of damage from heavy rain November 2012: remove materials from plugged culvert, install I-beams at culvert inlet, repair roadway surface, reconstruct guardrail and slopes, and install erosion control measures. • Near Forest Glen, 1.0 mile west to 0.7 mile west of Glen Creek Road: Remove and replace existing structural section to improve pavement profile.
2012	• Major damage restoration near Swains Flat, 1.3 to 3.9 miles west of Van Duzen River (~5 miles): reconstruct roadway and drainage. • Major damage restoration near Bridgeville, 0.1 mile west of McClelland Mountain Road River Bridge: Stabilize roadway. • Major damage restoration near Dinsmore, 0.1 mile east of SFK Van Duzen River Bridge to 0.1 mile east of Van Duzen River Bridge (~5 miles): Reconstruct roadway and drainage. • Major damage restoration near Dinsmore, 1.2 miles west of Humboldt-Trinity County line: Repair slide. • Near Bridgeville, 2 miles west of Van Duzen River Bridge: remove slide debris and repair roadway. • Near Carlotta, construct left-turn lane at Wilder Road. • Near Forest Glen, 0.5 to 0.1 mile west of Route 3: improve curve. • Various routes: construct roadside paving, access gates, and relocate facilities.
2011	• Near Bridgeville, 0.7 mile west of Post Office to 0.3 mile east of Little Larrabee Creek Bridge: repair slipouts and slope failures at four locations damaged by heavy rainfall. • Rehabilitate 37.2 lane miles near Hydesville and near Bridgeville. (No indication of how many miles per area.) • Repair storm damage near Bridgeville. • Repairs near Carlotta, 1.7 miles east of Highway 101 to Van Duzen River Bridge; also near Bridgeville from Van Duzen River Bridge 59 1.7 miles east of Little Larrabee Creek Bridge
2010	• In Carlotta, Wilson Lane to west of Cummings Creek Road: widen shoulders.
2008, 2009	• Near Bridgeville, 0.6 to 0.8 mile east of Van Duzen River Bridge: repair slip out. • Near Bridgeville, 3.8 to 4.3 miles east of Little Larrabee Creek Bridge: repair slip out. • Near Bridgeville, 0.1 mile west of Van Duzen River Bridge. Repair slip out. • Near Bridgeville, 1.0 mile west of Van Duzen River Bridge: Repair slip out. • Near Forest Glen, 1.3 miles to 0.9 mile west of Wild Mad Road: Realign curve improvement.
2004, 2006	Near Carlotta, 0.7 mile to 2.5 miles east of Post Office: widen shoulders.
2003	Near Carlotta, 0.6 mile to 2.6 miles east of Post Office: Widen shoulders.

Source: Caltrans n.d.

Actions Affecting Water Quality

Currently, timber harvesting continues throughout the Van Duzen River Basin, with the least amount occurring in the Upper Sub-basin (which is where the project area is located). Legacy sediment sources from the 1955 and 1964 floods continue to yield sediment, which can be excessive. Gravel mining occurs downstream in the lower Van Duzen River. Road restoration is ongoing, particularly on steep slopes in close proximity to stream channels. However, Forest Practice Regulations have created new harvest-related road construction standards to minimize hill slope erosion. Several miles of roads have been improved, but many still need improvements to reduce erosion and sediment delivery to streams, as several recent landslides have resulted from prior road construction practices (CWP 2012).

The conversion of agricultural and timberlands to non-farm uses is a major on-going development trend within Humboldt County. Humboldt County's 2012 *General Plan* promotes a more efficient use of resources and seeks to preserve rural resources. Although this plan is being updated, the current strategy is to invest and grow the county's nine base industries: forest products, education and research, tourism, niche manufacturing, dairy and dairy processing, specialty agriculture, fisheries, information technology, and arts and culture (Humboldt County 2012a, b). Such changes in land use will likely benefit water quality and related natural resources.

California's North Coast Regional Water Quality Control Board "has serious concerns about the water quality impacts from the dramatic increase in [marijuana] growing activity on both public and private land." In response to this concern, the NCRWQCB is developing a permit category for medicinal marijuana as part of its Agricultural Lands Discharge Program to provide authorization for discharges of waste if water quality protection measures are met. This will provide permit coverage for growing operations on private lands; discharges of waste on public lands are not authorized (NCRWQCB 2013).

Actions Affecting Visual Resources

The character of the surrounding landscape has remained rural. The county protects agricultural lands by encouraging continued agricultural production and discouraging conversion to residential, commercial, or industrial uses in the future. Additional policies the county has identified that could influence future actions include the following (Humboldt County 2012a):

- Protection of scenic quality of designated scenic roadways (Humboldt County 2012a).
- Limitation of new billboards to commercial and industrial areas.
- Protection of high-value forest, agriculture, river, and coastal scenic areas.
- Minimization of visible disturbance and interruption of natural features.

The Humboldt County General Plan is currently being updated. Potential changes to these and other policies are unknown.

Humboldt County's population growth rate has returned to a level more consistent with historic growth rates over past 20 years. The county's population is expected to increase by approximately 9.2 percent from 2010 to 2030, with higher development potential in urban areas. Although growth is expected to continue, the growth rate will be lower than the current rate (Humboldt County 2012a). Therefore, visual resources are not expected to noticeably change in the future based on population growth due to the area's primarily rural nature.

Actions Affecting Wild and Scenic Rivers

The same actions described for water quality, visual resources, and special status species can also be expected to potentially affect the Van Duzen River's scenic designation. Continued timber harvesting and pollution from marijuana growers will likely have an adverse effect on the river's scenic characteristics. However, Forest Practice Regulations and protections directed toward special status species, such as restoring oak-woodland ecosystems (described below), will benefit these characteristics.

Actions Affecting Special Status Species

Drought conditions associated with climate change may become more severe and more common, reducing the amount of water at salmonid lifecycle stages. Stronger winter storms could increase sediment loads and impact spawning habitat (CWP 2012).

Humboldt County watersheds are within the National Marine Fisheries' Southern Oregon/Northern California Coast Salmon and Steelhead Recovery Domain and are a part of Five Counties Salmonid Conservation Program (5C's Program). Recovery of Coho and Chinook salmon, and steelhead populations is a priority (Humboldt County 2012a), which would result in beneficial future impacts to these species.

State Forest Practice Rules and the USFS *Northwest Forest Plan* guidelines protect riparian zones, near stream forests, and aquatic habitat. In addition, HCPs prepared by some downstream industrial timber companies incorporate additional protection measures for steam habitats (CWP 2012). These plans, and those described above for state listed species, will have future beneficial impacts on special status species. The U.S. Fish & Wildlife Service (USFWS) *Recovery Plan for the Northern Spotted Owl* (2011) includes actions to help restore the species and its habitat and eliminate or reduce the effects of threats so that it no longer requires listing on the ESA (USFWS 2011b).

Six Rivers National Forest is currently preparing a categorical exclusion to stormproof forest roads in Mad River Ranger District to bring roads to current standards to withstand large storm events with minimal damage to roads and aquatic resources, including listed salmon and steelhead species. Proposed future activities include grading, out sloping, culvert cleaning and replacement, slope stabilization, and other heavy road maintenance activities. Six Rivers National Forest is also currently preparing an environmental assessment for forest-wide aquatic restoration, including the Mad River Ranger District. The project will address recovery actions for listed salmonids and aquatic habitat restoration, including riparian treatments, large wood debris recruitment and placement, off-channel winter rearing habitat, and invasive species management. In addition, the Mad River Ranger District may implement the Buck Mountain Vegetation and Fuel Management Project (currently on hold). The project would accelerate late-successional forest characteristics, reduce excessive fuel loading, and improve and restore forest ecosystem health. Actions include commercially harvesting timber, planting and restoring oaks woodlands, improving non-commercial timber, and conducting fuel treatments. The project would develop and protect habitat for the northern spotted owl, reduce road density, reduce sediment levels, and benefit aquatic habitats (USFS 2013b). Beneficial impacts to special status species would result from these projects when they are implemented in the future.

The USFS Pacific Southwest Region's *Ecological Restoration Implementation Plan* (2013) includes restoring oak-woodland ecosystems to address prior vegetation impacts to wildlife for Six Rivers

National Forest. The plan also includes watershed/fisheries restoration actions and Upper Mad River Watershed Restoration Action Plans (WRAPs). Upper Mad River WRAP includes road upgrading/decommissioning, fuel reductions and fuel treatments, and timber sales (USFS 2013a). These future actions would have a beneficial effect on special status species.

The Coastal Watershed Planning and Assessment Program (CWPAP) under the California Department of Fish and Wildlife recommends the following actions for the Little Van Duzen River (CWP 2013a), all of which represent potential future beneficial impacts:

- Improve fish passage by modifying debris accumulations.
- Insure that water diversions used for domestic or irrigation purposes bypass sufficient flows to maintain all needs of fishery resources.
- Reduce water temperatures.
- Continue to identify and reduce sources of sediment delivery to stream channels from road systems.
- Stabilize eroding stream banks with appropriately designed structures and/or by planting vegetation.
- Increase depth, area, or shelter complexity in pools.
- Design and install pool forming structures to increase the number of pools.
- Consider planting near stream areas to increase streamside shade canopy.
- Conduct relative abundance and distribution surveys for juvenile steelhead and resident trout.
- Monitor water temperature.
- Monitor suspended and in-channel stored sediments.
- Conduct stream habitat surveys.

The USFS Pacific Southwest Region's *Ecological Restoration Implementation Plan* (2013) includes ecological restoration on the Six Rivers National Forest to help make the landscape resilient to natural disturbances such as wildfires, floods, and droughts. Although the plan does not specifically mention restoration efforts for the Pacific gilia, actions taken to improve the health of the landscape in general, such as restoring uplands and meadow systems, decommissioning roads, and managing fire, are also expected to indirectly benefit the Pacific gilia.

Actions Affecting Wetlands

The same actions described for *Water Resources*, above, also apply to wetlands.

3.24.4 Environmental Consequences

The environmental consequences of the No Build and Preferred Alternative on individual resources are presented throughout this EA/IS. Included below are the overall cumulative impacts that may be anticipated when the project's effect are combined with other past, present, and reasonably foreseeable future actions.

No Build Alternative

Implementation of the No Build Alternative would result in a continuation of current roadway conditions and ongoing maintenance actions. The No Build Alternative does not resolve existing problems on SR 36

as set forth in Chapter 1. Because the No Build Alternative would not involve any construction or changes to the area of influence, no cumulative impacts would occur as a result of selecting this alternative.

Preferred Alternative

Water Resources

When combined with the other past, present, and reasonably foreseeable future actions, the proposed project would contribute cumulatively to increased impervious surface, which can result in increased stormwater runoff and sedimentation. However, the overall length of road would be decreased by straightening tight curves, minimizing the net new impervious area, which would not be substantially more than existing conditions (an additional 1.9 acres). In addition, the water quality BMPs and mitigation measures proposed in the *Water Quality and Storm Water Runoff* section would remove substantial amounts of sediment from highway runoff, reducing or eliminating impacts. Installation of sand trap drop inlets, vegetated swales, and vegetated buffers would help prevent debris from being washed into nearby drainages. Therefore, the project would cumulatively contribute minimal, if any, impacts to water resources. The other transportation projects shown in Table 49 focus primarily on repair and restoration, with the long-term beneficial effect of reducing impacts to water resources from erosion. In addition, several future restoration actions are expected to help offset the adverse impacts of past actions, cumulatively benefiting water resources throughout the study area.

Visual Resources

When combined with the other past, present, and reasonably foreseeable future actions, the proposed project would contribute cumulatively to degraded visual quality. The project's proposed concrete-covered cut slopes would be the most visually inconsistent elements, as such structures are uncommon along SR 36, and would create a greater intrusion onto views of nature than the existing natural-surface cut slopes. The introduction of additional rock buttresses along SR 36 would also exacerbate the already degraded visual quality of the corridor as they are highly visible to motorists. Rock buttresses seem to have been applied along SR 36 during emergency road repairs for slope stabilization and it is reasonable to anticipate this may occur in the future as well.

As shown in Table 49, several transportation projects have occurred along SR 36, focused primarily on repair and restoration of short sections of roadway. Taken together, these actions and those proposed under this project would result in a moderate adverse impact to the corridor's visual resources, particularly east of the project area, where variable topography has resulted in installation of several rock buttresses in the past. Highway repair or restoration activities that introduce retaining walls or other obvious visual elements would continue to modify the corridor's character over time. Future projects that involve large areas of earth movement, cut and fill, and walls or rock buttresses could further degrade visual resources. However, it is expected that views would continue to be dominated by the natural landscape, particularly west of the project area where flatter terrain would require fewer cuts and retaining structures. Varying topography within and east of the project area would continue to provide travelers with distant views and landscape transformations as vegetation changes with altitude. Measures taken by this project to carefully select materials to blend with the surroundings and by re-vegetating slopes would help to reduce this project's contribution.

As natural resource restoration projects continue and agriculture remains the primary land use within the study area, past visual impacts from logging and other human activities would be cumulatively reduced. SR 36 from SR 101 to SR 3 is anticipated to remain eligible for California Scenic Highway designation.

If construction activities for other future transportation projects occur simultaneously with this project, visual resources would experience an adverse cumulative impact from the presence of construction vehicles and debris. The degree of impact in the short term would depend on the number and extent of other projects occurring simultaneously.

Wild and Scenic Rivers

Because the project would not have an adverse impact on the free flowing characteristics of the Van Duzen River or alter the segment's ability to meet the criteria of a scenic river under the Wild and Scenic Rivers Act, no cumulative impacts would result.

Special Status Species

When combined with the other past, present, and reasonably foreseeable future actions, the proposed project would contribute cumulatively to impacts on the Chinook salmon, SONCC Coho salmon, and NC steelhead. However, these effects are not expected to be adverse, resulting in a minimal cumulative contribution to special status species in the study area. As restoration projects within the study area continue, past impacts from logging and other human activities would be cumulatively reduced.

Adverse impacts to the Northern spotted owl (NSO) are expected from this project. When combined with the other past, present, and reasonably foreseeable future actions, the proposed project would contribute cumulatively to impacts on the NSO, which continues to decline despite extensive maintenance and restoration activities. The removal of approximately 18 acres of nesting/roosting habitat and approximately 29 acres of foraging habitat under this project would result in an adverse cumulative impact when combined with the numerous other threats to the owl. Measures to reduce impacts are identified in the *Threatened and Endangered Species* section and were included in consultation with the USFWS. This impact translates into a loss of 0.6 percent and 0.2 percent respectively of the available habitat in that area. Approximately 760 acres of combined nesting/roosting and foraging habitat would remain within the core area of the activity center.

The Pacific fisher, Sonoma tree vole, ring-tailed cat, Townsend's big-eared bat, long-eared myotis, foothill yellow-legged frog, Pacific tailed frog and southern torrent salamander have all experienced declines as a result of past actions, particularly habitat destruction due to logging and agricultural use. Effects to these species are expected from this project as a result of tree cutting (lost habitat) and sedimentation, as well as potential noise disturbance effects. Impacts will be minimized through timing of vegetation removal activities, preconstruction surveys, revegetation efforts of temporarily impacted areas, and aggressive erosion and sediment controls during construction. Combining the adverse effects from both past actions and the proposed project would result in adverse cumulative impacts on these species, despite recent and future management actions to help protect them. However, this project's contribution would be negligible with avoidance and minimization measures and would not result in overall significant cumulative impacts.

If construction activities for other future transportation projects occur simultaneously with this project, special status species would experience an adverse cumulative impact from the presence of construction vehicles and human activity. Species such as the NSO may avoid the corridor altogether depending on the number and extent of other projects occurring simultaneously.

Wetlands

When combined with the other past, present, and reasonably foreseeable future actions, the proposed project would contribute cumulatively to wetlands and waters of the U.S impacts. As shown in Table 49, several transportation projects have occurred along SR 36, focused primarily on repair and restoration of short sections, with potential to affect wetlands in those areas. However, regulated actions that have occurred along SR 36 in the past 10 years were required to comply with the "no net loss" of wetlands policy, described above. It is recognized that unregulated activities may have negatively impacted the resource; however, these impacts unfortunately cannot be quantified. The proposed mitigation associated with this project, both onsite and the potential offsite mitigation, replace impacted lower quality wetlands with higher functioning wetlands in the Van Duzen River Basin. This project would therefore not contribute to an overall reduction of wetlands and waters of the U.S. after wetland mitigation is complete, and overall significant cumulative impacts would not result.

3.24.5 Avoidance, Minimization, and/or Mitigation Measures

The Preferred Alternative would not result in cumulative significant impacts; therefore, no additional mitigation is proposed. Avoidance, minimization, and/or mitigation measures identified for this project are included under each individual resource and summarized in Appendix E, Summary of Avoidance, Minimization, and/or Mitigation Measures.

3.25 CLIMATE CHANGE

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation." "Greenhouse Gas Mitigation" is a term for reducing GHG emissions to

reduce or "mitigate" the impacts of climate change. “Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[4].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively. [5]

3.25.1 Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California’s GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California

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

[5] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level GHG analysis. [6] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment

[6] To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[7]

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

3.25.2 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[8] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the

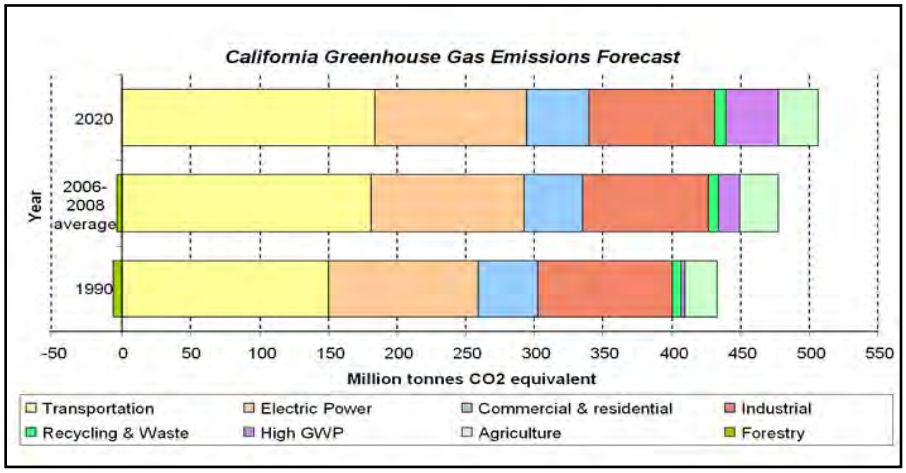
[7] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

[8] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 28: California Greenhouse Gas Forecast



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

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[9]

The purpose of the proposed project is to enhance traffic safety while improving mobility for vehicular travel along SR36. As the project involves widening of lanes and shoulder to design standards, it is not considered a capacity increasing project. Though improved safety with wider lanes and shoulders as well as reduced curves is expected to lead to minor increases in traffic volumes (approximately 5%), it is not expected that overall operational GHG emissions will increase as a result.

One of the key strategies in reducing GHG emissions is to improve and make the transportation system within the state more efficient. The proposed improvements will enhance the operation of

[9] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

approximately four miles of roadway. Realigning sharp curves and providing a constant width roadway will allow for vehicles to travel safer and more efficiently with less braking and more consistent speeds.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site 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 GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Specific measures will also be incorporated into the project plans and specifications for the construction phase that would aim to minimize construction GHG emissions. These include measures such as requirements for the contractor to ensure that all construction equipment is property tuned and maintained, to minimize idling time to save fuel and reduce emissions, and to use existing power sources or clean-burning fuel generators to the extent possible rather than temporary power generators.

3.25.3 CEQA Conclusion

While the project will result in a slight increase in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. While it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Figure 29: Mobility Pyramid

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 29: The Mobility Pyramid.

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

Caltrans is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 50: Climate Change/CO_2 Reduction Strategies
summarizes Caltrans' and statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 50: Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons (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 Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG 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, ARB, 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 0.045 0.0225
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	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)[10] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- The contractor must comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions.
- All construction equipment will be property tuned and maintained.
- Idling time of construction equipment will be minimized to save fuel and reduce emissions, in conformance with applicable local air quality regulations.
- Existing power sources or clean-burning fuel generators will be used to the extent possible rather than temporary power generators.

In addition, the county has implemented many air quality improvement programs and emission reduction programs through the Humboldt County General Plan that are designed to minimize operational emissions for the county and the air basin, all of which reduce GHG emissions (HCAOG 2008).

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, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from 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.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011[11], outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate

[10] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

[11] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

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

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)[12], which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report[13] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington 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.

[12] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF

[13] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are 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. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

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

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 effects, the Department 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 needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

4.0 COMMENTS AND COORDINATION

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process required by NEPA. The process can aid in defining the scope of the environmental documentation and the level of analysis by identifying public and agency concerns. Coordination with the general public and public agencies for this project has been accomplished through a variety of formal and informal methods. This chapter summarizes the results of this effort.

The scoping process involves informing agencies, interested citizens, and organizations of the proposed action, conducting interagency scoping meetings, and holding public scoping meetings. Agency and public comments received during scoping were used to identify issues and alternatives, evaluate alternatives, modify and improve the analysis, and contribute to decision making. An initial scoping letter, describing the proposed project and alternatives, inviting agencies to the scoping meeting, and soliciting comments on the project was sent out in November of 2012 to the following agencies:

Federal

- National Oceanic and Atmospheric Administration- National Marine Fisheries Service (NOAA-NMFS)
- United States Army Corps of Engineers (USACE)
- United States Fish and Wildlife Service (USFWS)
- United States Forest Service (USFS)

State

- California Highway Patrol (CHP)
- California Department of Fish and Wildlife (CDFW)
- California Department of Parks and Recreation (CDPR)
- California Department of Transportation (Caltrans), District 1
- Department of Forestry and Fire Protection (CalFire)

County

- Humboldt County Board of Supervisors, Second District
- Humboldt County Sheriff

Local Organizations

- Dinsmore Airport
- Highway 36 Association
- Humboldt County Association of Governments (HCAOG)
- Ruth Lake Community Services District
- Sierra Club

- Wilderness Society

A public scoping meeting for the project was held on Tuesday, December 4, 2012 at the Bridgeville School gymnasium located at 38717 Kneeland Road in Bridgeville, California. The meeting was held in an open-house format, with a short presentation and question and answer period from 6:30 p.m. to 7:00 p.m. Thirty-three individuals signed in at the meeting and project team members were present from FHWA, Caltrans, Six Rivers National Forest and FHWA's project consultant, Jacobs Engineering.

The meeting was publicized in the Times-Standard print newspaper, the North Coast Journal, Arcata Eye, Lost Coast Outpost, and Two Rivers Tribune web publications. A press release was distributed to KIEM TV and KMUD, KGOE, KATA, KHUM, and KRED radio stations. The meeting was placed on the community calendars on KEET, KCVU, KRCR, and KAEF television channels, and KINS and KSLG radio stations. In addition, 170 newsletters were mailed to residents and businesses in the vicinity of the project in November 2012 (see Appendix B). The link for the project web page (http://www.cflhd.gov/projects/sr36improvements) was included in the newsletter.

Members of the public were provided several ways to provide comments about the proposed project including:

- completing a comment card enclosed with the initial newsletter announcing the public meeting
- emailing comments, submitting comments through the project website
- completing a comment sheet and submitting it at the public meeting
- completing a comment sheet and mailing/faxing it following the meeting
- providing verbal comments at the public meeting

The general topics of concern and comments provided by the public are summarized below:

- support for widening the road and straightening the curves to improve safety
- support for passing lanes and paved turn outs to improve traffic flow
- concern that the proposed improvements would not improve safety
- opposition to reconstructing SR 36 to serve as a major highway or truck route
- concern about the proposed improvements increasing traffic on the route
- concern about high vehicle speeds and the need for better enforcement of the speed limit
- need for improved signage regarding curves and advisory speed limits
- preservation of the scenic quality of the area
- private property impacts of the proposed project

Correspondence with various federal, state and local agencies and organizations occurred to solicit concerns and issues with the proposed project. Correspondence is categorized by subject below and pertinent correspondence appears in Appendix B.

Biological Resources

Coordination and correspondence with the USFWS, which has jurisdiction over federal threatened and endangered species, occurred between April and June of 2013. A biological opinion dated May 21, 2014 was issued by the USFWS with regards to the northern spotted owl for project-related impacts.

Email correspondence with the NOAA-NMFS, which has jurisdiction over marine resources, occurred in early November 2012 regarding potential fish species that may be present or impacted by the project in the Van Duzen River and its tributaries. Informal Section 7 consultation occurred with the NOAA-NMFS with regards to the southern Oregon/northern California coastal (SONCC) Coho salmon, California coastal (CC) Chinook salmon, and northern California (NC) steelhead for project-related impacts.

Coordination also occurred throughout 2014 with CDFW in relation to appropriate avoidance, minimization, and mitigation measures with respect to special status wildlife and rare plants.

Wild and Scenic Rivers

A coordination meeting with the California Natural Resources Agency (CNRA) occurred on November 20th, 2013 to assess the jurisdiction of the CNRA under the Wild and Scenic Rivers Act and discuss potential project impacts on the Van Duzen River. In February of 2014, the CNRA determined that the project would not trigger the jurisdiction of the CNRA under the Wild and Scenic Rivers Act.

Cultural Resources

Written correspondence with the Humboldt County Historical Society, Eureka Heritage Society and the Clarke Historical Museum occurred in September of 2013 to solicit feedback and comments on the proposed project. The Humboldt County Historical Society issued comments back to FHWA, and no concerns about the project were raised.. FHWA also initially contacted the California Native American Heritage Commission (NAHC) to request a review of its Sacred Lands file and to obtain a list of individuals or tribes that the Commission recommends should be contacted regarding information or concerns related to the project. The following individuals and/or tribes were provided information about the project: Bear River Band of Rohnerville Rancheria, Inter Tribal Sinkyone Wilderness Council, Redding Rancheria, Round Valley Reservation/Covelo Indian Community, Fred “Coyote” Downey, Wintu Tribe of Northern California, Nor-Rel-Muk Nation, Eel River Nation of Sovereign Wailaki, and Wintu Education and Cultural Council. FHWA has received responses from three individuals. A member of the Wintu Education & Cultural Council of Northern California requested the opportunity to comment on the project, and the Tribal Historic Preservation Officer of Bear River Band of Rohnerville Rancheria requested that copies of the archaeological studies be provided. A member of the Wintu Tribe of Northern California did not request additional information, but appeared interested in the project. A copy of the Historic Property Survey Report and its attachments were provided to all three of these individuals for review and comment. One written response was received on April 28, 2014 from the Bear River Band of Rohnerville Rancheria acknowledging review of the report and that they had no concerns. No written comment was received from the Wintu Education & Cultural Council; however, a comment was shared with FHWA regarding concerns for other tribes and a lack of affiliation with the project area.

The request for concurrence on the APE and determination of effects was transmitted to SHPO along with the cultural reports prepared for this project on March 26, 2014 (cover letter included in Appendix

B). In a response letter dated April 29, 2014, the CA SHPO concurred with FHWA's eligibility determinations and concurred with the effect finding of No Historic Properties Affected for the undertaking (see Appendix B).

Farmlands

Coordination with the Natural Resources Conservation Service (NRCS) was conducted via email correspondence in September and October of 2013 to determine impacts to NRCS designated prime farmlands. NRCS determined that there would be no impacts to NRCS designated farmland under the Preferred Alternative. The completed CPA-106 form is included in Appendix D.

Wetlands

Coordination with the USACE and the RWQCB regarding waters of the U.S. and waters of the State in the project area occurred before and after the field delineation. The RWQCB attended a site visit with FHWA-CFLHD on March 6, 2014.

Public Review of Environmental Document

This IS/EA was circulated for public and agency review for a 30-day period, from July 10 to August 8, 2014. The EA/IS was available online at www.cflhd.gov/sr36improvements. Hard copies of the EA/IS were also available at the Caltrans District 1 offices at 1656 Union Street, Eureka, CA; the Mad River Ranger District at 741 State Highway 36 Bridgeville, CA; and the Humboldt County Public Library - Eureka Main Branch at 1313 3rd Street, Eureka, CA and Fortuna Branch at 753 14th Street, Fortuna, CA. A Notice of Completion was prepared and submitted to the California State Office of Planning and Research State Clearinghouse pursuant to CEQA on July 9, 2014. Notices of availability of the IS/EA and Proposed MND and the public hearing were distributed to the project mailing list, published in the Times-Standard newspaper, and published in the following web publications: North Coast Journal, Lost Coast Outpost, Arcata Eye, and Two Rivers Tribune. Notices were also posted at the local community centers in Bridgeville, CA and Mad River, CA.

Following release of the EA/IS, a public hearing was held in the community of Mad River, CA, on July 29, 2014 at the Ruth Lake Community Hall from 6:30 p.m. to 8:30 p.m. The purpose of the public hearing was to provide all interested persons the opportunity to comment on the project. A total of 18 people attended the public hearing, which was facilitated by representatives from FHWA-CFLHD, Caltrans, Six Rivers National Forest, and the consultant team. Maps, displays, and copies of the EA/IS were available at the hearing. A presentation began at 6:30 p.m., followed by public testimony. A certified court reporter was available to take oral statements. Comments were also accepted via postal mail and email to the CFLHD project manager from July 10 to August 8, 2014.

No written statements were collected at the public hearing. A copy of the public hearing transcript is included in Appendix G. A total of six individuals provided comments orally either through the open forum or individually to the court reporter. In addition to some questions being asked at the hearing, comments made at the public hearing generally included the following:

- General support was expressed for the project
- Safety improvements are much needed
- Widening and straightening the road would cause people to drive faster

- Consideration of timing of construction traffic delays and closures and need for advanced notification
- Night work should be considered
- Concern regarding speed limits and speed signage

These comments and responses to each comment are presented in Appendix F. The entire public hearing transcript is included in Appendix G.

Three individuals provided comment on the EA/IS through email or regular mail. One commenter expressed opposition to the project stating the project was unnecessary and too costly. Two other commenters expressed support for the need of the project and commented on individual issues or considerations for the project such as: domestic water supplies potentially being affected; water quality effects from erosion and sediment; bicyclists and pedestrians using the road; emergency access during construction; safety concerns regarding speed limit, signage, rumble strips, needing turnouts and passing lanes; retention of scenic qualities; consideration of landslides; wild and scenic rivers; illegal access to river across private property; and slope stabilization. Responses to these individual comments are also presented in Appendix F. As a result of the public comment, one clarification to the text of the EA/IS was made in two locations on pages 30 and 81.

Two agencies also provided written comment on the EA/IS; one comment letter was received from the Native American Heritage Commission, and one was received from the North Coast Regional Water Quality Control Board. These letters have been added to Appendix B, Agency Coordination and the comments/responses are also included in Appendix F.

5.0 LIST OF PREPARERS

The following individuals contributed to the preparation of this EA/IS:

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The following technical reports have been prepared in support of this project and are summarized in this EA/IS:

Archaeological Survey Report for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California. Prepared by Far Western Anthropological Research Group, Inc. for Jacobs Engineering Group. January 2014.

California State Route 36 Improvement Project Air Quality Technical Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. March 2014.

California State Route 36 Improvement Project Biological Assessment (Aquatic). Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. April 2014.

California State Route 36 Improvement Project Biological Assessment (Terrestrial Wildlife). Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. January 2014.

California State Route 36 Improvement Project Biological Evaluation. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. April 2014.

California State Route 36 Improvement Project Community Impact Assessment Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. March 2014.

California State Route 36 Improvement Project Cumulative Impact Assessment Memorandum. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. April 2014.

California State Route 36 Improvement Project Initial Site Assessment. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. December 2013.

California State Route 36 Improvement Project Traffic Impact Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. November 2013.

California State Route 36 Improvement Project Traffic Noise Impact Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. March 2014.

California State Route 36 Improvement Project Visual Impact Assessment Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. December 2013.

California State Route 36 Improvement Project Water Quality Assessment Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. February 2014.

California State Route 36 Improvement Project Wetlands, Waters of the U.S., Riparian Areas Delineation Report. Prepared by Jacobs Engineering for Federal Highway Administration, Central Federal Lands Highway Administration, 12300 West Dakota Ave., Lakewood, CO. April 2014.

Extended Phase I and Phase II Archaeological Investigations of CA-HUM-1157 (P-12-2606) for the Van Duzen-Peanut State Route 36 Improvement Project, Humboldt County, California. Prepared by Far Western Anthropological Research Group, Inc. for Jacobs Engineering Group. March 2014.

Historic Property Survey Report for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California. Prepared by Far Western Anthropological Research Group, Inc. for Jacobs Engineering Group. March 2014.

Historical Resources Evaluation Report. CA PFH 4 Van Duzen-Peanut SR 36 Improvement Project, Humboldt County, California. Prepared by JRP Historical Consulting, LLC. For Federal Highway Administration, Central Federal Lands Highway Division, 12300 West Dakota Ave., Lakewood, CO. December 2013.

Paleontologic Identification and Evaluation Report: Van Duzen-Peanut SR 36 Highway Project, Milepost 36.1 To 40.5, Caltrans District 1, Humboldt County, California. Prepared by Paleo Solutions, Inc. for Far Western Anthropological Research Group, Inc. December 26, 2013.

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Appendix A: CEQA Checklist

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
I. AESTHETICS -- Would the project:				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

A Visual Impact Assessment was prepared for the project that assessed the project's effects to visual resources. A portion of the river is protected by the Wild and Scenic Rivers Act, however, the California Department of Natural Resources determined the project "would not have an adverse impact on the free-flowing characteristics of the Van Duzen River or alter the segment's ability to meet the criteria of a scenic river under the Wild and Scenic Rivers Act.

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?	☐	☒	☐	☐

Overall, the Preferred Alternative would result in visual impacts that would degrade the existing visual quality of the project area. Of the seven viewpoints analyzed for changes in visual quality, the Preferred Alternative would result in moderate to high degradation of visual quality for six viewpoints. The avoidance and minimization measures outlined in Chapter 3 would reduce the adverse visual changes to less than significant levels.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II. AGRICULTURE AND FOREST RESOURCES:				
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 nonagricultural use?	☐	☐	☐	☒

Coordination with the NRCS included completion of the Farmland Conversion Impact Rating (NRCS-CPA-106) form. The NRCS determined that no prime, or unique farmland, as defined by 7 CFR 658, exists within the study area.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐

A Community Impact Assessment was prepared for the project that analyzed existing zoning and potential impacts. There would be no impacts to federal or state recognized prime agricultural lands. While several parcels within the study area are currently under Williamson Act contracts, the Preferred Alternative would not affect these parcels. The Preferred Alternative would affect Humboldt County defined prime agricultural land at the temporary construction staging area. This impact would result in temporary disturbance and would not result in loss of the viability of the land.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☒	☐

The Preferred Alternative would result in the conversion of land from Transportation Production Zone (TPZ) to a transportation use. Per California Government Code §51150 et seq. the prohibitions pertaining to acquisition of TPZ lands for public improvements set forth in Section 51152(a) and (b) do not apply to State Highways per Section 51153(f). Conversion of existing timberland uses to a transportation use would occur along or near the existing SR 36 alignment and would not impact the viability of continued timberland use in the area. Overall, the Preferred Alternative would result in minor adverse impacts to existing land uses.

d) Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☒	☐

The Preferred Alternative would result in the conversion of forestland to a non-forest use along or near the existing SR 36 alignment but would not impact the viability of surrounding forestland.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

III. AIR QUALITY

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

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

An Air Quality Technical Report was prepared for the project that evaluated existing air quality conditions, relevant plans and regulations, and project effects. The California Clean Air Act requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan (Clean Air Plan) if the district violates State Ambient Air Quality Standards for O3, CO, SO2, or NO2. No locally prepared attainment plans are required for areas that violate state PM10 standards. The California Air Resources Board is responsible for developing plans and projects that will comply with the state PM10 standards. The North Coast Unified Air Quality Management District (NCUAQMD) is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. This project does not propose a significant number of diesel vehicles or significant increase in diesel vehicles as defined in EPAs Transportation Conformity Guidance. Therefore, a PM_{10} hot-spot analysis is not required and this project would not cause or contribute to any violation of the NAAQS or SAAQS.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐

The Preferred Alternative would exceed applicable thresholds for temporary air quality emissions during construction for particulate matter (PM10) and nitrogen oxides (NOx). Humboldt County is a non-attainment area for one of the SAAQS; reparable particulate matter (PM10). The emissions resulting from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and construction of roadway would contribute to the exceedance in temporary air quality standards. The avoidance and minimization measures outlined in Chapter 3 would reduce the emissions generated during construction to less than significant levels.

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)?	☐	☐	☐	☒

As mentioned above, Humboldt County is a non-attainment area for one of the SAAQS; reparable particulate matter (PM10). This project does not propose a significant number of diesel vehicles or significant increase in diesel vehicles as defined in EPAs Transportation Conformity Guidance. Therefore, A PM_{10} hot-spot analysis is not required and this project would not cause or contribute to any violation of the NAAQS or SAAQS. In addition, this project has been determined to generate minimal air quality impacts for California Clean Air Act criteria pollutants and has not been linked with any special Mobile Source Air Toxics concerns. However, the Preferred Alternative would exceed applicable thresholds for temporary air quality emissions during construction for particulate matter (PM10) and nitrogen oxides (NOx).

d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒

The project would not introduce unsafe levels of pollutant concentrations as discussed in the Air Quality Technical Report for the project.

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

The project would not create objectionable odors in the project area.

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

A Biological Evaluation was prepared for the project that analyzed existing biological resources and the proposed project's effects. One California Native Plant Society (CNPS) state listed species, the Pacific gilia, is present in the project area. The species is rated as "fairly" endangered, threatened, or rare by CNPS. Based on recommendations from CDFW, measures will be implemented to avoid or minimize impact to this species.

Habitat for fourteen state listed special status animal species is present within the project area. The Preferred Alternative is likely to adversely affect the Pacific fisher and the northern spotted owl (which are both candidates for listing under CESA. Additionally, the Preferred Alternative may cause adverse effects to the following sensitive wildlife species as defined by the CDFW:

- ***Southern torrent salamander***
- ***Sonoma tree vole***
- ***northern goshawk***
- ***golden eagle***
- ***Peregrine falcon***
- ***Osprey***
- ***Humboldt marten***
- ***Ring-tailed cat***
- ***Townsend's big-eared bat***
- ***long-eared myotis***
- ***western pond turtle***
- ***Pacific tailed frog***
- ***foothill yellow-legged frog***
- ***Wawona riffle beetle***

Measures identified through consultation with the CDFW and identified in Chapter 3 will reduce project effects to less than significant.

State Candidate Species Impacts under the California Endangered Species Act (CESA)

In 2013 the California Fish and Game Commission changed the designation of three species from Species of Special Concern (SPC) to Candidates for state Threatened or Endangered Species (SC) status: northern spotted owl (December 13, 203), Pacific fisher (March 11, 2013) and Townsend's big-eared bat (December 11, 2013). During the period of their candidacy, unauthorized "take," as defined by the California Fish and Game Code, Section 1-89.1 (hunt, pursue, catch, capture, or kill) is not allowed.

Northern Spotted Owl (NSO): The proposed project is located within an area that has historically been used by the NSO. Numerous NSO observations are recorded in the Spotted Owl Observation Data Set from the California Natural Diversity Database (CNDDB), and three activity centers are located less than a ½ mile from SR 36. NSO surveys for the project area in 2013 identified a resident NSO near the southern portion of the project area, indicating an NSO activity center nearby.

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

Potential impacts include planned vegetation removal, which could impact individuals and decrease the availability of potential habitat; in addition, noise from construction could affect individuals. Take of NSO, as defined by the Fish and Game Code, would be avoided by removing trees and vegetation outside of the NSO nesting season (February 1 to September 15, working from September 16 to January 31). Approximately 2 acres of nesting and roosting habitat would be removed, and 1 acre of foraging habitat would be removed within the core area for the activity center. This translates into a loss of 0.6 percent and 0.2 percent respectively of the available habitat in that area. Approximately 760 acres of combined nesting/roosting and foraging habitat would remain within the core area of the activity center. The amount of habitat removal is very small (<0.0 1 percent) in relation to the total amount of habitat available in the California Klamath province (USFWS 2014).

The Preferred Alternative will not result in state-defined take of NSO. It may reduce habitat available for this species, but the amount is negligible compared to available habitat. During tree removal activities, attempts will be made to avoid removing large, mature trees to the greatest extent practicable to reduce loss of habitat. It will be offset by restoration and revegetation of areas of SR 36 that would no longer be in use. Degraded areas impacted from construction-related activity would be re-planted with local, native species. Use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) would not occur from February 1 – July 9 within 50 meters (165 feet) of the areas identified as NSO nesting/roosting habitat. According to the USFWS, after July 9 auditory or visual disturbances would not be expected to result in abandonment of the breeding effort, disruption of nesting activities, or premature dispersal of juveniles from the nest (USFWS 2014). If construction noise includes blasting, time delay detonation initiators will be used to separate large blasts into a series of discrete, short duration, smaller blasts. This would minimize the potential effects to the species by reducing the amount of elevated noise levels.

Pacific Fisher: The area contains trees with old growth characteristics that would be suitable for the Pacific fisher; however, much of the habitat quality is not ideal. Numerous residences in the vicinity of the project area, as well as past timber clearing activities for harvest or utility line installation, have fragmented the forest cover and degraded the habitat by reducing the amount of overall old-growth. Potential impacts include planned vegetation removal, which would decrease the availability of potential habitat and could impact individuals resting in them; in addition, noise from construction could affect individuals. These impacts will be avoided by conducting tree removal outside of the critical period for fisher, which is March 1st through July 31st; this includes the natal period from March 1st to May 15th and the maternal denning period from May 16th through July 31st (Dunn 2014). If use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) is proposed between March 1st and August 15th, surveys of "suitable habitat" within a 165-foot buffer of the location will be required. Tree and habitat surveys would adhere to standards outlined above. If no suitable habitat trees or suitable roosting structures exist within the 165 foot buffer of the noise source, noise restrictions for the Pacific fishers will be lifted. In addition, prior to tree removal, trees of sufficient size within the project footprint will be evaluated and ranked to assess potential wildlife trees that could provide denning habitat. Trees that meet DBH requirements and have large limbs (greater than 12 inches in diameter), cavities (6 feet high and 2 feet wide), entrances 6 inches high and 12 inches long, hollows, and basal hollows will be considered to be "suitable habitat trees." Trees identified as "suitable habitat trees" will be numbered using tags and marked with paint, and will be systematically removed in a manner to avoid removal of a fisher occupied tree. The Preferred Alternative will not result in harm of Pacific fishers. It may reduce habitat available for species, but the amount is negligible compared to available habitat. It will be offset by restoration and revegetation of areas of SR 36 that would no longer be in use. Degraded areas impacted from construction-related activity would be re-planted with local, native species. Shrubs and herbaceous perennials and annuals would be seeded and planted along riparian corridors where impacts and vegetation removal occur.

Townsend's Big-eared Bat: Suitable habitat occurs within the project area for the Townsend's big-eared bat, which requires large basal hollows, caves, mines, tunnels, buildings, or other structures for maternity roosts. Suitable roosting habitat is less common within the direct project footprint, and there is suitable roosting habitat just outside of the project area. Potential impacts include planned vegetation removal, which would decrease the availability of potential habitat; in addition, noise from construction could affect

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

maternity colonies. Impacts will be avoided by removing tree outside of the reproductive period (April 1st through August 15th). There is also one barn structure that may provide suitable habitat in the project area that may be removed under the Preferred Alternative. This structure will be scheduled for removal outside of maternity roosting season (April 1st through August 15th) to the extent possible. If removal is necessary in the maternity roosting time frame, the structure will be surveyed according to a protocol developed in consultation with CDFW to ensure no bats are disturbed. Furthermore, there are numerous structures just outside the project area which provide suitable roosting habitat for this species. Although construction noise above an Lmax at 50 feet of 90 decibels is not anticipated, if necessary it will be conducted outside of sensitive periods with established buffers as described in Avoidance, Minimization and/or Mitigation Measures (Chapter 3 and Appendix E). The Preferred Alternative will not result in harm of Townsend's big-eared bat; it may reduce habitat available for the species, but the amount is negligible compared to available habitat. It will be offset by restoration and revegetation of areas of SR 36 that would no longer be in use. Degraded areas impacted from construction-related activity would be re-planted with local, native species .Information on impacts and avoidance and minimization measures is outlined in Chapter 3.

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?	☐	☒	☐	☐

A Wetlands, Waters of the US, and Riparian Areas Delineation Report was prepared for the project. Riparian areas exist along the banks of the Little Van Duzen and Van Duzen rivers as well as adjacent to the drainages flowing into these rivers. Under the Preferred Alternative, up to 0.49 acres of riparian habitat could be removed.

The Preferred Alternative may affect, but is not likely to adversely affect critical habitat for the federally threatened northern California steelhead. Both permanent and temporary best management practices (BMPs) will be implemented to reduce or eliminate potential impacts as a result of the Preferred Alternative.

Measures to avoid, minimize, and mitigate permanent and temporary impacts to riparian habitat and other sensitive habitats are outlined in Chapter 3.

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?	☐	☒	☐	☐

The Preferred Alternative would permanently impact up to 1.03 acres of federally protected wetlands. Temporary impacts up to 0.29 acres are also anticipated. If necessary, all Section 404 CWA permit and the Section 401 water quality permit requirements will be followed.

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?	☐	☒	☐	☐

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

A Biological Evaluation and Biological Assessment were prepared for the project that considered the project's potential effects to fish and wildlife species. Potential indirect impacts to the Van Duzen River as a result of the Preferred Alternative could impact the movement of native resident or migratory fish due to habitat degradation where vegetation removal would occur. The Preferred Alternative may affect, but is not likely to adversely affect critical habitat for the federally threatened northern California steelhead. Both permanent and temporary best management practices (BMPs) will be implemented to reduce or eliminate potential impacts as a result of the Preferred Alternative.

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

A Community Impact Assessment was prepared for the project that evaluated existing local plans, policies, and controls and the project's potential effects. There would be no conflicts to local policies or ordinances protecting biological resources.

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?	☐	☐	☐	☒

A Community Impact Assessment was prepared for the project that evaluated existing local plans, policies, and controls and the project's potential effects. No conflicts have been identified.

V. CULTURAL RESOURCES - Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

A Cultural Resources Inventory and Evaluation Report were prepared for the project. There are no eligible historic properties to be affected by the project. A Paleontological Evaluation Report was also prepared for the project that revealed that the project has the potential to encounter fossils at two locations – the potential mitigation site and a potential staging area. A Paleontological Management Plan will be developed and a paleontological monitor will be used reducing the level of impact to less than significant.

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

A preliminary Geotechnical Recommendations Report was prepared for the project by FHWA-CFLHD in July 2013. Landslides, active and dormant, are encountered along the majority of the alignment from MP 37.35 to MP 39.50, and generally appear to be large scale landslides. There are two mapped faults that cross the SR 36 alignment within the project area. Existing areas of embankment and cut slope distress would be addressed to improve site conditions and the longevity of the roadway. Mitigation of the larger slide mass is not likely feasible; therefore, mitigating and/or avoiding the smaller active lobes of the slides is the primary focus of project design. Mitigation as presented in Chapter 3 will be incorporated into project design, reducing the level of impact to less than significant.

VII. GREENHOUSE GAS EMISSIONS --

Would the project:

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				

An Air Quality Technical Report dated March 2014 was prepared for the project that assessed the potential for greenhouse gas emissions. The purpose of the proposed project is to enhance traffic safety while improving mobility for vehicular travel along SR36. As the project involves widening of lanes and shoulder to design standards, it is not considered a capacity increasing project. Though improved safety with wider lanes and shoulders as well as reduced curves is expected to lead to minor increases in traffic volumes (approximately 5%), it is not expected that overall operational GHG emissions will increase as a result.

While the project will result in a slight increase in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. While it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in Chapter 3.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

There would be no conflict between the proposed project and applicable plans, policies, or regulations adopted for the purpose of reducing greenhouse gas emissions.

VIII. HAZARDS AND HAZARDOUS MATERIALS - Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

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

An Initial Site Assessment technical report and a Community Impact Assessment report were prepared for the project. Construction of the Preferred Alternative would result in daily road closures along SR 36 for local and regional traffic, Monday through Friday between 8:00 a.m. and 5:00 p.m. and potential night closures that could affect emergency vehicle response times as part of the Humboldt County Emergency Operations Plan. As outlined in the avoidance and minimization measures in Chapter 3, emergency vehicles would be permitted to pass through the project area during construction.

h) Expose people or structures to a significant risk of loss, injury or death involving wild land fires, including where wild lands are adjacent to urbanized areas or where residences are intermixed with wild lands?	☐	☐	☒	☐

The project area is located within an area designated by the California Department of Forestry and Fire Protection as a very high fire hazard severity zone. Construction related activities could increase the risk of wildfires in an area where residences are intermixed with wild lands. However, the implementation of operational and construction related BMPs such as having the contractor adhere to the project's Fire Plan would minimize the risk of wildfires during construction.

IX. HYDROLOGY AND WATER QUALITY --

Would the project:

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

A Water Quality Assessment Report was prepared for the project that analyzed existing water quality conditions and proposed effects. No water quality standards will be violated. The Water Quality Assessment Report provided information sufficient to address the below questions. Additional information is provided in Chapter 3.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting 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?	☐	☒	☐	☐

The Preferred Alternative would result in changes to the drainage of the project area, however adherence to stormwater BMPs and local and state regulations regarding post-construction hydrologic conditions outlined in Chapter 3, would reduce the impact to a less than significant level.

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?	☐	☒	☐	☐

As mentioned above, the Preferred Alternative would result in changes to the drainage of the project area. In addition, construction of the Preferred Alternative would result in an increase in runoff and sediment due to vegetation and tree removal as well as an increase in impervious surfaces. Adherence to stormwater BMPs outlined in Chapter 3 would reduce potential flooding both on and off site. In addition, CFLHD will evaluate other BMPs in the final design plans to address drainage areas, impact locations and BMP effectiveness as necessary.

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?	☐	☒	☐	☐

The Preferred Alternative would result in slight increases in the amount of runoff from the project area due to the increase in impervious surfaces. However, adherence to stormwater BMPs and local and state regulations regarding post-construction hydrologic conditions outlined in Chapter 3 would reduce the effect of this impact.

f) Otherwise substantially degrade water quality?	☐	☒	☐	☐

Implementation of a Stormwater Pollution Prevention Plan (SWPPP), and adherence to stormwater BMPs and local and state regulations regarding water quality would reduce the impact of the Preferred Alternative to 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?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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?	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

A Community Impact Assessment Report was prepared for the project and determined that the project would not physically divide an established community or conflict with applicable land use plans, policies, or regulations.

XI. MINERAL RESOURCES -- Would the project:

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

A Preliminary Geotechnical Recommendations Report was prepared for the project. No mineral resources are known to occur in the project area and none would be affected.

XII. NOISE - Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

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

A Noise Technical Report was prepared for the project to assess the short- and long-term effects from the proposed project. Under the Preferred Alternative construction activities, including the use of impact equipment would occur approximately 140 feet from the nearest residence. Based on the types of construction equipment expected to be used for the project, construction noise levels at the nearest residence are not anticipated to exceed the maximum noise level standards listed in the Caltrans Standard Specifications for Noise Control.

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?	☐	☐	☒	☐

The Preferred Alternative would result in temporary increases in noise levels during construction. Humboldt County does not have noise ordinances regulating construction noise levels. The noise levels during construction are not anticipated to exceed the maximum noise level standards in the Caltrans Standard Specifications for Noise Control. As discussed in Chapter 3, noise control measures will be implemented to control noise levels during construction.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

XIII. POPULATION AND HOUSING - Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

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

A Community Impact Assessment Report was prepared for the project and found that population growth would not be induced, nor would the project displace existing housing or people.

XIV. PUBLIC SERVICES

A Community Impact Assessment Report was prepared for the project and found that no adverse physical impacts to public infrastructure or services would occur.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

XV. RECREATION - Would the project:

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?	☐	☐	☐	☒

The project does not involve the use of existing neighborhood or regional parks, nor does it require the construction of recreation facilities.

XVI. TRANSPORTATION/TRAFFIC - Would

the project:

A Traffic Impact Report was prepared in November 2013 for the project and provided the necessary information for the below questions.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☒	☐	☐

Construction of the Preferred Alternative would result in daily road closures that could affect emergency vehicle response times along SR 36. As outlined in the avoidance and minimization measures in Chapter 3, emergency vehicles would be permitted to pass through the project area during construction.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

XVII. UTILITIES AND SERVICE SYSTEMS -

Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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

The project involves no new construction of wastewater or water treatment/storage facilities.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?	☐	☒	☐	☐

As mentioned above in Section IV Biological Resources (questions a, b, c and d), the Preferred Alternative has the potential to reduce the habitat of plant and animal communities and cause adverse impacts to certain species.

Anticipated impacts to these species as a result of the Preferred Alternative include a loss of habitat, habitat degradation and restriction of movement. The avoidance and minimization measures outlined in Chapter 3 would reduce the impact to these species to less than significant.

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)?	☐	☒	☐	☐

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

As mentioned above in Section IV Biological Resources, the Preferred Alternative has the potential to adversely affect a federally listed threatened and endangered species, the northern spotted owl. Past projects in the area, including logging and transmission line installation have degraded and removed habitat for the species. Implementation of the mitigation measures outlined in Chapter 3 would result in less than significant cumulative impacts.

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

A Community Impact Assessment Report prepared for the project identified no environmental effects that would adversely affect human beings.

Appendix B: Agency Coordination

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3394
Fax: 720-963-3596
Allen.Grasmick@dot.gov

November 20, 2012

In Reply Refer To:
HFPM-16

[**Recipient Name**]
[**Recipient Title**]
[**Recipient Company**]
[**Recipient Street Address**]
[**Recipient City, STATE Zip**]

Dear [**Mr./Ms. Recipient Last Name**]:

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the California Department of Transportation (Caltrans) and Six Rivers National Forest, is initiating an Environmental Assessment/Initial Study (EA/IS) to study potential improvements to California State Route 36 (SR 36) in central Humboldt County near the towns of Bridgeville and Dinsmore (from HUM MP 36.1 to HUM MP 40.5). A project study area map has been included for your reference.

The purpose of this project is to enhance traffic safety and improve mobility by upgrading roadway geometrics. This project will investigate design features associated with roadway widths, design speeds, roadway geometry, sight distance and operational speeds for vehicular travel along California SR 36 in Humboldt County. There are also stability and long-term maintenance concerns due to the roadway's location in an active landslide area. The proposed project will consider and evaluate alternatives to improve roadway safety and operation, and to provide for greater stability.

SR 36 is the only east-west connector from US Highway 101 to Interstate 5 between California SR 299 30 miles to the north and California SR 20 over 100 miles to the south. Limited passing opportunities in this segment of SR 36 cause vehicle queuing, and truck and recreational vehicle use of the road further impact operational efficiency.

Alternatives that may be considered in the environmental process include roadway reconstruction on the current alignment, as well as realignment of the roadway in whole or in part to address the above-listed problems.

The FHWA is inviting individuals, Federal, State, tribal governments, and local agencies, as well as others interested in or potentially affected by the proposal, to comment. We would like your input on the project purpose and need, the range of alternatives that should be considered, and issues or concerns that should be addressed in the environmental analysis.

You are also invited to attend a Public Scoping Meeting on Tuesday, December 4, 2012, from 6 to 8 p.m. at the Bridgeville School Gym on 38717 Kneeland Road, Bridgeville, CA 95526-0098 (www.humboldt.k12.ca.us/bridgeville_sd/). There will be a short presentation at 6:30 p.m.

Your comments on the proposal will help us to identify issues and concerns related to the project. Written comments or questions should be submitted by December 31, 2012, to the FHWA Central Federal Lands Highway Division, Attention: Allen Grasmick, 12300 W. Dakota Ave., Suite 280, Lakewood, CO 80228; or sent via email to Allen.Grasmick@dot.gov. Also, I can be reached at 720-963-3664.

Thank you for your cooperation and assistance.

Sincerely yours,

Nicole Winterton

for Allen Grasmick, PMP
Project Manager

Enclosure: Study Area Map

SR 36 Environmental Assessment/Initial Study

Where is the project located?

The study corridor is California State Route 36 (SR 36) in central Humboldt County near the towns of Bridgeville and Dinsmore between HUM MP 36.1, about 0.7 mile north of the Little Van Duzen River and HUM MP 40.5 at the Van Duzen River Bridge.

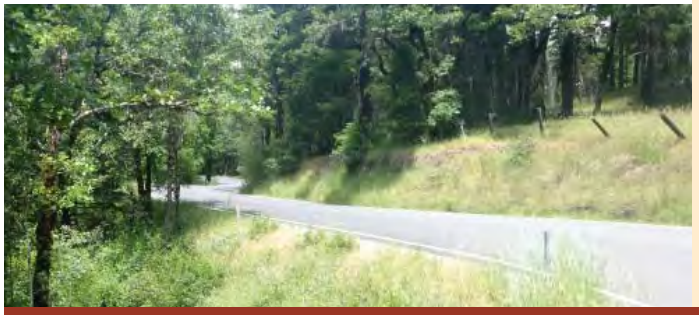
Who is proposing this project and why?

In 2011, the California Department of Transportation (Caltrans) submitted a project application for funding through the California Forest Highway program. Funding was awarded to this project through this program, which is administered by the Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD). FHWA is leading the project in cooperation with Caltrans and Six Rivers National Forest.

The project is intended to enhance traffic safety and improve mobility by upgrading roadway geometrics. The key identified problems include the following:

- Within the project limits, the roadway has many design features that need to be studied including roadway widths, design speeds, roadway geometry, sight distance and operational speeds for vehicular travel.
- SR 36 is the only east-west connector from US Highway 101 to I-5 between California SR 299 30 miles to the north and California SR 20 over 100 miles to the south. The viability of the route for transport of goods and services is limited by the narrow, curvy alignment in this segment, which restricts truck length and freight capacity.
- There are ongoing maintenance and stability issues due to the roadway's location in an active landslide area.

The proposed project will consider and evaluate alternatives to improve roadway safety and operation, and to provide for greater stability. Alternatives that may be considered include roadway reconstruction on the current alignment, as well as realignment of the roadway in whole or in part to address the above-listed problems.



When will the project be constructed?

Before a federally funded project can be constructed, the lead agency must conduct appropriate studies and meaningfully engage the public, as well as other federal, state, and local agencies. An Environmental Assessment (EA) study is being conducted in accordance with the National Environmental Policy Act (NEPA), and the project will also require environmental analysis and documentation in compliance with the California Environmental Quality Act (CEQA). This is anticipated to be an Initial Study (IS). The potential environmental impacts associated with the project include biological resources, cultural resources, noise, visual resources, and water quality. If the project is approved for construction, funding for construction of this project is programmed for 2015.

SR 36 Environmental Assessment/Initial Study

Let us know what you think

Your input is critical to guiding the development of this project so that it reflects the needs, concerns, and desires of your community. We welcome your comments. There are four ways to submit them:

- Complete the included comment card.
- Email: Allen.Grasmick@dot.gov
- Attend the public meetings and provide comments (see meeting information on this page).
- Send written comments to:
  Allen Grasmick
  Project Manager, CFLHD
  12300 West Dakota Ave., Ste. 380
  Lakewood, CO 80228

Stay informed

Project information is available on the project website, found at:
www.cflhd.gov/sr36improvements

First Public Meeting

What: The meeting will have an open-house format, so you may arrive at any time to review project information displays and converse one-on-one with project staff. There will be a short presentation at 6:30 p.m.

When: Tuesday, December 4, 2012 from 6 to 8 p.m.

Where: Bridgeville School Gym – 38717 Kneeland Road, Bridgeville

Why: The project team is seeking your input on:

- Specific problems in the corridor.
- Ideas for alternatives that should be considered.
- Concerns or questions about the project.
- Environmental resources that may be affected by the project.

Individuals who require special accommodations (American Sign Language interpreter, accessible seating, documentation in alternate formats, etc.), please contact the Caltrans District Public Affairs Office at (209) 948-7977 at least 5 days prior to the scheduled meeting. Telecommunications Device for the Deaf (TDD) users may contact the California Relay Service TDD at 1-800-735-2922.

U.S. Department of Transportation
Federal Highway Administration

Allen Grasmick
Project Manager, CFLHD
12300 West Dakota Ave., Ste. 380
Lakewood, CO 80228

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3394
Fax: 720-963-3596
Allen.Grasmick@dot.gov

December 12, 2012

In Reply Refer To:
HFPM-16

[**Recipient Name**]
[**Recipient Title**]
[**Recipient Company**]
[**Recipient Street Address**]
[**Recipient City, STATE Zip**]

Dear [**Mr./Ms. Recipient Last Name**]:

This letter is to inform about an upcoming transportation project, and to ask you for any information or issues relating to cultural resources you believe should be considered during project planning.

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the California Department of Transportation (Caltrans) and Six Rivers National Forest, is initiating an Environmental Assessment/Initial Study (EA/IS) to study potential improvements to California State Route 36 (SR 36) in central Humboldt County near the towns of Bridgeville and Dinsmore (from HUM milepost [MP] 36.1 to HUM MP 40.5). The purpose of the project is to enhance traffic safety and improve mobility in a cost effective manner.

This project will investigate design features associated with roadway widths, design speeds, roadway geometry, sight distance and operational speeds for vehicular travel along California SR 36 in Humboldt County. There are also stability and long-term maintenance concerns due to the roadway's location in an active landslide area. The proposed project will consider and evaluate alternatives to improve roadway safety and operation, and to provide for greater stability. Because the proposed project is funded with federal funds, compliance is required with Section 106 of the National Historic Preservation Act. The project will also require environmental analysis and documentation in compliance with the California Environmental Quality Act.

The project study area is shown on the enclosed map. The study area is located on the 7.5 minute USGS quadrangles of Dinsmore and Larrabee Valley, California. The legal land descriptions for the project is: T01N, R05E Sections 4 through 9, 16 through 21, and 28 through 30. The study area was selected to include the current roadway alignment as well as possible realignment options.

A Sacred Lands file search was requested on October 22, 2012. In response, the Native American Heritage Commission stated that the Sacred Lands file does not indicate cultural

resources are in the study area. The Commission cautioned, however, that the lack of recorded resources does not mean they are absent in the project area.

A search into the records at the North Coastal Information Center of the California Historical Resources Information System located at Yurok Tribe Headquarters in Klamath revealed that there are three previously recorded prehistoric sites within the study area. One of these sites reportedly contains habitation debris and chert cores, tools, and flakes. The other two sites are both described as chert tool and flake scatters. No other cultural resources are reported for the study area. However, a complete cultural resources inventory will be prepared for all potential impact areas.

As part of this study, we would also like to know if there is any information you think we should consider in our project planning. Your knowledge of the area is of great value and your feedback is important. We would appreciate any information or concerns you may wish to share, in particular, if there are any resources or places of traditional cultural or religious importance to members of your tribe that might be affected by the proposed project. If you have any comments or questions regarding the proposed project, please send them by January 31, 2013 to Ms. Nicole Winterton, Environmental Protection Specialist, 12300 West Dakota Avenue, Lakewood, CO 80228; by email at nicole.winterton@dot.gov; or by telephone at 720-963-3689. Thank you for your interest and input in this project.

Sincerely yours,

Allen Grasmick, PMP
Project Manager

Enclosure: Study Area Map

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3668
Fax: 720-963-3596
Nathan.Allen@dot.gov

March 25, 2014

In Reply Refer To:
HFPM-16

Michael Lincoln
Wintu Educational and Cultural Council
P.O. Box 6739
Hayfork, CA 96041

RE: Determinations of Eligibility and Finding of Effect for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California; 01-HUM-36; PM 36.1/40.5

Dear Mr. Lincoln:

On September 30, 2013, you contacted me by email at the request of Robert Burns, who was previously contacted by registered mail on December 14, 2012 and September 17, 2013, and by phone on January 16, 2013. Your email indicated your interest in this project and that you wished to offer comments. I am therefore providing you the Historic Property Survey Report that documents our cultural resource findings for the Van Duzen-Peanut SR 36 project:

1. Historic Property Survey Report with location and Area of Potential Effects map exhibits
    a. Archaeological Survey Report including documentation of Native American consultation
    b. Historic Resource Evaluation Report including documentation of consultation with local historical societies
    c. Extended Phase I and Phase II Archaeological Test Report for CA-HUM-1157

A single archaeological site, CA-HUM-1157, was newly identified and recorded within the project Area of Potential Effects (APE). Far Western performed test excavations at the site in October of 2013, which were monitored by a member of the Bear River Band of Rohnerville Rancheria. Based on their findings, we have determined the site is *not eligible* for listing in the National Register of Historic Places or the California Register of Historical Resources. No human remains were encountered during excavations; the excavated collection will be returned to the landowner.

Because no historic properties (i.e., eligible properties) have been identified in the APE for the proposed undertaking, FHWA's effect finding for the Van Duzen-Peanut State Route 36 Road Improvement Project is "No Historic Properties Affected" (36 CFR 800.4[d][1]).

We would appreciate any comments you may have regarding these findings. If you need additional information, please contact Environmental Protection Specialist Nicole Winterton at (702) 963-3689 (email: Nicole.Winterton@dot.gov) or myself at (720) 963-3668 (email: Nathan.Allen@dot.gov).

Thank you again for your assistance.

Sincerely yours,

Nathan Allen, PE
Project Manager

Enclosures:

Historic Property Survey Report and attachments

Cc: Robert Burns, Wintu Educational and Cultural Council

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3668
Fax: 720-963-3596
Nathan.Allen@dot.gov

March 25, 2014

In Reply Refer To:
HFPM-16

Kelli Hayward
Wintu Tribe of Northern California
P.O. Box 995
Shasta Lake, CA, 96019

RE: Determinations of Eligibility and Finding of Effect for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California; 01-HUM-36; PM 36.1/40.5

Dear Ms. Hayward:

On January 17, 2013, you contacted our subconsultant Far Western Anthropological Research Group, Inc., by email indicating your interest in the above-named project. I am therefore providing you the Historic Property Survey Report that documents our cultural resource findings for the Van Duzen-Peanut SR 36 project:

1. Historic Property Survey Report with location and Area of Potential Effects map exhibits
    a. Archaeological Survey Report including documentation of Native American consultation
    b. Historic Resource Evaluation Report including documentation of consultation with local historical societies
    c. Extended Phase I and Phase II Archaeological Test Report for CA-HUM-1157

A single archaeological site, CA-HUM-1157, was newly identified and recorded within the project Area of Potential Effects (APE). Far Western performed test excavations at the site in October of 2013, which were monitored by a member of the Bear River Band of Rohnerville Rancheria. Based on their findings, we have determined the site is *not eligible* for listing in the National Register of Historic Places or the California Register of Historical Resources. No human remains were encountered during excavations; the excavated collection will be returned to the landowner.

Because no historic properties (i.e., eligible properties) have been identified in the APE for the proposed undertaking, FHWA's effect finding for the Van Duzen-Peanut State Route 36 Road Improvement Project is "No Historic Properties Affected" (36 CFR 800.4[d][1]).

We would appreciate any comments you may have regarding these findings. If you need additional information, please contact Environmental Protection Specialist Nicole Winterton at

(702) 963-3689 (email: Nicole.Winterton@dot.gov) or myself at (720) 963-3668 (email: Nathan.Allen@dot.gov).

Thank you again for your assistance.

Sincerely yours,

Nathan Allen, PE
Project Manager

Enclosures:

Historic Property Survey Report and attachments

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3668
Fax: 720-963-3596
Nathan.Allen@dot.gov

March 25, 2014

In Reply Refer To:
HFPM-16

Erika Collins
Tribal Historic Preservation Officer
Bear River Band of Rohnerville Rancheria
266 Keisner Road
Loleta, CA 95551

RE: Determinations of Eligibility and Finding of Effect for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California; 01-HUM-36; PM 36.1/40.5

Dear Ms. Collins:

You were previously informed of the proposed Van-Duzen-Peanut State Route 36 Road Improvement Project by registered mail on September 19, 2014. Far Western completed survey of the project in September of 2013. A single archaeological site, CA-HUM-1157, was newly identified and recorded within the project Area of Potential Effects (APE). Far Western performed test excavations at the site in October of 2013, which were monitored by Bear River tribal member Eli Sanderson. Based on their findings, we have determined the site is not eligible for listing in the National Register of Historic Places or the California Register of Historical Resources. No human remains were encountered during excavations; the excavated collection will be returned to the landowner.

Because no historic properties (i.e., properties eligible for the National Register of Historic Places) have been identified in the APE for the proposed undertaking, FHWA's effect finding for the Van Duzen-Peanut State Route 36 Road Improvement Project is "No Historic Properties Affected" (36 CFR 800.4[d][1]).

Per your request to our consultant, Allika Ruby of Far Western, I've enclosed the Historic Property Survey Report that documents our findings for the Van Duzen-Peanut SR 36 project:

1. Historic Property Survey Report with location and APE map exhibits
    a. Archaeological Survey Report including documentation of Native American consultation
    b. Historic Resource Evaluation Report including documentation of consultation with local historical societies
    c. Extended Phase I and Phase II Archaeological Test Report for CA-HUM-1157

We would appreciate any comments you may have regarding our findings. If you need additional information, please contact Environmental Protection Specialist Nicole Winterton at (702) 963-3689 (email: Nicole.Winterton@dot.gov) or myself at (720) 963-3668 (email: Nathan.Allen@dot.gov).

Thank you again for your assistance.

Sincerely yours,

Nathan Allen, PE
Project Manager

Enclosures:

Historic Property Survey Report and attachments

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

April 29, 2014 Reply in Reference To: FHWA_2014_0327_001
HFPM-16

Nathan Allen, PE; Project Manager
Federal Highway Administration
12300 West Dakota Avenue
Lakewood, CO 80228-2583

RE: Determinations of Eligibility and Finding of Effect for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California: 01-HUM-36; PM 36.1/40.5;

Dear Mr. Allen:

Thank you for seeking my consultation regarding the above noted undertaking. Pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act (NHPA), the Federal Highway Administration (FHWA) is seeking my concurrence on the appropriateness of the Area of Potential Effects (APE), adequacy of identification efforts, determinations of eligibility to the National Register of Historic Places (NRHP) and a *Finding of No Historic Properties Affected* for the undertaking.

The FHWA in cooperation with the California Department of Transportation (Caltrans) and Six Rivers National Forest, proposes to realign and widen the existing State Route 36 (SR-36) to attain two twelve-foot wide travel lanes and four-foot wide paved shoulders. This will include installing new signage, pavement delineation and acquisition of new right-of-way. To mitigate potential impacts to wetlands, a new seven-acre parcel of land is being considered to create new wetlands. The APE consists of an approximately 4.4 mile corridor identified in the following listed documents and a seven acre parcel adjacent south of SR 36 between Post-miles 43.6 and 43.7. The APE includes all staging and lay-down areas.

In addition to your letter received March 27, 2014, you have submitted the following documents as evidence of your efforts to identify and evaluate historic properties in the project APE:

Historic Property Survey Report for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California; 01-HUM-36; PM 36.1 to 40.5 (Ruby, March 2014).

a. *Archaeological Survey Report for the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California; 01-HUM-36; PM 36.1 to 40.5* (Ruby, January 2014).
b. *Historic Resources Evaluation Report CA-PFH 4; Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California;* (Melvin & Herbert, December 2013).
c. *Extended Phase I and Phase II Archaeological Investigations of CA-HUM-1157 (P-12-2606) the Van Duzen-Peanut State Route 36 Road Improvement Project, Humboldt County, California;* (Ruby, January 2014).

Archival research included a records search at the North Coast Information Center on November 2, 2012 and updated on July 10, 2013. No previously recorded cultural resources were identified in the APE.

Native American consultation included contact with the Native American Heritage Commission (October 22, 2012 and July 24, 2013) and Native American tribes and individuals likely to have knowledge of sites of religious or cultural significance to them in the project area (December 2012, January & September 2013). No such properties were identified through consultation efforts.

A pedestrian surface survey was conducted in July and September 2013. Site P-12-2606; CA-HUM-1157 was identified within the APE on private land. The site consists of a sparse chert flake and tool scatter that has been subjected to grading, vegetation removal, vehicle use and logging. No other archaeological resources were identified during pedestrian survey. A buried site sensitivity study demonstrated that the potential for buried archaeological resources within the APE was low. A subsurface investigation of CA-HUM-1157 was conducted in October 2013; a Native American monitor was present. The site was evaluated for eligibility to the NRHP.

Field survey for the built environment on July 24, 2013, identified two historic-era resources on APN 210192007 and APN 210191006; both were recorded. These two resources were also evaluated for eligibility to the NRHP.

The FHWA has determined the following:

Resource	Description	Eligibility to the NRHP.
P-12-2606; CA-HUM-1157	Sparse lithic scatter.	Not eligible
APN 210192007	39501 State Route 36, Bridgeville, CA	Not eligible-lack of historical significance.
APN 210191006	369 Burr Valley Rd., Bridgeville, CA	Not eligible-lack of historical significance.

Caltrans and the Six Rivers National Forest are in agreement with these findings. Pursuant to 36 CFR §800.4(d)(1) the FHWA has determined there will be *No Historic Properties Affected* by the proposed project.

Based on your identification efforts, I concur the three resources listed above are not eligible to the NRHP. I also concur with the *Finding of No Historic Properties Affected* for the project. Identification efforts are sufficient and I also have no objections to the delineation of the APE, as depicted in the supporting documentation.

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the FHWA may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions or concerns, please contact Associate State Archaeologist, Kim Tanksley at (916) 445-7035 or by email at kim.tanksley@parks.ca.gov. For questions regarding the built environment, please contact State Historian, Natalie Lindquist at (916)445-7014 or by email at natalie.lindquist@parks.ca.gov.

Sincerely,

Carol Roland-Nawi, PhD
State Historic Preservation Officer

From:	Erika Collins
To:	Winterton, Nicole (FHWA)
Subject:	Van Duzen-Peanut SR 36 Road Improvement Project 01-HUM-36; PM 36.1/40.5
Date:	Monday, April 28, 2014 5:02:18 PM

Hello Nicole,

Thank you for the follow up phone call this morning. Bear River did receive a copy of the complete report from the consultant, as I requested. The review of the report and the involvement of Bear River THPO staff in Far Western's fieldwork at CA-HUM-1157 has addressed Bear River's concerns regarding the project. The tribe has no further concerns or comments at this time.

Thanks.

--

Erika Collins, M.A.
Tribal Historic Preservation Officer
Bear River Band of Rohnerville Rancheria
266 Keisner Road
Loleta, CA 95551
707-733-1900 x233 Office
707-502-5233 Cell
707-733-1727 Fax
erikacollins@brb-nsn.gov

From:	Meyer, Laura
To:	Winterton, Nicole (FHWA)
Cc:	Fowler, Aliina
Subject:	FW: SR 36 Improvements [CA FLAP SR 36(13)] - Wild & Scenic River Coordination
Date:	Friday, February 07, 2014 4:38:29 PM

FYI

From: Baugh, Heather@CNRA [mailto:heather.baugh@resources.ca.gov]
Sent: Friday, February 07, 2014 4:34 PM
To: Meyer, Laura
Cc: Randolph, Liane@CNRA
Subject: RE: SR 36 Improvements [CA FLAP SR 36(13)] - Wild & Scenic River Coordination

Hi Laura,

The Agency determined that the proposed project did not trigger the jurisdiction of the Secretary under the Wild and Scenic Rivers Act because it did not propose to divert water or alter the natural and free flowing character of a listed segment as that concept is defined in that Act. I am sorry my original note with this determination was never received by your office.

Best,

Heather C. Baugh, Assistant General Counsel
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
Telephone: 916-653-5656
Fax: 916-653-8123

From: Meyer, Laura [mailto:Laura.Meyer@jacobs.com]
Sent: Friday, February 07, 2014 3:23 PM
To: Baugh, Heather@CNRA
Cc: Nicole Winterton (Nicole.winterton@dot.gov)
Subject: RE: SR 36 Improvements [CA FLAP SR 36(13)] - Wild & Scenic River Coordination

Hi Heather

This email is a follow-up to our meeting regarding the W&SRA and how it may apply to improvements to SR 36 in Humboldt County as proposed by FHWA. Based on our conversation today, it sounds like CNRA determined that the proposed improvements would not conflict with requirements of the W&SRA as they pertain to the Van Duzen River. I am respectfully requesting

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish and Wildlife Office
1655 Heindon Road
Arcata, California, 95521
Phone: (707) 822-7201 FAX: (707) 822-8411

In Reply Refer To:
AFWO-13B0041-13F0052

MAR 2 0 2014

Mr. Nathan Allen
Project Manager
Central Federal Lands Highway Division
Federal Highway Administration
12300 West Dakota Avenue, Suite 380A
Lakewood, Colorado 80228-2583

Subject: Request for Initiation of Formal Consultation for the Proposed California State Route 36 Improvement Project, Humboldt County, California

Dear Mr. Allen:

This letter acknowledges the U.S. Fish and Wildlife Service's (Service) January 3, 2014, receipt of your January 2, 2014, letter requesting initiation of formal consultation under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.)*. The consultation concerns the potential effects of the proposed California State Route 36 Improvement Project (Project) on the federally threatened northern spotted owl (*Strix occidentalis caurina*). The Service concurs with your determination that the Project is likely to adversely affect the northern spotted owl.

All information required of you to initiate consultation was included with your letter and subsequent emails from Nicole Winterton, Federal Highway Administration, and Jacobs consulting on February 19, and March 17, 2014, respectively. We have assigned log number AFWO-13B0041-13F0052 to this consultation. Please refer to that number in future correspondence on this consultation.

Section 7 allows the Service up to 90 calendar days to conclude formal consultation with your agency and an additional 45 calendar days to prepare our biological opinion (unless we mutually agree to an extension). Therefore, we expect to provide you with our biological opinion no later than August 1, 2014.

As a reminder, the Act requires that after initiation of formal consultation, the Federal action agency may not make any irreversible or irretrievable commitment of resources that limits future options. This practice ensures agency actions do not preclude the formulation or implementation of reasonable and prudent alternatives that avoid jeopardizing the continued existence of endangered or threatened species or destroying or modifying their critical habitats.

If you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact Ms. Lynn Roberts or Mr. Greg Schmidt at the Arcata Fish and Wildlife Office at (707) 822-7201.

Sincerely,

Acting for Bruce Bingham
Field Supervisor

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3668
Fax: 720-963-3596
Nathan.Allen@dot.gov

January 2, 2014

In Reply Refer To:
HFPM-16

Mr. Nick Hetrick, Acting Field Supervisor
U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office
1655 Heindon Road
Arcata, CA 95521

Re: Section 7 Consultation for Proposed CA State Route 36 Improvement Project in Humboldt County, CA

Dear Mr. Hetrick:

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the California Department of Transportation (Caltrans) and Six Rivers National Forest, is proposing to improve California State Route 36 (SR 36) in southeastern Humboldt County approximately 12.3 miles east of the community of Bridgeville (Humboldt County Mile Post [HUM MP] 36.1 to HUM MP 40.5). FHWA is the lead federal agency for this consultation.

The enclosed biological assessment (BA) addresses potential project impacts on the federally listed northern spotted owl (*Strix occidentalis caurina*). The BA concludes that the project *may affect and is likely to adversely affect* northern spotted owl. To comply with Section 7(a) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(ESA), FHWA is requesting initiation of formal consultation on the northern spotted owl.

Federally listed marine and anadromous fish species have been evaluated under a separate BA that was prepared for submittal to the National Marine Fisheries Service.

If you require further information or have questions, please contact Nicole Winterton, Environmental Protection Specialist, by email at Nicole.winterton@dot.gov or by phone at (720) 963-3689.

Sincerely,

Nicole Winterton

for Nathan Allen
Project Manager

Enclosure:

Project Biological Assessment

U.S. Department of Transportation
Federal Highway Administration

Central Federal Lands Highway Division

12300 West Dakota Avenue
Suite 380A
Lakewood, CO 80228-2583
Office: 720-963-3698
Fax: 720-963-3596
James.Herlyck@dot.gov

April 9, 2014

In Reply Refer To:
HFPM-16

Mr. Clarence Hostler, Branch Chief
NOAA, National Marine Fisheries Service
1655 Heindon Road
Arcata, CA 95521

Re: Section 7 Consultation for Proposed CA State Route 36 Improvement Project in Humboldt County, CA

Dear Mr. Hostler:

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the California Department of Transportation (Caltrans) and Six Rivers National Forest, is proposing to improve California State Route 36 (SR 36) in southeastern Humboldt County approximately 12.3 miles east of the community of Bridgeville (Humboldt County Mile Post [HUM MP] 36.1 to HUM MP 40.5). FHWA is the lead federal agency for this consultation.

The enclosed biological assessment (BA) addresses potential project impacts on the federally listed species under your jurisdiction that have potential to occur in the project. The BA concludes that the project *may affect, but is not likely to adversely affect* NC steelhead (*Oncorhynchus tshawytscha*) or its critical habitat. To comply with Section 7(a) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(ESA), FHWA is requesting initiation of informal consultation on the NC steelhead. The BA concludes the project will have no effect to the SONCC Coho salmon or the CC Chinook or their critical habitat.

Federally listed terrestrial species have been evaluated under a separate BA that was prepared for submittal to the U.S. Fish and Wildlife Service.

If you require further information or have questions, please contact Nicole Winterton, Environmental Protection Specialist, by email at Nicole.winterton@dot.gov or by phone at (720) 963-3689.

Sincerely,

James Herlyck
Project Manager

Enclosure: *Project Biological Assessment*

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

July 16, 2014

Valerie Gizinski
Caltrans District 1
P.O. Box 3700
Eureka, CA 95502

RE: SCH# 2014072016 California State Route 36 Improvement Project, Humboldt County.

Dear Ms. Gizinski:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Completion (NOC) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064.5(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archaeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on or adjacent to the APE.
  - If the probability is low, moderate, or high that cultural resources are located in the APE.
  - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
  - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check. **SFL Check Completed with Negative Results**
  - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
  - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) Guidelines §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
  - Lead agencies should include in their mitigation plan provisions for the disposition of recovered cultural items that are not burial associated, which are addressed in Public Resources Code (PRC) §5097.98, in consultation with culturally affiliated Native Americans.
  - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, PRC §5097.98, and CEQA Guidelines §15064.5(e), address the process to be followed in the event of an accidental discovery of any human remains and associated grave goods in a location other than a dedicated cemetery.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Government Program Analyst

CC: State Clearinghouse

Native American Contact List

Humboldt County
July 14, 2014

Round Valley Reservation/Covelo Indian Community
Kenneth Wright, President
77826 Covelo Road
Covelo , CA 95428
(707) 983-6126
(707) 983-6128 Fax

Yuki ; Nomlaki
Pit River
Pomo
Concow
Wailaki; Wintun

InterTribal Sinkyone Wilderness Council
Hawk Rosales, Executive Director
P.O. Box 1523
Ukiah , CA 95482
(707) 463-6745

Mattole Sinkyone

Fred "Coyote" Downey
P.O. Box 846
Covelo , CA 95428

Wailaki

Eel River Nation of Sovereign Wailaki
Ken Horn, President
P.O. Box 112
Percy , Ca 95587
nockbogas@atasis.com
(707) 923-2797
(707) 223-3653

Wailaki

Eel River Nation of Sovereign Wailaki
Rhonda Hardy, Secretary
P.O. Box 156
Redway , Ca 95560
(707) 923-2797

Wailaki

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.
This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH # 2014072016 California State Route 36 Improvement Project, Humboldt County.

From:	Herlyck, James (FHWA)
To:	Winterton, Nicole (FHWA)
Subject:	FW: SCH # 2014072016 Written Comment on Initial Study for SR36 Improvement Project
Date:	Thursday, August 07, 2014 4:14:27 PM

From: Thompson, Brendan@Waterboards [mailto:Brendan.Thompson@waterboards.ca.gov]
Sent: Thursday, August 07, 2014 4:09 PM
To: Herlyck, James (FHWA)
Subject: FW: SCH # 2014072016 Written Comment on Initial Study for SR36 Improvement Project

Dear Mr. Herlyck,

North Coast Regional Water Quality Control Board (Regional Water Board) staff have reviewed the Initial Study for the California State Route 36 Improvement Project (Project). Thank you for the opportunity to provide the following comments so that Caltrans may address the Regional Water Boards requirements at this early stage of the Project and thereby avoid potentially time delays at the time Caltrans seeks 401 certification from our agency.

The proposed Project is adjacent the Van Duzen River, which is 303(d) listed as impaired by sediment. The Initial Study notes that the Project would "result in a permanent increase of impervious surfaces and a loss of vegetative cover; consequently, there would be a permanent increase in runoff and pollutant loading. The project would increase the impervious area from 15.5 to 17.4 acres, resulting in a total increase of 1.9 acres."

Please note that a Clean Water Act 401 water quality certification will not be issued for the Project unless Caltrans provides adequate post-construction storm water treatment for an area of impervious surface equivalent to the entirety of the added, and as much as feasible of the remaining impervious Project area. The post-construction treatment BMPs must enhance infiltration through a vegetated, engineered soil media layer. Traditional swales without an enhanced vertical infiltrative element shall not be considered a sufficient level of treatment. Additionally, the storm water runoff volumes and rates used to size the treatment BMPs must be based on the 85th percentile 24-hour storm event. The treatment BMPs must be sized using the entire contributing area to the BMP. Under-sized treatment BMPs will not be accepted. If Caltrans cannot identify a sufficient level of treatment on-site, off-site treatment within the Van Duzen watershed may be submitted to the Regional Water Board for review and acceptance.

The Initial Study also notes that the Project would result in a "net decrease in the length of the road from 4.4 to 3.9 miles. This increase in impervious surface would increase storm water velocity and volume throughout the project area." The Regional Water Board is concerned that the Initial Study does not document proposed measures

to ensure the post-project hydrograph will not significantly differ from the pre-project hydrograph. Caltrans must incorporate design measures to ensure that the post-project hydrograph does not exceed the pre-project hydrograph by ten percent or more for the 2 year/24 hour storm event volume and/or time of concentration. This information will be required before Caltrans may receive a 401 water quality certification for the Project.

Thank you. Please contact me if you have any questions.

Brendan Thompson, CPESC, QSD
Environmental Specialist
North Coast Regional Water Quality Control Board
5550 Skylane Blvd. Ste. A
Santa Rosa, CA 95403-1072
(707) 576-2699

Appendix C: Caltrans Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

Appendix D: Farmland Impact Rating Form

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 9/27/13	4. Sheet 1 of 1
1. Name of Project State Route 36/Forest Highway 4, Van Duzen-I	5. Federal Agency Involved FHWA - Central Federal Lands	
2. Type of Project Highway Improvement project	6. County and State Humboldt, California	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 9/27/13	2. Person Completing Form Jonathan Shultz
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☑		4. Acres Irrigated / Average Farm Size
5. Major Crop(s)	6. Farmable Land In Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*		Alternative Corridor For Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly		17.18			
B. Total Acres To Be Converted Indirectly, Or To Receive Services		47.17			
C. Total Acres In Corridor		64.35			
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value					
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*					
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15				
2. Perimeter In Nonurban Use	10				
3. Percent Of Corridor Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Size of Present Farm Unit Compared To Average	10				
6. Creation Of Nonfarmable Farmland	25				
7. Availability Of Farm Support Services	5				
8. On-Farm Investments	20				
9. Effects Of Conversion On Farm Support Services	25				
10. Compatibility With Existing Agricultural Use	10				
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	0	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	0	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

Signature of Person Completing this Part: DATE 10/22/13

NOTE: Complete a form for each segment with more than one Alternate Corridor

Appendix E: Summary of Avoidance, Minimization, and/or Mitigation Measures

This appendix summarizes the avoidance, minimization and mitigation measures discussed in Chapter 3. Additional details regarding these measures are included in the applicable resource sections within Chapter 3.

Farmlands/ Timberlands

As design progresses, impacts to the TPZ within the project area will be minimized as practicable.

Economic Conditions

Adequate notification of construction related delays and short-term closures will be provided to the traveling public, local government, and emergency service providers.

A Construction Management Plan will be developed and implemented for the project that will identify the locations of temporary detours, road closures and delays, signage use and placement, and advanced notification procedures.

Relocations and Real Property Acquisition

FHWA will attempt to reduce and minimize the amount of right-of-way required for implementation of the Action Alternative. ROW acquisition will follow provisions of the following to ensure fair and consistent treatment of ROW acquisitions:

- Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 (P.L. 91-646) as amended by the Uniform Relocation Act Amendments of 1987 (P.L. 100-17); and 49 CFR Part 24, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-assisted Programs.
- Implement a comprehensive community outreach program, including ongoing outreach and coordination with affected property owners to minimize the impacts of access disruption or alterations as part of both project design and during construction.

Utilities

Project design will continue to consider the effects to utilities. Conflicts with existing utilities will be minimized in design to the extent practicable.

Coordination will continue with AT&T and PG&E to ensure all conflicts are identified in design and necessary utility relocations are scheduled to minimize potential service disruptions.
It is anticipated that relocated utilities can be accommodated within the project area surveyed for environmental resources and impacts associated with the relocation are similar in scope and nature to the environmental effects included in this EA/IS. No additional avoidance, minimization, and/or mitigation measures for individual environmental resources related to utility relocation only have been identified thus far.

A Construction Management Plan will be developed and implemented that will identify the locations of temporary detours and signage to facilitate traffic within the area. The Construction Management Plan will specify timeframes for roadway and lane closures. Emergency services such as fire, police, and medical will also be notified one to two weeks in advance of any lane or roadway closures. In addition, emergency service vehicles will be accommodated through the project area.

Traffic and Transportation/ Pedestrian and Bicycle Facilities

To minimize the short-term, construction-related impacts to the traveling public, adequate notification of construction related delays and short-term closures will be provided to the traveling public, local government, and emergency service providers. In addition, a Construction Management Plan will be developed and implemented for the project that will identify the locations of temporary detours, road closures and delays, signage use and placement, and advanced notification procedures.

Visual and Aesthetics

Implementation of the following additional measures would help offset the adverse visual changes that would result from the proposed roadway improvements:

- Minimize the size of cut slopes to the extent practicable.
- Minimize tree removal to the extent practicable.
- Design cut slopes to blend into the adjacent natural topography.
- Select material, color, and texture of slope stabilization treatments (rock buttresses with 1 to 1.5 slope gradient, soil-nail walls, or cut slope with wire mesh) to blend with the natural environment. These measures will be determined during final design by a qualified landscape architect. Wire mesh slope treatment will not be made of galvanized metal wire.
- Specify the rock type, color, and source for use in rock buttresses to minimize the visual intrusion. These will be specified during final design and approved prior to use.
- Cover rock buttresses with at least an 8-inch depth of soil and seed with native grasses to the extent practicable without jeopardizing slope stability.
- Where practical, use a regraded cut slope covered with wire mesh and seed with native grasses instead of a concrete-covered soil nail wall to minimize the visual intrusion caused by a concrete wall.
- Break up asphalt on obliterated road areas, and remove where practicable.
- Use excess excavated soil to create a natural landform on obliterated road sites. Apply at least 2.5-foot depth of salvaged topsoil and native grass seed to the landform.
- Revegetate all abandoned roadway segments and adjacent disturbed land that is capable of sustaining vegetation with native vegetation.
- Revegetate with native trees and shrubs as close as possible to the new roadway without compromising safety (no plantings in clear recovery zone, sight triangles or at base of slopes).

The following measures will minimize potential adverse effects during project construction:

- Visually screen construction staging areas if located adjacent to residences
- If nighttime construction is needed, direct construction lights inward toward the construction site to minimize glare for residents and motorists near construction areas

Water Quality and Storm Water Runoff

The project will incorporate CFLHD Standard Specifications for the Construction of Roads and Bridges on Federal Highways (referred to as FP-03) to prevent adverse impacts to water quality and reduce storm water runoff. Additionally, the project will adhere to Section 402 of the CWA, requiring the project to obtain permits for adverse impacts to water quality. Treatment BMPs will be implemented to target the areas of concern in the storm water runoff from the project area and where feasible, DPP and Treatment Control BMPs would be incorporated. Implementation of DPP and Treatment Control BMPs would mitigate adverse impacts to water quality from facility operation. BMPs aimed to minimize impacts before and during construction are listed below:

- The area beyond the construction limits will not be disturbed. Trees, shrubs or vegetated areas temporarily damaged by construction operations will be re-vegetated.
- Certified weed free permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction according to the contract erosion control plan, contract permits, FP Section 107, FP Section 157 and SCR Section 157 will be provided.
- Before grubbing and grading, all sediment controls around the perimeter of the project, including filter barriers, diversion and settling structures will be constructed.
- Temporary erosion control measures will be maintained in working condition until the project is complete or the measures are no longer needed.
- CFLHD will conform to the Federal Seed Act, the Federal Noxious Weed Act, and applicable State and local seed and noxious weed laws.
- Additional measures, including a storm water pollution prevention plan, that are required by CWA Section 402 (NPDES) and are routinely included in FHWA projects, will be addressed.

Caltrans's SWMP is the guidance document for compliance with the NPDES permit requirement for discharge. As part of the SWMP, the CFLHD will incorporate selected Constructions Site, DPP, and Treatment Control BMPs into the final design of the project. Compliance with the requirements of the SWMP is required for mitigation of potential short-term and long-term impacts. CFLHD also will implement the following measures, per their own FP-03:

- Turf establishment will be applied to finished slopes and ditches within 14 days after completion.
- Seeded areas will be protected and cared for, including watering when needed until final acceptance. All damages to seeded areas will be repaired by reseeding, re-fertilizing and re-mulching.
- All spills of petroleum products, hazardous materials, or other chemical/biological products released from construction related vehicles or equipment, will be properly cleaned up, mitigated and remedied, if necessary.
- In general, when gasoline, diesel fuel, antifreeze, hydraulic fluid or any other chemical contained within the vehicle is released to the pavement or the ground, proper, corrective, clean-up and

safety actions specified in the SWPPP will be immediately implemented. All vehicles with load rating of two tons or greater will carry, at minimum, enough absorbent materials to effectively immobilize the total volume of fluids contained within the vehicle.

- Leaks will be repaired immediately on discovery. Equipment that leaks will not be used. Oil pans and absorbent material will be in place prior to beginning repair work. The contractor will be required to provide the "on-scene" capability of catching and absorbing leaks or spillage of petroleum products including antifreeze from breakdowns or repair actions with approved absorbent materials. A supply of acceptable absorbent materials at the job site in the event of spills, as defined in the SWPPP will be available. Sand and soil are not approved absorbent materials. Soils contaminated with fluids will be removed, placed in appropriate safety containers, and disposed of according to state and/or federal regulations.

CFLHD is evaluating other BMPs considering variables such as drainage areas, impact locations and BMP effectiveness, and will include additional BMPs in the final design plans. These BMPs will be implemented as necessary. Potential BMPs that have been discussed with the RWQCB include vegetated buffer strips, vegetated swales and a constructed detention or retention basin.

Geology and Soils

Geotechnical analyses will continue as design progresses. Minimization and mitigation techniques will be incorporated into the design to ensure adequate slope stability, improved drainage conditions, rock fall protection, if warranted, and so that future landslide repair areas are minimized to the extent possible.

Paleontological Resources

The following measures will be implemented:

- Area 1 received only limited field review based on safety concerns. If the site is to be used for storage of equipment and materials, a thorough field investigation will be performed by a qualified paleontologist or a geologist with a background in paleontology before grading and/or excavation. If the site is used a qualified monitor will also be present for any grading activities for initial site preparation and site reclamation post-use.
- A paleontologist or a geologist with experience in paleontology will be present during excavation into native soils at Area 2.
- A project-specific Paleontological Mitigation Plan (PMP) will be prepared by a qualified principal paleontologist (MS or PhD in paleontology). The PMP will identify precise monitoring locations, as well as fossil salvage, laboratory preparation, museum curation, and notification procedures following unanticipated paleontological discoveries.
- Paleontological monitors, under the direction of the qualified principal paleontologist, will be on site to inspect cuts for fossils at all times during original ground disturbance involving sensitive geologic formations (as specified in the PMP).
- If fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas may be halted or diverted by FHWA to allow the prompt recovery of fossils.

- Fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged.
- Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections.
- A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.

Hazardous Waste/Materials

If any staining within the construction limits, odoriferous scents, or other indication of hazardous material is encountered by the construction contractor, operations at the discovery site will be suspended and FHWA will be immediately notified. Any such discovery will be investigated by qualified personnel and treated in accordance with Federal, State, and local regulations. Standard best practices will also be implemented during the handling and transport of hazardous materials.

Construction personnel will be trained to recognize signs of possible contamination in soil such as odors and staining. In addition, a materials management plan will be prepared for the project to ensure hazardous materials are handled accordingly if encountered during construction activities.
Owners of subsurface utilities will be contacted in areas where excavation is to be conducted in order to assess whether any of the utilities are contained in Transite™ asbestos pipe. If subsurface utilities are determined to be housed in Transite™ asbestos pipe, and the utilities need to be relocated for the project, special handling, and possibly asbestos abatement would be required.

Air Quality

Practical measures to control dust, such as watering of construction areas, will be incorporated into the plans and specifications for the construction phase of the project in accordance with NCUAQMD rules and regulations.

All construction contractors will be required to adhere to the following additional measures to reduce dust, ozone precursors, carbon monoxide, as well as toxics as a result of construction activities:

- Ensure that all construction equipment is properly tuned and maintained.
- Cover haul trucks when transferring materials.
- Install trackout control devices at access points to minimize trackout dirt.
- Minimize idling time to save fuel and reduce emissions and conform to applicable local air quality regulations.
- Have an operational water truck on site at all times. Water would be applied to control dust as needed to prevent dust impacts off site.
- Use existing power sources or clean-burning fuel generators rather than temporary power generators.

Noise

The following minimization measures will be employed to minimize short-term construction-related impacts:

- The contractor will be restricted to not exceed 86 dBA at 50 feet from the job site between the hours of 9 pm and 6 am.
- All equipment shall be fitted with adequate mufflers according to manufacturers' specifications.
- Adjacent residences to project construction activities will be notified in advance of construction work.

Natural Communities

The following measures will be implemented to avoid or minimize potential adverse impacts to natural communities.

- Cut and fill slopes that are capable of sustaining vegetation will be re-seeded with native plant species.
- Topsoil will be salvaged from within the construction limits where slopes permit and be redistributed prior to re-vegetation.
- The following standard management requirements will be implemented to prevent introduction of noxious weeds:
    - All heavy equipment will be cleaned prior to entering the project area;
    - All open-bodied trucks entering the project area will be covered when loaded; and
    - All imported plant material used for erosion control and road maintenance will be certified weed free.

Wetlands and Other Waters

Avoidance and minimization efforts will be detailed in full within the permit application and include, but are not limited to the following:

- The roadway alignment is being designed to follow the existing alignment as much as possible.
- The slopes are steepened to reduce and/or avoid impacts to jurisdictional features.
- The proposed alignment will be shifted in allowable areas to reduce and/or avoid impacts to jurisdictional features.
- Reinforced soil slopes and/or walls will be utilized in practicable areas along the roadway to reduce the slope and avoid impacts to jurisdictional features.

A Section 404 permit and Section 401 Water Quality Certification will be obtained, and FHWA will ensure all permit terms and conditions are met, including offsets to permanent wetland impacts.

In addition, to ensure excavated soil is not disposed of in a manner or location to create indirect effects to other environmental resources (such as, wetlands and other waters), FHWA will require that the excavated soil be used onsite to the extent practicable, or properly disposed of in an approved and permitted location.

Plant Species

The measures identified above in the *Natural Communities* section would also apply to plant species. In addition, in consultation with CDFW, the following measures have been developed to avoid or minimize potential adverse impacts to Pacific gilia.

- Pacific gilia will be fenced and avoided during construction activities. Monitoring during construction will occur to confirm that this population is not being impacted. Coordination with CDFW will continue as design progresses.

Animal Species

The project will adhere to the following measures to avoid or minimize potential adverse impacts to animal species.

- Tree removal will occur from September 16th to January 31st to avoid the primary nesting season for birds protected under MBTA (e.g., Northern goshawk, golden eagle, peregrine falcon, and osprey), the breeding and denning periods for the Humboldt marten (March to August) and Pacific fisher (March 1st to July 31st), the long-eared myotis' pupping season (May to July), the northern spotted owl breeding and nesting season (February 1st to September 15th), the breeding and birthing season for ringtail cat (February to June), and the Townsend's big-eared bat pupping season (May through June).
- Prior to tree removal, hardwoods dead or alive, standing or downed and greater than 18 inches Diameter at Breast Height (DBH) and conifers dead or alive, standing or downed and greater than 22 inches DBH within the project footprint will be evaluated and ranked using a System for Assessing Potential Wildlife Trees (FHWA 2014). The Scorecard will include the following:
    - Tree species (Hardwood/Conifer)
    - Only trees greater than 18 inches DBH will be assessed
    - Cavity/Basal Hollow/Hollow
    - Broken top
    - Large limb
- Trees that meet DBH requirements and have large limbs (greater than 12 inches in diameter), cavities (6 feet high and 2 feet wide), entrances 6 inches high and 12 inches long, hollows, and basal hollows of sufficient size for relevant species will be considered to be "suitable habitat trees." Trees identified as "suitable habitat trees" will be numbered using tags and marked with paint.
- "Suitable habitat trees" will be assessed for species presence prior to removal. Trees will be systematically removed so that surrounding trees are removed the day prior to "suitable habitat trees". This disturbance will encourage animal species to leave "suitable habitat trees" planned for removal. "Suitable habitat trees" will then be removed the following day so as to prevent the potential for direct injury or mortality.
    - If a resting individual is identified in a tree, downed log, or stump, the area will be rechecked every 24-hours for up to 3 days or until the individual has relocated. If the individual is still present on the third consecutive day, the area will then be rechecked once a week until it has relocated.

  - If trees do not contain sensitive species, "suitable habitat trees" will be removed the following day so as to prevent the potential for direct injury or mortality.

- Prior to conducting tree assessments or presence/absence surveys, biologists will consult with CDFW and USFWS for information on these species (i.e., sightings or presence of any tracked individuals near the project area).
- A system for assessing "Potential Wildlife Trees" and survey results will be provided to CDFW for review prior to any tree limbing, vegetation removal, or other ground- or vegetation-disturbing project activities at the project site.
- Pre-construction sensitive raptor surveys will be conducted during the nesting season (typically March to September) prior to construction. Survey methods will be developed in coordination with CDFW. If active sensitive raptor nests are identified during the nesting season, FHWA will identify and implement appropriate measures to protect the species in consultation with CDFW. These measures may include, but are not limited to, establishing a no-disturbance buffer zone around the breeding site, biological monitoring of the breeding site, and delaying construction activities in the vicinity of the breeding site until the young have dispersed. If necessary, the extent of the no-disturbance buffers shall be determined by a wildlife biologist in consultation with CDFW and shall depend on the level of noise or construction disturbance, line of sight between the breeding site and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. The purpose of the buffer is to avoid disturbance or destruction of the active site until after the breeding season, or until a qualified wildlife biologist determines that the young have fledged (usually late-June to mid-July). Within this buffer, construction activities shall be avoided during the identified species breeding season. However, construction activities can proceed if the biological monitor determines that the individual is not likely to abandon the breeding site during construction.
- The one building structure in the project area anticipated for removal will be scheduled for removal outside of bat maternity roosting season (April 1st through August 15th) to the extent possible. If removal is necessary in the maternity roosting time frame, the structure will be surveyed according to a protocol developed in consultation with CDFW prior to removal to ensure no bats are disturbed.
- Use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) will not occur from February 1st through July 9th within 50 meters (165 feet) of the areas identified as NSO nesting/roosting habitat.
- If blasting occurs from August 15th to February 28th, it will avoid the primary breeding and denning season for Pacific fisher (March 1 to July 31) and the Townsend's big-eared bat maternity roosting season (April 1 to August 15). If blasting is proposed between March 1st and August 15th, surveys of "suitable habitat" within a 165-foot buffer of the blasting location will be required. Tree and habitat surveys would adhere to standards outlined above. If no suitable habitat trees or suitable roosting structures exist within the 165 foot buffer of the blasting site, blasting restrictions for the two species will be lifted.
- Prior to construction, workers will receive Worker Environmental Awareness Training (WEAT) to be conducted by a qualified biologist. WEAT will include, but is not limited to, identification of relevant biological resources (e.g., special-status species that may be found in the project area) and an overview of conservation measures and avoidance and mitigation measures that are

required during construction activities. Handouts summarizing information presented during WEAT and relevant contact information will be provided to the workers.

- Areas of SR 36 that would no longer be in use would be reclaimed and re-vegetated.
- Degraded areas impacted from construction-related activity would be re-planted with local, native species. Shrubs and herbaceous perennials and annuals would be seeded and planted along riparian corridors where impacts and vegetation removal occur.
- No in-water work within the Van Duzen River will be conducted as part of the project.
- In Burr Creek and unnamed drainages and other intermittent drainages, work will be conducted during no- to low-flow periods of the year.
- The project will undergo occasional weather-related shutdowns during high precipitation or melting events when there is a greater likelihood for erosion and sediment release.
- Effects to riparian areas will be avoided and minimized to the greatest extent practicable during construction to reduce loss of shading and structure along the Van Duzen River.
- FHWA will prepare and implement an erosion control and restoration plan to control short- and long-term erosion and sedimentation effects, and to restore vegetation and stabilize soils in areas affected by construction activities.
- FHWA will comply with the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. FHWA will also comply with the California Stormwater BMP Handbook (2009) specifically addressing procedures for the proper use, storage, and disposal of materials and equipment on temporary construction pads that minimize or eliminate the discharge of potential pollutants to a watercourse (NS-14 in handbook) and procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses (NS-15 in handbook).
- All equipment will be stored, repaired, maintained, and fueled away from stream banks.
- Erosion and sediment will be controlled through riparian and upland plant seeding and through BMPs for erosion and sediment control as indicated by the FHWA Erosion Control Plan. Excess tree and branch materials from logging will be chipped and used for erosion control.

Threatened and Endangered Species

The project will adhere to the following measures to avoid or minimize potential adverse impacts to threatened and endangered species.

- Tree removal will not be conducted along the project corridor within the areas identified as nesting/roosting habitat during the nesting season (February 1 – September 15). This would minimize the potential for direct effects to the species by not allowing removal of a nesting or roosting tree during the breeding season.
- During tree removal activities, attempts will be made to avoid removing large, mature trees to the greatest extent practicable to reduce impacts to NSO.
- Use of construction equipment that exceeds 90 decibels at 50 feet (USFWS 2014, Table 1) would not occur from February 1 – July 9 within 50 meters (165 feet) of the areas identified as NSO

nesting/roosting habitat. This would minimize the potential effects to the species by reducing the amount of elevated noise levels which may rise to the level of harassment.

- Areas of SR 36 that would no longer be in use would be reclaimed and re-vegetated.
- Degraded areas impacted from construction-related activity would be re-planted with local, native species. Shrubs and herbaceous perennials and annuals would be seeded and planted along riparian corridors where impacts and vegetation removal occur.
- The Five Counties Initiative, which includes Humboldt County, is a program whose goal is to improve the recovery of salmonids in Northern California. The program developed a manual that outlines county road maintenance project BMPs that aim to reduce effects on SONCC Coho salmon, CC Chinook salmon, and NC steelhead (FCSCP 2002). This manual will be consulted when construction begins and more specific plans are in place for the design of the project. The manual can be found online, at: http://www.5counties.org/roadmanual.htm.
- No in-water work within the Van Duzen River will be conducted as part of the project.
- Work within Burr Creek and unnamed drainages and other intermittent drainages will be conducted during no- to low-flow periods of the year.
- The project will undergo occasional weather-related shutdowns during high precipitation or melting events when there is a greater likelihood for erosion and sediment release.
- Effects to riparian areas will be avoided and minimized to the greatest extent practicable during construction to reduce loss of shading and structure along the Van Duzen River.
- FHWA will prepare and implement an erosion control and restoration plan to control short- and long-term erosion and sedimentation effects, and to restore vegetation and stabilize soils in areas affected by construction activities.
- FHWA will comply with the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. FHWA will also comply with the California Stormwater BMP Handbook (2009) specifically addressing procedures for the proper use, storage, and disposal of materials and equipment on temporary construction pads that minimize or eliminate the discharge of potential pollutants to a watercourse (NS-14 in handbook) and procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses (NS-15 in handbook).
- All equipment will be stored, repaired, maintained, and fueled away from stream banks.
- Erosion and sediment will be controlled through riparian and upland plant seeding and through BMPs for erosion and sediment control as indicated by the FHWA Erosion Control Plan. Excess tree and branch materials from logging will be chipped and used for erosion control.
- The monitoring and reporting requirements outlined in the USFWS-issued Biological Opinion will be adhered. These include: reporting the progress of the project and its impacts on the NSO to the USFWS prior to December 31 of each year, for the duration of the project. FHWA shall provide the following:

  1) A description of the amount of suitable NSO habitat to be removed when project design is complete.
  2) A summary of construction activities that occurred during the past year including dates and equipment used.

3) The results of any future NSO surveys.

- As described in the Biological Opinion, any dead or injured NSO must be reported to the USFWS Law Enforcement Division (916-414-6660), or to the Arcata Fish and Wildlife Office (707 -822-7201), as soon as possible, and turned over to the Law Enforcement Division or a game warden or biologist of the California Department of Fish and Wildlife for care or analysis. The USFWS is to be notified in writing within three working days of the accidental death of, or injury to, a NSO, or of the finding of any dead or injured NSO, during implementation of the proposed project. Notification must include the date, time, and location of the incident or discovery of a dead or injured NSO, as well as any pertinent information on circumstances surrounding the incident or discovery. The USFWS contact for this written information is Bruce Bingham, Field Supervisor, Arcata Fish and Wildlife Office.

Invasive Species

The project will adhere to the following measures to avoid or minimize potential adverse impacts associated with the spread of invasive plant species.

- Cut and fill slopes that are capable of sustaining vegetation will be re-seeded with a native plant seed mix.
- The following standard management requirements will be implemented to prevent introduction of noxious weeds:
    - All vehicles and equipment entering the project area must be clean of noxious weeds and are subject to inspection. All construction equipment will washed to thoroughly remove all dirt, plant, and other foreign material prior to entering the project area.
    - All open-bodied trucks entering the project area will be covered when loaded; and
    - All imported plant material used for erosion control and road maintenance will be certified weed free.

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Appendix F: Comments and Responses on EA/IS

Public Comments and Responses

Commenter	Comment #	Comment	FHWA Response
Written Comments from the Public			
Dennis and Dorothy Simmons	1a	We are unable to download a copy of the area map for this project. We would appreciate it if you could direct us to another download or if there is a way to have a hard copy mailed to us.	We apologize for the inconvenience. James Herlyck, Central Federal Lands Highway Division, emailed the project area map to you on July 21, 2014. If you would still like a hardcopy mailed to you, please submit a request to James Herlyck at james.herlyck@dot.gov.
	1b	We live at mile 39 on the north side of SR 36 and will definitely be impacted by this project. We look forward to these much needed improvements, but we do have some concerns. Many of these I have already stated in a previous communication (copied below), but of greatest concern to us is our sole domestic water supply, a spring situated below the current highway that is likely to be affected by the construction. During past communications (September/October 1993) with CalTrans over proposed roadwork we supplied them with information regarding this spring. At that time CalTrans took measurements and tested the spring and they should have that information available. We have copies as well. We are happy to provide you with any information you may need, but protection of our water supply is of the utmost importance. I will note that, even in the current drought conditions the spring is doing quite well, as it always has. In fact, we purchased this property in September, 1977, based on the water availability evident from this aquifer. We may not be able to attend the scheduled meeting so want to make sure all our concerns are available to you in the allocated time. Please let us know if there is any additional information you may need. Concerns and considerations we need you to take in this project.	Thank you for taking the time to meet with FHWA-CFLHD staff on your property and identify the locations of your springs. The preliminary design has been reviewed and we do not anticipate there will be any impact to your springs. We will continue to coordinate with you through advanced design to ensure your water supply is not impacted.
	1c	1) Some sort of wildlife corridors, animals on roadway always a consideration. Deer, bear, fox, raccoons, etc.	As mentioned in the EA/IS, sight distance would be improved. Improvements to sight distance and providing a clear zone would help to minimize the potential for wildlife/vehicle collisions.

Commenter	Comment #	Comment	FHWA Response
Dennis and Dorothy Simmons	1d	2) Southern Trinity Area Rescue and local VFD's need to be involved in the process	The EA/IS acknowledges that there may be short-term, adverse impacts during construction due to the potential for delays through the project area in the event of an emergency. Impacts will be minimized through close coordination between the project construction team and area emergency service providers. Emergency services such as fire, police, and medical will also be notified one to two weeks in advance of any lane or roadway closures. In the event of an emergency, emergency vehicles will be accommodated through the project area.
	1e	3) Domestic water sources near project could be compromised	The project team will work directly with landowners who identify their domestic water supply may be affected by the project.
	1f	4) Safety, safety, safety	Section 3.9.2 of the EA/IS addresses safety. The proposed geometric improvements (flattening and eliminating curves, reducing vertical grades, improving site distance, etc.) are expected to improve safety within the project limits.
	1g	a) Pedestrians, bicycles. People do walk/pedal along the road here.	As noted in the EA/IS, no dedicated bicycle and pedestrian facilities exist in the project area. The project area is located in a rural area with limited pedestrian and bicycle activity. The Preferred Alternative would slightly improve conditions for pedestrian and bicyclists by widening the roadway, adding paved shoulders, and improving sight distance.
	1h	b) Recreation. People go to the river in summer, etc.	The proposed project is not intended to improve recreational access to the river. No benefits or adverse impacts to recreational river access are anticipated as a result of the project. With respect to recreational traffic passing through the project area, safety would be improved as noted in the response to comments 1f and 1k.
	1i	c) Speed limits - as mentioned at meeting it is apparently a 55 mph zone!!! This needs to be changed	The project is being designed to operate at 30 mph. The improved geometry and cross-sectional elements will improve safety. As part of this project, the need for advisory speed signs and other advanced warning signage will be evaluated and installed.
	1j	d) Signed & designated turnouts & passing lanes	Due to the physical constraints of this corridor including the narrow roadway bench and steep terrain, adding passing lanes would result in extraordinary costs and substantial impacts to adjacent land owners and natural resources, including wetlands, riparian areas, and threatened and endangered species. Formal pullouts will be added in four locations along the project corridor to provide an opportunity for slow-moving vehicles to pull-over.

Commenter	Comment #	Comment	FHWA Response
Dennis and Dorothy Simmons	1k	e) Rumble strips on both center & fog lines. As was mentioned, there is concern that widening/straightening the road will create more accidents, we can use Hwy 299 as an example.	Centerline and edge striping, centerline and edge rumble strips, and recessed pavement markers along the centerline are included in the proposed project. Improved curve banking, wider travel lanes, adding shoulders, and improving clear zones throughout the corridor will help vehicles recover from a loss of control, reducing the likelihood of vehicle run-off-road collisions and reducing the likelihood of fixed-object collisions. Widening of the roadway to two 12-foot lanes, with additional widening on curves, will reduce the likelihood of head-on collisions.
	1l	5) Remain scenic rte. Even improved, this is a poor choice for a main thoroughfare and no one who lives here wants that!	The proposed action is designed in a manner to provide the needed improvements to fit within the landscape as best as possible and be more consistent with the remainder of the route. The proposed improvements would not increase the capacity of the road and are not intended or expected to convert the roadway into a "thoroughfare."
	1m	6) Sliding (avoid issues such as Salyer bridges on 299)	The EA/IS notes that landslides, active and dormant, are encountered along the majority of the alignment from MP 37.35 to MP 39.50, and generally appear to be large scale complex landslides. Mitigation of the larger slide mass by avoidance, increasing resisting forces (such as buttresses or retaining walls), and/or increasing internal strength is cost prohibitive due to the depth of observed slide planes, material encountered, and the steep topography. Decreasing driving forces with improved subsurface drainage and a maintenance approach to limit areas of repair provide the best cost/benefit ratio. However, complete mitigation of the existing landslides is not feasible and continued movement is anticipated. Rigid structures will be avoided in these areas. More flexible and easily repaired systems such as reinforced soil slopes, rock embankment, and rock buttresses are expected to be utilized in the final design.
	1n	7) Environment - Runoff /river watershed. Many seasonal creeks cross the highway.	The soils in the area are unstable and prone to erosion, as noted in the EA/IS. Erosion affects both water quality and quantity by introducing sediment to water ways. Therefore, embankment design will be closely evaluated as design progresses to ensure adequate slopes are constructed that maintain stability, as well as facilitate vegetation growth. Special treatments, such as retaining walls or reinforced soil slopes with proper seeding and erosion control, will be applied.

Commenter	Comment #	Comment	FHWA Response
			In addition, a Construction General Permit will be obtained by FHWA-CFLHD. As part of this permit, a Storm Water Pollution Prevention Plan will be developed. FHWA-CFLHD will ensure that all permit conditions are included in the construction contract and fully implemented in the field.
Iver and Cynthia Skavdal	2a	I have reviewed the Mitigated Negative Declaration for the above reference project and am submitting comments for your consideration in the project development and environmental compliance. My wife and I own several parcels of land along the Van Duzen River. Our property is across the river from Hwy 36 at the east end of the project with approximately 1 mile of riverfront. We have two homes on the property both directly above the river with views to the south that overlook the river and the highway. We generally support this project, we agree with the need and understand that the existing alignment represents the best build alternative. However we have some significant concerns with this project, that we believe if addressed will improve the project and protect the river. Our comments are as follows:	Thank you for your comment. Responses to your specific concerns are addressed below.
	2b	1. Section 3.1.2 Affected Environment, Wild and Scenic Rivers, Preferred Alternative. In the last paragraph it is stated that this project will not increase access to the river. Please note that there is no public land or public access to the river along this alignment. People that access the river here are trespassing on private land. While it is stated that this project will not increase access to the river, the fact that the document represents the views of "recreationalists" in and of itself encourages use of the river. While we understand that it is very difficult to prevent trespassing along this stretch of the river, we do not believe the State or this project should encourage this activity. While most "recreationalists" respect the land, many do not. The private landowners are left to clean up the garbage, human waste, and other trash. We deal with uncontrolled dogs chasing wild life, people building campfires and even driving vehicles into the river and getting stuck on the beach. They park on the shoulder in an unsafe manner and while there is a gated non-permitted access point to the river, they tear the gate down and drive through.	It is not the intent of the EA/IS to encourage illegal access to the river. However, it is acknowledged that people may legally access the federally designated Wild and Scenic river from points outside the project area. Due to the river's designation as a Wild and Scenic river, FHWA-CFLHD is obligated under the National and State of California Wild and Scenic Rivers Acts to analyze visual impacts from the viewpoint of those that may be recreating on the river. For clarification, on page 30 of the EA/IS in section 3.1.3, the following sentence has been revised (strikethrough reflects text deleted; underline notes text added): "Because the Preferred Alternative would not include river impoundments, would not change access ~~increase accessibility~~ to the river…." In addition, text on page 81 of the EA/IS was revised as follows: "No visual simulation was prepared for Viewpoint #7, which would be visible only to people boating down the river from an upstream public access point or to private landowners, as no public access point to the river exists within the project area. This viewpoint represents an area where a retaining wall would be built downslope from the roadway…."

Commenter	Comment #	Comment	FHWA Response
Iver and Cynthia Skavdal	2c	Your document even includes a photo from the river, that could only have been taken by trespassing on private land. Please redact this photo from the document. If you are concerned about the views from our property please contact us and we will provide access to you.	Private landowners were notified via certified mail in 2013 that project personnel would be accessing private land in the project area. Only parcels for which the USPS confirmed delivery were accessed. The project team also attempted to contact all landowners via telephone to provide advance notification of the field survey efforts. At no time did FHWA or FHWA contractors trespass on private property. The photo is not intended to encourage illegal access, but to analyze impacts to the Wild and Scenic river designation in compliance with federal and state laws. Assuming you are referring to KOP #7 on page 82, the photo was included to represent the stretch of highway that would be visible from the river, which is designated as scenic in this area. FHWA-CFLHD is obligated under the National and State of California Wild and Scenic Rivers Acts to analyze impacts of the roadway changes to the river's scenic designation, which requires a view of the road from the river.
	2d	To help control and/reduce river impact we suggest the following: a. Install guardrail and no-parking signs along this section of the Hwy (ample safe parking exists at Buck Mountain Road and on the east side of the bridge. b. Remove the river access road or improve it to Hwy encroachment standards and gate it off. c. Define "recreationalists" as land owners and their guests with access to the river or better yet just remove this from the document.	The purpose of this project is to enhance traffic safety while improving mobility for vehicular travel along SR 36 in a cost effective manner. Improvements intended to control or reduce access to the river are beyond the scope of this project. As design progresses, FHWA-CFLHD and Caltrans will be coordinating with each landowner for specific design of access points and driveways off the highway. These can be discussed with each landowner on a case by case basis. Please refer to Comment #2b, which clarifies the definition of river users.
	2e	2. 3.10 Visual & Aesthetics KOIP#1 viewpoint. This short section of the Highway provides one of the best views of the Wild & Scenic Van Duzen River. The project as proposed has significant impact to these views from both the Wild & Scenic River and the Humboldt County criteria. The project description simply notes the impact but does nothing to mitigate the impact. Consideration of a reduced roadway section in this area should be studied. A reduced section could significantly reduce the amount of exposed cut slope on the roadway. Also a retaining wall section on the cut side of the roadway could reduce the visual impact in this area, these should be considered along this short but significant piece of the alignment.	As you note, the EA/IS acknowledges that changes to KOP #1 would experience a high degree of change in visual quality, and that the results would be mostly inconsistent with the California Scenic Highway program criteria and Humboldt County's scenic criteria. As discussed in the EA/IS in section 3.1.3, the Preferred Alternative would not alter the segment's ability to meet the criteria of a scenic river under the Wild and Scenic River Act. The California Natural Resources Agency was consulted regarding the anticipated visual impacts and concurred with this determination. The design currently reflects a 4-foot paved shoulder based on state highway standards. Suddenly reducing the shoulder width for one short segment would be unsafe. Corridor consistency is a proven safety benefit. Mitigation measures to reduce the level of visual impacts are described in section 3.10.4 of the EA/IS.

Commenter	Comment #	Comment	FHWA Response
			As stated in Section 3.10.4, the project design includes various types of slope stabilization treatments to limit the extent of cut and fill slopes, and hence their visual impacts, and lists treatments that would be applied to reduce impacts to less than significant. Specifically, the size of cut slopes would be minimized to the extent practicable, and cut slopes would be designed to blend into the adjacent natural topography. These measures will be further refined during final project design. The material, color, and texture of slope stabilization treatments will also be selected to blend with the natural environment, and revegetation of disturbed areas will occur. These and other measures are described in Section 3.10.4 of the EA/IS.
Iver and Cynthia Skavdal	2f	3. 3.12 Water Quality & Storm Water Runoff-The soils along the project alignment are highly erodible and do not take well to re-planting. There are a number of examples of highly eroded cut slopes along this alignment and several active landslides. The eastern section of this project is immediately adjacent to the Van Duzen River, any soil erosion from the cut slopes will go directly to the river with little retention in overland flow. Therefore cut slopes in this section should be minimized or receive additional stabilization to prevent erosion. To minimize impacts to the river from cut and fill slope erosion consideration should be given to the following: a. Reduce the section width through this area. b. Use retaining walls on the cut and fill slopes c. Use soil cement or other stabilizers in fill slopes Thank you for your consideration of our comments on the Mitigated Negative Declaration. Please continue to keep us informed as to the status of this project and contact us if you have any questions with respect to these comments.	Please refer to the response to comment #2e. In addition, embankment design will be closely evaluated as design progresses to ensure adequate slopes are constructed that maintain stability, as well as facilitate vegetation growth. Special treatments, such as retaining walls or reinforced soil slopes with proper seeding and erosion control, will be applied.
Sonia Davis	3a	I am opposed to your plan. It is too expensive and unnecessary. I am really tired of road closures every summer.	The cost effectiveness of the proposed improvements is paramount in the decision-making process for this project. This is the reason that “cost effective” was included in the purpose statement of the project in Section 1.4 of the EA/IS. The needs for the project are detailed in Section 1.5 of the EA/IS. If you’d like further details on proposed construction and road closures, please refer to the response to comment #6c.

Commenter	Comment #	Comment	FHWA Response
	3b	There are a few places that could be widened and longer pullouts would be nice but this is a country road not a freeway. If you want to help keep people alive put a cement barrier down the middle to keep these people on their own side—especially on the blind curves. I am sorry this is so late but I needed time to calm down.	Please refer to the response to comments 1j and 1k.There is insufficient road width either in the current condition or in the proposed typical section to install a concrete barrier safely. Adding a concrete barrier would require a substantially wider roadway than proposed at a substantially higher cost. The roadway classification is a conventional highway and is being designed with a balanced approach in improving safety and mobility. Meeting freeway standards is not proposed.
	3c	There are more people living here besides tourists and drug people.	The EA/IS includes information on impacts to landowners and all the different users of the roadway.
Verbal Comments from the Public Hearing			
Angelique Russell	4a	And this is a comment that, actually, somebody made that came into the ranger station. They widened and straightened out the road to Ruth Dam, Lower Mad River Road several years ago. And, when they did that project, they said the maximum speed limit would be 35 miles per hour. And the speed limit is only posted in a couple of spots near residential areas, but there's other homes as well and so you have -- on that whole stretch of the road, there's like two spots that it's posted. So here on this project, you're proposing 30 miles per hour. Is that the entire area? Is it, you know, is it – you know, is it from mile marker whatever 39.6 to 40.1? Anyway, this person came in and made that comment and he said that it's not posted. They promised him that it would be posted. And so everywhere they -- you know, they go 35 miles where it's posted, and they go 75 or 60 where it's not posted. So straightening out a road, to me, means driving faster. And people drive fast enough. I'm all for straightening it out, but it doesn't slow them down so.	Plans for signage will be developed during final design. The EA/IS notes that the existing posted speed limit is 55 mph for the majority of the route, with reductions in the posted speed limit in a few developed communities. Within the study area, the high number of sharp curves and steep grades substantially reduce the operating speed; with advisory speed limits varying from 15 to 25 mph. The route would be designed to generally operate at 30 mph. This speed is more consistent with adjacent segments of the route. As part of this project, the need for advisory speed signs will be evaluated and signs will be installed.
Angelique Russell	4b	This wet mitigation thing, where's that going to be exactly? Where's the proposed mitigation for the wetland?	The potential mitigation site is a seven-acre site within the Six Rivers National Forest adjacent to the Van Duzen River, 1.7 miles southeast of Dinsmore. As stated at the public hearing, the site is located at the former Mad River Ranger District administrative offices. It is a fairly isolated parcel that was used as a permanent stockpile location for excess excavated soil during pervious roadway improvement projects. FHWA-CFLHD worked with the Six Rivers National Forest to identify this site to be used as a wetland mitigation area.
Allan Baird	5	I'm here tonight on behalf of the Highway 36 Association. I was a president of that for about 25 or 30 years. Dr. Alan French, who's present on the Fortuna side, he wasn't able to make it tonight. On behalf of myself, I have worked many, many hours with Caltrans,	Please refer to Comment #4a for details regarding speed limits For a response regarding slides at MP 39.5, please refer to Comment #1m.

Commenter	Comment #	Comment	FHWA Response
		federal people. About a year and a half or two years ago, I was privy to at least get the phone call to tell us that there's 23, $24 million that had been awarded or allotted to the feds for this. I've been stuck on that road four years ago with that nuclear waste containment vessel that got put there for two or three days on the weekend before Labor Day, I think it was, or something like that. I was headed for Sacramento. The association which many individuals belong, it's Red Bluff to here, will appreciate any improvements you can make in the way of safety, emergency response concerning highway patrol, ambulances, fire, and controlling traffic with signs. I anticipate this is probably a 55-miles-an-hour Caltrans highway with 30-mile-an-hour turns through here. I don't know. I don't see it being 30 all the way. But it's a -- it's a blessing to me to see this happening. And I know I go to Ruth Lake all the time. There's a lot of people that just as soon not even have this, because it will bring more people and it makes roads faster and whatever. But I do know that STARS (phonetic) through Highway 36 in the past has indicated, through LAFCO, that it's needed. Too many wrecks, too many lives lost along that section of the Road. And so I think you're doing the right thing with your environmental document. But reviewing everything, I'm not a big burning weed (sic) fan but it will work. And we do need -- I looked at the major places you're improving and, being an engineer, I pretty much came to the same conclusion. My only question is, the designers of what they're going to do at 39.5 there where it just keeps sliding. And I don't know how you're going to stop it, retaining walls or what. But anyway, I really appreciate your coming. My supervisor from Humboldt County isn't here tonight, but I'll make sure -- she's missed by me anyway. And thank you very much.	
Christine	6a	I wondered if -- was that analyzed in this document for that off- --	Yes, the proposed wetland mitigation site was included in the analyses

Commenter	Comment #	Comment	FHWA Response
Hill		for this wetland offset mitigation? Is that part of this document?	performed and documented in the EA/IS.
	6b	I'm, you know, kind of new to the area, you know, been working here for about seven months so not familiar with, you know, some other construction and whatnot that's happened in the past, but I just wanted to say that I really appreciate the effort as well. And when I first did come to the area, I was living over in Carlotta so I was commuting that segment of road every day, so I really appreciate the effort and recognize the need to improve our safety along that -- along that stretch and improve the access to the federal lands that Highway 36 provides access to. Of course, we don't want all of LA or San Francisco or whatever coming up here because of that, but I think the improved safety along that corridor is really critical. And I liked that you looked at these other alternatives and I think the alternatives that you selected, the preferred alternatives, makes a lot of sense. You know, if we're going with one of those other alternatives, we're going to cause a whole lot more ground disturbance and a lot of other impacts. I think it's unfortunate for some residents, you know, that may be impacted along the way but, when you look at the alternatives, it seems to make the most sense because it is already in a disturbed context because we have the existing roadway there, so I think it's overall the least amount of impacts that kind of -- that we can incur because of, you know, I think of the setting. So, yeah, that's it. I just really appreciate this and want to look over this in a little more detail. And I like the idea about the offset mitigation. I've worked on similar projects with Caltrans in Lassen County and we did similar things like that, too, so that's a good approach to offset any impacts that are occurring. So we'll have to see what we do with that. So thank you everyone for coming out here this evening too.	Thank you for your comment.

Commenter	Comment #	Comment	FHWA Response
Christine Hill	6c	And so I guess the concern is we have a lot of employees that live in Fortuna, Eureka, Arcata and over in that way and just that back and forth to our office, you know. We have a lot of federal employees that this is going to impact. We have a lot of meetings in the Yreka office, so that's going to impact people's going to and from work. And I guess that's the impact. And if it's going to be completely closed, I appreciate that we're going to have the advanced notice, but would there be some allowance? I know there will be for emergency traffic, perhaps for some of the government employees maybe. Just a question. Would there be some kind of allowance for the employees that are going back and forth? Because that's – that's the concern, I guess, with the closure if it's going to be closed from, say, 9:00 to noon or whatever that schedule is. So the advanced notice, I think, would help to work around but – so yeah, I guess that's just a concern. Okay. I guess I don't know how else to put it. I don't know how you're capturing it. But it is just that we have a lot of employees go back and forth, you know, and everyone works different hours, our firefighters work different hours, and we're all on different schedules, and it's certainly going to impact people. I mean I recognize, in the long run, it's great and we're going to have an improved road and we all like that. And our employees that are going back and forth are going to benefit from that. But it's just during that construction, is it going to be closed completely or is it just going to be for a few hours a day? What is that going to look like? And how can we prepare to work around that? And this is kind of off the record. I've lived – well, or maybe on the record. I've lived in Lassen County and Caltrans did a Highway 32, State Highway 32 fixing and it was closed complete- -- it was closed for months and. That was a huge impact for folks. So, one, is this going to look something like that? I certainly hope not, because it's a long way. In my mind, there's really no alternate route, I mean, especially during the winter that we have to get over that way. So alternate routes and the closure and how that's going	A Construction Management Plan will be developed and implemented that will identify the locations of temporary detours, road closures and delays, signage use and placement, and advanced notification procedures. As noted in the EA/IS, proposed road closure times during construction are Monday through Friday, 8:00 a.m. to noon and 1:00 p.m. to 5:00 p.m. If night construction becomes necessary, closures may also be possible between 9:00 p.m. and 6:00 a.m. During periods when these temporary closures are not in place, one lane of traffic would remain open during construction, with a maximum 30-minute delay. Other potential delays and closures in the area would be considered prior to approval to ensure no major disruptions to regional traffic would occur. All delays and closures would be relayed to the public, relevant local agencies, and emergency service providers.

Commenter	Comment #	Comment	FHWA Response
		to impact. I'm looking out for my employees, mostly I'm thinking of. But, you know, I'm sure the recreationists and others in the area, it's a concern for them as well. I know it's – that's limited, but I'm thinking about the employees.	
Steve Delaney	7	I've been driving for a living here for over 50 years and it's well needed, well needed. And the dirt roads up here, I drive a lot. And it's never been improved other than chip-sealed pavement. It's never gotten straightened, so it's well deserved. 50 years is about time. Thank you.	Thank you for your comment.
Ben Reed	8a	And they mentioned about concern over one little owl. And, well, I would like to -- to maybe you could spread some of that concern to us humans, you know, who -- we rely on this recreation. We sell recreation all summer long. And maybe they could do a majority of the work at night and flip it. I don't know. That -- that would make -- everybody would just be happy. I mean, that would be -- who could complain about that? I mean, there's going to be -- I still BBQ on the lake, man, so it's very important that we get these people out here, you know, maybe a four-day workweek and give us Friday and Sunday afternoons. That – that would just be absolutely wonderful. But the night work, man, well, just who could complain about the night work? That's my point. And I would have stood up and said it in front of everybody here, but I'm one of the most hated persons in the valley. So I -- I just let it go quiet. But anyways, yeah, I -- I don't know, is that everything -- you probably don't know the answers. I would like that to be discussed, you know.	Please refer to Comment #6c for details regarding construction and road closures.

Commenter	Comment #	Comment	FHWA Response
Ben Reed	8b	And tell Nicole, anything but owls. Don't -- don't mention anything -- the spotted owl shut down Trinity County. And she lost a lot of -- when she said that one little owl, she upset a lot of people. Owls are bad.	The northern spotted owl, which has potential to occur in the project area, is protected at the federal and state levels. Therefore this species requires analysis and mitigation measures under this project, and is subsequently analyzed in the EA/IS.
Carlene Richardson	9a	I do not want to drive all the way to town at 30 miles per hour. Please don't put up a lot of speed limits. Thank you.	Please refer to Comment #4a for details regarding speed limits along the corridor.
	9b	I am grateful that they want to work on the road and improve it some, a little bit.	Thank you for your comment.

Agency Comments and Responses

Agency	Comment #	Comment	Response
Native American Heritage Commission	10a	Contact the appropriate regional archaeological Information Center for a record search.	An archaeological survey report was prepared for this project in 2014 by Far Western Anthropological Research Group, Inc. A records search was conducted by staff at the North Coast Information Center in Klamath on November 2, 2012 (NCIC file number Leach-Palm 12) and later updated by Far Western staff on July 10, 2013, at the Northwest Information Center at Sonoma State University in Rohnert Park (file numbers 13-0050 and -0093). The records search area encompassed a distance of one-half-mile from the project alignment. Base maps were examined for archaeological sites and surveys within the records search area, and the following sources were reviewed: ▪ National Register of Historic Places (National Register) ▪ California Register of Historical Resources (California Register) ▪ California Inventory of Historic Resources (1976 and updates) ▪ California State Historical Landmarks (1996 and updates) ▪ California State Points of Historical Interest (1992 and updates) ▪ Office of Historic Preservation's Historical Property Data File Additional resources were also reviewed, such as historic-era topographic and General Land Office maps, and Far Western consulted with the local Caltrans archaeologist Darrell Cardiff and Six Rivers National Forest archaeologist Anya Rardin to further identify any cultural resources in the records search area. This consultation resulted in a review of unpublished notebooks compiled by ethnographer Pliny Earle Goddard during his fieldwork between 1903 and 1908 to locate potential unrecorded resources within the records search area.
	10b	If an archaeological survey is required, prepare a professional report detailing the findings. Immediately submit the report to the planning department and within three months to the Archaeological Information Center.	Far Western Anthropological Research Group, Inc. conducted a field survey and prepared a report in 2014 documenting the results. Far Western submitted the report to the Northwest Information Center, which is the regional information clearinghouse for the project area.
	10c	Lack of surface evidence does not preclude subsurface existence. Lead agencies should include in their mitigation plan provisions for: ▪ Identification and evaluation of accidentally discovered archaeological resources. In areas of archaeological sensitivity, a certified archaeologist and culturally affiliated Native American with knowledge in cultural resources should monitor all ground-disturbing activities. ▪ Disposition of recovered cultural items that are not burial	FHWA and Caltrans have provisions for inadvertent discovery of cultural resources that are incorporated into all projects.

Agency	Comment #	Comment	Response
		associated in consultation with culturally affiliated Native Americans. ▪ Discovery of Native American human remains and associated grave goods.	
North Coast Regional Water Quality Control Board (Regional Water Board)	11a	▪ A Clean Water Act 401 water quality certification will not be issued for the Project unless Caltrans provides adequate post-construction storm water treatment for an area of impervious surface equivalent to the entirety of the added, and as much as feasible of the remaining impervious Project area. ▪ The post-construction treatment BMPs must enhance infiltration through a vegetated, engineered soil media layer. Traditional swales without an enhanced vertical infiltrative element shall not be considered a sufficient level of treatment. ▪ The storm water runoff volumes and rates used to size the treatment BMPs must be based on the 85th percentile 24-hour storm event. The treatment BMPs must be sized using the entire contributing area to the BMP. Under-sized treatment BMPs will not be accepted. If Caltrans cannot identify a sufficient level of treatment on-site, off-site treatment within the Van Duzen watershed may be submitted to the Regional Water Board for review and acceptance.	FHWA-CFLHD and Caltrans are aware that post-construction treatment BMPs are necessary and these are being incorporated into the project. A site visit was conducted in March 2014 with Gil Falcone of the Regional Water Board to review the project in the field and discuss types and locations of potential BMPs. Coordination on appropriate storm water treatment will continue throughout project design.
	11b	▪ Caltrans must incorporate design measures to ensure that the post-project hydrograph does not exceed the pre-project hydrograph by ten percent or more for the 2 year/24 hour storm event volume and/or time of concentration. This information will be required before Caltrans may receive a 401 water quality certification for the Project.	Permanent design features to be incorporated into the project to address hydromodification and pollutant control will adhere to the requirements of the Caltrans municipal separate storm sewer system (MS4) permit.

Appendix G: Public Hearing Transcript

PUBLIC HEARING

SR 36 Road Improvement Project

Environmental Assessment (EA)/Initial Study (IS)

CA FLAP SR 36(13), STATE ROAD 36)
HUMBOLDT COUNTY)
6:30 - 8:30 p.m.)
)
The purpose of this public)
hearing is to provide all)
interested persons the)
opportunity to comment on the)
proposed project (Humboldt)
County Mile Post [HUM MP] 36.1)
to HUM MP 40.5).)
_____)

TRANSCRIPT OF PROCEEDINGS

Ruth Lake Community Hall
591 Van Duzen Road
Mad River, California 95526

Tuesday, July 29, 2014
6:49 p.m.

Reported By: CAROL J. CHASE, CSR No. 13538

REPRESENTATIVES PRESENT

NICOLE WINTERTON, CFL Environmental Coordinator
RICHARD MULLEN, Caltrans Project Manager
ORRIN LEE, CFL Resident Engineer
JAMES HERLYCK, CFLHD Project Manager
CURTIS CROSS, U.S. Forest Service - Six Rivers
STEVE DELANEY, Caltrans Foreman
BRENDAN PETERS, CFL Geotech Engineer
LAUREN ABOM, Jacobs Environmental Planner
KELLY TERRELL, CFL
LEOTA LOVELACE, Caltrans Right-of-Way

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PROCEEDINGS

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SR 36 Road Improvement Project EA/IS
July 29, 2014

MR. MULLEN: Okay. Well, first off, I want to welcome everybody to this public meeting. We're going to have a meeting tonight. It's for the HUM 36 project that goes from post mile 36.1 to 40.5. And my name is Richard Mullen. I'm with Caltrans. Caltrans is in partnership with Federal Lands. They're the leader in this project and we're overseeing a lot of the project. We do have -- Caltrans does have key aspects of the project that we are handling ourselves, but they are the lead of the project. So it's been a good working relationship, we've been able to work well with each other, and it's been an exciting project to get to -- at this stage, it's taken a lot of work to get to this stage.

So with the group that's here tonight will be, as I said, myself from Caltrans. I'm the project manager representing Caltrans, and we also have other representatives from Caltrans from the right-of-way department here to answer any questions you might have once we break off. And then also we have from Federal Lands, we have James Herlyck. He's a project manager for this project and Nicole Winterton is an

environmental coordinator. We also have a representative from the Forest Service that's here.

So once we get going, the presentation will be, like I said, led by Federal Lands, and then we'll disperse later and have questions on any of the displays we have and maybe any of your property questions, we'll be able to deal with. And just keep in mind, the representatives we have here are from Caltrans Right-of-Way. We have a representative from Federal Lands, from Geotech, they're design division and, money, other issues that you might want to discuss, we're all here. So just feel free to ask anyone. And then if we can't answer it, they'll direct you to a person that can. So if you don't have any questions, I'm going to go ahead and turn it over to Nicole.

MS. WINTERTON: Did you want to say anything?

MR. HERLYCK: No, I just want to thank you, everyone, for coming tonight. And like Richard said, we just want to echo that that, you know, we're here to answer questions that you may have and also get your feedback on the project. This is an important phase of the project where we solicit your opinions on it, and so this is an opportunity for your voices to be heard so thank you.

Nicole.

MS. WINTERTON: Thank you. Like Richard had mentioned, my name is Nicole Winterton, I'm the environmental lead for this project and so the section of roadway that we've been studying is mile post -- there's a couple of county mile posts 36.1 to 40.5.

And let me just run through the -- the purpose of tonight's meeting is we really want to give you all an opportunity to learn more about the project and the environmental findings of our efforts that we put in this Environmental Assessment and we want to give you an opportunity to provide additional comments. And I'll kind of go through this at the end but, for good memory, this -- the input that you provide today is very helpful and we really appreciate that input. So there are a few different ways to provide input tonight. And then also, you know, after this meeting if you kind of take some information and then you can absorb it and send in your comments. So you can provide your comments.

After we give a presentation, we'll provide an opportunity for you all to provide some comments if you want to in front of others. We'll kind of allow some people to look at some of the posters. We'll have representatives there to answer any questions. So if people feel more comfortable, they can provide comments to our reporter individually verbally. Sometimes it's

easier to talk versus write. But also, we do have comment forms that people can provide in the box later or can send in the mail or via e-mail after the meeting. So that's really the intent of our meeting tonight is to share more about the project and to get your feedback.

(PowerPoint Presentation.)

MS. WINTERTON: What we thought we'd do here today is provide people the opportunity to share their feedback in front of others if they prefer to do that. We realize that sometimes when somebody shares a comment out loud, it gets, you know, juices flowing and people can think about that and so that you can share your comment here publicly. You can also -- after, we'll go back to the open-house format. We really want to do that, too. We recognize some people don't feel comfortable talking in front of other people. And we have a recorder here, so she's going to be recording your comments that you share to the group in front of the group but, also, she'll be here and you can go up to her and you can share your comments verbally to her and she'll record it. Carol, over here in front of the room.

And we also have forms, so feel free to fill them out and place them in the box that we have. Or you can also take forms and you can send them in or scan

them and e-mail to james.herlyck@dot.gov. He's our FHWA project manager. And -- or feel free to provide them in the regular mail too. And we have on the handout, we have his mailing address on there.

So did you -- with the -- some of the other items?

MR. MULLEN: Yeah, real quick, there's a survey on the front desk there. It's the Caltrans survey. When you complete it, you can either hand it to me or there's a folder up front you can put it back into. And then I just want to reiterate on the comments issue. Those comments are very effective for multiple reasons, just to get a better project. And then, also, if you have comments that are in favor of it, those are good, too. Because sometimes when we're going through the project development process, it could help out as far as if somewhere there comes a need for additional funding, the comments you have given in support of the project, we can use to go after more funding.

If there's a lot of -- sometimes the tendency is just to get comments of things you don't like and things like that. And then myself, if I'm going back trying to get more money, we don't have the support. But I know there's some support out there. So I just want to let you know that that, either way, it's good to

get comments on the issues you have on the project so I wanted to reiterate.

MS. WINTERTON: Yeah. And we do a lot of effort with our environmental surveys and stuff but, you know, we're out there for just a glimpse. So especially people who drive the route a lot or live out there or just are there in general, I'm sure you have a lot of input to provide in the process or through our analysis. So we definitely appreciate the input, and it always leads to a better project, a better decision, so we really do appreciated that. So I think we can just go ahead and we can move towards that.

I -- providing comments -- people like to provide comments. I just let you know that, after, we'll provide people the opportunity to provide the comments individually to our recorder. And we'll also be around some of these posters because, I realize on slides, you're not going to see some of this information so that's why we have big posters. And then we'll have some representatives to answer questions. And if we're -- we'll do the best of your ability to answer any questions.

We have a few expertises here, but there's a lot of different expertise that provides input. So I just want to mention that if you have a specific

question that you would really like responded to through the formal process to provide it to our recorder or to write it down just to make sure that we capture it appropriately. Because if we're hearing it at a board and there's a few people, we might not capture it completely. So if there is something that you want officially comment -- or responded to to please write it down or write it to Carol over here so.

So with that being said, if anybody wants to share any input or provide a comment for the project, I'd just ask that if you could state your name and your address and Carol will capture it. And if she can't hear you, it's really important that she hear you, she'll let us know and then, you know, maybe we can kind of move you closer. But if somebody wants to come up here and step closer to her, feel free.

So anybody? Observations? Comments? Input? Yep.

(PUBLIC COMMENTS)

UNIDENTIFIED ATTENDEE: I don't know if you're the right person to ask this question. I'm just curious about it. If you had a tenant and they were unable to access the property, do you guys pay, like, lost rent, things like that during this project?

MS. WINTERTON: Well, so we're going to keep

this to just the comments --

UNIDENTIFIED ATTENDEE: Okay.

MS. WINTERTON: -- and do some of these questions. Because, actually right off the top of my head, I can't answer the question, so we'll probably have to kind of direct you to the right person.

UNIDENTIFIED ATTENDEE: Okay.

MS. WINTERTON: Because for the comment, we really want to have your name and address. So if you would like it officially responded to through the process, I'd ask if you could provide your name and address.

UNIDENTIFIED ATTENDEE: Oh, I'll find out. I was just curious. Thank you.

MS. WINTERTON: Okay. So if we could just stick to comments or input on the project right now. And then if people have specific, detailed questions, just out of respect for everybody's time, we'll handle that after.

MS. RUSSELL: Okay. My name is Angelique Russell, 1950 Van Duzen Road. And this is a comment that, actually, somebody made that came into the ranger station. They widened and straightened out the road to Ruth Dam, Lower Mad River Road several years ago. And, when they did that project, they said the

maximum speed limit would be 35 miles per hour. And the speed limit is only posted in a couple of spots near residential areas, but there's other homes as well and so you have -- on that whole stretch of the road, there's like two spots that it's posted. So here on this project, you're proposing 30 miles per hour. Is that the entire area? Is it, you know, is it -- you know, is it from mile marker whatever 39.6 to 40.1?

MS. WINTERTON: Should we adjust our --

MS. RUSSELL: Anyway, this person came in and made that comment and he said that it's not posted. They promised him that it would be posted. And so everywhere they -- you know, they go 35 miles where it's posted, and they go 75 or 60 where it's not posted.

MS. WINTERTON: Okay. That's good feedback that I think that we'll have to look at through the design process when we consider signage for the project.

MS. RUSSELL: Right. So straightening out a road, to me, means driving faster. And people drive fast enough. I'm all for straightening it out, but it doesn't slow them down so.

MS. WINTERTON: Okay. Anybody else? Did you have a comment?

MR. BAIRD: My name is Allan Baird, Post Office Box 396, Fortuna, and I'm here tonight on behalf

of the Highway 36 Association. I was a president of that for about 25 or 30 years. Dr. Alan French, who's present on the Fortuna side, he wasn't able to make it tonight. On behalf of myself, I have worked many, many hours with Caltrans, federal people. About a year and a half or two years ago, I was privy to at least get the phone call to tell us that there's 23, $24 million that had been awarded or allotted to the feds for this.

I've been stuck on that road four years ago with that nuclear waste containment vessel that got put there for two or three days on the weekend before Labor Day, I think it was, or something like that. I was headed for Sacramento.

The association which many individuals belong, it's Red Bluff to here, will appreciate any improvements you can make in the way of safety, emergency response concerning highway patrol, ambulances, fire, and controlling traffic with signs. I anticipate this is probably a 55-miles-an-hour Caltrans highway with 30-mile-an-hour turns through here. I don't know. I don't see it being 30 all the way.

But it's a -- it's a blessing to me to see this happening. And I know I go to Ruth Lake all the time. There's a lot of people that just as soon not even have this, because it will bring more people and it makes

roads faster and whatever. But I do know that STARS (phonetic) through Highway 36 in the past has indicated, through LAFCO, that it's needed. Too many wrecks, too many lives lost along that section of the Road.

And so I think you're doing the right thing with your environmental document. But reviewing everything, I'm not a big burning weed (sic) fan but it will work. And we do need -- I looked at the major places you're improving and, being an engineer, I pretty much came to the same conclusion. My only question is, the designers of what they're going to do at 39.5 there where it just keeps sliding. And I don't know how you're going to stop it, retaining walls or what.

But anyway, I really appreciate your coming. My supervisor from Humboldt County isn't here tonight, but I'll make sure -- she's missed by me anyway. And thank you very much.

MS. WINTERTON: Okay. Thanks. Anybody else?

MS. RUSSELL: This wet mitigation thing, where's that going to be exactly? Where's the proposed mitigation for the wetland -- or you talked about --

MS. WINTERTON: Curtis, do you want to help describe it a little bit? It's just natural to answer questions. I'm sorry.

MR. CROSS: This is a seven-and-a-half acre

parcel that used to be a --

THE COURT REPORTER: Could you speak up, please?

MR. CROSS: This is a seven-and-a-half acre parcel that used to be where the Mad River Ranger District Admin Office was before it was moved up on the compound. It's just -- just this side of Dinsmore. It's a fairly isolated parcel that's been used for waste disposal as far as road, like, slough materials has been placed there so. And as well as, you know, there's been some dumping on the site, so it definitely could use -- it's a spot well -- well in need of mitigation, so I think it will really work out well for us.

MS. WINTERTON: I'd be happy to, when we go back to the --

MS. RUSSELL: I was just curious where that was going to be.

MS. WINTERTON: I'll be happy to go over it with you.

MS. HILL: So I have a question. Can I ask a question regarding that or no?

MS. WINTERTON: What you think, James? Well, I just want to give people the opportunity to look at posters so...

MS. HILL: It's a comment with regard to that

though. And I -- when you mentioned it in your presentation, I wondered if -- was that analyzed in this document for that off- -- for this wetland offset mitigation? Is that part of this document?

MS. WINTERTON: Yes.

MS. HILL: Okay. Very good.

THE COURT REPORTER: Can I get your name, please?

MS. HILL: Christine Hill, 133 Van Duzen.

MS. WINTERTON: Anybody else? Well, I -- I appreciate everyone coming. I just want to make sure that everyone signs in, so we can definitely keep you on the mailing list for the project. I talked to a couple folks who heard through the notices and other means, so please make sure that you sign in. And we want to give people the opportunity to provide comments individually and to really absorb and kind of take in some of the information of posters and collect your thoughts and provide feedback. We really, really, really do appreciate it.

Thank you so much for taking your time out to come tonight. And I know we're all very busy, and we really do appreciate your -- your involvement in the project so thanks.

And you had one more comment.

MS. HILL: I'm, you know, kind of new to the area, you know, been working here for about seven months so not familiar with, you know, some other construction and whatnot that's happened in the past, but I just wanted to say that I really appreciate the effort as well.

And when I first did come to the area, I was living over in Carlotta so I was commuting that segment of road every day, so I really appreciate the effort and recognize the need to improve our safety along that -- along that stretch and improve the access to the federal lands that Highway 36 provides access to. Of course, we don't want all of LA or San Francisco or whatever coming up here because of that, but I think the improved safety along that corridor is really critical.

And I liked that you looked at these other alternatives and I think the alternatives that you selected, the preferred alternatives, makes a lot of sense. You know, if we're going with one of those other alternatives, we're going to cause a whole lot more ground disturbance and a lot of other impacts.

I think it's unfortunate for some residents, you know, that may be impacted along the way but, when you look at the alternatives, it seems to make the most sense because it is already in a disturbed context

because we have the existing roadway there, so I think it's overall the least amount of impacts that kind of -- that we can incur because of, you know, I think of the setting. So, yeah, that's it. I just really appreciate this and want to look over this in a little more detail.

And I like the idea about the offset mitigation. I've worked on similar projects with Caltrans in Lassen County and we did similar things like that, too, so that's a good approach to offset any impacts that are occurring. So we'll have to see what we do with that. So thank you everyone for coming out here this evening too.

MS. WINTERTON: Thanks. Okay. So we'll give people an opportunity to absorb some of the posters. And feel free to -- if you don't want to provide your comments tonight and you want to kind of think them over a little bit, feel free to send them to James either through e-mail or regular mail. We just ask that you do so by August 8th. That's when we're going to start really incorporating those comments and addressing those comments in our decision-making process so. All right. Thanks.

MR. HERLYCK: Thank you.

MR. MULLEN: Thank you very much.

MR. DELANEY: I've been driving for a living

here for over 50 years and it's well needed, well needed. And the dirt roads up here, I drive a lot. And it's never been improved other than chip-sealed pavement. It's never gotten straightened, so it's well deserved. 50 years is about time. Thank you.

THE COURT REPORTER: And your name and address?

MR. DELANEY: Steve Delaney, P.O. Box 7, Mad River.

THE COURT REPORTER: Thank you.

MR. REED: Hi.

THE COURT REPORTER: Can I get your name, please?

MR. REED: Yeah, my name is Ben Reed. My address is 12191 Mad River Road. And they mentioned about concern over one little owl. And, well, I would like to -- to maybe you could spread some of that concern to us humans, you know, who -- we rely on this recreation. We sell recreation all summer long. And maybe they could do a majority of the work at night and flip it. I don't know. That -- that would make -- everybody would just be happy. I mean, that would be -- who could complain about that?

I mean, there's going to be -- I still BBQ on the lake, man, so it's very important that we get these people out here, you know, maybe a four-day workweek and

give us Friday and Sunday afternoons. That -- that would just be absolutely wonderful. But the night work, man, well, just who could complain about the night work? That's my point.

And I would have stood up and said it in front of everybody here, but I'm one of the most hated persons in the valley. So I -- I just let it go quiet. But anyways, yeah, I -- I don't know, is that everything -- you probably don't know the answers. I would like that to be discussed, you know.

And tell Nicole, anything but owls. Don't -- don't mention anything -- the spotted owl shut down Trinity County. And she lost a lot of -- when she said that one little owl, she upset a lot of people. Owls are bad.

THE COURT REPORTER: Thank you.

MR. REED: Okay. Thank you for listening.

MS. RICHARDSON: My name is Carlene Richardson.

THE COURT REPORTER: What's your address?

MS. RICHARDSON: P.O. Box 34, Mad River. I do not want to drive all the way to town at 30 miles per hour. Please don't put up a lot of speed limits. Thank you.

THE COURT REPORTER: You're welcome.

MS. RICHARDSON: Carlene Richardson. I am

grateful that they want to work on the road and improve it some, a little bit.

THE COURT REPORTER: Thank you for commenting.

MS. HILL: Christine Hill. And so I guess the concern is we have a lot of employees that live in Fortuna, Eureka, Arcata and over in that way and just that back and forth to our office, you know. We have a lot of federal employees that this is going to impact. We have a lot of meetings in the Yreka office, so that's going to impact people's going to and from work. And I guess that's the impact.

And if it's going to be completely closed, I appreciate that we're going to have the advanced notice, but would there be some allowance? I know there will be for emergency traffic, perhaps for some of the government employees maybe. Just a question. Would there be some kind of allowance for the employees that are going back and forth? Because that's -- that's the concern, I guess, with the closure if it's going to be closed from, say, 9:00 to noon or whatever that schedule is. So the advanced notice, I think, would help to work around but -- so yeah, I guess that's just a concern.

Okay. I guess I don't know how else to put it. I don't know how you're capturing it. But it is just that we have a lot of employees go back and forth, you

know, and everyone works different hours, our firefighters work different hours, and we're all on different schedules, and it's certainly going to impact people. I mean I recognize, in the long run, it's great and we're going to have an improved road and we all like that. And our employees that are going back and forth are going to benefit from that. But it's just during that construction, is it going to be closed completely or is it just going to be for a few hours a day? What is that going to look like? And how can we prepare to work around that?

THE COURT REPORTER: And what's your address again?

MS. HILL: 133 Van Duzen, that's my personal. And this is kind of off the record. I've lived -- well, or maybe on the record. I've lived in Lassen County and Caltrans did a Highway 32, State Highway 32 fixing and it was closed complete- -- it was closed for months and. That was a huge impact for folks.

So, one, is this going to look something like that? I certainly hope not, because it's a long way. In my mind, there's really no alternate route, I mean, especially during the winter that we have to get over that way. So alternate routes and the closure and how that's going to impact. I'm looking out for my

employees, mostly I'm thinking of. But, you know, I'm sure the recreationists and others in the area, it's a concern for them as well. I know it's -- that's limited, but I'm thinking about the employees.

(The proceedings concluded at 8:16 p.m.)

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CERTIFICATE OF REPORTER

DECLARATION OF COURT REPORTER REGARDING CCP 237(a)(2)

I, CAROL J. CHASE, a Certified Shorthand Reporter, licensed by the State of California, License No. 13538, being empowered to administer oaths and affirmations pursuant to Section 2093(b) of the Code of Civil Procedure, do hereby certify:

That the foregoing proceedings were taken in stenographic shorthand before me at the time and place herein stated, that said proceedings were taken before me in shorthand writing, and were thereafter transcribed under my direction by computer-aided transcription;

That the foregoing transcript, pages 3 to 22, constitutes a full, true, and accurate record of the proceedings which took place;

That I am not of counsel or attorney for any of the parties hereto, or in any way interested in the event of this cause, and that I am not related to any of the parties hereto.

I further declare that pursuant to the provisions of the Code of Civil Procedure section 237(a)(2) and to the best of my ability, personal juror identifying information has been redacted from those portions of the reporter's transcript governed by CCP 237(a)(2).

IN WITNESS WHEREOF, I have hereunto subscribed my signature.

DATED: August 4, 2014

CAROL J. CHASE, CSR 13538