

# **Buckhorn Grade Improvement Project**

State Route 299 in Trinity and Shasta Counties

02-TRI-299-70.2/72.2

02-SHA-299-0.0/R7.6

02-270310

## **Final Environmental Impact Report/ Environmental Assessment**



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

**August 2009**



## General Information About This Document

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**California Department of Transportation  
Finding of No Significant Impact**

for

**State Route 299  
Buckhorn Grade Improvement Project**

The California Department of Transportation (Caltrans) has determined that Alternative BH12 will have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Environmental Assessment and incorporated technical reports.

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

7/31/09  
Date

  
\_\_\_\_\_  
John Bulinski  
District Director  
California Department of Transportation

SCH# 20020522057  
02-TRI-299-70.2/72.2  
02-SHA-299-0.0/R7.6  
02-270310

Realign State Route 299 in Trinity and Shasta Counties from 2.0 miles west of the Shasta County line  
to 0.6 miles west of Crystal Creek Road

**FINAL ENVIRONMENTAL IMPACT REPORT/  
ENVIRONMENTAL ASSESSMENT**

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

THE STATE OF CALIFORNIA  
Department of Transportation

7/31/09  
Date of Approval

  
\_\_\_\_\_  
John Bulinski  
District Director  
California Department of Transportation

## Summary

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

Some impacts determined to be significant under the California Environmental Quality Act may not lead to a determination of significance under the National Environmental Policy Act. Because the National Environmental Policy Act is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for the National Environmental Policy Act. One of the most commonly seen joint document types is an Environmental Impact Report/Environmental Assessment.

Following receipt of public comments on the Draft Environmental Impact Report/Environmental Assessment and circulation of the Final Environmental Impact Report/Environmental Assessment, Caltrans is required to take actions regarding the environmental document and determines whether to certify the Environmental Impact Report and issue Findings and a Statement of Overriding Considerations under the California Environmental Quality Act. Caltrans also decides whether to issue a Finding of No Significant Impact or require an Environmental Impact Statement under the National Environmental Policy Act.

### ***Proposed Action***

Caltrans in partnership with Shasta, Trinity, and Humboldt Counties proposes to improve the Buckhorn Grade portion of State Route 299 in Trinity and Shasta Counties from 2.0 miles west of the Shasta County line to the western boundary of the Whiskeytown-Shasta Trinity National Recreation Area in Shasta County. Although the official project limits extend into Trinity County (PM 70.2/72.2), construction will occur only on the Buckhorn Grade portion of State Route 299, which is located entirely within Shasta County (PM 0.0/R7.6). Construction activities in Trinity County will be limited to placement of signs and traffic control.

The purpose of the project is to improve interregional travel, improve safety and traffic operations, and provide improved access between U.S. Highway 101 and Interstate 5 for Surface Transportation Assistance Act trucks and recreational vehicles. The project is needed in order to provide a safer, more reliable, and more efficient facility.

The project proposes to improve the safety and efficiency of the highway by realigning the roadway along the existing alignment. Improvements will include standard roadway and shoulder widths, a new alignment with a 40-mile per hour (mph) to 50-mph design speed (depending on which alternative is selected), an 8 percent maximum grade, passing/climbing lanes, and improved superelevation rates and transition distances.

The following alternatives were developed for the project and generally follow the existing alignment: Alternative BH4, Alternative BH5, Alternative BH6, and Alternative BH12. The design speed varies among the alternatives and all four alternatives share a common alignment at both the beginning and end of the project. The environmental impacts of this project will be similar for each of these alternatives, except where noted in this document.

#### *Alternative BH4*

Alternative BH4 has a design speed of 40 mph and is a 5.03-mile segment within the project limits with a maximum grade of 8 percent for approximately 1.5 miles. Earthwork for this alternative totals approximately 3.6 million cubic yards and will disturb an area of approximately 103 acres.

#### *Alternative BH5*

Alternative BH5 is a 4.8-mile segment within the project limits with a maximum grade of 8 percent for approximately 2.3 miles. The design speed for this alternative is 50 mph; however, there is one 40-mph curve approximately 3.3 miles from the summit at Water and Trail Gulches. Earthwork for this alternative totals approximately 5 million cubic yards and would disturb an area of 114 acres. The western end of this alternative would be difficult to construct in segments due to the difference in elevations between the proposed alignment and the existing profile.

#### *Alternative BH6*

Alternative BH6 is a 4.9-mile segment within the project limits with a maximum grade of 8 percent for approximately 2.5 miles. The design speed for this alternative is 50 mph; however, there is one 40-mph curve approximately 3.3 miles from the

summit at Water and Trail Gulches. Earthwork for this alternative totals approximately 6.3 million cubic yards and would disturb an area of 147 acres.

### *Alternative BH12*

Alternative BH12 is a 5.11-mile segment within the project limits with a maximum grade of 7.7 percent for approximately 2.0 miles. The design speed for this alternative is 45 mph; however, there is one 40-mph curve approximately 1.8 miles from the summit. Earthwork for this alternative totals approximately 3.4 million cubic yards and will disturb an area of 101 acres.

## **Project Impacts**

### *Timber Production Zone Lands*

Two parcels of land within the project area are classified as Timber Production Zones. The two parcels total approximately 581 acres, and of this area, between 29 and 34 acres would be acquired as new right-of-way for the project. The California Secretary of Resources and Shasta County will be notified in writing if right-of-way is to be acquired from properties with contracts involving Timber Production Zones.

### *Relocation*

One residential property will be purchased and the occupants will be relocated as a result of the project. Adequate housing is expected to be available to allow for this relocation. Caltrans' Relocation Assistance Program will be followed to ensure that any persons displaced as a result of this project will be treated fairly, consistently, and equitably.

### *Visual/Aesthetics*

Construction of the project would result in a substantial alteration to the visual environment. Methods of construction in this area are, to a large extent, dictated by terrain and geologic conditions. The prevalence of decomposed granitic soils is just one of the elements that limit feasible construction options. Construction would result in large, bare cut and fill slopes, which will conflict with the intent of the Trinity Scenic Byway designation. Although visual impacts will be reduced through the implementation of minimization and mitigation measures, the project will nevertheless result in a significant impact to visual resources.

### *Cultural Resources*

Caltrans has determined that the proposed project would adversely affect one historic property. The State Historic Preservation Officer and Caltrans have negotiated a Memorandum of Agreement, which includes stipulations to take into account the

proposed project's effects on these properties. The Memorandum of Agreement ensures that the adverse effects of the project are resolved by implementing Data Recovery and Environmentally Sensitive Area Action Plans.

### *Water Quality/Storm Water*

The proposed alternatives would require substantial earthwork operations (cut and fill slopes) and would impact natural drainage patterns. The potential for erosion of slopes and siltation in downstream waterways is substantial. A Storm Water Pollution Prevention Plan will be developed for the project and will outline construction Best Management Practices to be used to minimize adverse effects on water quality.

### *Biological Resources*

The following natural communities, wetlands and waters of the United States, special status plant, and special status animal species are found within the environmental study limits:

*Alkali Seep* – Alkali seep habitat is present within the environmental study limits. The total seep area is approximately 1.2 acres and is located adjacent to State Route 299. The alkali seep habitat is located at the eastern end of the project where construction activities will be limited to placement of signs and traffic control. With implementation of avoidance and minimization measures, impacts to alkali seep habitat are not expected to occur.

*Riparian Habitat* – The project would result in the disturbance of up to 0.45 acre of riparian vegetation. Riparian habitat losses would be mitigated through a combination of replacement and enhancement of existing riparian habitat. Replacement of any losses would be at a proposed ratio of 1:1 and enhancement would be at a ratio of 2:1. During final project design, a revegetation and restoration plan will be developed that will provide detailed plans for replacement and enhancement, preferably within the project area.

*Oak Woodlands* – The project would result in up to 95.1 acres of direct impacts to oak-dominated woodlands, depending on the alternative selected. Caltrans would compensate for the impacts to oak woodlands by in-kind creation/restoration and preservation of oak woodlands on abandoned sections of the existing roadway alignment, as well as on newly acquired parcels as needed.

*Migration Corridors* – Various terrestrial wildlife species are likely to use the creeks and tributaries in the area, as important movement corridors. Creation of wildlife

underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and placement of fencing to direct animals to safe crossing areas would reduce impacts to wildlife species in the project area.

*Wetlands and Other Waters of the U.S.* – Depending on the alternative, the proposed project would permanently impact up to 0.42 acre of potentially jurisdictional wetlands and up to 1.00 acre of other waters of the U.S. With the implementation of Best Management Practices, temporary impacts to jurisdictional wetlands and other waters of the U.S. are not expected to occur. Compensatory mitigation is necessary to offset permanent wetland losses. Compensation for potential impacts to federally jurisdictional wetlands would be mitigated at a ratio to be determined in consultation with the U.S. Army Corps of Engineers. Compensation for potential impacts to state jurisdictional waters would be mitigated at a ratio to be determined in consultation with the Regional Water Quality Control Board.

*Threatened and Endangered Species* – The following threatened and endangered species may be present in the proposed project area:

- Howell's Alkali Grass (*Puccinellia howellii*) – This population does not occur within the cut-and-fill lines of the project, so it is not likely to be affected directly as construction activities in this portion of the project will be limited to placement of construction signs and traffic control. Environmentally Sensitive Area fencing will be placed around the population prior to construction to prevent any disturbance from construction-related activities.
- Wolverine (*Gulo gulo*) - The project area is located in the extreme low end of the wolverine elevation range. Wolverines are sensitive to human disturbance such as the existing state highway running through the project area. It is unlikely that wolverines would remain in the environmental study limits for any significant length of time, although they may travel through the area.
- Bald Eagle (*Haliaeetus leucocephalus*) - Eagles have been seen in the area but are more often found at nearby area lakes. Since this species would likely only travel through the environmental study limits in a transitory manner, no project impacts are expected.
- Northern Spotted Owl (*Strix occidentalis caurina*) - The project is not expected to affect nesting or roosting habitat for northern spotted owl. The project would result in the disturbance of up to 41.3 acres of potential northern spotted owl foraging habitat. Pre-construction surveys will be conducted to determine whether there are nesting owls within a 1.3-mile radius of the environmental

study limits; however, construction of the project is likely to have little effect on the availability of foraging habitat. There would be no impacts to the species, if nesting or resident northern spotted owl are not found within 1.3 miles of the environmental study limits.

This project is not likely to jeopardize the continued existence of any listed species or proposed to be listed species if avoidance, minimization, and mitigation measures are successfully implemented.

#### *Other Special Status Species*

- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Spotted bat (*Euderma maculatum*)
- Long-legged myotis (*Myotis volans*)
- Ringtail (*Bassariscus astutus*)
- Pacific fisher (*Martes pennanti*)
- American badger (*Taxidea taxus*)
- Cooper's hawk (*Accipiter cooperi*)
- Northern goshawk (*Accipiter gentiles*)
- Sharp-shinned hawk (*Accipiter striatus*)
- Yellow warbler (*Dendroica petechia*)
- Yellow-breasted chat (*Icteria virens*)
- Osprey (*Pandion haliaetus*)
- Purple martin (*Progne subis*)
- Northwestern pond turtle (*Emys marmorata marmorata*)
- California horned lizard (*Phrynosoma coronatum frontale*)
- Western tailed frog (*Ascaphus truei*)
- Foothill yellow-legged frog (*Rana boylei*)

The project footprint will be minimized prior to construction to avoid and minimize impacts to special status species. Vegetation removal, including riparian habitat, oak woodlands, and mature trees will also be minimized. Removal of vegetation will take place outside the breeding season for migratory birds, bats, and ringtails, so that potential effects upon breeding activity will be avoided. Areas temporarily impacted will be revegetated with native plants.

**Construction**

Temporary traffic delays would occur during construction of the project. A Traffic Management Plan will be developed to implement methods to reduce impacts from construction activities, minimize delays for motorists, and provide a safe construction zone. The plan will also address cumulative impacts resulting from other concurrent construction projects within the State Route 299 corridor.

The project would result in potentially adverse impacts to water quality during construction. Soil erosion would, especially during heavy rainfall, increase suspended solids, dissolved solids, and organic pollutants in the receiving waters of the project area. These conditions would likely persist until construction has been completed and long-term erosion control measures have been implemented. The National Pollutant Discharge Elimination System permit requires Caltrans to address the potential impacts of construction on water quality in the design and construction phases of the project.

**Summary of Major Potential Impacts from Alternatives**

Potential Impact		Alternative BH4	Alternative BH5	Alternative BH6	Alternative BH12	No Build Alternative
<b>Timber Production Zone (TPZ) Lands</b>		33 acres will be acquired	29 acres will be acquired	30 acres will be acquired	34.3 acres will be acquired	No impact
<b>Land Use</b>	Consistency with Trinity County General Plan	Yes	Yes	Yes	Yes	No
	Consistency with Shasta County General Plan	Yes	Yes	Yes	Yes	No
	Consistency with Humboldt County General Plan	Yes	Yes	Yes	Yes	No
<b>Relocations</b>		1 residence	1 residence	1 residence	1 residence	No impact
<b>Visual/Aesthetics</b>		Large cut and fill areas and removal of vegetation would result in a significant alteration to the visual environment	Large cut and fill areas and removal of vegetation would result in a significant alteration to the visual environment	Large cut and fill areas and removal of vegetation would result in a significant alteration to the visual environment	Large cut and fill areas and removal of vegetation would result in a significant alteration to the visual environment	No impact

Potential Impact	Alternative BH4	Alternative BH5	Alternative BH6	Alternative BH12	No Build Alternative
<b>Cultural Resources</b>	One historic property would be adversely affected	No impact			
<b>Water Quality/Storm Water</b>	Potential for erosion and siltation in downstream waterways to be minimized with Best Management Practices	Potential for erosion and siltation in downstream waterways to be minimized with Best Management Practices	Potential for erosion and siltation in downstream waterways to be minimized with Best Management Practices	Potential for erosion and siltation in downstream waterways to be minimized with Best Management Practices	No impact
<b>Riparian Habitat</b>	0.38 acre of disturbance	0.45 acre of disturbance	0.44 acre of disturbance	0.38 acre of disturbance	No impact
<b>Oak Woodlands</b>	69.1 acres to be removed	82.5 acres to be removed	95.1 acres to be removed	69.3 acres to be removed	No impact
<b>Wetlands and other Waters</b>	1.23 acres of jurisdictional wetlands to be impacted	1.31 acres of jurisdictional wetlands to be impacted	1.40 acres of jurisdictional wetlands to be impacted	1.18 acres of jurisdictional wetlands to be impacted	No impact
<b>Threatened and Endangered Species</b>	Impacts to Howell's alkali grass, wolverine, bald eagle, and northern spotted owl to be avoided or minimized	Impacts to Howell's alkali grass, wolverine, bald eagle, and northern spotted owl to be avoided or minimized	Impacts to Howell's alkali grass, wolverine, bald eagle, and northern spotted owl to be avoided or minimized	Impacts to Howell's alkali grass, wolverine, bald eagle, and northern spotted owl to be avoided or minimized	No impact
<b>Construction</b>	Delays to motorists; potential impacts to water quality during construction	Delays to motorists; potential impacts to water quality during construction	Delays to motorists; potential impacts to water quality during construction	Delays to motorists; potential impacts to water quality during construction	No impact

The State Historic Preservation Office and Caltrans have negotiated a Memorandum of Agreement, which includes stipulations to take into account the proposed project's effects on historic properties. The Memorandum of Agreement ensures that the adverse effects of the project are resolved by implementing Data Recovery and Environmentally Sensitive Area Action Plans.

Pursuant to Section 7 of the Federal Endangered Species Act, Caltrans entered into informal endangered species consultation with the U.S. Fish and Wildlife Service regarding impacts to federally listed species. In May 2009, the U.S. Fish and Wildlife

Service concurred with Caltrans' determination that the proposed Buckhorn Grade Improvement Project is not likely to adversely affect the federally threatened northern spotted owl (*Strix occidentalis caurina*).

### ***Coordination with Other Agencies***

The impacts identified for this project would require the following permits and approvals:

- Section 404 Permit from the U.S. Army Corps of Engineers for work in jurisdictional waters and wetlands.
- Section 401 Water Quality Certification from the Central Valley Regional Water Control Board.
- Section 1602 Streambed Alteration Agreement from the California Department of Fish and Game.

These permits/approvals may contain restrictions or additional mitigation measures that would be incorporated into the project.

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## List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
FHWA	Federal Highway Administration
mph	miles per hour
NEPA	National Environmental Policy Act
PM	post mile

# Chapter 1 Proposed Project

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## 1.1 Introduction

The California Department of Transportation (Caltrans) in partnership with Shasta, Trinity, and Humboldt Counties proposes to improve the Buckhorn Grade portion of State Route 299. The project is located in Trinity and Shasta Counties from 2.0 miles west of the Shasta-Trinity County line to the boundary of the Whiskeytown-Shasta Trinity National Recreation Area. The total length of the project is 9.6 miles. Figures 1-1 and 1-2 show project location and vicinity maps.

The project proposes to improve the safety and efficiency of the highway by improving the roadway geometrics, increasing sight distance, providing standard shoulders, improving passing opportunities, and upgrading the superelevation transitions to current standards.

This project was initially authorized in the 2002/2003 Federal Statewide Transportation Improvement Program, and is currently programmed for completion of the project report and environmental document. Future funding is expected to come from a combination of programs including the State Transportation Improvement Program, Regional Transportation Improvement Program, State Highway Operation and Protection Program, High Priority Projects, and possible transportation bond funds.

The magnitude of the Buckhorn Grade Improvement Project will require the project to be built in constructable and fundable segments. These individual segments will be constructed independently, but together will eventually complete the ultimate project. Funding will be sought for construction of individual segments based on the operational priority (level of need) and funding availability.

Several projects are currently proposed or are being constructed on State Route 299 within the Buckhorn Grade Improvement Project limits, all within Shasta County. Three of these projects are proposed to conform to the ultimate Buckhorn Grade Improvement Project alignment including the Top of Buckhorn, the Yankee Gulch, and the Middle of Buckhorn projects. The Top of Buckhorn Project is located at the summit of Buckhorn Grade from PM 0.0 to 0.6 and is currently under construction. The Yankee Gulch Project is located from PM 6.8 to 7.6 and is also currently under

construction. The Middle of Buckhorn Project is located from PM 3.0 to 4.3 and construction is scheduled to begin in 2011.

Three additional projects are proposed on State Route 299 within the Buckhorn Grade Improvement Project limits: the Bottom of Buckhorn, the Trail Gulch, and the Water Gulch projects. Due to funding constraints and the rugged terrain, these projects will not conform to the ultimate alignment of the Buckhorn Grade Improvement Project, but will improve operations and safety until this project is constructed. The Bottom of Buckhorn Project is located from PM 5.4 to 5.8 and is currently under construction. This project will realign a series of deficient curves on the existing alignment. The Trail Gulch Project is located from PM 4.8 to 5.0 and is proposed for construction in 2010. The Water Gulch Project is located from PM 4.5 to 4.8 and is proposed for construction in 2011. These two projects propose operational improvements that would widen the roadway to allow for truck off-tracking and improve safety.

## **1.2 Purpose and Need**

### **1.2.1 Purpose**

The purpose of this project is to:

- Improve interregional travel.
- Improve safety and traffic operations of the Buckhorn Grade portion of State Route 299.
- Provide improved access between U.S. Highway 101 and Interstate 5 for Surface Transportation Assistance Act trucks and recreational vehicles.

### **1.2.2 Need**

The need to provide a safe, reliable, and efficient facility on State Route 299 has long been recognized. Attempts to improve the Buckhorn Grade section have been ongoing since construction of the original alignment was completed in 1931. State Route 299 operates as a rural, principal arterial with a limited number of local road intersections and is the main east-west route available between Interstate 5 in the northern Sacramento Valley and U.S. Highway 101 on the northwest coast. In addition, State Route 299 is a major interregional truck route in Shasta, Trinity, and Humboldt Counties.

The existing two-lane undivided highway has lane widths varying from 11 to 16 feet and paved shoulder widths varying from 0 to 10 feet. Four short, uphill passing lanes occur within the project limits. Within the project area, the design speed ranges from 25 to 45 mph and the alignment consists almost entirely of 200-foot radius or smaller compound curves. There are 53 curves with radii as small as 160 feet and several sharp turns in the upper 5.5-mile segment. There are nine curves with posted speeds of 30 mph or less on Buckhorn Grade. With the exception of Buckhorn Grade, there are only four curves in the 120 miles between Arcata and Redding with posted speed limits of less than 30 mph.

**Safety**

Accident rates for State Route 299 were calculated for a five-year period from October 2001 to September 2006 and were compared to the statewide average using accident data from the Traffic Accident Surveillance and Analysis System. These results are summarized in Table 1.1. As the table indicates, the actual total accident rate for this section of State Route 299 is 2.5 times higher than the average rate for similar facilities on the state highway system. Accidents are generally scattered throughout the project limits.

**Table 1.1 Accident Information**

Location	Total Number of Accidents	Actual Accident Rate (acc/mvm)			Average Accident Rate (acc/mvm)			Times Statewide Average
		F	F+I	TOTAL	F	F+I	TOTAL	
PM 0.0/0.6	20	0.229	3.21	4.59	0.035	0.76	1.51	3.0
PM 0.6/1.4	12	0.00	0.69	2.07	0.037	0.88	1.75	1.2
PM 1.4/2.2	22	0.00	1.38	3.79	0.036	0.81	1.61	2.4
PM 2.2/3.0	10	0.00	0.52	1.72	0.034	0.70	1.42	1.2
PM 3.0/4.3	54	0.00	2.33	5.72	0.036	0.80	1.60	3.6
PM 4.3/6.0	74	0.081	2.35	6.00	0.037	0.88	1.75	3.4
PM 6.0/6.2*	2	0.00*	0.14*	0.27*	0.019*	0.44*	0.875*	0.3
PM 6.2/6.4*	10	0.00*	0.55*	1.37*	0.019*	0.44*	0.875*	1.6
PM 6.4/6.6*	3	0.00*	0.27*	0.41*	0.019*	0.44*	0.875*	0.5
PM 6.6/7.0*	5	0.00*	0.44*	0.68*	0.019*	0.44*	0.875*	0.8
PM 7.0/7.6	19	0.00	2.29	4.36	0.037	0.88	1.75	2.5
PM 0.0/7.6	231	0.036	1.78	4.19	0.036	0.83	1.66	2.5

*acc/mvm=accidents per million vehicle miles, \*acc/mv=accidents per million vehicles, F=fatal, F+I = fatal + injury*  
 Accident data from October 1, 2001 to September 30, 2006

**Traffic**

The annual average daily traffic for State Route 299 in the project area is 3,850 vehicles per day (2006 Traffic Volumes on California State Highways). Truck traffic makes up 13 percent of the average daily traffic for this section of the highway (2005 Annual Average Daily Truck Traffic on the California State Highway System). The Caltrans District 2 Traffic Management Unit prepared the project’s forecasted traffic volumes for the years 2012, 2022, and 2032 as summarized in Table 1.2.

**Table 1.2 Forecasted Traffic Volumes**

Year	Average Daily Traffic	Peak Hour
2012	4900	630
2022	5400	700
2032	6000	750

Although traffic volumes on this segment of State Route 299 are low, congestion is a problem. The steep terrain and curvilinear alignment impede the smooth flow of traffic, especially for trucks and recreational vehicles, through this section of highway. Non-standard geometrics, limited passing opportunities, non-standard sight distance, poor driver comfort, absence of emergency parking areas, and limited chain on/off areas contribute to the constraints on drivers.

The long delays associated with traffic accidents and routine maintenance operations result in an increased consumption of fuel and increased user costs. Non-standard geometrics increase the potential for hazardous material spills. In addition, the narrow roadway compels California legal trucks to encroach into opposing lanes of traffic at spot locations when negotiating tight curves. The frequent closures and traffic delays contribute to unreliable east to west travel.

Truck transportation plays an essential role in the movement of goods and services to Trinity, Humboldt, and Del Norte Counties. The largest truck class, the Surface Transportation Assistance Act truck, is not allowed on this portion of State Route 299 due to the nonstandard alignment. The exclusion of Surface Transportation Assistance Act trucks from this portion of the highway has created barriers to effective movement of goods and services to Trinity, Humboldt, and Del Norte Counties.

The proposed Buckhorn Grade Improvement Project would not, by itself, allow Surface Transportation Assistance Act trucks to use State Route 299 between

Redding and Eureka. There are six remaining locations requiring widening, which will allow Surface Transportation Assistance Act truck access on State Route 299. One project is currently under construction. Two projects that will improve two of these locations are currently being designed and are scheduled for construction in 2010 and 2011. It is anticipated that the remaining three locations will be improved to allow Surface Transportation Assistance Act truck access prior to construction of the Buckhorn Grade Improvement Project.

Caltrans has recently proposed a project on U.S. Highway 101 near Richardson Grove State Park that would allow Surface Transportation Assistance Act truck access from the south to Humboldt County. In addition, improvements are being proposed on State Route 197 and U.S. Highway 199 in Del Norte County to allow Surface Transportation Assistance Act truck access from the northeast to Humboldt County.

### **1.3 Alternatives**

The following design alternatives were developed to achieve the project purpose and need while avoiding or minimizing environmental impacts: Alternative BH4, Alternative BH5, Alternative BH6, and Alternative BH12.

The project is located in Trinity and Shasta Counties from 2.0 miles west of the Shasta-Trinity County line to the boundary of the Whiskeytown-Shasta-Trinity National Recreation Area. Although the official project limits extend into Trinity County (PM 70.2/72.2), construction will occur only on the Buckhorn Grade portion of State Route 299, which is located entirely within Shasta County (PM 0.0/R7.6). Construction activities in Trinity County will be limited to the placement of signs and traffic control.

#### **1.3.1 Build Alternatives**

The project proposes to correct existing deficiencies by providing standard roadway and shoulder widths, a new alignment with a 45-mph design speed, 8 percent maximum sustained grade, passing/climbing lanes, and improved superelevation rates and transition distance. Typical cross-sections for both the uphill climbing lanes and the downhill passing lanes are shown in Figures 1-3 and 1-4. The project will also provide rock catchment and snow storage areas, and will maximize sun exposure on the new alignment to reduce maintenance costs and snow and ice related accidents. Shade on the roadway exacerbates icy conditions. Maximizing the solar exposure on

the new alignment will minimize the resources required by Caltrans maintenance crews to remove snow and ice from the roadway.

The new project will improve State Route 299 between U.S. Highway 101 and Interstate 5 for Surface Transportation Assistance Act trucks and provide improved access for recreational activities in the area. Embankments and cut slopes will be designed to minimize erosion and promote revegetation wherever feasible.

The project will provide a roadway that is reliable, meets the needs and expectations of drivers, and provides for swift and economic movement of goods. The improved geometrics will reduce the number of accidents, as well as road closures due to accidents, weather, and maintenance activities.

The four alternatives developed for the project generally follow the existing alignment. They consist of design speed variations and all four alternatives share a common alignment at both the beginning and end of the project. Design features of each alternative are summarized in Table 1.3.

**Table 1.3 Design Features of Alternatives**

Alternative	Design Speed	Cut Slope Ratio	Fill Slope Ratio (H:V*)	Max Grade	Volume of Earthwork (millions of CY)
Existing	25	0.5:1 to 1.5:1	1:1 to 2:1	6%	---
BH4	40	0.75:1	1.5:1	8%	3.6
BH5	50**	0.75:1	1.5:1	8%	5.0
BH6	50**	1.5:1	1.5:1	8%	6.3
BH12	45**	0.75:1	1.5:1	7.7%	3.4

\* H:V = horizontal:vertical ratio, \*\*with one 40-mph curve

**Common Design Features of the Build Alternatives**

All alternatives will require substantial realignment of the existing alignment. Retaining walls, bridges, box culverts, and possibly viaducts could be included as part of the final design of the individual segments. Embankment slopes in decomposed granite soils will be constructed with a slope ratio of 1.5:1. As the fill is constructed, erosion control blankets will be embedded with exposed flaps that overlap the next layer of embedded blankets to prevent surface erosion. All alternatives, with the exception of BH6, will have cut slopes constructed at a slope ratio of 0.75:1. Alternative BH6 proposes a flatter cut slope ratio of 1.5:1. The project will include

large volumes of earthwork, with totals ranging from 2.9 to 5.1 million cubic yards. Additional work will include highway drainage, erosion control, roadside safety features, and other miscellaneous work.

Slope recommendations for the project were developed with input from Caltrans maintenance and landscape staff, the Trinity County Department of Transportation, and the Bureau of Land Management. The majority of these sources agree that steeper cut slope ratios require less costly maintenance over the long term. Successful revegetation of these steep slopes is unlikely; however, recent studies conducted on Buckhorn Grade indicate that successful revegetation of flatter cut slopes is limited at best. In addition, these studies have not demonstrated that adequate plant growth can be established quickly to prevent erosion. There has been some success revegetating decomposed granite; however, the techniques used are expensive to construct, require labor-intensive maintenance, and are not cost effective for a 7-mile long project.

Features common to all “build” alternatives are:

- Improved horizontal and vertical alignments.
- 12-foot lanes in each direction with alternating uphill truck climbing lanes and downhill passing lanes.
- Standard shoulder widths: 4 feet adjacent to passing/climbing lane, 8 feet adjacent to single lane.
- Improved superelevation rates and transition lengths.
- Improved sight distance.
- Surface Transportation Assistance Act truck accessibility.

### ***Unique Features of the Build Alternatives***

#### ***Alternative BH4***

Alternative BH4 (Figure 1-5) has a design speed of 40 mph and is a 5.03-mile segment within the project limits with a maximum grade of 8 percent for approximately 1.5 miles. Earthwork for this alternative totals approximately 3.6 million cubic yards and will disturb an area of approximately 103 acres.

#### ***Alternative BH5***

Alternative BH5 (Figure 1-6) is a 4.8-mile segment within the project limits with a maximum grade of 8 percent for approximately 2.3 miles. The design speed for this

alternative is 50 mph; however, there is one 40-mph curve approximately 3.3 miles from the summit at Water and Trail Gulches. Earthwork for this alternative totals approximately 5 million cubic yards and would disturb an area of 114 acres. The western end of this alternative would be difficult to construct in segments due to the difference in elevations between the proposed alignment and the existing profile.

*Alternative BH6*

Alternative BH6 (Figure 1-7) is a 4.9-mile segment within the project limits with a maximum grade of 8 percent for approximately 2.5 miles. The design speed for this alternative is 50 mph; however, there is one 40-mph curve approximately 3.3 miles from the summit at Water and Trail Gulches. Earthwork for this alternative totals approximately 6.3 million cubic yards and would disturb an area of 147 acres.

*Alternative BH12*

Alternative BH12 (Figure 1-8) is a 5.11-mile segment within the project limits with a maximum grade of 7.7 percent for approximately 2.0 miles. The design speed for this alternative is 45 mph; however, there is one 40-mph curve approximately 1.8 miles from the summit. Earthwork for this alternative totals approximately 3.4 million cubic yards and will disturb an area of 101 acres.



**Figure 1-1 Project Vicinity Map**

INDEX OF SHEETS

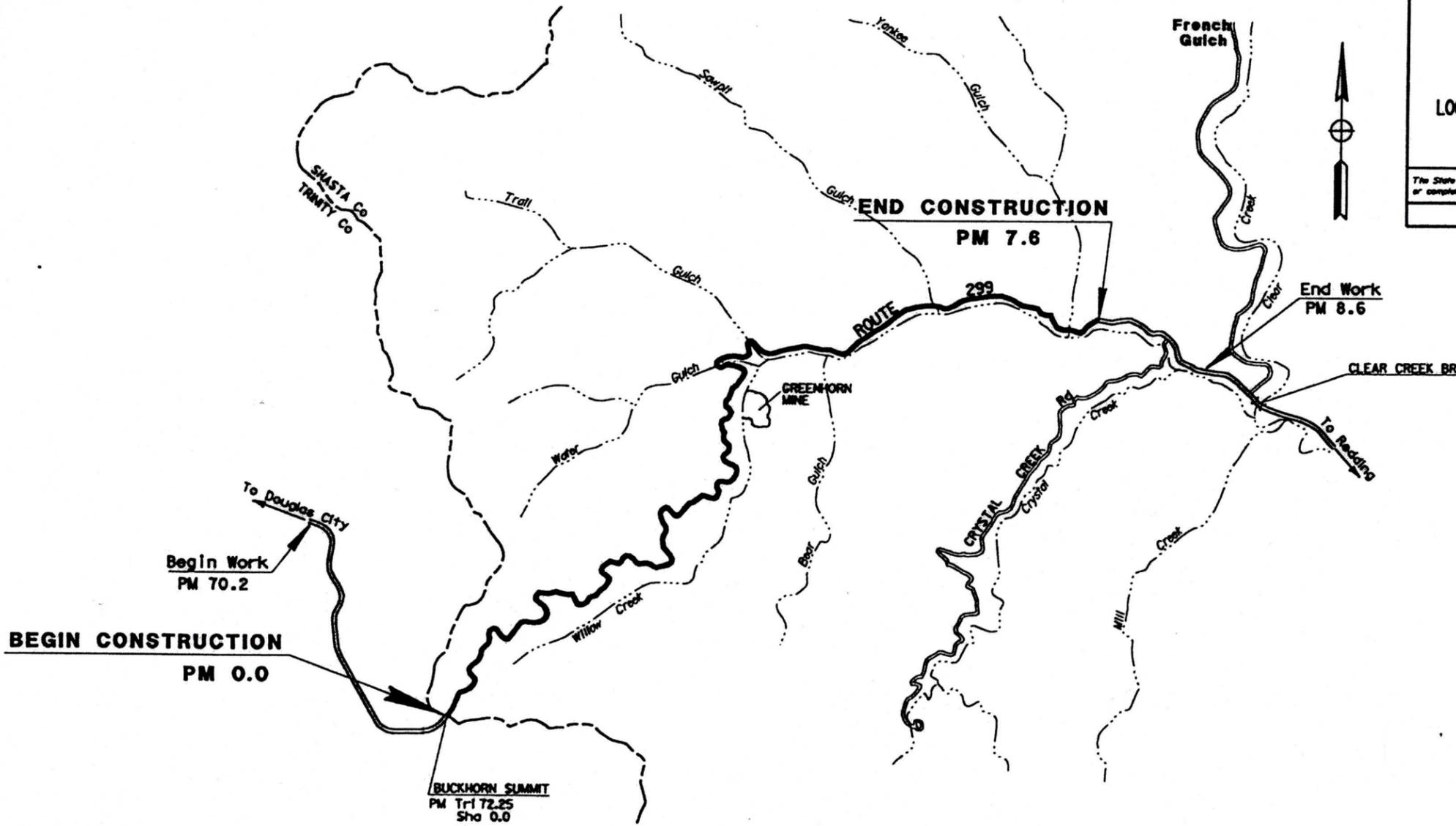
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
 PROJECT PLANS FOR CONSTRUCTION ON  
 STATE HIGHWAY  
 IN TRINITY AND SHASTA COUNTY FROM  
 ABOUT .2 MILES WEST OF SHASTA COUNTY  
 TO 0.6 MILES WEST OF CRYSTAL CREEK RD

To be supplemented by Standard Plans dated May, 2006

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Tri/Sho	299	70.2-72.2/0.0-7.6		



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**BEGIN CONSTRUCTION**  
 PM 0.0

**END CONSTRUCTION**  
 PM 7.6

**End Work**  
 PM 8.6

PROJECT ENGINEER DATE PROJECT MANAGER DATE  
 MICHAEL FEINES CLINT BURKHOPUS  
 DATE REVISION 02 12-AUG-2007 01107  
 CO-00-00

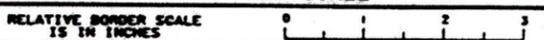
The Contractor shall possess the class (or Classes) of license as specified in the "Notice to Contractors."



Project Engineer Date  
 Registered Civil Engineer

Plans Approval Date

NO SCALE



Contract No. \_\_\_\_\_

CU 03 246 EA 270310

Figure 1-2 Project Location Map

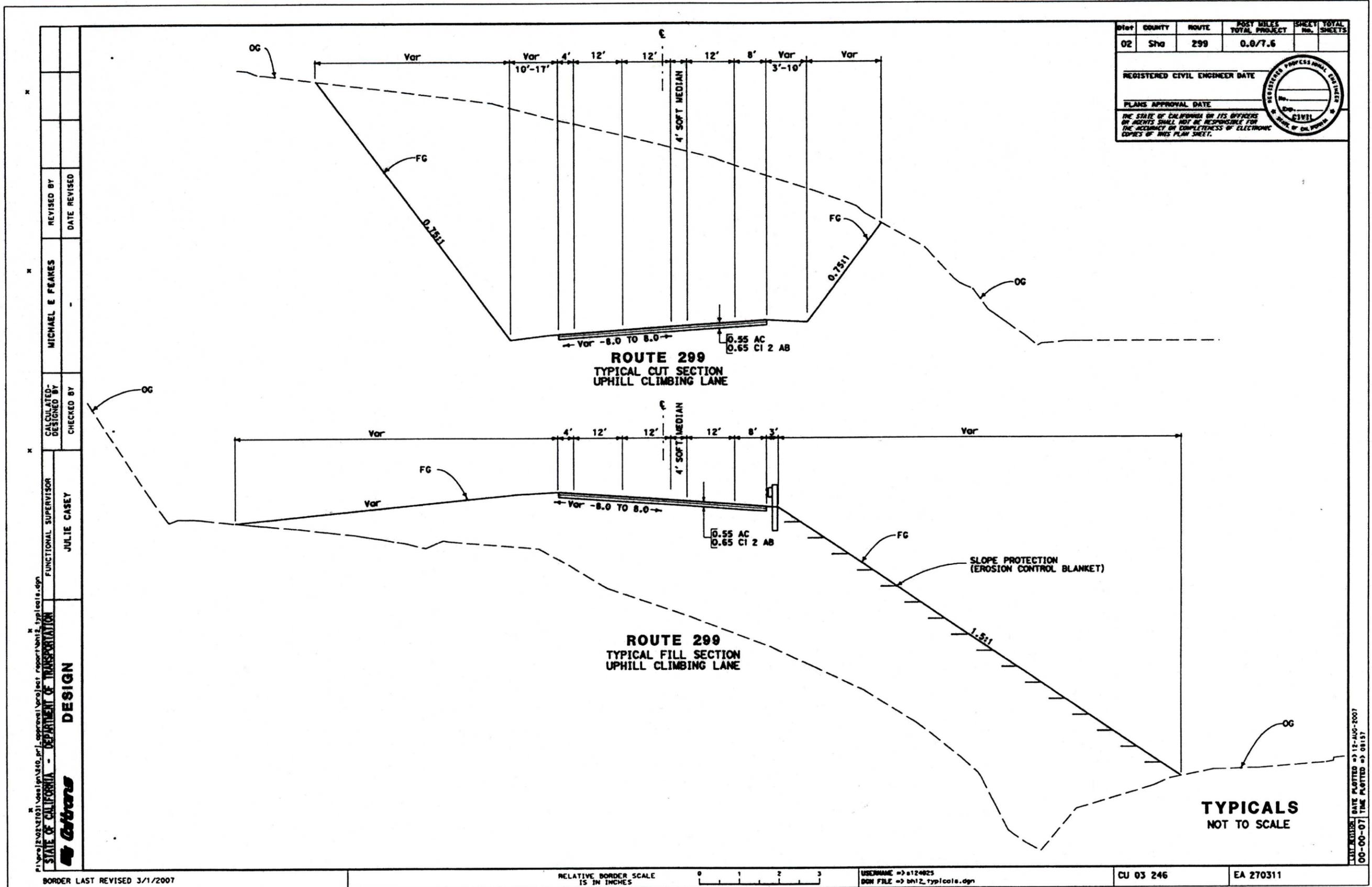
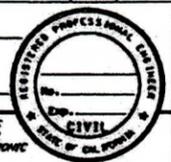


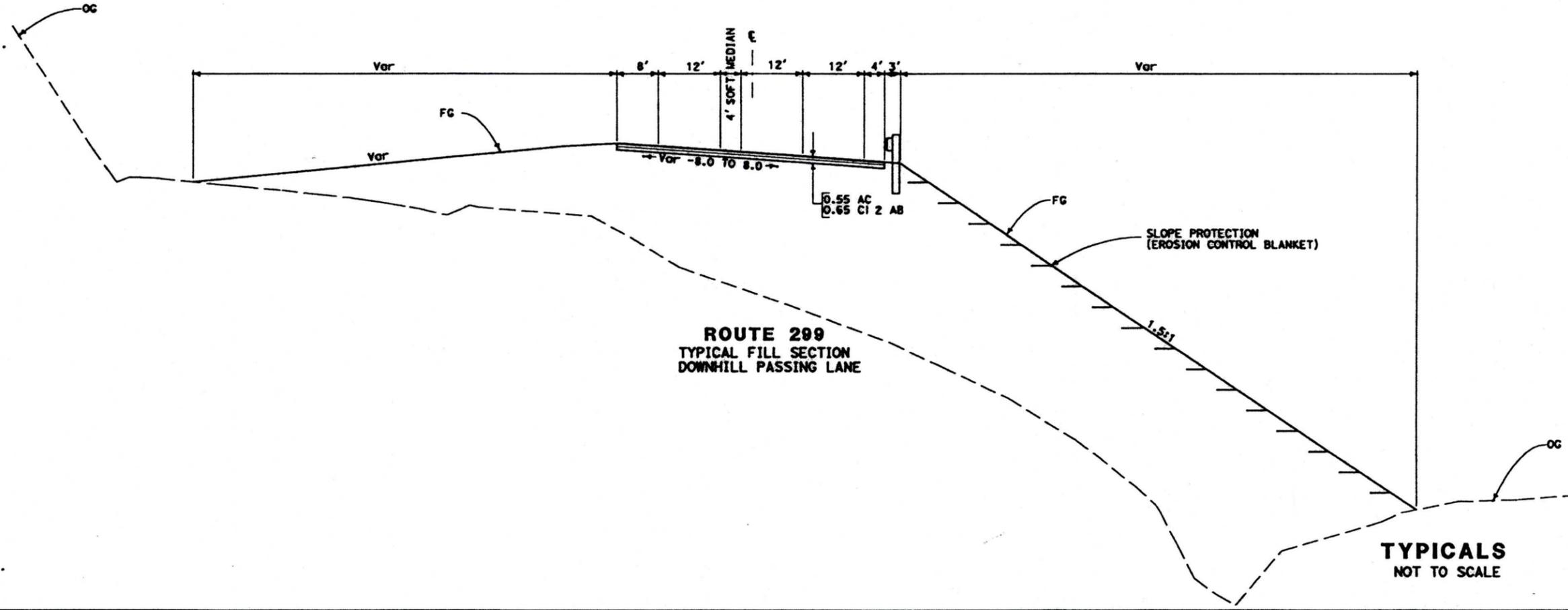
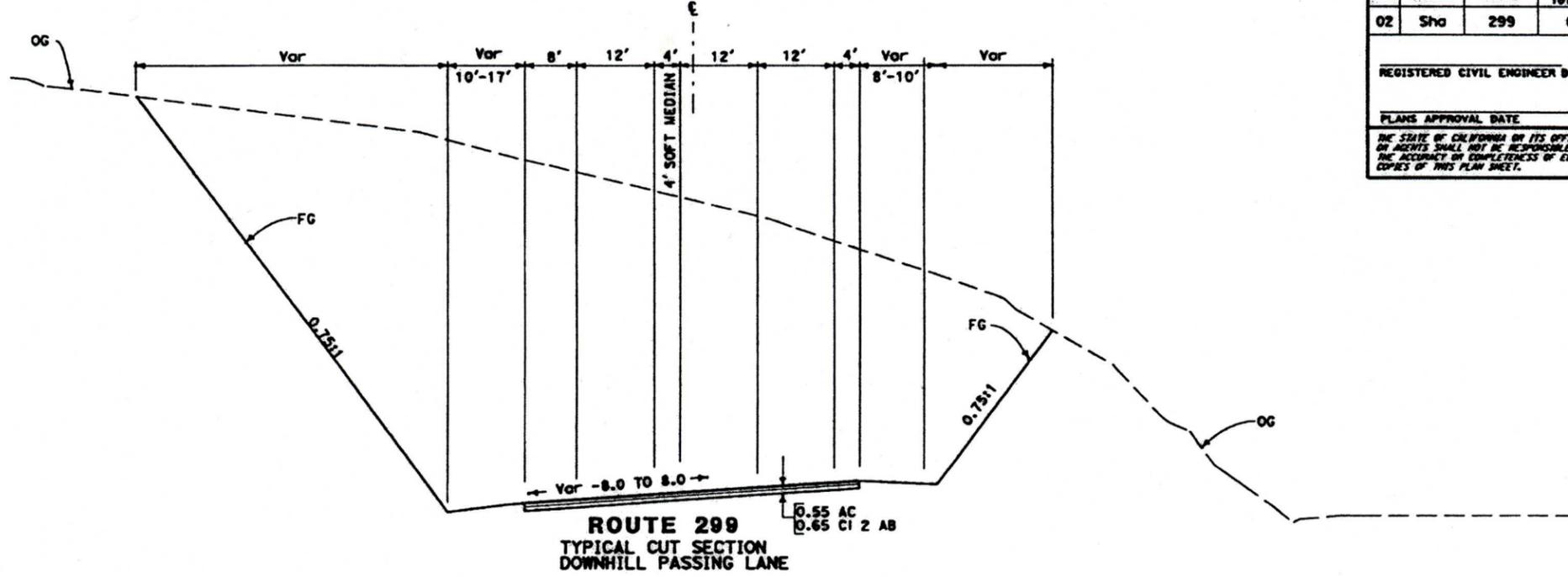
Figure 1-3 Typical Cross Sections

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	0.0/7.6		

REGISTERED CIVIL ENGINEER DATE	
PLANS APPROVAL DATE	

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**TYPICALS**  
NOT TO SCALE

DESIGN	FUNCTIONAL SUPERVISOR	CHECKED BY	REVISOR	DATE
	JULIE CASEY		MICHAEL E PEAKES	

Figure 1-4 Typical Cross Sections



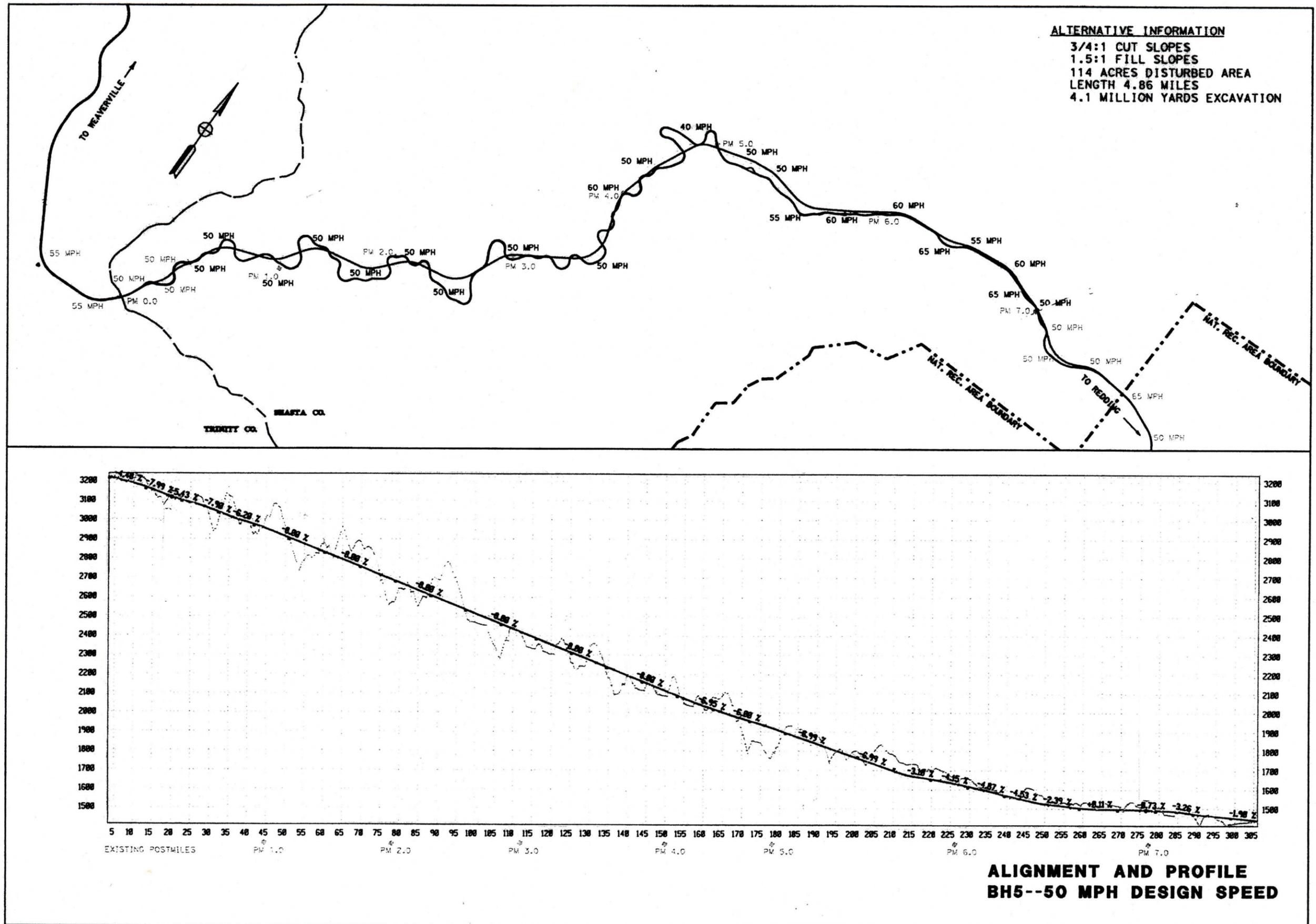


Figure 1-6 Alternative BH5





### 1.3.2 Comparison of Alternatives

While the four “build” alternatives provide the features stated above, they vary in design speed. The lower design speeds typically follow the terrain more closely and result in a longer alignment, flatter profile grade, and less disturbed area. In addition, the lower design speeds allow for more flexibility in tying into the existing alignment for segmented phases of construction.

After the public circulation period, all comments were considered, and Caltrans selected a preferred alternative and made the final determination of the project’s effect on the environment. In accordance with the California Environmental Quality Act, Caltrans certified that the project complied with the Act, prepared findings for all significant impacts identified, prepared a Statement of Overriding Considerations for impacts that would not be mitigated below a level of significance, and certified that the Findings and Statement of Overriding Considerations had been considered prior to project approval. Caltrans then filed a Notice of Determination with the State Clearinghouse that identified whether the project would have significant impacts, whether mitigation measures were included as conditions of project approval, whether findings were made, and whether a Statement of Overriding Considerations was adopted. Similarly, Caltrans, as delegated by the Federal Highway Administration, determined that the project, which is subject to the National Environmental Policy Act, did not significantly impact the environment and issued a Finding of No Significant Impact in accordance with the National Environmental Policy Act.

### 1.3.3 Identification of a Preferred Alternative

The Buckhorn Grade Improvement Project’s development team has identified Alternative BH12 as the preferred alternative. This recommendation was approved by the Buckhorn Grade Improvement Project’s management team on July 8, 2009. This alternative meets the purpose and need of this project. As proposed, the construction of the preferred alternative will include the following improvements:

- improved horizontal and vertical geometrics,
- 12-foot traffic lane in each direction,
- an alternating uphill truck climbing lane and downhill passing lane with ,
- standard paved shoulders (4-foot adjacent to passing/climbing lane, 8-foot adjacent to single lane),

- 4-foot soft median in passing/climbing lane areas,
- increased sight distance, and
- improved superelevation rates and transition lengths.

Alternative BH12 is approximately 5.11 miles in length with a maximum grade of 7.7% for approximately 2.0 miles. The design speed for this alternative is 45 mph; however, there is one 40-mph curve approximately 1.8 miles from the summit. Earthwork for this alternative is approximately 3.4 million cubic yards. The construction of this alternative will disturb an area of 101 acres. It is estimated that project construction, including right of way acquisitions and environmental mitigation, will cost \$189.5 million.

The four alternatives studied for the project had similar impacts with regard to land use, visual resource, storm water, and threatened/endangered species impacts. However, the BH12 Alternative had less impact to riparian vegetation, wetlands, waters, and oak woodland resources. This alternative will require the acquisition of 34.3 acres of Timber Production Zone Lands. It is consistent with the county planned land use, but will require the relocation of one residence. The BH12 Alternative would adversely affect one historic property. This alternative will impact 0.38 acre of riparian habitat, 69.3 acres of oak woodlands, and 1.18 acres of jurisdictional wetlands. The impacts of this alternative on endangered and threatened species, including Howell's alkali grass, wolverine, bald eagle, and northern spotted owl, can be avoided or minimized to a less than significant level. The potential for erosion and siltation in downstream waterways can be minimized with Best Management Practices.

Because the Alternative BH12 has a 45-mph design speed, it provides more opportunities for phasing the construction of the project into smaller stand-alone projects. It also allows for a flatter profile, smaller project footprint, and lower overall construction costs.

The PDT also recommended that, as projects are developed and constructed on Buckhorn Grade, any excess material be placed in those areas on the preferred alignment where large fills will be required. These mandatory disposal areas should be identified and environmentally approved early to allow their use while at the same time, streamlining the overall process.

### **1.3.4 No Build Alternative**

The No Build Alternative proposes no modifications to State Route 299 in the project area, other than routine maintenance and the presently planned safety and operational improvement projects on Buckhorn Grade. This alternative would not resolve geometric deficiencies, maintenance issues, or safety concerns on the existing highway. Vehicle use restrictions for Surface Transportation Assistance Act trucks would continue. The identified transportation needs of the area would not be met and would become worse with increasing traffic volumes and new development in Trinity County.

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

Caltrans has been studying alternatives to improve the Buckhorn Grade alignment for more than 45 years. In 1959, six alignments were studied with the preferred alignment located north of and adjacent to the existing alignment. In 1968, Caltrans initiated studies of four alignments with 50-mph and 60-mph design speeds, but was unable to complete the studies due to funding constraints. In 1991, a Project Study Report presented 27 alignments, however none were fundable due to low annual average daily traffic and high costs.

Development of the most recent alignment alternatives began in 2000. Initially the study area was 27 square miles. Based on archived documents and alignments from past studies, conventional route selection methods, and engineering judgment, six corridors were developed. As studies progressed from corridors to alignment alternatives, the alternatives were refined to avoid or minimize environmental impacts to the greatest extent possible. Preliminary engineering studies were then developed for nine alignments within the two corridors. Upon completion of these studies, three alignments were chosen for further consideration.

In 2005, the Project Development Team realized that the Buckhorn Grade Improvement Project was not likely to secure adequate funding to allow construction of the entire project in a single phase. This project will require a long-term funding strategy and a phased construction plan. Two of the three remaining alignments failed to meet the need for fundable and constructable segments that conform to the existing alignment with a minimum of interim or “throw-away” work. The Project Development Team members, along with concurrence of the Project Management Team which consisted of Caltrans and local agency representatives, determined that in order for an alignment to work within these constraints it would need to be located

near the existing alignment. Due to funding constraints, all of the alignments were set aside with the exception of this alignment, which was further studied to investigate various design speed alternatives.

*Project Phasing*

Caltrans has developed a 20-year funding plan, which will allow for phased construction of the Buckhorn Grade Improvement Project. The plan identifies 11 segments within the project limits, which would be constructed over the next 20 years as shown in Table 1.4. It is the goal that each of these segments would be designed to conform to the preferred alternative alignment of the Buckhorn Grade Improvement Project. However, if funding becomes constrained these phased segments may have to conform to less than the proposed project scope, which would still address the safety concerns identified on this route.

**Table 1.4 20-Year Funding Plan**

Segment	Project Description	Post Miles	Proposed Funding Source	Proposed Construction Year
1	Top of Buckhorn Safety Project	0.0/0.6	SHOPP* Safety HPP** Funds	2008
2	Yankee Gulch Safety Project	6.8/7.6	SHOPP Safety HPP Funds	2009
3	Middle of Buckhorn Safety Project	3.0/4.3	SHOPP Safety HPP Funds	2010
4	Phase 1 Middle of Buckhorn	4.3/6.0	SHOPP 2010 STIP***	2013
5	Unnamed Project	6.0/6.2	SHOPP 2012 STIP	2015
6	Unnamed Project	6.2/6.4	SHOPP 2014 STIP	2017
7	Unnamed Project	6.4/6.6	SHOPP 2016 STIP	2019
8	Unnamed Project	6.6/6.8	SHOPP 2018 STIP	2021
9	Unnamed Project	2.2/3.0	SHOPP 2020 STIP	2023
10	Unnamed Project	1.4/2.2	SHOPP 2022 STIP	2025
11	Unnamed Project	0.6/1.4	SHOPP 2024 STIP	2027

\*SHOPP – State Highway Operation and Protection Program

\*\*HPP – High Priority Projects

\*\*\*STIP – State Transportation Improvement Program

**1.4 Permits and Approvals Needed**

The permits, reviews, and approvals required for project construction are summarized in Table 1.5.

**Table 1.5 Summary of Permits, Reviews, and Approvals**

<b>Agency</b>	<b>Permit/Approval</b>
U.S. Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species
U.S. Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the U.S.
California Department of Fish and Game	1602 Agreement for Streambed Alteration
California Regional Water Quality Control Board	Section 401 Water Quality Certification
State Historic Preservation Officer	Memorandum of Agreement for mitigation of adverse effects

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

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

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

- Farmlands – The project is located in a mountainous area with rugged terrain. There are no farmlands located within the project area.
- Utilities – There are no utilities located within the project area.
- Paleontology – There are no known paleontological resources in the area.

### **2.1 Human Environment**

Social and economic impacts of the project were studied within the context of a three-county area. The study area includes communities and facilities in Humboldt, Trinity, and Shasta Counties. The largest community in Humboldt County is Eureka. This city also has access to the Port of Eureka, and is the center of economic activity for this area. In Trinity County, Weaverville is the largest population and economic center. In Shasta County, Redding is the largest population and employment center. A Community Impacts Analysis was conducted for the project. The analysis was concerned primarily with indirect impacts of the project. Indirect impacts are reasonably foreseeable results of an action that occur later in time or at another location.

#### **2.1.1 Land Use**

### 2.1.1.1 Existing and Future Land Use

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

All of the project alternatives being considered would impact publicly and privately owned land in eastern Trinity and western Shasta Counties. The area affected by the project has restricted use because much of it is mountainous and poorly suited to development. It is used primarily for the production of natural resources (timber) and as wildlife habitat.

#### ***Humboldt County Land Use***

The project does not include any roadway modifications or other improvements within Humboldt County. However, the project proposes improvements that would facilitate product distribution in this region. Humboldt County is included in the project area for the purposes of this study because of the potential for indirect economic impacts.

Nearly half of Humboldt County's acreage is dedicated to timberland production through the Timber Production Zone designation. Timber Production Zone lands are established in order to discourage the premature conversion of timberland to other uses. Timber Production Zones are rolling ten-year contracts providing preferential tax assessments to qualified timberlands. Because timber harvests are of substantial economic importance to Humboldt County, the land use plan emphasizes the importance of continued timberland preservation. In addition to the nearly 1 million acres of land under the Timber Production Zone designation, there are 485,000 acres (21 percent of the County's acreage) under the jurisdiction of federal agencies.

#### ***Trinity County Land Use***

Land use designations in Trinity County are based on the need to balance several different and potentially conflicting community goals. These goals are listed in the Trinity County *General Plan Land Use Element* (last revised in 1988), and include the following:

- Retain the rural character of Trinity County.
- Encourage adequate housing and residential space to keep pace with a moderate population growth.
- Maintain and enhance a viable economic base for Trinity County.
- Strive to conserve those resources of the County that are important to its character and economic well-being.

Trinity County's physical characteristics do not lend themselves to the community goals oriented toward further development because developable land is not plentiful in this area. Together, the U.S. Forest Service and the Bureau of Land Management own approximately 72 percent of the land in Trinity County. Much of the privately owned land in Trinity County is dedicated to timber production and is not available for other uses. Additionally, the terrain in Trinity County is mountainous and soils are erosive in many places. As a result, land use designations in the County represent a composite of constraints on and opportunities for development. Most of the development in Trinity County is concentrated in Weaverville, Lewiston and Douglas City. Weaverville is the most urban community in Trinity County.

### *Shasta County Land Use*

The proposed project extends 7.6 miles east of the Shasta-Trinity County line, into Shasta County. The project area is located approximately 15 miles west of Redding, the largest city in the County. Three major transportation routes pass through Shasta County and Redding: Interstate 5, State Route 299, and State Route 44. Interstate 5 runs north to south from San Diego to Seattle. State Route 299 connects the coastal communities in Humboldt County and the mountainous areas of Trinity County with Interstate 5, and runs northeast into Nevada. State Route 44 runs east from Redding, throughout southern Shasta County, into Lassen County, and provides a connection with U.S. Highway 395.

Development in Shasta County is concentrated in Redding and Anderson in the south central portion of the County where these transportation routes intersect. The Sacramento River and its river valley dominate the topography of this area. To the north along Interstate 5 is the incorporated city of Shasta Lake.

The Shasta County General Plan describes development within several miles of the Interstate 5 corridor as characterized by rural communities. Additionally, the plan states that development in upland locations takes the form of agriculture, grazing, and timber operations, with small rural community centers and individual homesites dispersed throughout the area.

Land use in Shasta County is organized around the development capacity in or adjacent to existing communities. Approximately 40 percent of the land in Shasta County is publicly owned. Only two percent of the land in the County is within an incorporated city. A large portion (55 percent) of the privately owned unincorporated land in Shasta County is within either an agricultural or timber preserve.

### ***Environmental Consequences***

The proposed project would require acquisition of new right-of-way in western Shasta County, including privately owned land and federally owned land managed by the Bureau of Land Management. It is unlikely that Caltrans would acquire entire parcels for the proposed alignments to pass through, given the size of the parcels in question. Some parcels in this area currently straddle State Route 299 and are accessed using unimproved roadways. In the case of federally owned lands, Caltrans typically obtains easements across these properties, rather than purchasing whole parcels from the federal government.

The project is consistent with local and regional land use and transportation planning and would not alter the pattern of land use in the study area. Additionally, use of public lands for this transportation project would have no adverse impact on land use patterns in this area.

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

No mitigation would be required.

#### **2.1.1.2 Consistency with State, Regional and Local Plans**

### ***Affected Environment***

The project is compatible with the Land Use Element of the Trinity County General Plan (1988) and with the Circulation Element of the Shasta County General Plan (Amended September 2004). Additionally, the Weaverville Community Plan (1990) and the Lewiston Community Plan (1986) are also compatible with the proposed project. The project is included in the Federal Statewide Transportation Improvement Program.

### ***Environmental Consequences***

The project is consistent with state, regional, and local plans.

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

No mitigation would be required.

#### **2.1.1.3 Parks and Recreation**

### ***Affected Environment***

Several parks are located in the vicinity of the project and comprise the Whiskeytown-Shasta-Trinity National Recreation area. This recreation area consists of 246,087 acres, and is divided into three units: Whiskeytown, Shasta, and Trinity. Each of these areas

encompasses large manmade lakes and their surrounding terrain. The U.S. Forest Service manages Shasta, Trinity and Lewiston Lakes. The National Park Service manages Whiskeytown Lake. These sites, with their large reservoirs and mountainous terrain, support a large variety of recreation opportunities. The Whiskeytown National Recreation Area is located on the eastern boundary of the project.

### ***Environmental Consequences***

There would be no impact to these facilities.

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

Mitigation would not be required.

## **2.1.2 Growth**

### ***Regulatory Setting***

The Council on Environmental Quality regulations, which implement the National Environmental Policy Act of 1969, requires evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The Council on Environmental Quality regulations, 40 Code Federal Regulations 1508.8, refers 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 also requires the analysis of a project's potential to induce growth. California Environmental Quality Act guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

### ***Affected Environment***

According to the 2000 U.S. Census, there were 126,500 people in Humboldt County; 13,000 people in Trinity County; and 163,200 people in Shasta County. Employment Development Department data estimates 2008 populations of 132,821 in Humboldt County, 13,966 in Trinity County, and 182,236 in Shasta County.

The California Department of Finance also provides population projections for California and its counties. Frequently, these are used as the basis for local planning efforts. Between 2000 and 2040, Shasta County is expected to continue its rapid rate of

expansion, reaching a projected size of almost 300,000 by 2040. Trinity County is expected to have a 2040 population of 26,030. Humboldt County is projected to reach a population of 150,121 by 2040.

### ***Environmental Consequences***

The proposed project is not likely to result in unplanned growth or to remove obstacles to growth within the project area. It is unlikely that it would result in a change in development patterns in Humboldt or Shasta Counties. No new residential or business development is expected to occur in Shasta County as a result of the proposed project. The project would not improve accessibility between any residential area in Shasta County and Redding, the County's employment center. Numerous factors continue to limit development in Trinity County and, while planning documents for the County currently encourage growth, this proposed project will not accelerate growth rates more rapidly than currently anticipated.

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

No mitigation would be required.

## **2.1.3 Timberlands**

### ***Regulatory Setting***

Impacts to timberland are analyzed pursuant to the California Timberland Productivity Act of 1982 (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 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 in the event that new or additional right-of-way from Timber Production Zone lands would be required for a transportation project.

### ***Affected Environment***

In 1996, over half of the acreage in Trinity County was committed to timber production, with the vast majority of this timberland (31 percent) being in the Shasta-Trinity National Forest. An additional 361,000 acres (18 percent of the Trinity County's area) was privately owned timberland. The majority of privately owned timberland (253,000 acres) is within designated Timber Production Zones.

One of Shasta County’s most valuable resources is its timberland. Of Shasta County’s total acreage, 1,231,000 acres (51 percent) are dedicated to commercial forest uses. In 2002, 613,495 acres of non-federally owned timberlands were designated in Timber Production Zones. These timber preserve lands represent nearly half of all Shasta County timberlands and approximately 87 percent of privately owned timberlands.

**Environmental Consequences**

Two parcels of land within the project area are classified as Timber Production Zones. The two parcels total approximately 581 acres, and of this area, between 29 and 34 acres would be acquired as new right-of-way for the project. Right-of-way acquisition for each alternative is shown in Table 2.1.

**Table 2.1 Acquisition of Timber Production Zone Land**

Parcel	Acquisition by Alternative (acres)				Parcel Size (acres)
	BH4	BH5	BH6	BH12	
1	6.0	2.0	3.0	7.3	469
2	27.0	27.0	27.0	27.0	112
<b>Total</b>	<b>33.0</b>	<b>29.0</b>	<b>30.0</b>	<b>34.3</b>	<b>581</b>

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

The California Secretary of Resources and Shasta County will be notified in writing if right-of-way will be acquired from properties with contracts involving Timber Production Zones.

**2.1.4 Community Impacts**

**2.1.4.1 Community Character and Cohesion**

**Regulatory Setting**

The National Environmental Policy Act of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 U.S. Code 4331(b)(2)]. The Federal Highway Administration in its implementation of the National Environmental Policy Act [23 U.S. Code 109(h)] directs that final decisions regarding 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, 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.

**Affected Environment**

*Race/Ethnicity*

The racial and ethnic composition of Humboldt, Trinity, and Shasta Counties is markedly different from that of California as a whole, as shown in Table 2.2. The proportions of white residents in these areas are higher than in California as a whole by more than 30 percent in every case. Hispanic, African American, and Asian residents comprise a much smaller part of the population of the project area than of California’s population. Native Americans, on the other hand, make up a large part of the population of Humboldt and Trinity Counties, relative to their proportions in the rest of California.

**Table 2.2 Project Area Population by Race/Ethnicity**

	<b>Total Population</b>	<b>White</b>	<b>Hispanic</b>	<b>African</b>	<b>American Indian</b>	<b>Asian</b>	<b>Pacific Islander</b>	<b>Other</b>	<b>Two or More Races</b>
<b>Humboldt County</b>	<b>126,518</b>	82%	6%	1%	5%	2%	0%	0%	4%
Eureka	26,128	79%	8%	2%	4%	3%	0%	0%	4%
<b>Shasta County</b>	<b>163,256</b>	86%	6%	1%	2%	2%	0%	0%	3%
Redding	80,865	86%	5%	1%	2%	3%	0%	0%	3%
<b>Trinity County</b>	<b>13,022</b>	87%	4%	0%	4%	0%	0%	0%	4%
<b>California</b>	<b>33,871,648</b>	47%	32%	6%	1%	11%	0%	0%	3%

Source: 2000 US Census Data

*Housing*

Humboldt, Trinity, and Shasta Counties all had higher proportions of single- family detached housing units in 2000, than did California as a whole (see Table 2.3). In these

three counties, single-family detached units made up between 65 and 68 percent of the total housing stock. In California as a whole, 56 percent of all housing was in single-family detached units.

In Humboldt and Trinity Counties, approximately 20 percent of the housing stock is concentrated in the largest communities (Eureka and Weaverville, respectively). Shasta County’s housing stock is concentrated in Redding. Nearly half of the 72,000 units in Shasta County were located in Redding in 2000.

Humboldt and Shasta Counties had more employment opportunities than housing units in 1998, indicating that these counties probably draw some labor in from nearby counties. Trinity County, located between these two counties, has a low job to housing ratio, indicating that it is probably a source of labor for the two counties nearby.

**Table 2.3 Department of Finance Housing Statistics by Area, 2000**

Area	Housing Units	Single Family Units		Multiple Family Units		Mobile Homes	Total Occupied	Vacancy Rate
		Detached	Attached	2 to 4 Units	5 or More			
Humboldt	56,963	38,561	1,352	5,591	4,858	6,601	51,646	9.33
Eureka	12,253	7,728	360	2,374	1,597	194	11,581	5.48
Shasta	71,874	47,065	1,289	5,562	5,629	12,329	66,530	7.44
Redding	34,193	21,743	787	4,519	4,564	2,580	32,771	4.16
Trinity	8,122	5,280	61	152	259	2,370	5,553	31.63
Lewiston*	654	-	-	-	-	-	542	17.1
Weaverville*	1,653	-	-	-	-	-	1,513	8.5
California	12,242,576	6,853,693	840,801	1,012,613	2,950,373	585,096	11,335,419	7.41

Source: State of California Department of Finance; \*Lewiston and Weaverville data from 2000 US Census – this data does not include housing type.

### *Employment*

Trends in the total labor force available within California and Humboldt, Trinity, and Shasta Counties, as well as the resulting unemployment rate, are shown in Table 2.4. Residents of Shasta County and Redding had the highest incomes in the project area, both in 1990 and 2000. In 1990, the median household income in Redding was nearly \$26,000, and it was slightly lower in Shasta County as a whole. Humboldt County as a whole had a higher median income than Trinity County in 1990: \$24,000 in Humboldt, compared to \$20,500 in Trinity. But residents of the Lewiston community had a higher median income (\$25,600) than residents of either Eureka (\$21,800) or Weaverville (\$21,100).

Between 1990 and 2000, median income increased 33 percent statewide to \$48,000. Countywide, income levels kept pace with this increase, as did levels in most of the communities near the project area. In Weaverville, median household income increased by 43 percent to \$30,000. In Lewiston and Eureka, income increased by 19 percent; Eureka’s median household income in 2000 was comparable to Redding’s median income in 1990. All income indicators for counties and communities in the project vicinity were well below those in California as a whole in 1990 and 2000.

**Table 2.4 Employment and Unemployment Rates**

	1999 Labor Force	1999 Unemployment	2008 Labor Force	2008 Unemployment	Change
<b>Humboldt County</b>	59,100	6.4%	60,800	7.3%	<b>+0.9%</b>
<b>Shasta County</b>	71,600	7.1%	86,200	9.9%	<b>+2.8%</b>
<b>Trinity County</b>	4,890	11.6%	5,400	11.1%	<b>-0.5%</b>
<b>California Total</b>	16,534,300	5.2%	18,555,800	7.6%	<b>+2.4%</b>

***Environmental Consequences***

The proposed project would improve access for all residents. Shasta County businesses and residents are likely to derive the least benefit from the proposed project, since the area already has access to Interstate 5. Communities in Humboldt and Trinity Counties located on or adjacent to State Route 299 are unlikely to be adversely impacted and are likely to benefit economically from improved access to Interstate 5.

The proposed project would not directly impact communities in Humboldt, Trinity, or Shasta Counties. One residence would be displaced as a result of the proposed project. The project would not create a physical barrier between communities.

The proposed project would not alter land use patterns or growth rates sufficiently to adversely affect the availability of community services, such as schools, parks, or fire protection in the project area.

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

No mitigation would be required.

### **2.1.4.2 Relocations**

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

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

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

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

The project is located in a mountainous area, which is unsuitable for development. The area is sparsely populated and there are no residential or commercial centers in the project area.

#### ***Environmental Consequences***

One residential property will be purchased and the occupants will be relocated as a result of the project. It is anticipated that adequate housing will be available to allow for this relocation.

Approximately 154 acres of right-of-way would be acquired for the project and would include both private and public land. Of this acreage, approximately 54 acres would be acquired from the Bureau of Land Management and the remainder would be purchased from private landowners. In the case of publicly owned lands, Caltrans typically seeks easements across these properties, rather than purchasing whole parcels.

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

Property owners will be compensated the fair market value of any land or improvements acquired by Caltrans. Relocation assistance will be provided in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

### **2.1.4.3 Environmental Justice**

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

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Bill Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2007, this was \$20,650 for a family of four.

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

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

The project is located in a mountainous area, which is unsuitable for development. There are no residential or commercial centers in the project area.

#### ***Environmental Consequences***

Since there are no population or commercial centers in the project area, there is no possibility for direct, adverse impacts to low-income or minority populations as a result of the proposed project.

The unreliability of the current roadway as a means of travel through the project area adversely impacts all income levels and ethnic groups similarly. The proposed project would improve access for all residents.

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

No minority or low-income populations have been identified that would be adversely affected by the proposed project; therefore, the project is not subject to the provisions of Executive Order 12898.

## 2.1.5 Emergency Services

### ***Affected Environment***

Emergency services are located near the project area in the communities of Whiskeytown, French Gulch, Lewiston, Douglas City, and Weaverville. Emergency response companies located in Redding provide ambulance service to the project area. Emergency helicopter response is available from Redding to locations throughout the general area, including the project area, and to points in Trinity County.

Ambulance service based in Weaverville provides emergency response to 80 percent of the residents in Trinity County. This service frequently carries patients to hospitals in Redding, Eureka, and Arcata, as well as to Trinity Hospital in Weaverville. However, because Trinity Hospital does not have a trauma center, most patients from eastern and central Trinity County are taken to hospitals in Shasta County.

### ***Environmental Consequences***

The project improvements would result in improved response times and access for fire protection, law enforcement, and other emergency response services along State Route 299. Emergency services would not be adversely impacted by construction of the project. During construction, Caltrans will coordinate with appropriate emergency response agencies to ensure adequate response times.

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

No mitigation would be required.

## 2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

### ***Affected Environment***

#### *Surface Transportation Assistance Act*

The Federal Surface Transportation Assistance Act of 1982 prohibited state governments from setting limits on the overall length of single- and twin-trailer combination vehicles on Interstates and other designated primary highways. Since the passage of this Act, a “Surface Transportation Assistance Act Truck” is considered to be any tractor-semi trailer combination or set of doubles with a length configuration such that the truck may legally operate only on National Network Highways and Terminal Access Highways. On routes that have not been designated for Surface Transportation Assistance Act trucks, the maximum truck length 65 feet.

In order to comply with the overall length limitation of 65 feet, California Legal tractor-semi trailer combinations use semi trailers 48 feet long or less, rather than the Surface Transportation Assistance Act maximum of 53 feet. As a result, California Legal truck combinations have less volume available for shipping. In the interest of maximizing shipping capacity, most trucking companies and businesses with their own fleets of trucks use the largest possible semi trailers.

State Route 299 and U.S. Highway 101 are the only major roadways providing connections between Humboldt County and the remainder of the State Highway System and both are limited to California Legal truck combinations for portions of these routes. The proposed Buckhorn Grade Improvement Project would not, by itself, allow Surface Transportation Assistance Act trucks to use State Route 299 between Redding and Eureka. There are six remaining locations requiring widening, which will allow Surface Transportation Assistance Act truck access on State Route 299. Two projects are currently programmed for construction that will improve two of these locations. A third location is currently being studied for programming purposes. It is anticipated that the remaining three locations will be improved to allow Surface Transportation Assistance Act truck access prior to construction of the Buckhorn Grade Improvement Project.

Caltrans has recently proposed a project on U.S. Highway 101 near Richardson Grove State Park that would allow Surface Transportation Assistance Act truck access from the south to Humboldt County. In addition, improvements are being proposed on State Route 197 and U.S. Highway 199 in Del Norte County to allow Surface Transportation Assistance Act truck access from the northeast to Humboldt County.

### *Safety*

The accident rate on this portion of State Route 299 was 4.19 accidents per million vehicle miles in the five-year period from October 2001 to September 2006. This was two and a half times higher than the statewide accident rate of 1.66 accidents/million vehicle miles for similar roadways. The accident rate on the twelve-mile portion of State Route 299 west of the Shasta/Trinity County line was the same as the statewide rate for similar roadways.

### *Bicycle/Pedestrian Facilities*

There are no facilities or developments within or near the project area that would lead to regular use of this segment of roadway by pedestrians or bicyclists.

### ***Construction***

Construction of the project would require temporary lane closures and one-way traffic controls. Construction would overlap with the peak of the recreational travel season, which extends from the end of May and to the beginning of September. For some industries – specifically the timber industry – the summer months represent a period of increased activity and the number of trucks traveling through the project area increases dramatically.

### ***Environmental Consequences***

#### ***Surface Transportation Assistance Act***

The proposed project is expected to attract larger commercial trucks on State Route 299. However, the overall number of vehicles utilizing this roadway for commercial purposes would continue to be limited by regional and national economic conditions. The removal of Surface Transportation Assistance Act restrictions within the project area will not directly cause economic growth or population increases greater than what is currently anticipated by the relevant local agencies. Economic activity and subsequent growth face challenges such as distance to markets, with or without the proposed project. There are numerous existing environmental, geographical, and political limitations to growth in Trinity and Humboldt Counties.

While the absence of Surface Transportation Assistance Act truck access on Buckhorn Grade is not the only factor limiting economic development in the area, removing the restrictions would likely have a positive effect on businesses. However, the removal of these restrictions is not expected to result in an increase in truck traffic but rather an increase in efficiency. The reduction in the number of trips due to increased efficiency would likely offset any increase in the amount of truck traffic. Proposed improvements on U.S. Highway 101 in Humboldt County and State Route 197 and U.S. Highway 199 in Del Norte County would also provide access for Surface Transportation Assistance Act trucks.

The proposed project would reduce transportation costs and improve safety for both commercial and local traffic. However, the proposed project is not expected to result in substantial increases in overall economic productivity in the region nor substantial changes to truck traffic volumes on State Route 299.

### **Safety**

The proposed improvements should reduce the number of accidents in the project area, as well as road closures due to accidents, weather, and maintenance activities. Access will also be improved for emergency services.

### **Bicycle/Pedestrian Facilities**

Impacts to pedestrian and bicyclists will not be substantial due to the remote location of the project. All proposed alternatives will address bicycle usage and construction of standard shoulders will be an improvement over the minimal or non-existent shoulders of the current roadway.

### **Construction**

Traffic backups during construction of the project would delay motorists including tourists, commuters, and daily commercial truck traffic. Lengthy delays could affect commercial drivers who frequently travel through the project area. However, the long-term benefits in timesavings and increased reliability of this portion of State Route 299 will result in a beneficial impact.

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

A Traffic Management Plan will be prepared for the project. The plan will identify methods to reduce impacts from construction activities, minimize delays for motorists, and provide a safe work zone.

## **2.1.7 Visual/Aesthetics**

### **Regulatory Setting**

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

Likewise, the California Environmental Quality Act establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of

*aesthetic*, natural, scenic and historic environmental qualities” [CA Public Resources Code Section 21001(b)].

### ***Affected Environment***

The project is located within the Shasta Cascade region of California, known for being low in population but rated high for recreation opportunities. Shasta Cascade is a large geographic region dominated by several mountains of significance including Mount Shasta, Mount Lassen, and the Trinity Alps. Large bodies of water within the region include Lake Shasta, Trinity Lake, Whiskeytown Lake and the Sacramento and Trinity Rivers.

Development within the region is concentrated within the larger communities of Redding and Eureka. Small rural communities are also located along the route. In some areas, the highway is the only development, while tourist oriented businesses and rural home sites are a part of the scattered regional development.

State Route 299 from Eureka to Redding, is also named the Trinity Scenic Byway and is the main west/east corridor for northern California travelers. Visual features include Buckhorn Mountain, Oregon Mountain, Berry Summit, Lord Ellis Summit, Whiskeytown Lake, and the Trinity River.

Due to the topography throughout much of the corridor, cut slopes associated with the highway facility and other development can often be seen from the roadway. Several bridges, rock retaining walls and rock guardrails can be seen either from the highway or from vantage points adjacent to the highway. Erosion is evident within the project corridor and requires maintenance activities that include the use of material storage and disposal sites, which are located along the roadway.

The lower portion of the project is located within foothill woodland vegetation, which includes manzanita, ceanothus, Douglas fir, poison oak, and blue oak. The upper portion of the project contains mixed evergreen forest vegetation including Douglas fir, black oak, Pacific madrone, ponderosa pine, poison oak, red bud and dogwood. The visual character of the vicinity includes steep, rugged slopes with segments of well-vegetated draws and drainage corridors. The majority of the highway alignment is cut into the existing hillsides or placed on fill slopes.

The alignment of the existing road limits views by the traveler due to the narrow roadway, which requires constant attention by the driver through cut sections and mature vegetation which blocks views. Within the limits of the project, there are several

residential structures and no commercial buildings. Whiskeytown National Recreation Area is adjacent to the eastern boundary of the project.

State Route 299 is eligible for designation as a California Scenic Highway from SR 3 near Weaverville to Interstate 5 in Redding. In 1990, the U.S. Forest Service adopted a National Scenic Byway system to showcase outstanding National Forest scenery. While the program applies only to National Forest lands, in 1992 the California State Legislature passed Assembly Bill 126, renaming State Route 299 the “Trinity Scenic Byway”. The route extends from the westerly limits of Redding to Eureka, a distance of approximately 140 miles.

Three landscape units have been identified within the project area. A landscape unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character.



Upper Unit, TRI-299, PM 70.2 to 72.2; SHA-299, PM 0.0 to 3.0 (see Photo 1) – This unit is the more forested, steep portion of the project with intermittent views of distant canyon slopes. The road alignment is tightly affixed to the terrain, passing through cut slopes and over fill with vegetation in various stages of growth.



Middle Unit, SHA-299, PM 3.0 to 5.0, see Photo 2) – In this unit, canyon slopes open up slightly but still limit views. The road is tightly affixed to the terrain, leaving Willow Creek below the driver's view, while transitioning to the Upper Unit. Within this unit, the driver becomes focused on the next curve in the road and loses the ability to look at the surroundings.



Lower Unit, SHA-299, PM 5.0 to 8.2 (see Photo 3) – Canyon slopes limit views in this unit. The road is tightly affixed to the canyon terrain adjacent to Willow Creek.

### *Visual Character and Visual Quality*

Existing visual conditions and potential impacts of the proposed project are described in terms of the visual character and quality of each landscape unit. Visual character is based on four pattern elements (form, line, color and texture) and four pattern characteristics (dominance, scale, diversity and continuity). Visual quality is evaluated for the following attributes:

- **Vividness** – the visual power or memorability of landscape components as they combine in distinctive visual patterns. Four components are considered: manmade development, vegetation, water, and landform.
- **Intactness** – the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-maintained urban and rural landscapes, as well as in natural settings.
- **Unity** – 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.

The landscape units discussed above have been further divided into three general viewsheds, which motorists experience in sequence when traveling State Route 299.

### Upper Unit, Typical Viewshed Views



The visual quality of this viewshed has been evaluated as moderate. The landform creates the vividness of this viewshed with steep canyon slopes in the foreground and across the canyon in the background. Intactness of the area is low moderate due to cut slopes that are in various stages of revegetation or erosion (see Photo 4).



Some of these slopes create ongoing maintenance problems during winter storms (see Photo 5). The existing highway facility is visible in quick glimpses at various points traversing the roadway. Unity of the vegetated hillside slopes throughout the viewshed is consistent. The area has been subject to both helicopter and dragline logging in several areas, which is evident by scars on the hillsides and areas cleared of vegetation for log landing areas.



Impacts of highway construction are more evident in the viewshed, lowering the intactness (see Photo 6). There are few opportunities for the driver to view the viewshed due to the current alignment, which leaves a lasting impression on the driver. An experimental reforestation area can be seen across the canyon, disrupting the forest harmony.

### Middle Unit, Typical Viewshed Views



The visual quality of this viewshed has been evaluated as moderate to moderate low. Moderate low vividness is present within this viewshed. The landscape is neither extremely powerful nor extremely memorable. Manmade elements contribute to the lack of vividness and memorability. The Greenhorn Mine across the canyon interferes with the integrity of the background (see Photo 7). A disposal site used for highway maintenance activities is located below the traveled way and encroaches into the foreground.



The existing highway is present in random views as the driver moves through the various units of the project (see Photo 8). Unity of the viewshed is moderate low. Manmade activities interfere with the harmony of the viewshed.



This viewshed provides the major transition between the upper and lower units of the project (see Photo 9). Landform is changing from the steeper canyon slopes to the lower reaches of the canyon, with its riparian corridor adjacent to the creeks located below the highway. Intactness is moderate low due to sharp bends in the alignment with views of the roadway and cut slopes. A large turnout used for temporary storage of materials is located in this area. Unity of views within this unit is wide reaching as a portion of the lower unit was recently burned in wildland fire, while the rest of the area is lower elevation blue pine/oak woodland. Harmony of the viewshed is mixed, with the components changing constantly throughout the unit.

*Lower Unit, Typical Viewshed Views*



Visual quality of this viewshed has been evaluated as moderate low. Vividness within the viewshed is moderate low, due to the condition of the vegetation above the existing highway (see Photo 10). A portion of the lower project area was recently burned in a wildland fire and has not recovered from the vegetation damage that occurred (see Photo 11). Large electrical transmission lines and towers are located above the highway and are visible to drivers. Willow Creek is located below the highway and supports a riparian corridor (see Photo 12). Intactness is lower due to fire trails on the hillside that were built for fire suppression activities, a large paved pullout for snow chain installation and a wide paved shoulder for truck brake inspection. Unity of the site is low to moderate due to lack of harmony within the viewshed (see Photo 13).



***Environmental Consequences***

The visual impacts of a project are determined by assessing the visual resource change caused by 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 first step in determining visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the project is constructed.

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.

Visual impact levels are defined as follows:

**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.

**Moderate 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.

Because it is not feasible to analyze all the views in which the proposed project would be seen, it is necessary to select a number of observer viewpoints that would most clearly display the visual effects of the project. Observer viewpoints also represent the primary viewer groups that would potentially be affected by the project. Observer viewpoint locations are shown in Table 2.5.

**Table 2.5 Observer Viewpoints within Landscape Units**

<b>Landscape Unit</b>	<b>Location</b>
Upper	From the air looking at PM 0.3 to PM 1.2 and from across the canyon looking at PM 1.12
Middle	From across the canyon at Greenhorn Mine looking at PM 4.25 and from the air looking west near Trail & Water Gulches, PM 4.95
Lower	From Trail Gulch looking east to the chain control area at PM 4.95 and looking west at Toll House Road at PM 7.10

The existing visual quality of State Route 299 in the project area is moderate, due primarily to the natural vegetation, topography, highway facility and other built elements. The major visual detractors within the project vicinity are ongoing erosion, unvegetated highway and abandoned mining slopes, continuing maintenance activities required to keep the road open for travelers, metal guardrail and highway signage.

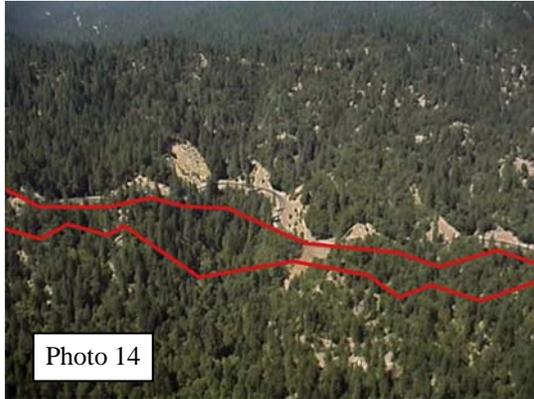
Within all viewsheds of the project, the new alignment will incorporate the following roadway features: new asphalt pavement for the highway, pullouts, paved ditches, retaining walls, guardrails and drainage systems. In addition, a chain control/installation area will be constructed adjacent to the highway in the lower unit.

With installation of these features, the individual elements may contribute to new glare and/or reflection within the project area. Placement of retaining walls may look out of character due to their unnatural appearance if constructed with materials such as smooth concrete, rock gabion or steel.

Vegetation removal and grading for the project will be required for developing roadway cuts, creating fill sections, chain control areas, snow storage and construction of access roads. Portions of the existing highway will be obliterated and replanted with native vegetation. Existing rock guardrails will be left in place along the abandoned roadbed.

The visual impacts of the project at the observer viewpoints described in Table 2.5 are evaluated in the following discussion. For each alternative, the impacts are expected to be similar.

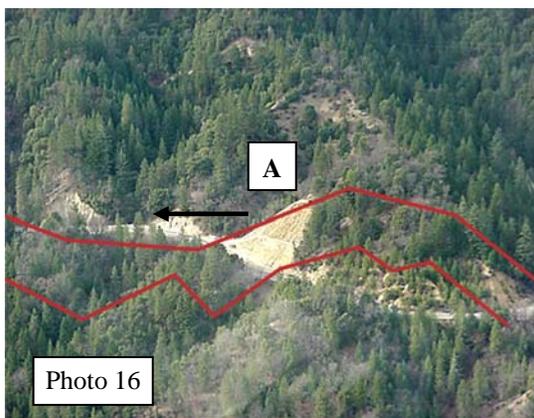
*Upper Unit, Viewpoint* – An aerial view of the existing highway. The red line represents the project footprint (see Photos 14 and 16).



Visual quality of this viewshed has been evaluated as moderate. Overall, the proposed new alignment will reduce visual quality of this viewshed. Construction of the highway will increase the vividness of the roadway, while reducing the intactness of the landscape. Vegetation within the foreground and midground will be either removed for construction or absent within the abandoned alignment corridor. Unity with other slopes within the viewshed will be changed greatly, due to new cut slopes having potentially larger disturbed areas than existing slopes. Old cut slopes may receive treatment to reduce their visual impact from the new highway. New cut slopes are typically lighter in color and bare of vegetation, which tends to draw the attention of the viewer.



The view in Photo 15, taken from the westbound shoulder is located within the project area as shown in Photo 16. Within this viewshed, the impacts will be very similar to those in the Upper Unit with the primary difference being the location of the new highway above and below the existing facility. Therefore, the impact with new construction will be a slightly less net visual change due to the ability to reuse the existing cut slope, rather than creating a new cut slope. New slopes will be more visible than existing and older slopes will be restored to the extent possible during and after construction.

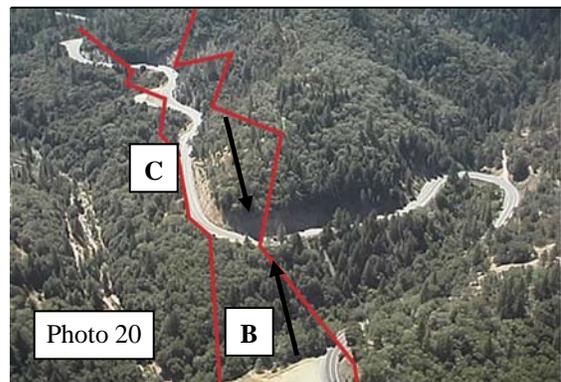


*Middle Unit, Viewpoint* - Transition between Upper and Lower Landscape Units from across Willow Creek canyon. The red line represents the project footprint.

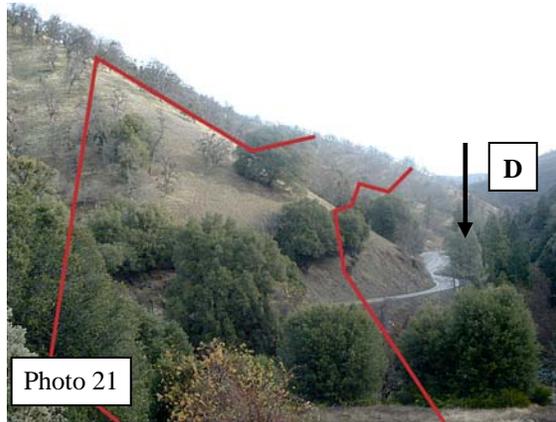


Visual quality of this viewshed has been evaluated as moderate low. Modifications within this viewshed may create more positive opportunities for the driver to observe scenery from the roadway, as there is less need to concentrate on the curve ahead. Views within the background include the eroded Greenhorn Mine slopes across Willow Creek canyon, hillside slopes of the lower canyon below and more lush vegetation up canyon near Buckhorn Summit. Visual quality is reduced because of overall impacts to adjacent cut slopes.

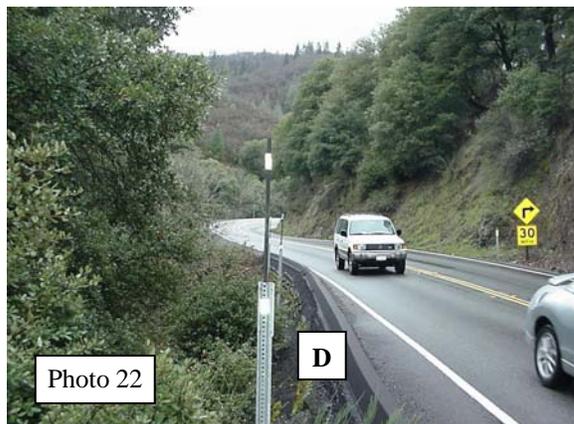
Foreground views up slope will reduce the vividness of the viewshed; while the intactness of the whole area will be disrupted with large fill slopes across the canyon (see Photo 17). The views in Photos 18 and 19 are located within the project area, as shown in Photo 20. Long distance views within the corridor will include abandoned mine site, recently burnt slopes, riparian corridors of Trail Gulch, Water Gulch and Willow Creek, and the abandoned highway. Unity of the viewshed is moderate low because of the composition of elements (both existing and proposed) within the area.



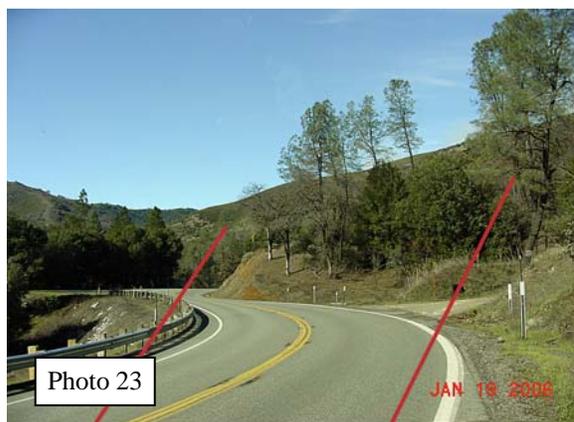
*Lower Unit, Viewpoint* - Northeast hillside within the lower unit at PM 4.95. The red line represents the project footprint.



The corridor in this area has been rated moderate low due to marginal quality of vividness of the new alignment and the low intactness due to old highway, chain installation area, historic roadbed and fire-damaged hillside. New cut slopes within this section will be large, steep, and unvegetated, therefore interfering with the unity of the area (see Photo 21). The riparian corridor may be visible from the new alignment.



The view in Photo 22 is located within the project area, as shown in Photo 21. In this area, opportunities to view the corridor are limited. There is a steep drop to the canyon floor with no shoulder area on either side of the highway.



Within this segment of the project, the new facility will match the existing alignment (see Photo 23). The roadway in this portion of the project will climb away from the riparian corridor of Willow Creek, but will retain views from a distance when driving westerly. Electric transmission towers and lines will stand out on the proposed alignment in contrast to the more remote views they hold in the existing alignment. Additionally, the area is recovering from a recent wildland fire.

Construction of the project will result in a substantial alteration to the visual environment. Methods of construction in this area are, to a large extent, dictated by terrain and geologic conditions. The prevalence of decomposed granitic soils is just one of the elements that limit feasible construction options. Construction will result in large, bare cut and fill slopes, which will conflict with the intent of the Trinity Scenic Byway designation. Although visual impacts will be reduced through the implementation of minimization and mitigation measures, the project will nevertheless result in a significant impact to visual resources. Measures to minimize and mitigate adverse impacts are discussed in the following section.

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

Mitigation for adverse visual impacts will consist of the following:

- Re-contour disturbed areas and construction access roads to a natural appearance.
- Minimize vegetation removal within the project corridor.
- Prepare abandoned highway for revegetation by removing asphalt and base materials where feasible, ripping the original ground and incorporating soil and/or amendments to facilitate plant growth.
- Use an open style rail on any guardrail placed within the project limits when feasible.
- Vegetate stabilized soil areas with native plants, either by hydroseeding or planting containerized plants.
- Use color (stain and/or paint) and textures that minimize reflectivity, glare and unnatural appearances on walls that are constructed for the project.

## **2.1.8 Cultural Resources**

### ***Regulatory Setting***

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

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included on or eligible for the National Register of Historic Places.

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2004, a Section 106 Programmatic Agreement among the Advisory Council, the Federal Highway Administration, the State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the agreement have been assigned to Caltrans as part of the Surface Transportation Delivery Pilot Program (23 Code of Federal Regulations 773) (July 1, 2007).

The Archaeological Resources Protection Act applies when a project may involve archaeological resources located on federal or tribal land. This act requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties. Historical resources are considered under the California Environmental Quality Act, as well as California Public Resources Code Section 5024.1, which established the California Register of Historical Resources. Section 5024 of the Public Resources Code requires state agencies to identify and protect state-owned resources that meet listing criteria for the National Register of Historic Places. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion on the National Register or are registered or eligible for registration as California Historical Landmarks.

### ***Affected Environment***

An "area of potential effects" was established for the proposed project, which encompasses the maximum limits of potential ground disturbing construction activities as currently proposed, including, but not limited to, all existing and proposed new rights-of-way, temporary construction easements, utility relocations, and any mandatory borrow, disposal, and/or equipment staging areas. The area of potential effects also includes

parcels with standing buildings, structures, or objects that have the potential to be either directly or indirectly (e.g., visual, audible, vibratory) affected by the proposed project. After surveys and identification efforts were completed, the area of potential effects was revised to include entire archaeological sites when/if the boundaries of such sites were found to extend beyond the initial area of potential effects. In such cases, the term “area of direct impact” is used to refer to the portion of the site that lies within the direct project impact limits.

Efforts to identify cultural resources within the project’s area of potential effects included: conducting a records and literature search at the Northeast Information Center of the California Historic Resources Information System at the California State University at Chico; consultation with the Native American Heritage Commission, as well as local Native American tribes and individuals; consultation with local historic preservation interest groups and individuals, historical societies, and museums; conducting pedestrian field surveys of the project study limits; and performing excavations to evaluate sites and to assess potential project effects.

Five archaeological sites have been identified within the area of potential effects that are either eligible for, or assumed eligible for, listing in the National Register of Historic Places. The State Historic Preservation Officer concurred with Caltrans’ findings in letters dated August 28, 2008 and February 3, 2009..

One of the sites (CA-SHA-4169/H) has elements within the area of direct impact that contribute to the eligibility of the site and would be affected by the proposed project. CA-SHA-4169/H is a multiple component archaeological site determined eligible for listing in the National Register of Historic Places for their ability to address important questions about history and prehistory.

Four additional sites (CA-SHA-881, CA-SHA-4170H, CA-SHA-4171H, and CA-SHA-4172H) are assumed eligible for the purposes of this project and will be protected as Environmentally Sensitive Areas. Two of the sites assumed eligible (CA-SHA-4171H) extend into the area of direct impact for the proposed project; however, additional testing and evaluation of the portion of the site within the area of direct impact resulted in the conclusion that they do not contain important information and do not contribute to the eligibility of the site. The remainder of CA-SHA-4171H and CA-SHA-4172H will be protected as Environmentally Sensitive Areas.

### **Environmental Consequences**

Caltrans has determined that all four build alternatives of the proposed project would adversely affect one historic property:

- CA-SHA-4169/H - lies entirely within the area of direct impact for the proposed project and would be destroyed by construction.

Caltrans prepared a Finding of Effects to assess the effects of the proposed on the eligible property, which was submitted concurrently with the determinations of eligibility. The State Historic Preservation Officer concurred with the finding of adverse effect in a letter dated August 28, 2008.

CA-SHA-4169/H is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place; therefore, Section 4(f) of the National Transportation Act does not apply to this resource.

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

The State Historic Preservation Officer and Caltrans have negotiated a Memorandum of Agreement, which includes stipulations to take into account the proposed project's effects on historic properties. The Memorandum of Agreement ensures that the adverse effects of the undertaking are resolved by implementing Data Recovery and Environmentally Sensitive Area Action Plans.

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

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission, which would then notify the Most Likely Descendent. At this time, the person who discovered the remains would contact the District 3 Environmental Branch, so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code 5097.98 are to be followed as applicable.

## 2.2 Physical Environment

### 2.2.1 Hydrology and Floodplain

#### **Regulatory Setting**

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

To comply, the following must be analyzed:

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

The 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.”

#### **Affected Environment**

The project is located in an area in which the Federal Emergency Management Agency has not conducted detailed floodplain studies. The predominant hydrologic feature within the project area is Willow Creek, which is a perennial stream. Willow Creek and its tributaries are within the Sacramento River drainage. Willow Creek forms the southern boundary line for the majority of the project area.

The majority of the drainage systems within the project limits are located in steep terrain and include cross culverts and down drains that discharge well above Willow Creek. These systems will either be extended through the new roadway embankment or replaced with a new system consisting of the same or similar elements. Rock slope protection dissipaters and channel lining will be used where needed.

Four creek crossings will be affected by the project: Water Gulch, Trail Gulch, Sawpit Gulch, and Yankee Gulch. At Sawpit Gulch and Yankee Gulch, the existing concrete box

culverts will be extended to the north, away from Willow Creek. No work is planned at the outlet of these culverts, as there is no evidence of erosion. The planned outlets are located in areas of existing vegetation and rocky substrate. At Water Gulch and Trail Gulch, large embankments will be constructed over the existing drainage channels. These embankments will range from approximately 108 to 114 feet in height. Culverts will be installed to convey water through the fills. The outlet of these new culverts will be outside of the 100-year floodplain of Willow Creek, which receives the runoff from both culverts. Rock slope protection dissipaters will be placed at the outlet of these new culverts to prevent scour and erosion.

### ***Environmental Consequences***

According to current Federal Emergency Management Agency Flood Insurance Rate Maps, the project is located within an area in which no floodway has been delineated. The Floodplain Evaluation Report Summary determined the following:

- The proposed action would not result in a longitudinal encroachment of the base floodplain.
- There are no significant risks associated with implementation of the proposed action.
- The proposed action does not constitute a significant floodplain encroachment as defined in 23 Code of Federal Regulations, Section 650.105(q).

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

No avoidance, minimization, or mitigation measures are required.

## **2.2.2 Water Quality and Storm Water Runoff**

### ***Regulatory Setting***

Section 401 of the Clean Water Act requires water quality certification from the State Water Resource Control Board or a Regional Water Quality Control Board when the project requires a Federal permit. Typically this means a Clean Water Act Section 404 permit to discharge dredge or fill into a water of the United States, or a permit from the Coast Guard to construct a bridge or causeway over a navigable water of the United States under the Rivers and Harbors Act.

Along with Clean Water Act Section 401, Section 402 establishes the National Pollutant Discharge Elimination System for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the National Pollutant Discharge Elimination System program to the State Water Resource

Control Board and the nine Regional Water Quality Control Boards. To ensure compliance with Section 402, the State Water Resource Control Board has developed and issued the Department an National Pollutant Discharge Elimination System Statewide Storm Water Permit to regulate storm water and non-storm water discharges from Department' right-of-way, properties and facilities. This same permit also allows storm water and non-storm water discharges into waters of the State pursuant to the Porter-Cologne Water Quality Act.

Storm water discharges from the Department's construction activities disturbing one acre or more of soil are permitted under the Department's Statewide Storm Water National Pollutant Discharge Elimination System permit. These discharges must also comply with the substantive provisions of the State Water Resource Control Board's Statewide General Construction Permit. Non-Departmental construction projects (encroachments) are permitted and regulated by the State Water Resource Control Board's Statewide General Construction Permit. All construction projects exceeding one acre or more of disturbed soil require a Storm Water Pollution Prevention Plan to be prepared and implemented during construction. The Storm Water Pollution Prevention Plan, which identifies construction activities that may cause discharges of pollutants or waste into waters of the United States or waters of the State, as well as measures to control these pollutants, is prepared by the construction contractor and is subject to Department review and approval.

Finally, the State Water Resource Control Board and the Regional Water Quality Control Boards have jurisdiction to enforce the Porter-Cologne Act to protect groundwater quality. Groundwater is not regulated by Federal law, but is regulated under the state's Porter-Cologne Act. Some projects may involve placement or replacement of on-site treatment systems such as leach fields or septic systems or propose implementation of infiltration or detention treatment systems, which may pose a threat to groundwater quality. Currently the on-site treatment systems program is without State Water Resource Control Board regulation but you should be aware of threats to groundwater quality on the project site and evaluate and address accordingly in the environmental document. Design standards for installation and operation of infiltration and detention treatment systems should protect groundwater quality and those protections should also be addressed in the environmental document.

### ***Affected Environment***

The Buckhorn Grade Improvement Project traverses the east side of the Trinity Mountains in the Willow Creek and Upper Clear Creek watershed. The project site is

within the jurisdiction of the Central Valley Regional Water Quality Control Board. The project limits extend into Trinity County, which is within the jurisdiction of the North Coast Regional Water Quality Control Board, but activities in this area will be limited to placement of construction signs and traffic control.

The receiving surface water bodies at the project site are Willow Creek, Upper Clear Creek, Whiskey Town Reservoir, Lower Clear Creek, Sacramento River and Delta, and ultimately the San Francisco Bay and Pacific Ocean. The annual average precipitation is approximately 57 inches. Willow Creek would be the principal receiving water body in the project area. Willow Creek is listed on the State Water Resources Control Board 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments from below Greenhorn Mine to Clear Creek as impaired for copper, zinc, and acid mine drainage from resource extraction of the abandoned Greenhorn Mine

Groundwaters throughout the project area are used for domestic, agricultural, and industrial supply. The predominant terrain in the project area creates a deep flowline of Willow Creek to which everything flows. Groundwater resources in the area do not represent a sole source aquifer, and there are no groundwater wells in the project vicinity.

### ***Environmental Consequences***

The project would alter existing drainage flow paths. Large segments of each alternative are located in mountainous terrain in their natural state. To create the desired highway profile, all of the proposed alternatives would require substantial earthwork operations (cut and fill slopes) and would impact natural drainage patterns.

The potential for erosion of slopes and siltation in downstream waterways is substantial. Long-term or permanent impacts would potentially result from the following sources: sediment carried by storm water from project-related erosion, traction sand, and toxic vehicle-related pollutants carried in storm water runoff.

Storm water from the project would drain into Willow Creek, Water Gulch, Trail Gulch, and Bear Gulch. This storm water would ultimately discharge to Whiskeytown Reservoir, a drinking water source. Most existing drainage systems would be reconstructed at the location of the new highway alignment.

The project may result in localized impacts to the flow of groundwater at the locations of new cuts or fills. The effects would be less than significant due to the existing hilly terrain and the highly variable nature of the existing groundwater flow paths. Existing groundwater recharge areas would be unaffected due to the limited new impervious areas

proposed by the project. No groundwater wells are known to exist in the area that would be impacted by the project.

The project is not expected to result in significant changes to temperature, pH, and nutrient levels entering the receiving waters. Increased concentrations of biological oxygen demand and consequently reduced concentrations of dissolved oxygen could potentially result from construction activities.

The project would result in potentially adverse impacts related to construction activities. Soil erosion would, especially during heavy rainfall, increase suspended solids, dissolved solids, and organic pollutants in Willow Creek, Water Gulch, Trail Gulch, and Bear Gulch. These conditions would likely persist until completion of construction activities and long-term erosion control measures have been implemented.

Fueling or maintenance of construction vehicles would occur in the project area during construction and there could be a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these substances could adversely impact surface water quality, vegetation, and wildlife habitat.

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

The primary potential for water quality impacts is from soil erosion or suspended solids being introduced into the waterways. The following mitigation measures for temporary construction impacts and long-term impacts would focus on the control of sediment and suspended solids from entering the waterways.

- The disturbed soil area for this project is expected to exceed 1 acre. This project will adhere to the conditions of the National Pollutant Discharge Elimination System Permit for Construction Activities (Order No. 99-08-DWQ, National Pollutant Discharge Elimination System No. CAS000002), which is incorporated by reference to the Caltrans National Pollutant Discharge Elimination System Permit, Storm Water Discharges from the State of California, Department of Transportation (Caltrans) Properties, Facilities, and Activities (Order No. 99-06-DWQ, National Pollutant Discharge Elimination System No. CAS000003). To comply with the conditions of the Caltrans National Pollutant Discharge Elimination System Permit, and to address the temporary water quality impacts resulting from the construction activities of this project, Standard Special Provisions would be included in the Plans, Specifications, and Estimates. These Standard Special Provisions would address water pollution control work and the implementation of a Storm Water Pollution Prevention Plan during construction.

- The Storm Water Pollution Prevention Plan will outline construction Best Management Practices to be used to minimize adverse effects on receiving waters. In addition to measures involving sediment detention basins, materials handling and storage, spill prevention and erosion blankets, specific pollution control measures will be included in the project design specifications to limit and minimize erosion, sedimentation and release of chemicals to the water bodies to prevent impacts to water quality during construction.
- Several approved treatment Best Management Practices are available for use on improvement projects. In addition, non-approved treatment Best Management Practices could be proposed for a project if warranted by the type of project and the potential for impacts to water quality. For this project, the use of currently approved treatment Best Management Practices is sufficient to minimize impacts to water quality. Because of the large cut and fill slopes on the project, the likely cause of potential water quality impacts is soil erosion. Soil erosion would be controlled through the proper design of landscaping and the application of final ground treatment. Additionally, treatment Best Management Practices such as biofiltration (swales and strips), reduce sediment and organic constituents, as well as metals that adhere to sediment. Traction sand traps reduce sediment transport.
- Construction within active waterways would be avoided. Construction activities near waterways or within stream banks would provide all necessary erosion control and water quality control practices, such as clear water diversions, to minimize the potential for direct or indirect impacts to water quality.
- It is anticipated that groundwater would be encountered during project construction. If groundwater were to be discharged into any jurisdictional waters, appropriate Best Management Practices would be required to reduce or eliminate any potential discharge of pollutants to the maximum extent feasible. Project-specific Waste Discharge Requirements (National Pollutant Discharge Elimination System Permit) may be required by the Regional Water Quality Control Board if substantial dewatering is to be done.
- Accidental fuel, lubricant and/or coolant leaks or spills that may occur from heavy equipment during construction would be cleaned up to prevent impacts to receiving waters. A spill on the roadway would trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a Hazardous Materials Incident Contingency Plan, which provides a program for response to spills involving hazardous materials. The plan designates a

chain of command for notification, evacuation, response, and cleanup of spills resulting from the transport of hazardous material.

- Embankments constructed out of decomposed granite will be reinforced with engineering fabric to reduce the potential for surface erosion. Overlapping flaps of engineering fabric will cover the fill slope so that no decomposed granite is exposed to runoff and wind. This is accomplished by embedding a portion of fabric into the fill at specified intervals; the remaining exposed fabric creates the overlapping flaps. As fundable and constructable projects are developed on Buckhorn Grade, additional measures will be identified to minimize impacts that could degrade water quality and damage habitat for species of special concern.

### **2.2.3 Geology/Soils/Seismic/Topography**

#### ***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.

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. Caltrans’ Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake, from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

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

Soils within the environmental study limit are generally well-drained and are volcanic in origin. The project is located within areas mapped as Devonian and pre-Devonian age meta-volcanics, pre-Cretaceous age meta-sedimentary and Mesozoic granitic rocks. Bedrock within the metasedimentary and metavolcanic areas is generally at or near the surface (less than 10 feet), unless it is located within or adjacent to channels or drainages where it may be buried beneath alluvial deposits. Overlying deposits are most likely comprised of a mix of soil and decomposed bedrock. Depth to bedrock within the granitic material is highly variable depending on location, terrain and exposure. A seismic study, conducted in 1991 by Caltrans, between post miles 0.0 and 8.5 in Shasta

County indicated depths of decomposed granite in excess of 100 feet. Generally, the metamorphic rock in the area is highly to moderately weathered, moderately fractured and moderately hard. Granitic rock in the area is generally completely to highly weathered, moderately fracture and soft to moderately hard.

Due to the anticipated shallow depth of bedrock and the free draining nature of decomposed granite, groundwater depth is anticipated to be relatively deep, with the exception of some localized areas of perched groundwater and areas adjacent to streams, drainages and springs.

Shasta County has a low level of historic seismic activity. Over the past 120 years there has been no significant property damage or loss of life due to earthquakes occurring within or near Shasta County. Most seismic activity has occurred in the eastern half of the County around Lassen Peak. According to the Caltrans 1996 California Seismic Hazard Map, the Battle Creek Fault is located approximately 66 miles south-southwest of the project area. Although the Battle Creek Fault is an extensive fault zone, with a composite length of more than 20 miles, it is considered to be inactive.

### ***Environmental Consequences***

The top third of the proposed project is located in erosive, decomposed granite. However, exposures of more competent granite exist and may require blasting to create some of the proposed cuts. In addition extensive erosion control measures will likely be required within this rock unit. The middle and lower portions of the project are within the meta-sedimentary and meta-volcanic rock units. Blasting will be required to complete most of the cuts within these rock units. Rock fall will be a primary concern for all cuts located in rock.

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

Erosion control measures will be implemented to maintain slope stability. Cut slopes in areas of decomposed granite may need to be flattened to help control rock fall. Other measures that may be used include catchment at the base of proposed cuts, fences, rock bolting and cable drapery or wire mesh drapery.

## 2.2.4 Hazardous Waste or Materials

### **Regulatory Setting**

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

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

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

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

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

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

### ***Affected Environment***

The project would require that one residential structure located adjacent to State Route 299 be demolished.

Lead-containing traffic markings including yellow thermoplastic and painted traffic striping have been identified within the project limits.

There is no potential for naturally occurring asbestos within the entire project limits, based on a field review and geologic mapping of the project.

The abandoned Greenhorn Mine is located on the southern side of Willow Creek outside of the project study limits. The mine operated from 1884 through 1941 and produced primarily copper, zinc and iron, derived from sulfide ore, as well as lesser amounts of silver and gold. The Central Valley Regional Water Quality Control Board and the California Department of Water Resources conducted a study in 1985, which identified the Greenhorn Mine as source of acid mine drainage into Willow Creek.

### ***Environmental Consequences***

Structures impacted by construction of the project could contain lead paint and asbestos.

Traffic markings containing heavy metals such as lead and chromium, may exceed hazardous waste thresholds and could produce toxic fumes when heated.

The project will not impact the Greenhorn Mine.

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

Structures will be inspected to determine whether asbestos and lead-based paint are present. If any structures to be demolished or disturbed during construction contain asbestos, a qualified asbestos abatement contractor will handle debris removal and disposal. If it is determined that lead-based paint is present at levels above the regulatory threshold, it will be disposed of at an appropriate hazardous waste facility.

Waste material generated by the removal of yellow thermoplastic and painted traffic striping will be addressed during construction by incorporation of standard special provisions.

## 2.2.5 Air Quality

### **Regulatory Setting**

The Clean Air Act, as amended in 1990, is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM), lead (Pb), and sulfur dioxide (SO<sub>2</sub>).

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

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

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

### ***Affected Environment***

The proposed project is located within the North Coast Air Basin in Trinity County and the Sacramento Valley Air Basin in Shasta County. The North Coast Air Basin is comprised of Del Norte, Humboldt, Mendocino, Northern Sonoma, and Trinity Counties. The North Coast Air Quality Management District, which includes Del Norte, Humboldt and Trinity Counties, regulates air quality in Trinity County. The Sacramento Valley Air Basin includes Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba Counties. Air quality is regulated in Shasta County by the Shasta County Air Quality Management District.

### ***Environmental Consequences***

#### ***Regional Air Quality Conformity***

This project is exempt from regional conformity requirements based on 40 Code of Federal Regulations 93.127. Separate listing of the project in the Regional Transportation Plan and Transportation Improvement Program, and their regional conformity analyses, is not necessary. The project would not interfere with timely implementation of Transportation Control Measures identified in the applicable State Implementation Plan and regional conformity analysis.

#### ***Project Level Conformity***

The federal and state attainment status for criteria pollutants is summarized in Table 2.6. Under federal standards, both counties are designated as in attainment for all transportation-related criteria pollutants including carbon monoxide (CO), ozone (O<sub>3</sub>) and particulate matter (PM<sub>10</sub>). Under state standards, Trinity County is designated as

unclassified for CO, attainment for O<sub>3</sub>, nonattainment for PM<sub>10</sub>, and Shasta County is designated as in attainment for CO, and nonattainment for O<sub>3</sub> and PM<sub>10</sub>.

**Table 2.6 Attainment Status for Air Quality Standards**

Pollutant	Federal Attainment Status		State Attainment Status	
	Trinity County	Shasta County	Trinity County	Shasta County
Ozone (O <sub>3</sub> )	Attainment	Attainment	Attainment	Non-Attainment
Particulate Matter (PM <sub>10</sub> )	Attainment	Attainment	Non-Attainment	Non-Attainment
Carbon Monoxide (CO)	Attainment	Attainment	Unclassified	Attainment

The procedures and guidelines provided in the Transportation Project-Level Carbon Monoxide Protocol, University of California Davis, December 1997, were used to evaluate the potential local level carbon monoxide impacts of the project. The analysis determined that project-level carbon monoxide impacts are not expected as the project: does not significantly increase the number of vehicles operating in cold start mode; does not significantly increase traffic flows; and does not worsen traffic flow.

*Naturally Occurring Asbestos*

Within California, naturally occurring asbestos is known to exist in serpentine, a greenish greasy-looking rock, found within ultramafic rock. Serpentine is common in the coast range, Klamath mountains and Sierra foothills. Asbestos is a potent carcinogen, particularly when inhaled. It is, therefore, regulated as an airborne toxic material and strict limits are placed on its use and handling in working environments. Based on the California Geologic Survey and National Resource Conservation Service soils maps, ultramafic rock is found in some areas of Trinity and Shasta Counties; however, naturally occurring asbestos is not expected to be encountered within the project area.

*Construction Impacts*

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM<sub>10</sub>, would be the primary short-term construction impact, which may be generated during excavation, grading, and hauling activities. Both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature.

### *Mobile Source Air Toxics*

The purpose of this project is to improve safety by constructing a modified alignment with shoulders and passing/climbing lanes. This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts compared to the no-build alternative. As such, Caltrans has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxics concerns. Consequently, this project is exempt from analysis for mobile source air toxics.

Moreover, the Environmental Protection Agency's regulations for vehicle engines and fuels will cause overall mobile source air toxics to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in vehicle miles traveled, Federal Highway Administration predicts mobile source air toxics will decline in the range of 57 percent to 87 percent, from 2000 to 2020, based on regulations now in effect. This will both reduce the background level of mobile source air toxics as well as the possibility of even minor mobile source air toxic emissions from this project.

### *Climate Change*

Climate change is analyzed in Chapter 3. Neither EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on the Federal Highway Administration's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), 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 facilitate 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 easily 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.

Because additional requirements regarding climate change have been set forth in California legislation and executive orders, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate

change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the rate of increase in vehicle hours traveled.

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

#### ***Construction***

Most of the temporary construction-related impacts to air quality are short-term in duration and, therefore, would not result in adverse or long-term conditions.

Implementation of the following measures would reduce any air quality impacts occurring during construction activities:

- The construction contractor would comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999). Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibilities regarding issues of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience of the public; and damage or injury to any person or property as a result of any construction operation. Section 10 addresses dust control.
- Apply water or dust palliative to the site and equipment as frequently as needed to control fugitive dust emissions.
- Spread soil binder on any unpaved roads used for construction purposes and on all project construction parking areas.
- Wash trucks as they leave the right of way as needed to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low sulfur fuel in all construction equipment as required by the California Code of Regulations Title 17, Section 93114.
- Develop a special dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practicable. Keep construction areas clean and orderly.
- Use track-out reduction measures such as gravel pads at construction area access points to minimize dust and mud deposits on roads used by construction traffic.

- Cover all transported loads of soils and wet materials prior to transport, or provide adequate space between the top of the material and the top of the truck to reduce the deposition of particulates during transportation.
- Remove dust and mud that are deposited on paved, public roads by construction activity to decrease particulate matter.
- To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Install mulch or plant vegetation as soon as practicable after grading to reduce the potential for windblown particulates in the area.

## **2.2.6 Noise and Vibration**

### ***Regulatory Setting***

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

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

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality Act, then the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the National Environmental Policy Act-23 Code of Federal Regulations 772 noise analysis; please see Chapter 3 for further information on noise analysis under the California Environmental Quality Act.

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

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

abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the criterion for residences (67 decibels) is lower than the criterion for commercial areas (72 decibels). Table 2.7 lists the noise abatement criteria for use in the National Environmental Policy Act and 23 Code of Federal Regulations 772 analysis and Table 2.8 shows the noise levels of typical activities.

**Table 2.7 Activity Categories and Noise Abatement Criteria**

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

Source: Caltrans Traffic Noise Analysis Manual, 1998

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

**Table 2.8 Typical Noise Levels**

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

In accordance with the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, August 2006, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12-decibel or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. Approaching the noise abatement criteria is defined as coming within 1 decibel of the noise abatement criteria.

If it is determined that the project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be

reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated into the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining whether an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5-decibel reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies' input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

### ***Affected Environment***

This project is considered to meet the definition of a Type 1 Project. A Type 1 project is defined, in part, by 23 Code of Federal Regulations 772/Caltrans Noise Protocol (October 2006) as follows: "...*A proposed Federal or Federal-aid highway project for the construction of a highway in 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 thru-traffic lanes...*".

The proposed alignment traverses rugged terrain and the primary land use in the area as defined in 23 Code of Federal Regulations 772 Noise Abatement Criteria (see Table 2.7) is Category D, undeveloped land, for which there is no noise criteria. There is one residence located within the project limits that would be considered sensitive land-use areas as defined in 23 Code of Federal Regulations 772, Noise Abatement Criteria as Category B which includes residential neighborhoods, schools, parks, or churches. Caltrans will acquire this residence for the construction of the project; therefore, the project will not result in noise impacts and no further analysis is required.

### ***Environmental Consequences Under the National Environmental Policy Act***

Construction activities for the proposed project would include clearing and grubbing, excavation and movement of cut and fill, rock drilling and blasting, grading, paving, and other road building operations. During construction, noise from these activities would dominate the noise environment in the immediate area. Since there are no receptors within the area, no adverse impacts from construction noise are anticipated.

### ***Avoidance, Minimization, and/or Noise Abatement Under the National Environmental Policy Act***

There are no operational noise impacts associated with the proposed realigned highway facility and abatement is not required.

Construction noise is regulated by Caltrans Standard Specifications, Section 7-1.01I, “Sound Control Requirements”. These requirements state that noise levels generated during construction shall comply with applicable local, state and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers’ specifications.

### **2.2.7 Energy**

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

The California Environmental Quality Act Guidelines, Appendix F, Energy Conservation, state that Environmental Impact Reports are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

The National Environmental Policy Act (42 U.S. Code Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

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

Construction activities related to the proposed project would result in the consumption of non-renewable energy resources, primarily in the form of fossil fuels, natural gas, and gasoline for vehicles and construction equipment.

#### ***Environmental Consequences***

When balancing energy used during construction and operation of the project with energy saved through improved transportation efficiencies, the project would not result in substantial net energy impacts.

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

No avoidance, minimization, or mitigation measures are required.

## 2.3 Biological Environment

### 2.3.1 Natural Communities

#### **Regulatory Setting**

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

#### **Affected Environment**

##### ***Alkali Seep Habitat***

Alkali seep habitat is present within the environmental study limits. The total seep area is approximately 1.2 acres and is located adjacent to State Route 299 near the eastern boundary of the project on property owned by the National Park Service. The area has been subjected to disturbances and degradation from trash dumping, vehicle parking, accidents, and road maintenance activities. A highway realignment project in the mid-1990's resulted in the loss of 1,200 square feet of habitat from one spring. To offset this habitat loss, Caltrans restored a section of another spring that had been disturbed by bridge construction and covered with fill in the 1950's.

Efforts to introduce Howell's alkali grass (*Puccinellia howellii*), a dominant native species associated with alkali seep habitat, into the restored area were initially successful but competition from saltgrass (*Distichlis spicata*) is threatening the success of the restoration. These alkali seep springs are an important source of salts for local wildlife, black-tailed deer, and the band-tailed pigeon.

##### ***Riparian Habitat***

Riparian habitat provides foraging, roosting, and nesting opportunities for migrating birds. Tree and shrub cover associated with this wetland type provide habitat for resident and migratory bird species, and can also function as migratory corridors for wildlife. Riparian habitat occurs along Willow Creek and tributaries such as Water Gulch, Trail Gulch, and Yankee Gulch. Water Gulch is approximately 8 to 10 feet wide in the project area. Common species here included Big-leaf maple (*Acer macrophyllum*), White Alder (*Alnus rhombifolia*), Arroyo Willow (*Salix lasiolepis*) and California blackberry (*Rubus ursinus*), Himalayan blackberry (*Rubus discolor*), California grape (*Vitis californica*), and

Sword fern (*Polystichum munitum*). Trail Gulch is also approximately 8 to 10 feet wide in the project area, with dense Arroyo Willow cover with California Blackberry, California grape, and Skunkbrush sumac (*Rhus trilobata*). Yankee Gulch near the eastern end of the project is approximately 5 feet wide. Common species here include Arroyo Willow, White alder, California grape, and Tree of Heaven (*Ailanthus altissima*), a non-native invasive tree.

### *Oak Woodlands*

Oak trees are an integral component of California's natural communities and provide important food, foraging habitat, nesting habitat and cover for numerous wildlife species including insects, amphibians, reptiles, mammals and birds. Removal of oak trees impacts migratory bird nesting and foraging habitat and may affect populations of various songbirds. Oak woodlands, in general, are declining statewide (although the degree of threat varies with oak woodland type) because of agriculture, urban development, fuel wood harvesting, and range management. In response to past losses and future threats, the California Department of Forestry, California Native Plant Society, The Nature Conservancy, and the California State Senate (Senate Concurrent Resolution No. 17, January 18, 1989) have recognized the conservation and management of oak woodlands as important issues in California.

A total of 1,663 acres of oak dominated stands were delineated from aerial photos and ground surveys from State Route 299. Of this total, approximately 443 acres occur within the environmental study limits. Three species of oaks are common in these stands. Scrub oak (*Quercus berberidifolia*) is the most common, with black oak (*Quercus kelloggii*) and canyon oak (*Quercus chrysolepis*) occurring in most stands associated with conifers.

### *Migration Corridors*

Various terrestrial wildlife species are likely to use the creeks and tributaries in the area, as important movement corridors. Some portions of the creeks in the environmental study limits provide dense cover to many species, as well as an unexposed travel route, suitable food and water sources, and a relatively mild microhabitat.

Many aquatic organisms require riparian trees and shrubs for cover, foraging, and breeding habitat. Riparian vegetation in the study area provides high quality habitat for species such as fish and amphibians. Tree and shrub cover associated with this habitat type is suitable for resident and migratory bird species, including special status birds that are potentially present in the study area. Riparian habitat is also an important migratory

corridor for wildlife in the study area and may provide foraging and roosting habitat for special status bats.

**Environmental Consequences**

*Alkali Seep Habitat*

The alkali seep habitat is located at the eastern end of the environmental study limits where flagging and signs, but no construction, will occur. Impacts to this habitat can be avoided with implementation of avoidance and minimization measures.

*Riparian Habitat*

The project will result in disturbance to riparian vegetation at Water Gulch, Trail Gulch, and Yankee Gulch. The amount of habitat that would be affected by each alternative is indicated in Table 2.9.

**Table 2.9 Riparian Impact (acres)**

Alternatives				
	BH4	BH5	BH6	BH12
Yankee Gulch	0.02	0.02	0.02	0.02
Trail Gulch	0.16	0.20	0.19	0.16
Water Gulch	0.20	0.23	0.23	0.20
<b>TOTAL</b>	<b>0.38</b>	<b>0.45</b>	<b>0.44</b>	<b>0.38</b>

*Oak Woodlands*

The project would result in up to 95.1 acres of direct impacts to oak-dominated woodland, depending on the alternative selected, and up to 443 acres of indirect impacts. All impacts to oak tree woodlands within the project cut/fill boundaries would be considered permanent impacts, since the areas acquired for right-of-way would be permanently managed by Caltrans after the completion of the project and would no longer function as undisturbed oak woodlands. The impacts to oak woodlands within cut-and-fill boundaries that would be directly affected by each alternative are shown in Table 2.10.

**Table 2.10 Oak Woodlands Impact**

Alternatives				
Acres	BH4	BH5	BH6	BH12
	69.1	82.5	95.1	69.3

### *Migration Corridors*

Existing and potential wildlife crossing locations on State Route 299, particularly bridges, large culverts, and other facilities that offer an alternative to entering the highway, are important to the maintenance or enhancement of existing migration corridors and to driver safety.

Construction activities could temporarily restrict wildlife movement through the project area. In addition, construction noise could temporarily alter the foraging patterns of resident wildlife species. Increased travel speed on the roadway could pose an increased risk of habitat fragmentation.

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

#### *Alkali Seep Habitat*

With the implementation of the following avoidance and minimization efforts, there should be no impacts to alkali seep habitat:

- Best Management Practices for controlling water quality impacts.
- Design elements that will minimize hydrologic alteration of the area around the seep.
- The mineral springs and Howell's alkali grass located to the east of the project will be protected with Environmental Sensitive Area fencing during construction. Construction staging will not be allowed in the pullout adjacent to State Route 299 at post mile 7.8. Caltrans will consult with the National Park Service to determine avoidance and minimization measures to protect these resources.

#### *Riparian Habitat*

With the implementation of the following avoidance and minimization efforts, there should be no impacts to riparian habitat:

- Minimize amount of vegetation removed, especially from intact, contiguous riparian areas.
- Minimize habitat removal/project footprint by minimizing fill and using bridge crossings where feasible.
- Mitigate riparian habitat losses through a combination of replacement and enhancement of existing riparian habitat. Replacement of any losses would be at a ratio of 1:1 and enhancement would be at a ratio of 2:1. During final project design, a revegetation and restoration plan will be developed that will provide detailed plans for replacement and enhancement, preferably within the project area.

### *Oak Woodlands*

With the implementation of the following avoidance and minimization efforts, impacts to oak woodlands would be reduced:

- Removal of oak trees would be limited to the minimum number necessary to allow for efficient project construction.
- Environmentally Sensitive Area fencing would be installed around oak woodlands adjacent to the work areas. Any encroachment beyond the Environmentally Sensitive Area fencing during construction (including driving, material or equipment storage and vehicle parking) would be prohibited. The Environmentally Sensitive Area fencing would be clearly delineated onto the final contract plans.
- During final design, the number of oaks within the proposed alignment would be estimated and measured. Caltrans would compensate for the impacts of the project to oak woodlands by in-kind creation/restoration and preservation of oak woodlands on abandoned sections of the existing roadway alignment, as well as on newly acquired parcels as needed. New parcels would be purchased as needed in fee or by a conservation easement and preserved in perpetuity. Oak trees would be initially planted in these areas at the ratio of five new saplings for each oak lost, with the goal of at least of three trees surviving after a ten-year monitoring period. Other compensation options, which are listed in the Oak Woodlands Conservation Act (Senate Bill 1334), may include (1) a monetary contribution to the California Oak Woodlands Conservation Fund administered by the state Wildlife Conservation Board for the purpose of purchasing oak woodland conservation easements or (2) use of a California Department of Fish and Game-established oak woodland mitigation bank to fulfill the off-site compensation requirements.

### *Migration Corridors*

With the implementation of the following avoidance and minimization efforts, impacts to wildlife migration corridors would be reduced:

- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### **2.3.2 Wetlands and Other Waters**

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

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

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

The Executive Order for the Protection of Wetlands (11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, and Caltrans as delegated, 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 Game and the Regional Water Quality Control Boards. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Game before beginning construction. If the California Department of Fish and Game determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. California Department of Fish and Game jurisdictional limits

are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the Department of Fish and Game.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The Regional Water Quality Control Boards also issue water quality certifications in compliance with Section 401 of the Clean Water Act.

**Affected Environment**

A total of 14.25 acres of potential jurisdictional waters are present within the project area. A summary of the potential jurisdictional waters within the environmental study limits is shown in Table 2.11. Details of the wetland delineation are available in a separate Wetland Delineation Report.

**Table 2.11 Jurisdictional Wetlands and Other Waters of the U.S.**

Jurisdictional Waters	Total Acreage
Wetlands	
Seeps/Springs	0.59
In-stream Wetlands	0.42
<b>Total for Wetlands</b>	<b>1.01</b>
Other Waters of the U.S.	
Perennial/Intermittent/Ephemeral Creeks	13.24
<b>Total Other Waters of the U.S.</b>	<b>13.24</b>
<b>Total Potential Jurisdictional Area</b>	<b>14.25</b>

Jurisdictional wetlands and waters of the U.S. occur within the environmental study limits in the form of seeps/springs located in upslope areas that were cut during road construction, in-stream wetland areas that occur within the creek channels, and non-wetland waters of the U.S. that occur as perennial and intermittent creeks.

### **Environmental Consequences**

All potential wetlands and other waters of the U.S. falling within the cut-and-fill boundaries of the project will be directly and permanently affected by the proposed project alternatives. The proposed project alternatives would permanently affect seep/spring wetlands ranging from 0.40 acre to 0.42 acre; in-stream wetlands ranging from 0 acre to approximately 0.01 acre; and other waters of the U.S. ranging from 0.76 acre and 1.00 acre. Between 1.18 acres and 1.40 acres of jurisdictional wetlands and other waters of the U.S. will be permanently affected by the project, with Alternative BH6 affecting the greatest area and Alternative BH12 affecting the least (Table 2.12).

**Table 2.12 Impacts to Jurisdictional Wetlands and Other Waters of the U.S.**

Jurisdictional Waters	Direct/Permanent Impact Area by Alternative (acres)			
	BH4	BH5	BH6	BH12
Alternative				
<b>Wetlands</b>				
Seeps/Springs	0.42	0.39	0.40	0.41
In-stream Wetlands	0.00	0.01	0.00	0.01
<b>Total for Wetlands</b>	<b>0.42</b>	<b>0.40</b>	<b>0.40</b>	<b>0.42</b>
<b>Other Waters of the U.S.</b>				
Perennial/Intermittent/Ephemeral Creeks	0.81	0.91	1.00	0.76
<b>Total Other Waters of the U.S.</b>	<b>0.81</b>	<b>0.91</b>	<b>1.00</b>	<b>0.76</b>
<b>Total Potential Jurisdictional Area</b>	<b>1.23</b>	<b>1.31</b>	<b>1.40</b>	<b>1.18</b>

#### *Wetlands Only Practicable Finding*

Executive Order 11990, “Protection of Wetlands” directs federal agencies and responsible entities to avoid undertakings for new construction located in wetlands unless 1) there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

The four alternatives developed for the project generally follow the existing alignment. They consist of design speed variations and all four alternatives share a common alignment at both the beginning and end of the project. Impacts to wetlands and waters of the U.S. are similar for all four alternatives, ranging from 1.18 to 1.40 acres. Alternative BH12, which has been identified as the preferred alternative, has the least amount of impact to wetlands.

Caltrans will obtain Section 404 permits from the U.S. Army Corps of Engineers for work in jurisdictional waters and wetlands as individual sections of the project are programmed and funded for construction. Measures to minimize harm to wetlands will be developed in consultation with the U.S. Army Corps of Engineers.

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

With the implementation of avoidance and/or minimization measures, temporary impacts to jurisdictional wetlands and other waters of the U.S. would be avoided. Compensatory mitigation is necessary to offset permanent wetland losses. Compensation for potential impacts to federally jurisdictional wetlands would be mitigated at a ratio to be determined in consultation with the U.S. Army Corps of Engineers. While the U.S. Army Corps of Engineers does not typically require mitigation for waters under the jurisdiction of the State, the Regional Water Quality Control Board frequently does. Compensation for potential impacts to State jurisdictional waters would be mitigated at a ratio to be determined in consultation with the Regional Water Quality Control Board.

The following measures will be implemented to protect wetlands from impacts during construction:

- Minimize amount of vegetation removed, especially intact, contiguous riparian areas and seeps.
- Minimize habitat removal/project footprint.
- All staging areas will be located in upland areas to ensure no wetlands or other waters of the U.S. are impacted during construction.
- Use erosion control and slope stabilization Best Management Practices, as defined in the project's Storm Water Pollution Prevention Plan.
- All water and concrete washed out of concrete trucks will be contained until cured.
- Project-related activities, such as equipment parking, project access, and equipment maintenance would occur only at designated locations that would be pre-approved by a Caltrans biologist.
- Replant disturbed areas and monitor plant re-establishment.
- Remove invasive plants, and replace with native species, and stabilize slopes.

### **2.3.3 Plant Species**

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

The U.S. Fish and Wildlife Service and California Department of Fish and Game share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act and/or the California Endangered Species Act. Please see Threatened and Endangered Species, Section 2.3.5, in this document for more information regarding these species.

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

The regulatory requirements for the Federal Endangered Species Act can be found in U.S. Code 16, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the California Endangered Species Act can be found in California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found in Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

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

No special status plant species or habitats were observed during botanical surveys in the project area.

### **2.3.4 Animal Species**

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

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration Fisheries Service, and the California Department of Fish and Game are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act.

Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5. All other special-status animal species are discussed here, including California Department of Fish and Game fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

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

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

### ***Affected Environment***

#### ***Bats***

The following species of special status bats have at least a moderate potential to occur within the environmental study limits.

- Pallid bat (*Antrozous pallidus*), California Species of Special Concern, Bureau of Land Management Sensitive Animal
- Townsend's big-eared bat (*Corynorhinus townsendii*), California Species of Special Concern, Bureau of Land Management Sensitive Animal
- Spotted bat (*Euderma maculatum*), California Species of Special Concern, Bureau of Land Management Sensitive Animal
- Western red bat (*Lasiurus blossevillei*), Forest Service Sensitive, Western Bat Working Group-High Priority Species

- Small-footed myotis (*Myotis ciliolabrum*), Bureau of Land Management Sensitive Animal
- Long-eared myotis (*Myotis evotis*), Bureau of Land Management Sensitive Animal
- Fringed myotis (*Myotis thysanodes*), Bureau of Land Management Sensitive Animal, Western Bat Working Group-High Priority Species
- Long-legged myotis (*Myotis volans*), California Species of Special Concern, Western Bat Working Group-High Priority Species
- Yuma myotis (*Myotis yumanensis*), Bureau of Land Management Sensitive Animal

Since there is suitable roosting, nesting, and foraging habitat for many bat species in and around the environmental study limits, it is likely that the site supports some special status bat species.

### *Ringtail*

The ringtail (*Bassariscus astutus*) is a fully protected species, a protection enforced by California Department of Fish and Game that prohibits take. The species ranges throughout California with the majority of distribution in the Coast Range and the western Sierra Nevada. Ringtails den in rock crevices, boulder piles, and in tree cavities. Suitable habitat includes chaparral, rocky hillsides, and riparian areas.

### *American Pine Marten*

The American marten (*Martes americana*) is a U.S. Forest Service sensitive species. The American marten requires mixed evergreen forests with more than 40% crown closure, and a variety of different-aged stands, particularly old-growth conifers and snags that provide cavities for dens. Martens occupy cavities in large trees, snags, stumps, logs, or in burrows, caves, and crevices in rocky areas. They may also use woodpiles, cabins, and other human artifacts. Martens do not migrate, although they may move to lower elevations in winter.

### *Pacific Fisher*

The Pacific fisher (*Martes pennati pacifica*) is a California state species of special concern, and a Bureau of Land Management sensitive species. The Pacific fisher has a restricted distribution and is an uncommon, permanent resident of the Sierra Nevada, Cascades, Klamath Mountains, and a few locations in the North Coast Ranges. Fishers use dense mature stands of trees for cover and den in protected cavities in large trees, snags, logs, rock areas, or brush piles. Pacific fishers are assumed to be present in and around the environmental study limits.

### *American Badger*

American badger (*Taxidea taxus*) is a state species of concern. They are most abundant in drier, open stages of most shrub, forest, and herbaceous habitats, with friable soils. American badgers have the potential to occur in the project area, given their habitat affinities and tolerance for human activities.

### *Migratory Birds*

Over 62 species of migratory birds were observed in the environmental study limits. Potential nesting habitat for migratory birds includes riparian vegetation and oak woodland communities.

### *Northern Goshawk*

Northern goshawks (*Accipiter gentiles*) are a state species of special concern. Goshawks normally nest in mature to old-growth forests composed primarily of large trees with high (60 to 90%) canopy closure. Sites selected are often near the bottom of moderately sloped hills, with sparse understory. Mature forests are preferred, although in California, goshawks have used young forests with sparsely distributed mature and old growth trees with high canopy coverage. The project area offers marginal habitat for this species, since the canopy closure is low. Goshawks have the potential, but are not likely, to forage in the environmental study limits.

### *Yellow Warbler*

Yellow warblers (*Dendroica petechia*) are state species of special concern. They can be found in California at elevations from 330 to 8,900 ft, and at higher elevations along watercourses with riparian growth. These warblers prefer wet areas with abundant shrubs or small trees. They are found in hedgerows, thickets, marshes, swamp edges, aspen groves, willows, swamps, and residential areas.

### *Yellow-Breasted Chat*

Yellow-breasted chat (*Ictera virens*) is a California species of special concern. They prefer dense thickets and brush, being largely confined to riparian and shrubby habitats with low, dense cover. Chats forage in low, dense shrubs and thickets, gleaning prey from foliage. They also forage on the ground. Yellow-breasted chats have been observed at two locations within the project area.

### *Osprey*

The osprey (*Pandion haliaetus*) is categorized as a species of special concern of the California Department of Fish and Game. Ospreys inhabit temperate coastal and lake

habitats in California. In California, the species breeding grounds are found along the coast and are associated with lakes and large streams. Their habitat must provide an adequate supply of fish within 6.2 to 12.4 miles of their nest, elevated nest sites free from predators, and an ice-free season long enough to allow fledging of young. Although neither osprey nor their nests have been observed within the environmental study limits, both Lewiston Lake and Whiskeytown Lake are within about five miles of the project area, so there is suitable foraging habitat near enough for nesting to potentially occur within the environmental study limits.

### *Purple Martin*

The purple martin (*Progne subis*) is a state species of special concern. Purple martins build nests inside cavities in birdhouses, gourds, dead trees, or crevices of buildings or rocky cliffs. They have not been observed in the project area but could potentially be present during the nesting season.

### *Northwestern Pond Turtle*

A subspecies of the western pond turtle, the northwestern pond turtle (*Emys (=Clemmys) marmorata marmorata*) is listed as a species of special concern by the California Department of Fish and Game. They require slow-moving water with basking sites. Pond turtles can overwinter in terrestrial areas up to 1,640 feet from the closest watercourse and can change sites over the season.

### *California Horned Lizard*

The California horned lizard (*Phrynosoma coronatum frontale*), a subspecies of the coast horned lizard, is a California Department of Fish and Game species of special concern, and a Bureau of Land Management sensitive animal. Suitable habitat is present within the environmental study limits in exposed gravelly-sandy substrate containing scattered shrubs, in clearings in riparian woodlands, and in dry uniform chamise chaparral (*Adenostoma fasciculatum*). California horned lizards are most abundant in sandy loamy areas and on alkali flats that are frequently dominated by iodine bush (*Allenrolfea occidentalis*).

### *Saint Helena Mountain Kingsnake*

The St. Helena mountain kingsnake (*Lampropeltis zonata zonata*), a subspecies of the California mountain kingsnake, is listed as a sensitive animal by the Bureau of Land Management. The subspecies is a mid-sized and secretive snake that is not rare in suitable habitat within its range. Suitable habitat includes coniferous forest, oak-pine and riparian woodland, chaparral, manzanita, and coastal sage scrub from 60 – 4000 ft in

elevation. The environmental study limit is within an area that provides suitable habitat for the kingsnakes.

### *Western Tailed Frog*

Western tailed frog (*Ascaphus truei*) is a state species of special concern. These frogs prefer redwood, maple, and alder habitat. Grassland, chaparral, or shrub growth may be interspersed in those habitats. In dry weather, western tailed frogs can be found in moist stream banks or under stones at the bottom of streams. This species usually stays close to water but may venture into damp woods after rains. Habitat for the western tailed frog is present within the project limits.

### *Foothill Yellow-Legged Frog*

The foothill yellow-legged frog (*Rana boylei*) is a California Department of Fish and Game species of special concern. It inhabits streams and rivers in woodland, chaparral, and forest habitats. During surveys in the project area, foothill yellow-legged frogs were found in Willow Creek, Bear Gulch, and Sawpit Gulch.

### *Survey and Manage Species*

Landowners in the project area include the Bureau of Land Management. The Bureau of Land Management Redding Office is a participant in the Northwest Forest Plan and is concerned with a number of species when making management decisions. These species are referred to in this document as Bureau of Land Management Survey and Manage sensitive species. Bureau of Land Management Survey and Manage sensitive plant, mammal, reptile, amphibian, or bird species are addressed in the previous sections of this document. Bureau of Land Management Survey and Manage mollusk, bryophyte, lichen, and fungi species that could potentially occur within the project area include the following:

*Terrestrial Mollusks* – One mollusk species, Church's sideband (*Monadenia churchi*), was observed during surveys for Survey and Manage terrestrial mollusks. This species was discovered within the project limits. No other Survey and Manage terrestrial mollusk species were observed. Mollusk species that could potentially be found in the project area include *Ancotrema voyanum*; *Fluminicola* n. sp. 14, 18, 19, and 20; *Fluminicola seminalis*; *Helminthoglypta talmadgei*; *Lyogyrus* n. sp. 3; *Vespericola pressleyi*; *Vorticifix* n. sp. 1; *Helminthoglypta hertleini*; *Monadenia chaceana*; and *Trilobopsis tehamana*.

*Bryophytes, Lichen, and Fungi* – Several species could potentially be found in the project area including *Bryoria toruosa* and *Calcium viride*.

### ***Environmental Consequences***

#### ***Bats***

Potential impacts to bats are as follows:

- Decreased quantity and quality of habitat, lost roost sites, increased predation, decreased populations.
- Non-native invasive vegetation increases.
- Roost, foraging disturbance.

#### ***Ringtail***

Potential impacts to ringtails from the proposed project include:

- As a fully protected species, take of ringtails is prohibited. Take could occur if ringtails were using tree cavities or rock dens in areas that will be cleared and/or recontoured.
- Increased travel speed on the roadway may cause increased road mortality, decreased mobility, and subsequent habitat fragmentation due to road avoidance.

#### ***American Pine Marten***

Since this species is likely to occur only in a transient manner within the project area, no impacts are expected.

#### ***Pacific Fisher***

Pacific fisher may travel through the environmental study limits. Increased travel speed on the roadway may impact Pacific fisher by increasing road mortality and/or increasing road avoidance.

#### ***American Badger***

American badger may travel through the environmental study limits, and the increased driver speed may increase road mortality and road avoidance.

#### ***Migratory Birds***

With the implementation of avoidance and minimization measures, these species would not be impacted by the project.

### *Northern Goshawk*

Since the area in environmental study limit offers only marginal habitat, this species is not likely to occur in the project area.

### *Yellow Warbler*

Since this species would likely only travel through the environmental study limit in a transitory fashion, no project impacts are expected.

### *Yellow-Breasted Chat*

Potential impacts to yellow-breasted chat from the proposed project include:

- Decreased quantity and quality of habitat, lost nest sites, increased nest predation, decreased populations.
- Increase of non-native invasive vegetation.
- Suitable habitat for yellow-breasted chat will be removed from the cut-and-fill boundaries of the environmental study limit. For those areas outside the cut-and-fill boundaries, a restoration plan to replace lost vegetation with similar, native vegetation would help remedy the temporary loss of this habitat over the long term. Return of the habitat to a state approaching pre-construction conditions could take decades, depending upon how intact the area had been.
- Increased travel speed on the roadway may cause increased road mortality, decreased mobility, and subsequent habitat fragmentation due to road avoidance.

### *Osprey*

Potential impacts to osprey from the proposed project include:

- Decreased quantity and quality of habitat, lost nest and roost sites, increased nest predation, and decreased populations.
- Increase of non-native invasive vegetation.
- Nesting and foraging disturbance.
- Increased travel speed on the roadway could pose an increased risk of road mortality to osprey moving through the area.

### *Purple Martin*

This species is particularly vulnerable to reductions in snags, since martins are cavity nesters. Other potential impacts from the proposed project include:

- Decreased quantity and quality of habitat, lost nest and roost sites, increased nest predation, and decreased populations.

- Increase of non-native invasive vegetation.
- Nesting and foraging disturbance.
- Indirect take (adult leaving nest).

#### *Northwestern Pond Turtle*

The northwestern pond turtle is sensitive to disturbance, which can affect both its birth and death rates. Potential impacts to this species include:

- Decreased quality and quantity of habitat, and decreased populations.
- Reduction in local population.
- Increased non-native invasive vegetation.
- Increased mortality.
- Decreased movement across road and increased habitat fragmentation.

#### *California Horned Lizard*

California horned lizards may be present within the environmental study limit. Potential project impacts to horned lizards include:

- Decreased quality and quantity of habitat, and decreased populations.
- Increase of non-native, invasive vegetation.
- Decreased movement across road and increased habitat fragmentation.

#### *Saint Helena Mountain Kingsnake*

California horned lizards may be present within the environmental study limits. Potential project impacts to horned lizards include:

- Decreased quality and quantity of habitat, and decreased populations.
- Increase of non-native, invasive vegetation.
- Increased wildlife mortality.
- Decreased movement across road and increased habitat fragmentation.

#### *Western Tailed Frog*

Potential impacts to western tailed frogs include:

- Increased exposure to predators, increased mortality, and decreased populations.
- Decreased quality and quantity of habitat, lost breeding habitat, and increased egg mass predation.
- Increase in non-native invasive vegetation.

- Degraded breeding habitat.
- Increased travel speed on the roadway may cause increased road mortality, decreased mobility, and subsequent habitat fragmentation due to road avoidance.

### *Foothill Yellow-legged Frog*

Potential impacts to western tailed frogs include:

- Increased exposure to predators, increased mortality, and decreased populations.
- Decreased quality and quantity of habitat, lost breeding habitat, and increased egg mass predation.
- Increase in non-native invasive vegetation.
- Degraded breeding habitat.
- Increased travel speed on the roadway may cause increased road mortality, decreased mobility, and subsequent habitat fragmentation due to road avoidance.

### *Survey and Manage Species*

Potential impacts could occur to Bureau of Land Management Survey and Manage mollusk, bryophyte, lichen, and fungi species including the following: *Ancotrema voyanum*, *Fluminicola n. sp. 14, 18, 19, and 20*, *Fluminicola seminalis*, *Helminthoglypta talmadgei*, *Lyogyrus n. sp. 3*, *Vespericola pressleyi*, *Vorticifix n. sp. 1*, *Helminthoglypta hertleini*, *Monadenia chaceana*, *Trilobopsis tehamana*, *Bryoria toruosa* and *Calcium viride*. These impacts include:

- Increased mortality.
- Decreased quality and quantity of habitat and decreased populations.
- Increase in non-native invasive vegetation.
- Degraded breeding habitat.

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

#### *Bats*

For all bats considered in this section, the following avoidance and minimization measures would be implemented:

- Minimize the amount of vegetation removed, especially intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Pre-construction surveys for bats and potential roosting habitat (human made) should be completed at least 10 days before construction begins. If evidence of any special

status bats is discovered, California Department of Fish and Game would be contacted, no later than 10 days before planned changes in land cover.

- Avoid and/or minimize removal of trees, logs and snags, and other activities that impact cliff faces or rock outcrops.
- Shield new light sources before, during, and after construction of the project when possible.
- Revegetate disturbed areas where possible and monitor plant re-establishment.
- Remove invasive plant species and replace with natives.

### *Ringtail*

Impacts to ringtails will be avoided or minimized with implementation of the following measures:

- Vegetation removal should occur outside of the period when young are unable to leave the denning site (approximately April through June).
- Avoid and/or minimize removal of trees, logs and snags, activities that impact cliff faces or rock outcrops.
- Shield new light sources before, during, and after construction of the project when possible.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### *American Pine Marten*

Impacts to American pine marten will be avoided or minimized with implementation of the following measures:

- Minimize habitat removal and the project footprint.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### *Pacific Fisher*

Impacts to Pacific fishers will be avoided or minimized with implementation of the following measures:

- Avoid and/or minimize removal of trees, logs and snags, particularly areas in or near dense, mature forests.

- Shield new light sources before, during, and after the construction of the project when possible.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### *American Badger*

Impacts to American badgers will be avoided or minimized with implementation of the following measures:

- Minimize habitat removal and the project footprint.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### *Migratory Birds*

Impacts to migratory birds will be reduced or avoided with implementation of the following measures:

- Tree removal should be completed between August 31 and February 15 to avoid impacts to nesting birds. If this is not possible, a pre-construction survey of the adjacent work area should be conducted by a qualified biologist, approximately one week before construction is scheduled to begin.

### *Northern Goshawk*

Avoidance and minimization measures are not necessary.

### *Yellow Warbler*

Avoidance and minimization measures are not necessary.

### *Yellow-Breasted Chat*

Impacts to yellow-breasted chat will be reduced or avoided with implementation of the following measures:

- A qualified biologist should conduct pre-construction surveys of the area to determine if nests are present within the environmental study limits. If yellow-breasted chat is located, California Department of Fish and Game will be contacted to determine a course of action.
- Minimize vegetation removal and riparian habitat disturbance.

- Habitat should be restored to its pre-construction condition after completion of the project.

### *Osprey*

Impacts to osprey will be reduced or avoided with implementation of the following measures:

- Minimize vegetation removal and riparian habitat disturbance.
- Habitat should be restored to its pre-construction condition after completion of the project.
- Pre-construction surveys for migratory birds would include looking for osprey's conspicuous nests within the environmental study limit. If any osprey nests are found, California Department of Fish and Game will be contacted to determine a course of action.

### *Purple Martin*

Impacts to purple martin will be reduced or avoided with implementation of the following measures:

- A qualified biologist would conduct pre-construction surveys of the area to determine if nests are present within the environmental study limit. If purple martin are located, California Department of Fish and Game will be contacted to determine a course of action.
- Minimize vegetation removal and riparian habitat disturbance.
- Habitat should be restored to its pre-construction condition after completion of the project.

### *Northwestern Pond Turtle*

Impacts to northwestern pond turtles will be reduced or avoided with implementation of the following measures:

- Minimize amount of vegetation removed, especially in intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.
- A qualified herpetologist would perform pre-construction surveys no more than two weeks prior to each year's construction activities. Surveys will focus on locating

northwestern pond turtles in the environmental study limit. If the animals are found within the environmental study limits, the California Department of Fish and Game would be contacted at least 10 days prior to the beginning of construction activities to determine a course of action.

### *California Horned Lizard*

Impacts to California horned lizard will be reduced or avoided with implementation of the following measures:

- Minimize amount of vegetation removed, especially in intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.
- Avoid or minimize alteration of, or impacts to, exposed gravelly-sandy substrate containing scattered shrubs, riparian woodland clearings, dry uniform chamise chaparral, particularly sandy loamy areas, and alkali flats.

### *Saint Helena Mountain Kingsnake*

Impacts to Saint Helena mountain kingsnake will be reduced or avoided with implementation of the following measures:

- Minimize amount of vegetation removed, especially in intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.
- Avoid or minimize alteration of, or impacts to, exposed gravelly-sandy substrate containing scattered shrubs, riparian woodland clearings, dry uniform chamise chaparral, particularly sandy loamy areas, and alkali flats.

### *Western Tailed Frog*

Impacts to Western Tailed Frog will be reduced or avoided with implementation of the following measures:

- Erosion control and slope stabilization Best Management Practices, as defined in project's Storm Water Pollution Prevention Plan, will be implemented.

- Minimize the amount of vegetation removed, especially in intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Contain water and concrete washed out of concrete trucks until cured.
- Pre-construction surveys and Environmentally Sensitive Area delineation will be performed by a qualified biologist.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### *Foothill Yellow-Legged Frog*

Impacts to foothill yellow-legged frog will be reduced or avoided with implementation of the following measures:

- Erosion control and slope stabilization Best Management Practices, as defined in project's Storm Water Pollution Prevention Plan, will be implemented.
- Minimize amount of vegetation removed, especially in intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Contain water and concrete washed out of concrete trucks until cured.
- Pre-construction surveys and Environmentally Sensitive Area delineation will be performed by a qualified biologist.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

### *Survey and Manage Species*

Avoidance and minimization measures should be implemented for the following Bureau of Land Management Survey and Manage species: *Ancotrema voyanum*, *Fluminicola n. sp. 14, 18, 19, and 20*, *Fluminicola seminalis*, *Helminthoglypta talmadgei*, *Lyogyrus n. sp. 3*, *Vespericola pressleyi*, *Vorticifix n. sp. 1*, *Helminthoglypta hertleini*, *Monadenia chaceana*, *Trilobopsis tehamana*, *Bryoria toruosa* and *Calcium viride*. These measures include:

- Use erosion control and slope stabilization Best Management Practices, as defined in project Storm Water Pollution Prevention Plan.

- Minimize amount of vegetation removed, especially intact, contiguous riparian areas and springs.
- Minimize habitat removal and the project footprint.
- Contain water and concrete washed out of concrete trucks until cured.

### **2.3.5 Threatened and Endangered Species**

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

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

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code, Section 2050, et seq. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Game is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California Endangered Species Act allows for take that is incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the California Department of Fish and Game. For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Game may also authorize impacts to

the California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

### ***Affected Environment***

#### ***Howell's Alkali Grass***

Howell's alkali grass (*Puccinellia howellii*) is a federally listed threatened species, a state listed endangered species, and a California Native Plant Society 1B species. This species is found in alkali seep habitat. Three of these seep areas occur within the environmental study limits. This small cluster of mineral springs in Shasta County is the only place Howell's alkali grass species has ever been found. The total seep area is 1.2 acres, and the limited habitat makes this species vulnerable to human impact. This very specific habitat for Howell's alkali grass is located on property owned by the National Park Service directly adjacent to State Route 299 and within the project area.

#### ***California Wolverine***

The California wolverine (*Gulo gulo*) is state listed as threatened and is also a state fully protected species. In the northern Sierra Nevada, wolverines have been found in mixed conifer, red fir, and lodgepole pine habitats. Wolverines frequently travel long distances and may leave their home range for many days. The project area is at the extreme low end of wolverine elevation range.

#### ***Bald Eagle***

Bald eagles (*Haliaeetus leucocephalus*) are federally listed as threatened, state listed as endangered, and a fully protected species in California. Bald eagles select large, super-canopy roost trees that are open and accessible. Most western roost trees are conifers, except in some riparian zones. Eagles have been seen in the area but are usually found at nearby area lakes.

#### ***Northern Spotted Owl***

The northern spotted owl (*Strix occidentalis*) is a federally listed threatened species. These owls are permanent residents throughout their range. They are found in the north Coast, Klamath, and western Cascade Range from Del Norte County to Marin County. Required habitat consists of old growth forests dominated by conifers with topped trees or oaks available for nesting crevices. Critical habitat for northern spotted owl does not occur in the environmental study limit.

Surveys in 2002 located a northern spotted owl pair nesting about 1.8 miles from the present environmental study limit, just outside the 2002 northern spotted owl study area buffer. A 2006 database search for northern spotted owl located one historical nesting

site, on the north side of the highway. This site is located fewer than 4,000 feet from the environmental study limits and the cut-and-fill boundaries and about 4,000 feet from the proposed road alignment.

A northern spotted owl habitat assessment was conducted within the environmental study limit in the summer of 2006. The study concluded that the habitat within the current environmental study limit is either not suitable or only marginally suitable for northern spotted owls, and combined with the historic absence of nests within the environmental study limits, there is very little chance of northern spotted owl occurring within 0.5 mi of the environmental study limits and being affected by the project.

The northern spotted owl protocol requires that projects within the Klamath Province survey all suitable northern spotted owl habitat within a 1.3-mile radius of the proposed project (U.S. Fish and Wildlife Service, 1992). This project falls within the Klamath Province of the northern spotted owl and there is nesting, roosting, and foraging habitat within 1.3 miles of the environmental study limit. Therefore, because the 2002 survey expired at the beginning of the 2003 northern spotted owl breeding season, new protocol-level surveys will be performed one to two years prior to project construction. These surveys will be timed so that the data collected are relevant to determining whether avoidance, minimization, or mitigation measures are necessary to compensate for noise disturbance and/or habitat loss, both of which are only necessary if northern spotted owl are nesting or resident within 1.3 miles of the project area.

### ***Environmental Consequences***

#### ***Howell's Alkali Grass***

This habitat is located at the eastern end of the environmental study limit where construction activities will be limited to placement of signs and traffic control. Protection of the site is critical to the continued survival of Howell's alkali grass. Impacts are not expected to occur, if avoidance and minimization measures are implemented.

#### ***California Wolverine***

Wolverines are sensitive to human disturbance, and an existing state highway running through the project area. Therefore, it is unlikely that wolverines would remain in the environmental study limit for any significant length of time, although they may travel through the area. Increased travel speed on the roadway may cause increased road mortality, decreased mobility, and subsequent habitat fragmentation due to road avoidance.

**Bald Eagle**

Since this species would likely only travel through the environmental study limits in a transitory fashion, no project impacts are expected.

**Northern Spotted Owl**

If northern spotted owl are nesting or residing within 1.3 miles of the environmental study limit, it will be necessary to determine how much of the foraging habitat to be removed by the cut-and-fill activities of the project is within 1.3 miles of any nesting pairs or residents. The California Forest Practice Rules require that a minimum of 40 percent of the suitable habitat be maintained within the 1.3-mile radius to support the nesting or resident owls (California Department of Forestry, 2002). A 1.3-mile radius circle encompasses 3,340 acres; thus a minimum of 1,336 acres of suitable habitat should be maintained.

A total of up to 41.3 acres of foraging habitat will be removed during construction activities. Table 2.13 shows the amount of foraging habitat removed under each of the alternatives. The project would not affect nesting or roosting habitat. Given the linear configuration of the project and of the habitat that would be disturbed, the entire amount of disturbance for any of the alternatives could not, however, fall within any one pair’s territory (1.3-mile radius).

Once northern spotted owl preconstruction surveys are conducted, the amount of habitat to be disturbed within the 1.3-mile radius area of any nests or residents would be calculated. If disturbances caused by the project would result in the reduction of suitable habitat to below 1,336 acres with the 1.3-mile radius area, mitigation would be required. Construction of the project is likely to have little effect on the availability of foraging habitat for any pair nesting within 1.3 miles of the environmental study limit because of the small amount of habitat that could be removed within any given 1.3-mile radius area.

There would be no impacts to the species, if nesting or resident northern spotted owl are not found within 1.3 miles of the environmental study limit.

**Table 2.13 Northern Spotted Owl Foraging Habitat to be Removed**

Alternatives				
	BH4	BH5	BH6	BH12
Acres	29.7	28.2	41.3	28.0

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

#### ***Howell's Alkali Grass***

Impacts to Howell's alkali grass would be avoided or minimized with implementation of the following measures:

- Pre-construction surveys would be conducted.
- Prior to construction, an Environmentally Sensitive Area would be established.
- The mineral springs and Howell's alkali grass will be protected with Environmental Sensitive Area fencing during construction. Construction staging will not be allowed in the pullout adjacent to State Route 299 at post mile 7.8. Caltrans will consult with the National Park Service to determine avoidance and minimization measures to protect these resources.

#### ***California Wolverine***

Impacts to California wolverines would be avoided or minimized with implementation of the following measures:

- Minimize habitat removal and the project footprint.
- Create wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and place fencing to direct animals to safe crossing areas.

#### ***Bald Eagle***

Since this species would likely only travel through the environmental study limits in a transitory fashion, avoidance and minimization measures are not necessary.

#### ***Northern Spotted Owl***

Impacts to northern spotted owl would be avoided or minimized with implementation of the following measures:

- If nesting or resident northern spotted owl are identified within a 1.3 miles of the environmental study limits during pre-construction surveys, then no construction or tree removal would be allowed between March 15<sup>th</sup> and July 10<sup>th</sup>.
- If surveys find no nesting or resident northern spotted owl within 1.3 miles of the environmental study limits, then no avoidance measures will be necessary.
- Compensatory mitigation will only be required if northern spotted owl surveys find the owls nesting or resident with 1.3 miles of the environmental study limits. In this case, compensation will be required only for habitat removed within the active owl territory.

- All foraging habitat within the cut-and-fill boundaries and within 1.3 miles of a nesting or resident northern spotted owl will be compensated. This could be accomplished by purchasing suitable foraging habitat from an authorized U.S. Fish and Wildlife Service mitigation bank or by improving marginal foraging habitat through silvicultural treatments.

### **2.3.6 Invasive Species**

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

On February 3, 1999, President Bill Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act analysis for a proposed project.

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

Several California noxious weeds are present in the project area including yellow star thistle (*Centaurea solstitialis*), Scotch broom (*Cytisus scoparius*), and Klamathweed (*Hypericum perforatum*). Other invasive, non-native species on site include tree of heaven (*Ailanthus altissima*), ripgut grass (*Bromus diandrus*), cheat grass (*Bromus tectorum*), and Himalayan blackberry (*Rubus discolor*). Non-native, invasive wildlife observed on site include the bullfrog (*Rana catesbeiana*) and European starling (*Sturnus vulgaris*). Both species are very aggressive competitors against other frogs and birds, respectively.

#### ***Environmental Consequences***

The project has the potential to introduce or spread invasive plant species and noxious weeds with the clearing, grading, and soil-moving operations associated with roadway construction.

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

To reduce the spread of invasive non-native plant species, minimize the potential decrease of palatable vegetation for wildlife species, and comply with Executive Order 13112, the following measures will be implemented:

- Develop an Invasive Weed Eradication Plan, targeting invasive species on the California Department of Food and Agriculture list, as well as other non-native, invasive species found on site.
- Prevent the disposal of soil and plant materials from any areas that support invasive species into areas that support stands dominated by native vegetation.
- Re-vegetation for control will consist of native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions and prevent invasive species from colonizing.
- Equipment that is used in identified invasive species areas will be washed prior to entering the environmental study limits to prevent the spread of invasive weeds.
- Provide training for Resident Engineers on weed identification and the importance of controlling and preventing the spread of identified invasive non-native species.
- Use gravel and/or fill material that comes from weed free sources.

## **2.4 Construction Impacts**

### ***Affected Environment***

Construction activities would occur on an 8.5-mile section of State Route 299 from the Shasta County line to 0.6 miles west of Crystal Creek Road. The proposed improvements consist of modifying the existing alignment of State Route 299. Due to the lack of alternate detour routes in the project area, staged construction plans will be needed to accommodate through traffic and minimize traffic delays. Construction staging will be required for roadway excavation, drainage improvements, and construction of structural sections.

### ***Environmental Consequences***

The following impacts could occur during construction of the project:

- Temporary traffic delays may result during construction of the project.
- Noise from use of equipment and machinery would occur during each phase of construction. The project would involve intermittent construction activities, so no single location would experience an extended period of construction-related noise.
- During construction, the project would generate temporary dust and air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, the largest percentage of pollutants would be windblown dust generated during excavation,

grading, hauling, and various other activities. The impacts from these activities would vary each day.

- The National Pollutant Discharge Elimination System permit requires Caltrans to address the potential impacts of construction on water quality in the design and construction phases of the project.

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

To minimize the impacts from construction, the following measures will be implemented:

- Traffic safety would be maintained through the use of warning signs, portable message signs, detour signs, traffic controls, and public information. The Caltrans Public Affairs Office would keep the local media informed of construction progress and details pertaining to delays, closures, and major changes in traffic patterns.
- Caltrans Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of Caltrans Standard Specification, Section 7-1.01F, “Air Pollution Control”, and Section 10, “Dust Control”, require the contractor to comply with the rules, ordinances, and regulations of the North Coast Air Quality Management District and the Shasta County Air Quality Management District.
- Compliance with Caltrans Standard Specification, Section 7-1.01I, “Sound Control Requirements”, would be required. Section 7-1.01I refers to mandatory mufflers for all internal combustion engines operated within the project and mandatory compliance with local noise ordinances.
- During construction, a Storm Water Pollution Prevention Plan would be implemented to identify the sources of sediment and other pollutants that affect the quality of storm water discharges. The plan would also describe and ensure the implementation of Best Management Practices to reduce or eliminate sediment and other pollutants in storm water as well as non-storm water discharges.
- Erosion and water pollution issues must be addressed at each phase of the project from planning and design to the built and operational phases. Management measures for roads, highways, and bridges would include using the most current *Caltrans Project Planning and Design Guide*, approved pollution prevention design measures, and construction site Best Management Practices to control discharges of pollutants to the maximum extent practicable.

## 2.5 Cumulative Impacts

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

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

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

Based on the analysis in this Environmental Impact Report/Environmental Assessment regarding the potential for the proposed project to result in direct and/or indirect impacts to certain resources, the following environmental issues have been identified for consideration in the cumulative impact analysis:

- Aesthetics and Visual Resources
- Natural Communities
- Wetlands and other Waters of the U.S.
- Special Status Species
- Water Quality
- Cultural Resources

Projects considered in the cumulative effects analysis are shown in Table 2.14. All of these projects are located on State Route 299 within the study area for the Buckhorn Grade Improvement Project. Three of the projects are proposed to conform to the ultimate Buckhorn Grade Improvement Project alignment, including the Top of Buckhorn, Yankee Gulch, and Middle of Buckhorn projects. The Bottom of Buckhorn, Water Gulch, and Trail Gulch projects will not conform to the ultimate alignment due to funding constraints and the rugged terrain.

**Table 2.14 Projects Considered in the Cumulative Effects Analysis**

Responsible Agency	Project Name	Type of Project	Location	Status
Caltrans	Top of Buckhorn	Curve Correction	PM 0.0-0.6	Currently under construction.
Caltrans	Middle of Buckhorn	Curve Correction	PM 3.0-4.3	Construction planned in 2011
Caltrans	Water Gulch	Shoulder Widening	PM 4.5-4.8	Construction proposed in 2011.
Caltrans	Trail Gulch	Shoulder Widening	PM 4.8-5.0	Construction proposed in 2010.
Caltrans	Bottom of Buckhorn	Curve Correction	PM 5.4-5.8	Construction planned in 2010.
Caltrans	Yankee Gulch	Curve Correction	PM 6.8-7.6	Currently under construction

### *Aesthetics/Visual Resources*

Views throughout the project area are moderate in visual quality. Long distance views of Willow Creek, Water and Trail Gulch canyons, and the abandoned Greenhorn Mine are prevalent throughout the corridor. Detractors to the existing views include high voltage utility lines and towers, mining damage to distant slopes, roadside signs, scarring due to erosion, and Caltrans maintenance activities.

Construction of the project will result in substantial alteration of the project area, while adding to the cumulative change of the corridor. Once completed, this project will be visible in the distance, but there are limited fixed viewers and viewpoints. In addition, it is anticipated that maintenance activities will be part of the cumulative visibility of constructed features on the corridor.

Although construction of the project will result in impacts to the immediate environment, with the incorporation of minimization and mitigation measures, visual impacts would be reduced to the extent feasible.

### *Natural Communities*

Natural communities of concern within the project area include alkali seep habitat, riparian habitat, and oak woodlands.

Alkali seep habitat is found only in isolated areas in Shasta County. Approximately 1.2 acres of seep habitat is located within the project area. Impacts to alkali seep can be avoided with implementation of avoidance and minimization measures.

Riparian habitat occurs along Willow Creek and other drainages including Water Gulch, Trail Gulch, and Yankee Gulch. Approximately 0.38 to 0.45 acre of riparian habitat will be disturbed. Loss of riparian habitat will be mitigated through replacement and enhancement of the existing habitat.

Oak woodlands are found throughout the project area and are an integral component of natural communities providing food, foraging habitat, nesting habitat, and cover for numerous wildlife species. The project could result in up to 95.1 acres of direct impacts to oak woodlands and up to 443 acres of indirect effects. Caltrans would mitigate for impacts to oak woodlands by in-kind creation/restoration and preservation of oak woodlands on abandoned sections of the existing roadway, as well as on newly acquired parcels, as needed.

With the incorporation of avoidance, minimization, and mitigation measures, the project is not expected to have an adverse cumulative effect to natural communities of concern.

### *Wetlands and Other Waters*

The project would permanently affect between 1.18 and 1.40 acres of jurisdictional wetlands and other waters of the U.S. With implementation of avoidance and minimization measures, temporary impacts to wetlands and other waters of the U.S. are not expected to occur. Compensatory mitigation for permanent wetland losses will be required. The project is not expected to contribute to cumulative impacts to wetlands and other waters, with the implementation of avoidance, minimization, and mitigation measures.

### *Special Status Species*

The project could potentially affect special status plant and animal species found in the area. When listed species are affected, consultation with U.S. Fish and Wildlife Service under the Federal Endangered Species Act and California Department of Fish and Game under the California State Endangered Species Act would be completed for future projects that may occur in the area. Cumulatively, the viability of some sensitive species throughout the region could be impacted. Each project would mitigate for specific impacts through avoidance, creation, and preservation. Often, through mitigation requirements, the resource agencies are able to obtain large parcels of suitable habitat, creating a continuity that facilitates viability among individual species. This project is not expected to have an adverse cumulative effect to threatened and endangered wildlife and plant species.

### *Water Quality*

The water quality impact analysis concluded that the proposed project would not substantially affect water quality. All projects listed in Table 2.14 have the potential to impact water quality both on a temporary basis during construction and on a permanent basis. Sedimentation is the greatest water quality concern for any of the proposed projects. The addition of impervious surfaces, which would occur from a majority of those projects, would increase the amount of storm water runoff as well as introduce new sources of pollutants that, if transported to surface waters, could degrade water quality. The conversion of grassland or oak woodlands to other uses could impact water quality if Best Management Practices are not implemented. Implementing Best Management Practices to control and treat storm water runoff would minimize all of these impacts. Water quality could be impacted by the location of new construction if vegetated buffer zones to filter pollutants around creeks and tributaries are not included in the design of these projects.

### *Cultural Resources*

Five archaeological sites were identified within the area of potential effects that are either eligible for, or assumed eligible for, listing in the National Register of Historic Places. Two of the sites have elements within the area of direct impact that contribute to the eligibility of the site and would be affected by the proposed project. Three additional sites are assumed eligible for the purposes of this project and will be protected as Environmentally Sensitive Areas.

Caltrans has determined that the proposed project would adversely affect historic properties. Caltrans prepared a Finding of Effects to assess the effects of the proposed

project on the eligible properties, which was submitted concurrently with the determinations of eligibility. The State Historic Preservation Officer concurred with the Finding of Adverse Effect in a letter dated August 28, 2008.

The State Historic Preservation Officer and Caltrans have negotiated a Memorandum of Agreement, which includes stipulations to take into account the proposed project's effects on historic properties. The Memorandum of Agreement ensures that the adverse effects of the project are resolved by implementing Data Recovery and Environmentally Sensitive Area Action Plans. Since the Memorandum of Agreement is designed to reduce impacts on cultural resources to below a level of significance on a site-specific basis, cumulative impacts would be less than significant.

# Chapter 3 California Environmental Quality Act Evaluation

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## 3.1 Determining Significance under the California Environmental Quality Act

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

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

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

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

Each significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the California Environmental Quality Act Guidelines list a number of mandatory findings of significance, which also require the preparation of an Environmental Impact Report. There are no types of actions under the National Environmental Policy Act that parallel the findings of mandatory significance under the California Environmental Quality Act. This chapter discusses the effects of this project and California Environmental Quality Act significance.

## **3.2 Discussion of Significance of Impacts**

### ***Less than Significant Effects of the Proposed Project***

#### *Water Quality*

The project could result in adverse impacts to water quality during construction. A Storm Water Pollution Prevention Plan will be developed for the project and will outline construction Best Management Practices to be used to minimize adverse effects on water quality.

#### *Migration Corridors*

Various terrestrial wildlife species are likely to use the creeks and tributaries in the area, as important movement corridors. Creation of wildlife underpasses or similar structures, particularly along creeks and other natural features that run under the highway, and placement of fencing to direct animals to safe crossing areas would reduce impacts to wildlife species in the project area.

#### *Special Status Plants and Animals*

Special status plant and animal species or their habitats and sensitive natural communities are not likely to be adversely affected by the project, if the avoidance and minimization measures discussed in Chapter 2 are implemented.

#### *Threatened and Endangered Species*

The following threatened and endangered species are present within the project area: Howell's alkali grass (*Puccinellia howellii*), wolverine (*Gulo gulo*), bald eagle (*Haliaeetus leucocephalus*), and northern spotted owl (*Strix occidentalis caurina*). The project is not likely to adversely affect these species if the avoidance and minimization measures discussed in Chapter 2 are implemented. Mitigation measures, if needed, for impacts to special status species will be determined in consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Game.

### *Construction*

Temporary traffic delays would occur during construction of the project. A Traffic Management Plan would be developed to implement methods to reduce impacts from construction activities, minimize delays for motorists, and provide a safe construction zone. The plan will also address cumulative impacts resulting from other concurrent construction projects within the State Route 299 corridor.

## ***Significant Environmental Effects of the Proposed Project***

### *Cultural Resources*

The proposed project would adversely affect one historic property. The State Historic Preservation Officer and Caltrans will negotiate a Memorandum of Agreement, which will include stipulations to take into account the project's effects on these properties. The Memorandum of Agreement will ensure that the adverse effects of the project are resolved by implementing and completing Data Recovery and Environmentally Sensitive Areas Action Plans.

### *Riparian Habitat*

The project would disturb up to 0.45 acre of riparian vegetation. Riparian habitat losses would be mitigated through a combination of replacement and enhancement of existing riparian habitat. Replacement of any losses would be at a proposed ratio of 1:1 and enhancement would be at a ratio of 2:1. During the final project design, a revegetation and restoration plan will be developed to provide detailed plans for replacement and enhancement, preferably within the project area.

### *Oak Woodlands*

The project could result in up to 95.1 acres of direct impacts to oak-dominated woodlands, depending on the alternative selected. Caltrans would compensate for the impacts to oak woodlands by in-kind creation/restoration and preservation of oak woodlands on abandoned sections of the existing roadway alignment, as well as on newly acquired parcels as needed.

### *Wetlands and Other Waters of the U.S.*

Depending on the alternative, the proposed project would permanently impact between 0.40 and 0.42 acre of potentially jurisdictional wetlands and between 0.76 and 1.00 acre of other waters of the United States. With the implementation of Best Management Practices, temporary impacts to jurisdictional wetlands and other waters of the U.S. are not expected to occur. Compensatory mitigation is necessary to offset permanent wetland losses. Compensation for potential impacts to federally jurisdictional wetlands

would be mitigated at a ratio to be determined in consultation with the U.S. Army Corps of Engineers.

While the U.S. Army Corps of Engineers does not typically require mitigation for waters under the jurisdiction of the State, the Regional Water Quality Control Board frequently does. Compensation for potential impacts to State jurisdictional waters would be mitigated at a ratio to be determined in consultation with the Regional Water Quality Control Board.

### ***Unavoidable Significant Environmental Effects***

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

Construction of the project would result in a substantial alteration to the visual environment. Methods of construction in this area are, to a large extent, dictated by terrain and geologic conditions. The prevalence of decomposed granitic soils is just one of the elements that limit feasible construction options. Construction would result in large, bare cut and fill slopes, which will conflict with the intent of the Trinity Scenic Byway designation. Although visual impacts will be reduced through the implementation of minimization and mitigation measures, the project will nevertheless result in significant impacts to visual resources.

#### ***Mitigation Measure for Significant Impacts under CEQA***

Mitigation of significant visual impacts will consist of the following:

- Re-contour disturbed areas and construction access roads to a natural appearance.
- Minimize vegetation removal within the project corridor.
- Prepare abandoned highway for revegetation by removing asphalt and base materials where feasible, ripping the original ground and incorporating soil and/or amendments to facilitate plant growth.
- Use an open style rail on any guardrail placed within the project limits.
- Vegetate stabilized soil areas with native plant species, by either using by hydroseeding or containerized plants.
- Use color (stain and/or paint) and textures that minimize reflectivity, glare and unnatural appearances on walls that are constructed for the project.

### 3.3 Climate Change under the California Environmental Quality Act

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

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year however, in order to enact the standards California needed a waiver from the U.S. Environmental Protection Agency (EPA). EPA denied the waiver in December 2007. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011. However, on January 26, 2009, it was announced that EPA will reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5 mpg fuel economy standard for automobiles and light duty trucks, which will take effect in 2012. . On June 30, 2009 EPA granted California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which

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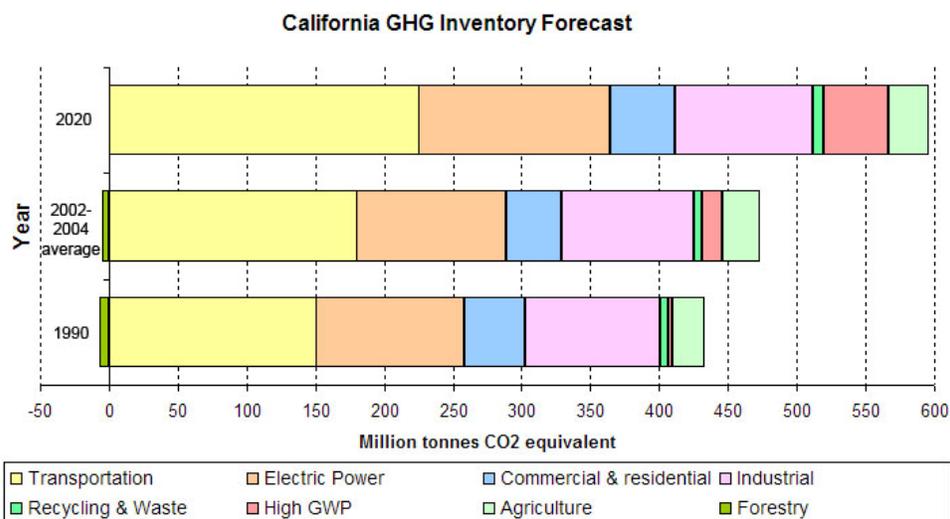
<sup>1</sup> Greenhouse gases related to human activity, as identified in AB 32, include: [Carbon dioxide](#), [Methane](#), [Nitrous oxide](#), [Tetrafluoromethane](#), [Hexafluoroethane](#), [Sulfur hexafluoride](#), [HFC-23](#), [HFC-134a\\*](#), and [HFC-152a\\*](#).

includes market mechanisms, and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state’s Climate Action Team.

With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by 2020. The low carbon fuel standard was adopted by CARB in April 2009.

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

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



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

**Figure 3-1 California Greenhouse Gas Inventory**

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change.

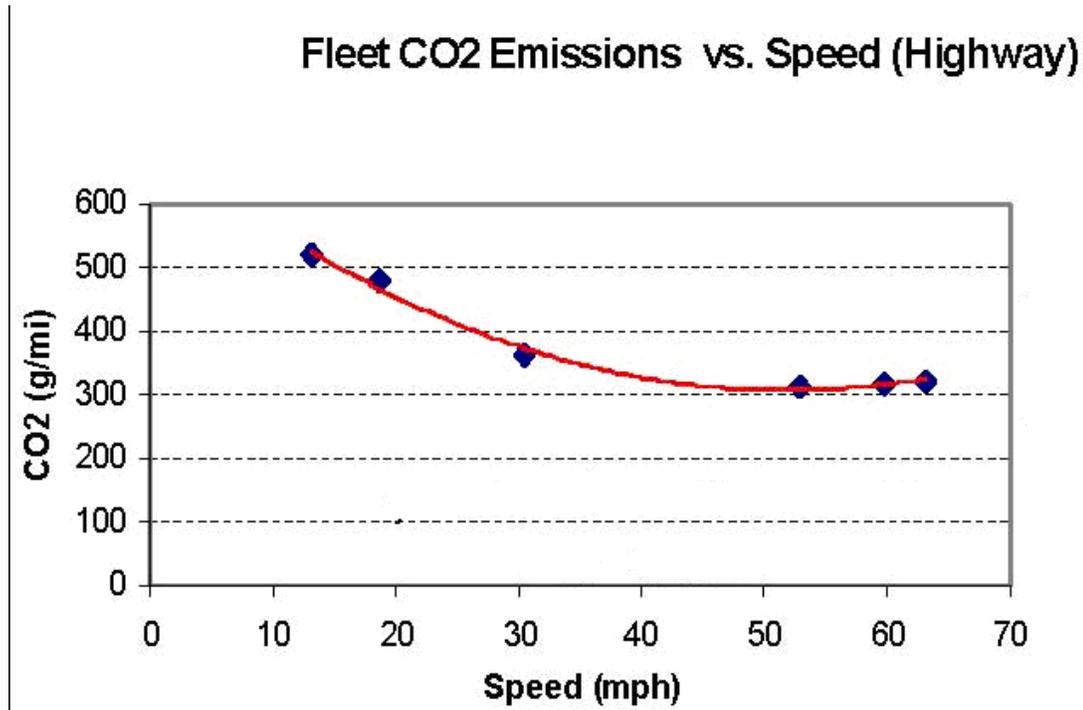
Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation (see Climate Action Program at Caltrans (December 2006), Caltrans has created and is implementing the Climate Action Program that was published in December 2006. This Document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

### **Project Analysis**

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

The Buckhorn Grade Improvement Project will reduce traffic congestion and increase the overall speed within the project limits by widening the travel lanes, adding truck passing lanes, and realigning the curves to a design speed of 45 miles per hour. With the construction of the project, the vehicle miles traveled will remain the same and the

speeds will increase from a design speed of 25 to 45 miles per hour to a design speed of 45 miles per hour. Figure 3-2 shows the effect that speed has on CO<sub>2</sub> emissions. At an average speed of 25 miles per hour, an automobile produces approximately 400 grams per mile of CO<sub>2</sub> and at 45 miles per hour, the CO<sub>2</sub> emissions are reduced to approximately 300 grams per mile. This would have a positive effect on the GHG emissions generated in the project area when compared with the No Build Alternative.



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

**Figure 3-2 Fleet CO2 Emissions vs. Speed (Highway)**

**CEQA Conclusion**

Daily CO<sub>2</sub> emissions would be expected to decrease as a result of the project. It is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project’s direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following sections.

### **Greenhouse Gas Construction Emissions**

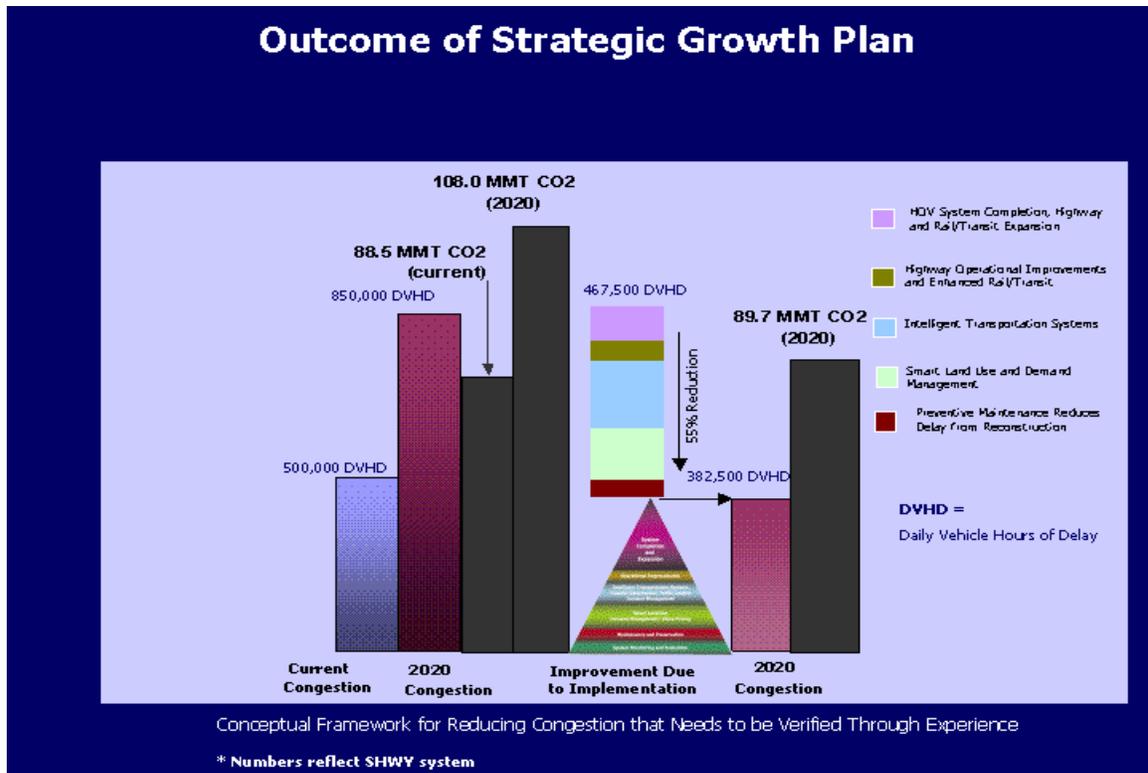
GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from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

### **Assembly Bill 32 Compliance**

Caltrans continues to be actively involved on the Governor's Climate Action Team as CARB works to implement the Governor's Executive Orders 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 the California Strategic Growth Plan, which is updated each year. Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016.<sup>2</sup> As shown on Figure 3-3 below, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

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<sup>2</sup> Governor's Strategic Growth Plan, Fig. 1 (<http://gov.ca.gov/pdf/gov/CSGP.pdf>)



**Figure 3-3 Outcome of Strategic Growth Plan**

As part of the Climate Action Program at Caltrans (December 2006, <http://www.dot.ca.gov/docs/ClimateReport.pdf>), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by EPA and CARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the UC Davis.

Table 3.1 summarizes the Department and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. For more detailed information about

each strategy, please see Climate Action Program at Caltrans (December 2006); it is available at <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

**Table 3.1 Climate Change Strategies**

Strategy	Program	Partnership		Method/Process	Estimated CO <sub>2</sub> Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & 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, CARB, CEC	Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services	Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team	Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries	2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs	Goods Movement Action Plan	Not Estimated	Not Estimated
Total				2.72	18.67

## Chapter 4      Comments and Coordination

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

Throughout the development of the alternatives presented in this document, an emphasis has been placed on keeping the community and local stakeholders informed of the scope and potential impacts of this project. Numerous meetings, both formal and informal, have been held to gather input and assist in formalizing these studies.

Open house public meetings were held in Weaverville (Trinity County) and Redding (Shasta County) in December 2000. Displays at these meetings included maps of the highway realignment alternatives, a geometric layout on an aerial photo base map, and a three dimensional topographic model that made it easier for community members to locate their properties and visualize the project alternatives. Comments received in these workshops were primarily related to how the proposed project would impact specific properties and commute times. In general, the majority of the comments were in favor of the project and its improvements to the safety and reliability of the highway.

A committee was formed to further analyze possible alignment and profile alternatives. The committee included members from Trinity and Shasta Counties, as well as various Caltrans functional units. The team reduced the numerous proposed alternatives down to the four described in this document. Meetings were held in September 2000 and May 2002 to update partners on the purpose and status of the project. In addition, a committee was formed to study erosion control, drainage and geotechnical issues. This group met regularly to discuss slope ratios and treatments for the decomposed granite slopes of the Buckhorn Grade.

### ***Public Participation***

A Draft Environmental Impact Report/Environmental Assessment was completed for the Buckhorn Grade Improvement Project and was circulated for public review and comment from October 14, 2008 – December 1, 2008. Caltrans held three open house-style public workshops in October 2009: in Eureka (October 20), in Redding (October 22), and in Weaverville (October 23). Announcements for these workshops were published in the Eureka Times, Trinity Journal, and Redding Record Searchlight newspapers. Total attendance was approximately 48 and consisted of residents, property owners, and local government representatives.

Displays included maps of the proposed alternatives, information on the project history, and a three dimensional topographic model of the project area. Public input was encouraged and comment cards were provided to solicit written comments.

Caltrans received 13 comments during the Draft Environmental Impact Report/Environmental Assessment circulation (October 14 to December 1, 2008). Of these, six comments were submitted during the open house workshops, three comments were sent by e-mail, and four comments were sent by public agencies. Eight respondents expressed support of the project and of these, one preferred Alternative BH5 and one preferred Alternative BH12.

In April 2009, the Buckhorn Grade Improvement Project Development Team identified the BH12 alignment as the preferred alternative. This recommendation was approved by the Buckhorn Grade Improvement Project management team on July 8, 2009.

### ***Consultation and Coordination***

Consultation and coordination occurred with the following individuals, organizations, and agencies during development of the project. Correspondence regarding Caltrans' consultation with federal and state agencies can be found at the end of this chapter.

#### ***Native American Consultation***

Native American organizations and individuals within the project area were contacted in advance of the cultural resource inventory. On June 23, 2005, initial consultation letters describing the project and seeking input were sent to the following contacts:

- Ms. Carol Y. Bowen
- Ms. Barbara Murphy, Chair – Redding Rancheria
- Ms. Tracy Edwards, Chief Executive Officer – Redding Rancheria

- Mr. Gene Malone – Wintu Tribe and Toyon-Wintu Center
- Mr. Robert Burns – Wintu Educations and Cultural Council
- Mr. John W. Hayward – Nor-Rel-Muk Nation

On December 4, 2007, a letter was sent to the Native American Heritage Commission in order to obtain an updated list of Native American individuals or organizations that might have concerns regarding additional work at two multiple component sites located within the project's area of direct impact. Letters were sent to the following contacts:

- Ms. Barbara Murphy, Ms. Tracy Edwards and Mr. James Hayward, Sr. - Redding Rancheria
- Mr. Eugene Jamison, Jr. - Round Valley Reservation/Covelo Indian Community
- Ms. Kelli Hayward - Wintu Tribe of Northern California
- Ms. Marilyn Delgado - Mor-Rel-Muk Nation
- Ms. Sharon Elmore - Pit River Tribe
- Mr. Robert Burns – Wintu Educational and Cultural Council
- Ms. Caleen Sisk-Franco - Winnemem Wintu Tribe
- Ms. Gloria Gomes and Mr. John Castro - United Tribe of Northern California
- Carol Sinclair
- Matthew Root
- Loretta Root

Efforts to consult and seek input from the local Native American community have occurred throughout the planning and development of the project and are still ongoing.

#### *State Historic Preservation Officer*

Caltrans identified five archaeological sites within the area of potential effects that are eligible for, or assumed eligible for, listing in the National Register of Historic Places. The State Historic Preservation Officer concurred with Caltrans' findings in letters dated August 28, 2008 and February 3, 2009.

Caltrans determined that all four alternatives for the proposed project would adversely affect one historic property. Caltrans prepared a Finding of Effects to assess the effects of the proposed project on the eligible property. The eligibility determination and findings were submitted to the State Historic Preservation Officer, who concurred with the findings of adverse effect in a letter dated August 28, 2008.

The State Historic Preservation Officer and Caltrans have negotiated a Memorandum of Agreement, which includes stipulations to take into account the proposed project's effects on historic properties. The Memorandum of Agreement ensures that adverse effects of the undertaking are resolved by implementing Data Recovery and Environmentally Sensitive Area Action Plans.

*U.S. Fish and Wildlife Service*

On May 28, 2009, the U.S. Fish and Wildlife service concurred with Caltrans' determination that the proposed project is not likely to adversely affect the federally threatened northern spotted owl (*Strix occidentalis caurina*).

**Public Comments**

The following comments were received during the October 15, 2008 – December 1, 2008 public circulation and comment period. A response from Caltrans follows each comment.



ARNOLD SCHWARZENEGGER  
GOVERNOR

STATE OF CALIFORNIA  
GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
STATE CLEARINGHOUSE AND PLANNING UNIT



CYNTHIA BRYANT  
DIRECTOR

December 2, 2008

Sandra Rosas  
Department of Transportation, District 3  
403 B Street  
Marysville, CA 95901

Subject: Buckhorn Grade Improvement Project  
SCH#: 2002052057

Dear Sandra Rosas:

The State Clearinghouse submitted the above named Joint Document to selected state agencies for review. The review period closed on December 1, 2008, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

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

Sincerely,

Terry Roberts  
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044  
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

***Response to Comments from State Clearinghouse and Planning Unit***

The State Clearinghouse letter acknowledges that Caltrans has complied with review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

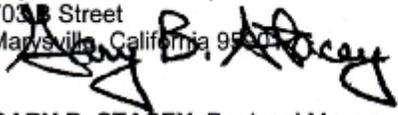
State of California

The Resources Agency

## Memorandum

To: Ms. Sandra Rosas,  
Senior Environmental Planner  
Department of Transportation - District 3  
703 B Street  
Marysville, California 95901

Date: December 10, 2008

From:   
GARY B. STACEY, Regional Manager  
Northern Region  
Department of Fish and Game  
601 Locust Street  
Redding, California 96001

Subject: **Buckhorn Grade Improvement Project, Draft Environmental Impact Report/Environmental Assessment (SCH #2002052057)**

The Department of Fish and Game (DFG) has reviewed the draft environmental document for the above referenced Buckhorn Grade Improvement Project. The project proposes to realign a 4.8- to 5.11-mile segment of State Route (SR) 299 in Shasta County west of Redding, California. Four construction alternatives are under consideration to improve the safety and efficiency of the highway by realigning the roadway along the existing alignment. Improvements will include standard roadway and shoulder widths, a new alignment with a 40-miles per hour to 50-miles per hour design speed (depending on the alternative) an 8 percent maximum grade, passing/climbing lanes, and improved roadway superelevations and transition distances. Depending on the alternative selected, the area of physical disturbance will range from 101 acres to 147 acres; proposed earthwork will range from 3.4 to 5.0 million cubic yards of material. DFG offers the following comment on the project in our role as both a trustee and responsible agency.

The draft environmental document identifies potential adverse effects and specifies avoidance and minimization measures for impacts to natural communities, including alkali seep, wetlands, riparian and oak woodlands; water quality; special status species such as Pacific fisher; and wildlife migration corridors. Significant effects are identified for riparian habitat, oak woodlands, and wetlands. DFG has the following specific concerns regarding the discussion of resource impacts and proposed mitigation measures.

### Alkali Seep and Howell's Alkali Grass

The Draft Environmental Impact Report (DEIR) recognizes the importance of an existing mineral spring complex on the south side of SR 299 adjacent to the Crystal Creek Road intersection. This spring system supports the only known occurrence of Howell's alkali grass (*Puccinellia howellii*). While this plant species is not currently listed as "threatened or endangered" by either the State or federal government, it is listed as rare

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and endangered in California by the California Native Plant Society (CNPS List 1B.1). Based upon the best available information, DFG has concluded that the species meets the criteria for State listing as outlined in CEQA Guidelines Section 15380(b) and must therefore be considered as an "endangered species" as required under Section 15380(d).

Although no project activities other than traffic control and construction signage are proposed adjacent to the spring complex, the DEIR indicates that the mineral springs will be identified and protected as an environmentally sensitive area (ESA) during construction. DFG supports this measure. In addition to the spring complex itself, the large pullout on the south side of the highway at Post Mile 7.8 should also be included within the ESA. Working under an interagency **Conservation Agreement for *Puccinellia howellii***, Caltrans, DFG and the National Park Service recently completed a project to restore the hydrology of the mineral springs in this portion of the right-of-way. As part of this work, an underdrain was constructed to re-convey spring discharge that had been intercepted by an earlier highway construction project to spring number 1. The collection area for the underdrain is located within the pullout adjacent to the highway. Although an impermeable membrane was installed to protect the collection area, the site remains vulnerable to contamination from vehicles, equipment or construction materials stored at this location. The pullout area should be off limits to construction equipment and personnel and should not be used as a staging area for the project.

#### Riparian and Wetland Habitats

Chapter 2 of the DEIR identifies permanent impacts to riparian and wetland habitats associated with each of the construction alternatives. Up to 0.45-acre of riparian vegetation will be removed at Yankee Gulch, Trail Gulch and Water Gulch. Depending on the alternative selected, up to an additional 1.40 acres of wetlands and stream channel habitat will be subject to direct, permanent impacts. The document proposes to mitigate riparian losses through a combination of replacement and enhancement of existing riparian areas (page 74). Replacement is proposed at a ratio of 1:1 while enhancement would be accomplished at a 2:1 ratio. The document does not define what is meant by enhancement, nor does it describe the location of replacement or enhancement activities, indicating only that a revegetation and restoration plan will be prepared during final project design. Similarly, the discussion of wetland mitigation (page 78) indicates only that "potential impacts to federally jurisdictional wetlands would be mitigated at a ratio to be determined in consultation with the U.S. Army Corps of Engineers." DFG recommends that the DEIR be revised to provide a more detailed analysis of the measures that will be implemented to mitigate wetland and riparian impacts. This discussion should evaluate the feasibility of accomplishing the mitigation onsite (e.g., within the portions of the alignment that will be decommissioned) or whether impacts will require offsite mitigation. Because of the temporal habitat loss associated with replacing woody riparian habitat, DFG typically recommends a replacement ratio of at least 3:1 for this habitat type.

2

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Oak Woodlands

Direct impacts to oak dominated woodlands are projected to range from 69.1 acres to 95.1 acres, depending on the alternative selected for construction. An additional area up to 443 acres could be subject to indirect effects, presumably resulting from unstable soils and the potential for slope failures during and after construction. The DEIR proposes to compensate for potentially significant impacts to oak woodlands by in-kind creation/restoration and preservation of oak woodlands on abandoned sections of the existing roadway alignment, as well as on newly acquired parcels as needed (page 109). Replacement plantings are proposed at a ratio of five new trees for each oak removed, with a goal of at least 3 surviving trees for each tree lost at the end of a ten-year monitoring period.

3

It is unclear from the discussion in the DEIR how much suitable acreage for oak woodland replacement will be available within the portions of the abandoned alignment and how many acres will be required from additional parcels. It is likely that much of the decommissioned portions of the right-of-way, particularly the cut slopes, will be poorly suited for the establishment of oaks. Moreover, on past projects Caltrans has had difficulty identifying and acquiring suitable mitigation parcels for oak woodland impacts. DFG recommends that the DEIR include a more detailed analysis of restoration opportunities provided by the old alignment and also identify suitable areas for off-site habitat establishment. In both cases, mitigation lands will need to be protected and managed as oak woodland habitat in perpetuity.

Water Quality

Major portions of the alignment traverse areas of steep slopes and highly erosive soils that have developed from decomposed granite parent materials. These soils are notoriously subject to rill and gully erosion as well as slope failures when vegetative cover is removed. The DEIR correctly identifies a substantial potential for erosion of slopes and siltation of downstream waterways (page 55) as a project impact. Mitigation measures call for the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) as well as following Best Management Practices (BMPs) to minimize erosion and water quality impacts. DFG is concerned that standard measures may not be adequate to stabilize highway slopes and control erosion under these conditions. The DEIR should describe what additional measures will be used if standard BMPs prove inadequate to prevent the mobilization and transport of sediment from project slopes. Without state of the art erosion control measures, DFG believes the project could become a chronic source of sediment, degrading water quality and damaging habitat for species of special concern such as the foothill yellow-legged frog.

4

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#### Species of Special Concern and Migration Corridors

The DEIR identifies potential impacts to several species of special concern including but not limited to ringtail, Pacific fisher, northwestern pond turtle, California horned lizard, and foothill yellow-legged frog. The document acknowledges that increased vehicle speeds associated with the improved alignment may contribute to an increase in vehicle-related mortality for wildlife. Recent observations have documented vehicle-related mortality of species of special concern in the general project area. Two road-killed Pacific fishers were observed along SR 299 just west of Buckhorn Summit by a UC Davis researcher on September 4, 2008. DFG recommends increased monitoring of road-kill along this portion of SR 299 and elsewhere to document vehicle strikes on fishers. Caltrans has a key role in improving our understanding of the effects of vehicle-related mortality on fisher populations; this information will contribute to the ongoing development of a statewide fisher conservation strategy.

5

Wildlife underpasses and fencing (pages 89-90) are proposed to reduce road-kill and the potential for habitat fragmentation by creating opportunities for animals to safely cross the highway. The DEIR provides no information regarding the number, placement, size, or design of these structures, other than to suggest the use of stream crossings or other natural features. DFG supports the development of wildlife crossing structures as part of the proposed project. However, for these features to be effective, careful consideration needs to be given to the species under consideration, existing wildlife movement patterns, the number and spacing of crossing structures needed, the size and type of structures to be used, and the type of fencing that will be required given the species to be accommodated. It is particularly important to carefully select the end points of any fencing system so that roadway mortality is not increased at these locations. Monitoring should also be an integral part of assessing the effectiveness of any wildlife crossing system. Motion sensing digital cameras provide a convenient and cost-effective way of documenting wildlife use of crossing structures. DFG staff can provide assistance with the design and placement of wildlife crossing structures for this project.

#### Streambed Alteration

A Lake or Streambed Alteration Agreement is required for activities that will substantially obstruct or divert the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river stream or lake. From the project description, it appears that a streambed alteration agreement will be required for crossings, including, but not limited to, Water Gulch, Trail Gulch, Sawpit Gulch, and Yankee Gulch. Upon receiving notification pursuant to Fish and Game Code §1602, DFG will prepare a streambed alteration agreement. In issuing a streambed alteration agreement, DFG will be acting as a "responsible agency" under CEQA. As such, DFG

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will be required by CEQA Guidelines Section 15096 to review the CEQA document certified by Caltrans and to make certain findings concerning the activity's potential to cause significant adverse environmental effects. It is therefore important that the project adequately address both potential impacts to fish and wildlife resources resulting from project activities within watercourses and the measures that may be needed to minimize project effects.

DFG appreciates the opportunity to provide comments on this project. For questions or additional information, contact Staff Environmental Scientist Craig Martz (530) 225-2281 or via e-mail at [cmartz@dfg.ca.gov](mailto:cmartz@dfg.ca.gov).

cc: Messrs. Mark Stopher, Eric Haney, Craig Martz, Pete Figura, and  
Ms. Jane Vorpapel  
Department of Fish and Game  
601 Locust Street  
Redding, California 96001

Mr. Richard Callas  
Department of Fish and Game  
1724 Ball Mountain Road  
Montague, California 96064

Ms. Esther Burkett and Mr. Dale Steele  
Department of Fish and Game  
1812 Ninth Street  
Sacramento, California 95811

Ms. Jennifer Gibson  
National Park Service  
Whiskeytown National Recreation Area  
Post Office Box 188  
Whiskeytown, California 96095-0188

Mr. Keith Paul  
U. S. Fish and Wildlife Service  
Red Bluff Fish and Wildlife Office  
10950 Tyler Road  
Red Bluff, California 96080

### **Responses to Comments from California Department of Fish and Game**

**Response to comment #1:** An Environmentally Sensitive Area will be designated and fencing will be placed around the spring complex and pullout during construction to protect the alkali seep mineral spring complex and Howell's alkali grass (*Puccinellia howellii*). An avoidance measure has been added to Appendix D, "Minimization and/or Mitigation Summary" of this document.

**Response to comment #2:** The magnitude of the Buckhorn Grade Improvement Project will require the project to be built in constructable and fundable segments. These individual segments will be constructed independently, but together will eventually complete the ultimate project. Each of these segments will consist of stand-alone projects and will undergo environmental review. At this stage of project development, mitigation commitments for wetland and riparian vegetation impacts that will result from the ultimate project are described in conceptual terms, based on regulatory guidelines. Specific mitigation details will be developed during the design and environmental phase for each project.

**Response to comment #3:** Compensation for potentially significant impacts to oak woodlands will be determined during the design and environmental review of individual projects within the limits of the Buckhorn Grade Improvement Project. Caltrans would compensate for the impacts of the project to oak woodlands by in-kind creation/restoration and preservation of oak woodlands, a monetary contribution to the California Oak Woodlands Conservation Fund administered by the state Wildlife Conservation Board for the purpose of purchasing oak woodland conservation easements, or through a California Department of Fish and Game-established oak woodland mitigation bank. Therefore, if suitable areas for replacement planting are unavailable, two other options would remain for achieving mitigation commitments relating to oak woodland impacts.

**Response to comment #4:** Measures will be identified to minimize impacts that could degrade water quality during final design of the project. These measures could include the use of engineering fabric in embankments constructed out of decomposed granite to reduce the potential for surface erosion. As fundable and constructable projects are developed on Buckhorn Grade, additional measures will be identified to minimize impacts to water quality and habitats for species of special concern.

**Response to comment #5:** At the environmental document/project approval stage for the ultimate project, mitigation commitments for impacts to biological resources

are described in conceptual terms, based on regulatory guidelines. The design and location of wildlife crossing structures will be developed during design and environmental review for individual projects within the limits of the Buckhorn Grade Improvement Project. Caltrans will consult with Department of Fish and Game staff regarding the number, location, size, and design of these structures.



IN REPLY REFER TO:  
WHIS N1617

## United States Department of the Interior

NATIONAL PARK SERVICE  
WHISKEYTOWN NATIONAL RECREATION AREA  
WHISKEYTOWN-SHASTA-TRINITY NATIONAL RECREATION AREA  
P.O. BOX 188  
WHISKEYTOWN, CA 96095-0188



December 15, 2008

Sandra Rosas  
Senior Environmental Planner  
Department of Transportation – District 3  
703 B Street  
Marysville, California 95901

Dear Ms. Rosas:

The National Park Service (NPS) has reviewed the draft environmental document for the Buckhorn Grade Improvement Project. The project proposes to realign a 4.8 – 5.11 mile segment of State Route 299 just west of Whiskeytown National Recreation Area. Park staff have the following specific concerns regarding resource impacts and proposed mitigation measures:

### The Alkali Seep and Howell's Alkali Grass

The mineral springs that support Howell's alkali grass (*Puccinellia howellii*) to the east of the project area are within Whiskeytown National Recreation Area. Whiskeytown is the only known global location of this grass and the U.S. Fish and Wildlife Service has formally stated that it is one of two plant species that are closer to extinction than any other in northern California. In addition, the mineral spring complex that supports *P. howellii* is listed by the State of California as a Significant Natural Area (SHA-41). This plant species is extremely rare and because it is a small population confined to a unique habitat along a major travel corridor it is highly vulnerable to hazardous material spills and traffic accidents.

The springs that support Howell's alkali grass have been impacted by the activities associated with a highway realignment in 1992. As a first step towards restoring the hydrology of the springs, the *Puccinellia howellii* Interagency Working Group (which includes Caltrans, the Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Park Service) recently collaborated on the installation of an underdrain at the pull-out adjacent to the highway at Post Mile 7.8. There is also a small population of this species that grows immediately alongside the highway within the pullout. This population and the mineral spring system on the other side of the underdrain are highly vulnerable to contamination from vehicles, equipment or construction materials stored at this location. Because of this, the staging of materials, vehicles, and personnel should be prohibited within this area.

In addition, during the installation of the underdrain, the Interagency Working Group discussed establishing delineators around this pullout to further demark the site as an Environmentally Sensitive Area and to prevent vehicles from driving over the population along the highway or from parking near the underdrain. Installation of the delineators before construction begins will also greatly assist in protecting this site.

1

The Draft Environmental Impact Report (DEIR) should also consider Howell's alkali grass as an "endangered species" even though it is not federally or state listed. This species is listed by the California Native Plant Society as CNPS List 1B.1, which means that it is "seriously endangered in California". NPS policy mandates that sensitive species be treated as if they were listed species and this policy is consistent with the statutory duty of the NPS to conserve the scenery, natural and historic objects, and wildlife in national parks and monuments by such means as will leave them unimpaired for future generations (National Park Service Organic Act; 16 U.S.C. 1.)

Under "Avoidance, Minimization, and/or Mitigation Measures" of the DEIR (page 98), the document states that the California Native Plant Society will participate in any planning that may affect this species, including identification of avoidance and minimization measures. The California Native Plant Society is not a signatory on the Interagency Conservation Agreement. Because the springs are located on NPS property and along the Caltrans right-of-way, we request that Caltrans consult with the NPS directly so that avoidance and minimization measures can be approved by the *Puccinellia howellii* Interagency Working Group.

#### Invasive Species

Invasions by non-native plant species are generally considered to be one of the greatest threats to biological diversity in natural areas and there are several significant infestations of high priority invasive plant species along Highway 299 and Willow Creek. The mechanism of disturbance has been demonstrated to enhance the probability of non-native plant establishment in native plant communities. Concern of non-native plant species is greater in that these activities may favor invasions by transporting propagules, disturbing the soil surface, and by creating an open canopy that allows for the spread of invasives into uninfested areas.

The NPS is gravely concerned that the ground disturbing activities of mechanized equipment may exacerbate existing infestations to a point in which they become too unwieldy to treat cost-effectively. Also, there are a number of species listed by the California Department of Food and Agriculture (CDFA) that are limited to Trinity County (e.g., Dalmatian toadflax and Dyer's woad) and the CDFA has been working diligently to prevent the spread of such species into Shasta County. Infested areas in which fill material, equipment and personnel are staged, increases the probability in which invasive plant seeds become attached to equipment, shoelaces, and pants and hence, transported into Shasta County. Because riparian and road corridors often act as vectors of invasive plant spread, infestations within the project area can quite easily spread down stream and along the highway into NPS lands. Because of this threat, the NPS requests that Caltrans develop the Invasive Weed Eradication Plan (page 100 of the DEIR) and effectively treat infestations along the Highway 299 and riparian corridor BEFORE construction begins.

Specific NPS policy that supports this concern includes:

- The NPS's mission to conserve the scenery, natural and historic objects, and wildlife in national parks and monuments by such means as will leave them unimpaired for future generations (National Park Service Organic Act; 16 U.S.C. 1.)
- Non-native species will not be allowed to displace native species if displacement can be prevented (NPS Management Policies 2006, 4.4.4).
- New non-native species will not be introduced into parks, except in specific rare situations (NPS Management Policies 2006, 4.4.4.1).

- Activities may not be categorically excluded from NEPA if they contribute to the introduction, continued existence, or spread of federally listed noxious weeds (DO-12 Handbook 3.5N, Federal Noxious Weed Control Act).
- Activities may not be categorically excluded from NEPA if they contribute to the introduction, continued existence, or spread of non-native invasive species or actions that may promote the introduction, growth, or expansion of the range of non-native invasive species (DO-12 Handbook 3.5O, Executive Order 13112).
- Protection of the chemical, physical, and biological integrity of the Nation's waters (Clean Water Act of 1972, as amended, 33 USC 1251-1387).

Regarding the Invasive Weed Eradication Plan, Caltrans should use the invasive plant list provided by the California Invasive Plant Council (<http://www.cal-ipc.org/>) which is more widely used by land management agencies.

#### Water Quality

The proposed activities in the DEIR involve the disturbance of decomposed granite parent material on steep slopes along the highway corridor. The NPS agrees with the DEIR in that there is a high probability for erosion of slopes and siltation of downstream waterways during the construction phase (page 55). Although there are mitigation measures established for the proposed activities, there is a long history of past erosion control measures and sediment barriers that have failed along this corridor. The NPS wants to emphasize that Whiskeytown Lake is the inevitable recipient of all upstream sedimentation. In addition, with the presence of Whiskeytown Dam, the lake acts as a catch basin for all upstream material and this material does not ultimately end up in the San Francisco Bay and Pacific Ocean, as stated on page 54 of the DEIR.

3

Willow Creek is listed by the Environmental Protection Agency as impaired under Section 303(d) of the Clean Water Act because of excessive levels of copper and zinc and acid mine drainage due to the Greenhorn Mine. Concentrations of metals are toxic to aquatic life from the Greenhorn Mine to the confluence of Willow Creek and Crystal Creek, which is located 2.6 miles downstream of the mine and within the boundary of Whiskeytown National Recreation Area. Samples taken by park staff from a water quality monitoring station along Willow Creek supports the EPA's findings. In addition, a cooperative project between the National Park Service and the USGS Water Resources Division has documented an adverse impact to aquatic life in Willow Creek at the west boundary of the park.

Because the primary mode of metals transport and contamination is from metal-contaminated sediment, additional ground disturbance and erosion can have a cumulative impact by making metals more soluble during precipitation events. This sediment loading can mobilize contaminated material into Whiskeytown Lake during the rainy season, where it then settles into the lake. Contaminated sediments within the Whiskeytown Lake pose long-term threats to the aquatic ecosystem, including fish-eating birds and mammals, and to human health through fish consumption. Additionally, Whiskeytown Lake provides recreation for approximately 700,000 visitors annually and serves as the domestic water supply for five municipalities and stores water for the Central Valley Project.

cc: Craig Martz, California Department of Fish and Game  
Richard Lis, California Department of Fish and Game  
Keith Paul, U.S. Fish and Wildlife Service

**Response to Comments from National Park Service**

**Response to comment #1:** The mineral springs and Howell’s alkali grass located to the east of the project will be protected with Environmentally Sensitive Area fencing during construction. Construction staging will not be allowed in the pullout adjacent to State Route 299 at post mile 7.8. Caltrans will consult with the National Park Service to identify avoidance and minimization measures to protect these resources. The FEIR has been revised and avoidance measures are included in Appendix D, “Minimization and/or Mitigation Summary” to address these comments.

**Response to comment #2:** Prior to construction of the project, Caltrans will develop and implement an Invasive Weed Eradication Plan. This commitment is discussed in Appendix D, “Minimization and/or Mitigation Summary”.

**Response to comment #3:** Measures to control erosion and protect water quality will be addressed as fundable and constructable segments are developed on the Buckhorn Grade project.



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO CA 95814-2922

December 31, 2008

Regulatory Division (SPK-2008-1692)

Ms. Sandra Rosas  
Office of Environmental Management  
703 B Street  
Marysville, California 95907-0911

Dear Ms. Rosas:

We are responding to your October 15, 2008 request for comments on the Buckhorn Grade Improvement project. This project is located at Latitude 40°38'47", Longitude 122°44'50", Section 14, Township 32 North, Range 8 West, 2.0 miles West of the Shasta County line to the Western Boundary of the Whiskeytown-Shasta Trinity National Recreation Area, in Shasta and Trinity Counties, California. Your identification number is SPK-2008-1692.

The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work.

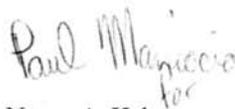
To ascertain the extent of waters on the project site, the applicant should prepare a wetland delineation, in accordance with the "Minimum Standards for Acceptance of Preliminary Wetland Delineations", under "Jurisdiction" on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents is also available on our website at the same location.

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation.

-2-

Please refer to identification number SPK-2008-1692 in any correspondence concerning this project. If you have any questions, please contact Ms. Leah Fisher at our California North Branch Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email [leah.m.fisher@usace.army.mil](mailto:leah.m.fisher@usace.army.mil), or telephone 916-557-7455. You may also use our website: [www.spk.usace.army.mil/regulatory.html](http://www.spk.usace.army.mil/regulatory.html).

Sincerely,

A handwritten signature in blue ink that reads "Paul Maggiccia" with "for" written below it.

Nancy A. Haley  
Chief, California North Branch

Copy Furnished

Ms. Sandy Morey, California Department of Fish and Game, 1701 Nimbus Road, Rancho Cordova, California 95670-4503

Mr. Peter Cross, U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way Suite W2605, Sacramento, California 95825-3901

Mr. Bill Orme, Chief, Water Quality Certification Unit, State Water Resources Control Board, 1001 I Street, Sacramento, California 95814-2828

Ms. Eva Begley, California Department of Transportation, Environmental Planning/Resources Liaison, North Region, 2389 Gateway Oaks Drive, Suite 100, Sacramento, California 95833-4246

Ms. Katrina Pierce, California Department of Transportation, Chief North Region, 2389 Gateway Oaks Drive, Suite 100, Sacramento, California 95833-4246

***Response to Comments from the U.S. Army Corps of Engineers***

The magnitude of the Buckhorn Grade Improvement Project will require the project to be built in constructable and fundable segments. These individual segments will be constructed independently, but together will eventually complete the ultimate project. Each of these segments will consist of stand-alone projects and will undergo environmental review. Caltrans will prepare wetland delineations for individual segments of the project as they are programmed for construction.



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In reply refer to:  
81420-2009-TA-0399-1

MAR 11 2009

Ms. Sandra Rosas  
Office of Environmental Management  
California Department of Transportation  
703 B Street  
Marysville, California 95907-0911

Subject: Technical Assistance for the Buckhorn Grade Improvement Project in Shasta and Trinity Counties, California

Dear Ms. Rosas:

This is in response to your October 15, 2008 request for comments on the Buckhorn Grade Improvement project. Your letter was received by our Sacramento U.S. Fish and Wildlife Service (Service) on January 9, 2009. We understand that although the comment period is currently closed for this project, the Service is providing comments in regards to the project and its potential affects on threatened and endangered species. The California Department of Transportation (Caltrans) in partnership with Shasta, Trinity, and Humboldt Counties, is proposing to make improvements to 9 miles of the Buckhorn Grade portion of State Route 299 located in Shasta County. Construction activities in Trinity County will be limited to sign placement and traffic control. The project is located on the Whiskeytown and French Gulch USGS quadrangle maps at T32N R7W and R8W, Section 14, Mount Diablo Meridian. This letter is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 *et. seq.*) (Act).

The Service has analyzed the project area, recovery plans for federally listed species, the California Natural Diversity Database and the Berkeley Museum of Vertebrate Zoology to assess the current and historical ranges of federally listed or candidate species that may be affected by this project. Based on the location, historic records of occurrence and range, suitable habitat and information provided from the project Draft Environmental Impact Report (DEIR), it is the determination of the Service that this project may affect the threatened northern spotted owl (*Strix occidentalis caurina*) (NSO), the threatened California red legged frog (*Rana aurora draytonii*) (CRLF), and the threatened Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB).

The DEIR states that Caltrans will conduct protocol level surveys for NSO 2 years prior to construction. If individuals of the NSO are located within 1,000 feet of the project we

1



Ms. Sandra Rosas

2

recommend that Caltrans contact the Service for further guidance.

In addition, the project is within the northern most historic range of CRLF and to our knowledge no surveys have been conducted or recent occurrence data been submitted for the area where the project occurs. The Service recommends that Caltrans conduct habitat assessments for suitable breeding habitat for CRLF on all aquatic features within 1 mile of the project area. Protocol level surveys for CRLF should also be conducted 2 years prior to construction on aquatic features determined to have suitable breeding habitat.

2

The project is also within the current range of VELB. The Service recommends that Caltrans utilize the Service's 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* to accurately assess the effects of the project on VELB. Caltrans may utilize the option to assume presence for CRLF and VELB in which case, the appropriate minimization and avoidance measures should be implemented for the project. For future projects the Service recommends that a species list be obtained for the project area to assess all potential federally listed species that may be affected. A species list can be generated from the Service's website at [http://www.fws.gov/sacramento/es/spp\\_list.htm](http://www.fws.gov/sacramento/es/spp_list.htm).

3

Section 9 of the Act prohibits the take of any federally listed animal species by any person subject to the jurisdiction of the United States. As defined in the Act, take is defined as "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" has been further defined to include habitat destruction when it injures or kills a listed species by interfering with essential behavioral patterns, such as breeding, foraging, or resting. Thus, not only are listed species protected from such activities as collecting and hunting, but also from actions that damage or destroy their habitat. The term "person" is defined as "...an individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality of the Federal government, of any State, municipality, or political subdivision of a State, or any other entity subject to the jurisdiction of the United States."

Take incidental to an otherwise lawful activity may be authorized by one of two procedures. If a Federal agency is involved with the permitting, funding, or carrying out of the project and a listed species is going to be adversely affected, then initiation of formal consultation between that agency and the Service pursuant to section 7 of the Act is required. Such consultation would result in a biological opinion addressing the anticipated effects of the project to the listed species and may authorize a limited level of incidental take. If a Federal agency is not involved in the project, and federally listed species may be taken as part of the project, then an incidental take permit pursuant to section 10(a)(1)(B) of the Act should be obtained. The Service may issue such a permit upon completion of a satisfactory conservation plan for the listed species that would be taken by the project. There may be ways to implement this development project that would avoid the potential for take and the Service recommends additional future consultation.

Ms. Sandra Rosas

3

Please address any questions or concerns regarding this response on the Buckhorn Grade Improvement Project to Brian Hansen, Endangered Species Biologist or Arnold Roessler, Forest Foothills Branch Chief, at (916) 414-6600.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Nagano". The signature is written in a cursive style with a large, looped "C" and "N".

Chris Nagano  
Deputy Assistant Field Supervisor

**Response to Comments from the U.S. Fish & Wildlife Service**

**Response to Comment #1:** Caltrans performed protocol level surveys for northern spotted owl in 2002. It was determined that the project area is foraging habitat and not nesting habitat for the northern spotted owl. As a result of Section 7 consultation with the U.S. Fish and Wildlife Service office in Redding, the Service concurred with Caltrans' determination that construction of the project is "not likely to adversely affect" the northern spotted owl. Caltrans will conduct new protocol level surveys for northern spotted owl one to two years prior to construction. If northern spotted owl are located within 1,000 feet of the project, Caltrans will contact the Service for further guidance.

**Response to Comment #2:** A herpetofaunal survey (including diurnal surveys) was completed for this project using *"A Standardized Protocol for Surveying Aquatic Amphibians"* (Fellers and Freel, 1995). No California red-legged frogs were discovered during surveys, although other herps including three foothill yellow-legged frogs, were discovered. It was determined that there is no habitat in the project area to support a population of California red-legged frogs. Also, there are no California red-legged frog records in the California Natural Diversity Data Base for either Trinity or Shasta Counties. In addition, the Redding U.S. Fish and Wildlife Service field office has concurred with our finding by issuing a Biological Opinion which states that the only species that might be impacted is the northern spotted owl. The Redding U.S. Fish and Wildlife Service field office has also concurred with our "not likely to adversely affect" determination regarding the northern spotted owl.

**Response to Comment #3:** Floral surveys have been completed for this project. No elderberry bushes were discovered in the project area; therefore, no habitat for valley elderberry longhorn beetle is present.





"Smith, Jimmy R."  
<JRSmith@co.humboldt.ca.us  
>  
10/24/2008 11:59 AM

To <sandra\_rosas@dot.ca.gov>  
cc "Charlie Fielder" <charlie\_fielder@dot.ca.gov>, "Julie East"  
<julie\_east@dot.ca.gov>, "Mattson, Tom"  
<TMattson@co.humboldt.ca.us>  
bcc

Subject Buckhorn Grade-Trinity and Shasta Counties

Dear Sandra, thank you for the opportunity to comment on the Caltrans proposal to improve the Buckhorn Grade. I am very familiar with the project area and the transportation problems related to the present road condition. Improvements to Buckhorn have been a consistent priority for Humboldt County and certainly important to my constituents. The area designated for work currently impedes traffic and impacts our ability to move goods at competitive rates. I enthusiastically support your work on this essential transportation link and applaud your effort to date. Thank you for taking the time to pursue this excellent project, if I can provide additional support please let me know. Sincerely, Jimmy Smith 1<sup>st</sup> District Supervisor, Humboldt County 707-476-2391



Jeremy Mills  
<jm10@humboldt.edu>  
12/01/2008 12:39 PM

To sandra\_rosas@dot.ca.gov  
cc

Subject Buckhorn Draft EIS/EA

Thank you for the opportunity to review the Buckhorn Grade Improvement Project Draft Environmental Impact Report/ Environmental Assessment. I appreciate the care with which Caltrans is analyzing the impacts of this project and mitigating the impacts. I especially support the revegetation of the abandoned right of way. This is an improvement over past practices of abandoning rights of way.

I am concerned that the growth inducing impacts of Surface Transportation Assistance Act sized commercial trucks is not fully analyzed. Some questions that are not analyzed are:

- 1) Will there be greater substitution of imported products for locally produced products?
- 2) Will more chain retail stores open due to lower transportation costs?
- 3) Will these potential changes result in blight?

I look forward to seeing further analysis of these potential impacts on the communities served by Highway 299.

Thank you.

Jeremy Mills

***Response to Comment from Jimmy Smith***

Your support of the project is acknowledged and included in the project record. Thank you for your interest in the project.

***Response to Comment from Jeremy Mills***

While the lack of Surface Transportation Assistance Act truck access on Buckhorn Grade is not the only factor limiting economic development in the area, removing the restrictions would likely have a positive effect on businesses. However, the removal of these restrictions is not expected to result in an increase in truck traffic but rather, an increase in efficiency. The reduction in the number of trips due to increased efficiency would likely offset any increase in the amount of truck traffic.

Economic activity and subsequent growth faces challenges in the form of distance to markets, with or without the proposed project. There are numerous existing environmental, geographical, and political limitations to growth in Trinity and Humboldt Counties. The proposed project would reduce transportation costs and improve safety for both commercial and local traffic. However, the proposed project is not expected to result in significant increases in overall economic productivity in the region or substantial change to the volume of truck traffic on State Route 299.

Thank you for your comments and interest in the project.



C CARRICK  
<carrickc\_22@msn.com>  
10/19/2008 11:50 AM

To <adele\_pommerenck@dot.ca.gov>  
cc  
bcc  
Subject Buckhorn Project EIR feedback

Adele:

I feel that after reading the report, Alternative BH5 makes the most sense. The faster the motoring public can travel from Eureka to Redding, the better. That windy stretch of road needs to be replaced and replaced fast!

Clyde Carrick  
Eureka, CA

Name TIM FLENNING  
Address 2215 TYDD ST. #A  
Phone No. 707-616-4712  
E-Mail TIM.FLENNING@YAHOO.COM  
Comments: Do it! Thank you  
for your work.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Response to Comment from Clyde Carrick***

Your support of Alternative BH5 is acknowledged and included in the project record.  
Thank you for your interest in the project.

***Response to Comment from Tim Flemming***

Your support of the project is acknowledged and included in the project record.  
Thank you for your interest in the project.

Name LANCE MADSEN  
Address 3458 SUMNER ST.  
Phone No. 707 448-8405-8606  
E-Mail L1325@AOL.COM  
Comments: ITS NO DRAIN YET!

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Name David Ammerman  
Address P.O. Box 303 Cuffey CA 95534  
Phone No. 707-1113-0855  
E-Mail \_\_\_\_\_  
Comments: I have driven 289 to Redding for  
both business & recreation. The bottlenecks  
I think can best done by closing Alt 12 at  
BH 12, provided you can handle  
plenty 15 mi. delay and pull over  
safely for tailgaters. Turnus.  
Impacts some minimal - DSA

***Response to Comment from Lance Madsen***

Your support of the project is acknowledged and included in the project record. Thank you for your interest in the project.

***Response to Comment from David Ammermon***

Your support of Alternative BH12 is acknowledged and included in the project record. Thank you for your interest in the project.

Name Alice Alleson  
Address PO Box 761 Weaverville 96093  
Phone No. \_\_\_\_\_  
E-Mail allesonal@yahoo.com  
Comments: just interested in how  
meas to be done are scheduled.  
- Just a 40 year driver of the old  
Buckhorn / Hwy 299  
\_\_\_\_\_  
\_\_\_\_\_

Name Kathleen Dias  
Address Po Box 146 Weaverville  
Phone No. \_\_\_\_\_  
E-Mail kdias@gmail.com  
Comments: I see nothing but good  
coming from a straighter, safer Hwy  
299  
Thank you!  
\_\_\_\_\_  
\_\_\_\_\_

***Response to Comment from Alice Alleson***

Please refer to Chapter 1 of the Final Environmental Impact Report/Environmental Assessment for information on the project schedule. Thank you for your interest in the project.

***Response to Comment from Kathleen Dias***

Your support of the project is acknowledged and included in the project record. Thank you for your interest in the project.

October 23, 2008

Division of Program/project management  
California Department of Transportation  
District 2  
1657 Riverside Drive  
Redding, CA 96001

Subject: Buckhorn Grade Improvement Project Draft EIR?EA

Gentlemen:

As this document is an EA as well as an EIR my comments will deal with the projects general concept and mitigation generalities.

To begin with it is highly suspect that the environmental work is being done after construction work has begun. It also makes it appear that the decisions concerning option to be chosen has already occurred. Caltrans is not noted for either creative or cause effect thinking regarding its projects and still lives in the era of unlimited support from the public and unlimited financing. The withering away of such support can also make for unwise decisions.

The Glossary is deficient. Terms should be, and are required, to be defined for a general public reader. Acronyms are not to be the only legal definer. Definitions of the varying types of habitat, TPZs, the missing environmental checklist, DG, etc should be included and not done as this example. The lack of a proper glossary discourages public input, which may be a document aim.

The geology that is specific to Buckhorn Mt. is inadequately discussed. This geology is unique and presents both problems and possibilities for the project.

The project is being constructed backwards. Realizing financial constraints, it would still be preferable to begin at the eastern foothills for the following reasons:

- o The two hairpin curves are rated at 20mph. Their impacts on commercial trucks or vehicles towing boat trailers, which would be a boon to Trinity economy, is high. The vehicles lose momentum and must commence the slow process of gearing up.
- o There is need for an escape ramp in this area
- o The bottom is quite curvy and dangerous. Straightening out the area will lessen hazard.
- o Not only can fill from this area be used for eliminating the two hairpins, but also a small debris dam should be constructed in this area to catch silt from above and mitigate a hazmat situation from entering Crystal or Clear Creeks.
- o Further funding for the entire project would be justified if the fill eliminating the two hairpins is already started and the further uphill work will complete it.

Further mitigation should be done offsite in this area. It is obscenely corrupt that Caltrans purchases mitigation easements from the Kern Water Bank, which is a State Project given away to private interests who then sell rights back to the State.

Go away greenmail should not be paid to organizations such as the Sierra Cult, but frivolous suits, or their threat, should be fought and countersuits filed. This is actually cheaper in the long run. Eric Hoffer in "The True Believer" noted that a cause becomes first a movement, then a business and ends

up a racket.

It is hoped that this project will speedily occur, as the through traffic will aid in export of valley products and alleviate the nations negative balance of payments, and contribute to the economy of the area between the coast and the valley.

Thank you for the opportunity to comment on the project and if further clarification is necessary do not hesitate to contact me. I would also appreciate a hard copy of the final document.

Sincerely,

A handwritten signature in cursive script that reads "Dennis Fox".

Dennis Fox  
918 Blossom St.  
Bakersfield, CA 93306

(661) 366 4093

***Response to Comments from Dennis Fox***

Truck Escape Ramps have not been included in the preliminary design for any of the alternatives for this project due to the early stages of the design process. As final design of individual segments progress, consideration of truck escape ramp needs and suitable locations will be further explored.

Thank you for your interest in the project.

**Consultation and Coordination Letters**

The following correspondence was received as a result of consultation and coordination with federal and state agencies.

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**



P.O. BOX 942896  
SACRAMENTO, CA 94296-0001  
(916) 653-6624 Fax: (916) 653-9824  
calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov

August 28, 2008

Sandra Rosas  
Department of Transportation  
District 3  
703 B Street  
Marysville, CA 95901

RE: Buckhorn Grade Improvement Project, Shasta and Trinity Counties, California;  
EA 02-270310

Dear Ms. Rosas:

Thank you for requesting my comments on the above cited finding. You are initiating this consultation following provisions of the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation and Memorandum of Understanding between the Federal Highway Administration, California Division and the California Department of Transportation State Assumption of Responsibility for Categorical Exclusions*. Also, my comments are offered pursuant to Public Resource Code 5024. My staff has reviewed the documentation you provided and I would like to offer the following comments.

I concur in your determination that CA-SHA-4169/H and CA-SHA-4172/H are eligible for the National Register of Historic Places under criterion D. In addition, I concur that the portion of CA-SHA-4171H within the ADI, Shasta Weaverville Road, masonry feature, and an additional .25 mile of the Lewiston Turnpike are not eligible for the National Register. Finally, I concur with your determination that the proposed undertaking will have an adverse effect on historic properties.

If my staff can be of any further assistance, please contact Dwight Dutschke, Natalie Lindquist or Susan Stratton at 916-653-6624.

Sincerely,

*Susan K Stratton for*

Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896  
SACRAMENTO, CA 94296-0001  
(916) 653-6624 Fax: (916) 653-9824  
calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



February 3, 2009

Sandra Rosas  
Department of Transportation  
District 3  
703 B Street  
Marysville, CA 95901

RE: Buckhorn Grade Improvement Project, Shasta and Trinity Counties, California;  
EA 02-270310

Dear Ms. Rosas:

Thank you for requesting my comments on the above cited finding. You are continuing this consultation following provisions of the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation and Memorandum of Understanding between the Federal Highway Administration, California Division and the California Department of Transportation State Assumption of Responsibility for Categorical Exclusions*. My staff has reviewed the documentation you provided and I would like to offer the following comments.

I had previously concurred in eligibility for properties associated with CA-SHA-4172/H. You have requested reconsideration of that eligibility determination for those portions of the archaeological property that lie within the Area of Direct Impact and the built environment resources. In doing so, you have provided supplemental information which fully analyzes and describes Phase II archaeological excavations which occurred in June 2008 but not fully reported at the time of your previous determination request. Based on the new supplemental information, you have concluded that due to loss of integrity and clarification as to what should be considered contributing elements to the historic property that those prehistoric and historic archaeological resources that lie within the Area of Direct Impact and the built environment resources associated with the site do not meet the criteria for eligibility to the National Register of Historic Places. I concur with this determination.

If my staff can be of any further assistance, please contact Dwight Dutschke, Natalie Lindquist or Susan Stratton at 916-653-6624.

Sincerely,

A handwritten signature in cursive script that reads "Susan K. Stratton for".

Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

**MEMORANDUM OF AGREEMENT  
BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION  
AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER  
REGARDING THE BUCKHORN GRADE IMPROVEMENT PROJECT ON STATE  
ROUTE 299, SHASTA AND TRINITY COUNTIES, CALIFORNIA**

**WHEREAS**, the Federal Highway Administration (FHWA), has assigned and the California Department of Transportation (Caltrans) has assumed FHWA responsibility for environmental review, consultation, and coordination under the provisions of the *Memorandum of Understanding (MOU) between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program*, which became effective on July 1, 2007 and applies to this project; and

**WHEREAS**, Caltrans has determined that the Buckhorn Grade Improvement Project on State Route 299 (Caltrans Expenditure Authorization 02-270310) in Shasta and Trinity Counties, California (Undertaking) will have an adverse effect on archaeological site CA-SHA-4169/H, which Caltrans has determined in consultation with the State Historic Preservation Officer (SHPO) to be eligible for the National Register of Historic Places (National Register) and therefore a historic property as defined at 36 CFR § 800.16(l)(1), and may have an adverse effect on archaeological sites CA-SHA-881, CA-SHA-4170H, CA-SHA-4171H, and CA-SHA-4172/H, which Caltrans is considering, for purposes of the Undertaking, to be eligible for inclusion in the National Register; and

**WHEREAS**, Caltrans has consulted with the SHPO pursuant to Stipulations X.C, and XI of the January 2004 *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA), and, where the PA so directs, in accordance with 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act of 1966 (16 USC Section 470f), as amended (NHPA), regarding the Undertaking's effects on historic properties, and has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect finding pursuant to 36 CFR § 800.6(a)(1); and

**WHEREAS**, Caltrans has thoroughly considered alternatives to the Undertaking, has determined that the statutory and regulatory constraints on the design of the Undertaking preclude the possibility of avoiding an adverse effect to CA-SHA-4169/H during the Undertaking's implementation, and has further determined that it will resolve the adverse effect of the Undertaking on the subject historic property through the execution and implementation of this Memorandum of Agreement (MOA); and

**WHEREAS**, Caltrans District 2 has participated in the consultation and has been invited to concur in this MOA; and

**WHEREAS**, Caltrans has initiated consultation with the Nor-Rel-Muk Nation regarding the Undertaking and its adverse effect on the subject historic properties; will continue to consult with them and will afford them, should they so desire, the further opportunity to more directly and actively participate in the implementation of the Undertaking itself and this MOA; and

**WHEREAS**, Caltrans, pursuant to stipulations VIII.C.3 and X.B.2.a(ii) of the PA, finds that implementation and enforcement of the measures set forth in Stipulation I.I.C of this MOA will satisfactorily avoid potential adverse effects to CA-SHA-881, CA-SHA-4170H, CA-SHA-4171H, and CA-SHA-4172/H;

**NOW, THEREFORE**, Caltrans and the SHPO agree that, upon Caltrans' decision to proceed with the Undertaking, Caltrans shall ensure that the Undertaking is implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties, and further agrees that these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

#### STIPULATIONS

Caltrans shall ensure that the following stipulations are carried out:

##### I. AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) for the Undertaking is depicted in Figure 1-2 of the January 2009 *Data Recovery Plan for the Proposed Buckhorn Grade Improvement Project, Shasta and Trinity Counties, California* (Data Recovery Plan) that is Attachment A to this MOA. Attachment A set forth hereunder may be amended through consultation among the MOA parties without amending the MOA proper. The development of a Phase III Proposal constitutes such an amendment to the Data Recovery Plan.

##### II. TREATMENT OF HISTORIC PROPERTIES

- A. Caltrans shall ensure that the adverse effects of the Undertaking on archaeological site CA-SHA-4169/H are resolved by implementing the Data Recovery Plan that is Attachment A of this MOA. Data recovery is prescribed for archaeological deposits contributing to the National Register eligibility of this historic property within the Undertaking's construction area of direct impact (ADI).
- B. In order to eliminate or minimize the potential to affect contributing deposits of the site where data recovery is not prescribed, Caltrans will protect those contributing deposits of CA-SHA-4169/H by identifying them as Environmentally Sensitive Areas (ESAs), which shall be described in information included in the final construction plans of the Undertaking, and by enclosing in the temporary fencing the remainder of the site areas located outside the ADI. Caltrans shall further ensure that: 1) construction activities within 50 feet of the property shall be monitored by an archaeologist and Native American monitor; and 2) the integrity of the fence line as installed will be monitored by the archaeologist throughout the duration of the construction activities in the site vicinity. An ESA Action Plan, prepared in accordance with Attachment 5 of the PA, is appended to this MOA as Attachment B.
- C. Caltrans shall include provisions to ensure against incidental damage to those unevaluated portions of archaeological sites CA-SHA-881, CA-SHA-4170H, CA-SHA-4171H, and CA-SHA-4172/H that extend outside of the ADI; such provisions will specify the establishment of ESAs around these areas. An ESA Action Plan is appended to this MOA as Attachment B.

- D. Any party to this MOA may propose to amend the Data Recovery Plan. Such amendment will not require amendment of this MOA. Consultation on Data Recovery Plan Amendments will be no longer than 30 days in duration.
- E. Caltrans will not authorize the execution of any Undertaking activity that may affect (36 CFR § 800.16(i)) historic properties in the undertaking's APE prior to the completion of the fieldwork that the Data Recovery Plan found in Attachment A of this MOA prescribes.
- F. Attachments A and B set forth hereunder may be amended through consultation among the MOA parties without amending the MOA proper.

### III. REPORTING REQUIREMENTS AND RELATED REVIEWS

- A. Within 30 days after Caltrans has determined that all fieldwork required under stipulation II has been completed, Caltrans will ensure preparation, and concurrent distribution to the other MOA parties, for review and comment, a brief letter report that summarizes the field efforts and the preliminary findings that result from them.
- B. Within 12 months after Caltrans has determined that all fieldwork required by stipulation II.A has been completed, Caltrans will ensure preparation, and subsequent concurrent distribution to the other MOA parties, for review and comment, a draft technical report that documents the results of implementing and completing the Data Recovery Plan. The other MOA parties will be afforded 30 days following receipt of the draft technical report to submit any written comments to Caltrans. Failure of these parties to respond within this time frame shall not preclude Caltrans from authorizing revisions to the draft technical report, as Caltrans may deem appropriate. Caltrans will provide the other MOA parties with written documentation indicating whether and how the draft technical report will be modified in accordance with any comments received from the other MOA parties. Unless any MOA party objects to this documentation in writing to Caltrans within 30 days following receipt, Caltrans may modify the draft technical report, as Caltrans may deem appropriate. Thereafter, Caltrans may issue the technical report in final form and distribute this document in accordance with paragraph C of this stipulation.
- C. Copies of the final technical report documenting the results of Data Recovery Plan implementation will be distributed by Caltrans to the other MOA parties, to the Northeast Information Center of the California Historic Resources Information System (CHRIS) Regional Information Center, and to the Nor-Rel-Muk Nation.

### IV. NATIVE AMERICAN CONSULTATION

Caltrans has consulted with the Nor-Rel-Muk Nation regarding the proposed undertaking and its effect on historic properties and copies of the draft Finding of Effect and Data Recovery Plan documents were submitted to them for their review and comment. Caltrans will continue to consult with the Nor-Rel-Muk Nation, and will afford them, should they so desire, the opportunity to participate in the implementation of this MOA and the Undertaking. Should the Nor-Rel-Muk Nation agree to participate as an MOA party, as herein set forth, Caltrans will make an effort to reach consensus with them regarding the manner in which they may participate in the implementation of this MOA, and regarding any time frames or other

matters that may govern the nature, scope, and frequency of such participation. Caltrans shall ensure that the Nor-Rel-Muk Nation receive copies of all draft and final technical documents regardless of whether they decline or choose to participate as signatories to this MOA.

#### V. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

The MOA parties agree that human remains and related items discovered during the implementation of the terms of this MOA and of the Undertaking will be treated in accordance with the requirements of §7050.5(b) of the California Health and Safety Code. If, pursuant to §7050.5(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of §5097.98 (a)-(d) of the California Public Resources Code. Caltrans shall ensure that, to the extent permitted by applicable law and regulation, the views of the Nor-Rel-Muk Nation and the Most Likely Descendent(s) are taken into consideration when decisions are made about the disposition of other Native American materials and records.

#### VI. DISCOVERIES AND UNANTICIPATED EFFECTS

If Caltrans determines during the implementation of the Data Recovery Plan or after construction of the Undertaking has commenced, that either the implementation of the Data Recovery Plan or the Undertaking will affect a previously unidentified property that may be eligible for the National Register, or affect a known historic property in an unanticipated manner, Caltrans shall address the discovery or unanticipated effect in accordance with 36 CFR § 800.13(b). Caltrans at its discretion may hereunder and in accordance with 36 CFR § 800.13(c), assume any discovered property to be eligible for inclusion in the National Register.

#### VII. ADMINISTRATIVE PROVISIONS

##### A. STANDARDS

1. **Definitions.** The definitions provided at 36 CFR § 800.16 are applicable throughout this MOA.
2. **Professional Qualifications.** Caltrans will ensure that only individuals meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-39) in the relevant field of study carry out or review appropriateness and quality of the actions and products required by Stipulations I, II, III, V, and VI in this MOA. However, nothing in this stipulation may be interpreted to preclude Caltrans or any agent or contractor thereof from using the properly supervised services of persons who do not meet the PQS.
3. **Documentation Standards.** Written documentation of activities prescribed by stipulations I, II, III, and VI of this MOA shall conform to *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44740) as well as to applicable standards and guidelines established by the SHPO.

4. **Curation and Curation Standards.** Caltrans shall ensure that, to the extent permitted under § 5097.98 and § 5097.991 of the California Public Resources Code, the materials and records resulting from the activities prescribed by this MOA are curated in accordance with 36 CFR § 79.

**B. CONFIDENTIALITY**

The MOA parties acknowledge that the historic properties covered by this MOA are subject to the provisions of § 304 of the NHPA and § 6254.10 of the California Government Code (Public Records Act), relating to the disclosure of archaeological site information and, having so acknowledged, will ensure that all actions and documentation prescribed by this MOA are consistent with said sections.

**C. RESOLVING OBJECTIONS**

1. Should any party to this MOA object at any time in writing to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with respect to implementation of the MOA (other than the Undertaking itself), or to any documentation prepared in accordance with and subject to the terms of this MOA, Caltrans shall immediately notify the other MOA parties of the objection, request their comments on the objection within 15 days following receipt of Caltrans' notification, and proceed to consult with the objecting party for no more than 30 days to resolve the objection. Caltrans will honor the request of the other parties to participate in the consultation and will take any comments provided by those parties into account.
2. If the objection is resolved during the 30-day consultation period, Caltrans may proceed with the disputed action in accordance with the terms of such resolution.
3. If at the end of the 30-day consultation period, Caltrans determines that the objection cannot be resolved through such consultation, then Caltrans shall forward all documentation relevant to the objection to the ACHP, including Caltrans' proposed response to the objection, with the expectation that the ACHP will, within 30 days after receipt of such documentation:
  - a. Advise Caltrans that the ACHP concurs in Caltrans' proposed response to the objection, whereupon Caltrans will respond to the objection accordingly. The objection shall thereby be resolved; or
  - b. Provide Caltrans with recommendations, which Caltrans will take into account in reaching a final decision regarding its response to the objection. The objection shall thereby be resolved; or
  - c. Notify Caltrans that the objection will be referred for comment pursuant to 36 CFR § 800.7(c) and proceed to refer the objection and comment. Caltrans shall take the resulting comments into account in accordance with 36 CFR § 800.7(c)(4) and Section 110(1) of the NHPA. The objection shall thereby be resolved.
4. Should the ACHP not exercise one of the above options within 30 days after receipt of all pertinent documentation, Caltrans may assume the ACHP's concurrence in its proposed response to the objection and proceed to implement that response. The objection shall thereby be resolved.

5. Caltrans shall take into account any of the ACHP's recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection. Caltrans' responsibility to carry out all actions under this MOA that are not the subjects of the objection shall remain unchanged.
6. At any time during implementation of the measures stipulated in this MOA, should a member of the public raise an objection in writing pertaining to such implementation to any signatory party to this MOA, that signatory party shall immediately notify Caltrans. Caltrans shall immediately notify the other signatory parties in writing of the objection. Any signatory party may choose to comment in writing on the objection to Caltrans. Caltrans shall establish a reasonable time frame for this comment period. Caltrans shall consider the objection, and in reaching its decision, Caltrans will take all comments from the other signatory parties into account. Within 15 days following closure of the comment period, Caltrans will render a decision regarding the objection and respond to the objecting party. Caltrans will promptly notify the other signatory parties of its decision in writing, including a copy of the response to the objecting party. Caltrans' decision regarding resolution of the objection will be final. Following issuance of its final decision, Caltrans may authorize the action subject to dispute hereunder to proceed in accordance with the terms of that decision.
7. Caltrans shall provide all parties to this MOA, and the ACHP, if the ACHP has commented, and any parties that have objected pursuant to section C.6 of this stipulation, with a copy of its final written decision regarding any objection addressed pursuant to this stipulation.
8. Caltrans may authorize any action subject to objection under this stipulation to proceed after the objection has been resolved in accordance with the terms of this stipulation.

#### **D. AMENDMENTS**

Any signatory party to this MOA may propose that this MOA be amended, whereupon all signatory parties shall consult for no more than 30 days to consider such amendment. The amendment will be effective on the date a copy signed by all of the original signatories is filed with the ACHP. If the signatories cannot agree to appropriate terms to amend the MOA, either signatory may terminate the agreement in accordance with Stipulation VII.E below.

#### **E. TERMINATION**

1. If this MOA is not amended as provided for in section D of this stipulation, or if either signatory proposes termination of this MOA for other reasons, the signatory party proposing termination shall, in writing, notify the other MOA parties, explain the reasons for proposing termination, and consult with the other parties for at least 30 days to seek alternatives to termination. Such consultation shall not be required if Caltrans proposes termination because the Undertaking no longer meets the definition set forth in 36 CFR § 800.16(y).
2. Should such consultation result in an agreement on an alternative to termination, the signatory parties shall proceed in accordance with the terms of that agreement.

3. Should such consultation fail, the signatory party proposing termination may terminate this MOA by promptly notifying the other MOA parties in writing. Termination hereunder shall render this MOA without further force or effect.
4. If this MOA is terminated hereunder, and if Caltrans determines that the Undertaking will nonetheless proceed, then Caltrans shall comply with the requirements of 36 CFR 800.3-800.6.

**F. DURATION OF THE MOA**

1. Unless terminated pursuant to section E of this stipulation, or unless it is superseded by an amended MOA, this MOA will be in effect following execution by the signatory parties until Caltrans, in consultation with the other signatory parties, determines that all of its stipulations have been satisfactorily fulfilled.
2. The terms of this MOA shall be satisfactorily fulfilled within ten (10) years following the date of execution by the signatory parties. If Caltrans determines that this requirement cannot be met, the MOA parties will consult to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment of the MOA, or termination. In the event of termination, Caltrans will comply with section E.4 of this stipulation if it determines that the Undertaking will proceed notwithstanding termination of this MOA.
3. If the Undertaking has not been implemented within ten (10) years following execution of this MOA, this MOA shall automatically terminate and have no further force or effect. In such event, Caltrans shall notify the other signatory parties in writing and, if it chooses to continue with the Undertaking, shall reinitiate review of the Undertaking in accordance with 36 CFR Part 800.

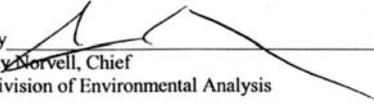
**G. EFFECTIVE DATE**

This MOA will take effect on the date that it has been executed by Caltrans and the SHPO.

**EXECUTION** of this MOA by Caltrans and the SHPO, its filing with the ACHP in accordance with 36 CFR §800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36CFR§800.6(c), that this MOA is an agreement with the ACHP for purposes of Section 110(1) of the NHPA, and shall further evidence that Caltrans has afforded the ACHP an opportunity to comment on the Undertaking and its effects on historic properties, and that Caltrans has taken into account the effects of the Undertaking on historic properties.

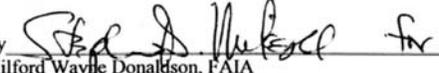
**SIGNATORY PARTIES:**

**California Department of Transportation**

By   
Jay Norvell, Chief  
Division of Environmental Analysis

April 17, 2009  
Date

**California State Historic Preservation Officer**

By  for  
Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

4/14/09  
Date

**CONCURRING PARTIES:**

**California Department of Transportation**

By   
John Balinski, District Director  
District 2, Redding

4/21/09  
Date



**United States Department of the Interior**

FISH AND WILDLIFE SERVICE  
Red Bluff Fish & Wildlife Office  
10950 Tyler Road, Red Bluff, California 96080  
(530) 527-3043, FAX (530) 529-0292



**In Reply Refer To: 81330-2009-I-0005**

Jeremy Ketchum  
Environmental Branch Chief  
Office of Program Project Management  
Department of Transportation  
District 3 – Sacramento Area Office  
2800 Gateway Oaks Drive, Suite 200, MS-19  
Sacramento, CA 95833

**MAY 28 2009**

**Subject: Informal Endangered Species Consultation on the Buckhorn Grade Improvement Project, State Route 299, Shasta and Trinity Counties, California**

Dear Mr. Ketchum:

This correspondence is in reply to your letter, dated April 2, 2009, and received by this office on April 9, 2009, requesting concurrence with the determination that the proposed Buckhorn Grade Improvement Project, State Route 299, is not likely to adversely affect the federally threatened northern spotted owl (*Strix occidentalis caurina*). We have reviewed the Biological Assessment (BA) transmitted with your request, and concur with your determination.

A new survey protocol for both barred owls and northern spotted owls is currently under development and should be ready to use by the time this project is implemented. Please contact the Service prior to any new surveys for the latest survey protocol. The Service requests that all survey results for northern spotted owls in the project area be provided to us prior to project implementation.

This concludes informal consultation on the action(s) described in the April 2, 2009 BA. Please contact our office if: 1) new information reveals effects of the proposed action that may affect listed or proposed species or designated critical habitat in a manner or to an extent not considered in this consultation, 2) a new species or critical habitat is designated that may be affected by the proposed action, or 3) the highway project is subsequently modified in a manner that causes an effect to listed species or critical habitat not considered in this consultation.





## Chapter 5 List of Preparers

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This document was prepared by the following Caltrans staff:

Alicia Boomer, Environmental Planner (Community Impact Analysis). B.A., Urban Planning and Environmental Policy, George Washington University; three years of experience in environmental analysis. Contribution: Updated Community Impact Analysis.

Clint Burkenpas, Former Project Manager. B.S., Civil Engineering, Georgia Institute of Technology; ten years of experience in civil engineering; three years of experience in project management. Contribution: Project Manager.

Erin Dwyer, Associate Environmental Planner (Archaeology). M.A. Anthropology, California State University, Chico; 11 years of experience in cultural resources studies. Contribution: Cultural Resources Study oversight.

Mike Feakes, Project Engineer. B.A., Geography - Planning and Development of the Rural Environment, CSU, Chico; ten years of experience in transportation planning. Contribution: Project Report.

Tom Graves, Engineering Geologist. B.S., Earth Science, University of California, Santa Cruz; 23 years of experience in environmental analysis. Contribution: Hazardous Waste Initial Site Investigation.

Roxanne Haatvedt, Associate Environmental Planner, A.A., Shasta College; 20 years of experience in preparing visual impact assessments and environmental analysis. Contribution: Visual Impact Assessment.

Aaron McKeon, Associate Environmental Planner (Community Impact Analysis). M.S., Regional Planning, Cornell University; seven years of experience in preparing community impact assessments. Contribution: Community Impact Analysis.

Michael Mogen, Project Engineer. B.S., Civil Engineering, California State University, Chico; ten years of experience in transportation engineering. Contribution: Floodplain Analysis and Draft Project Study Report.

Adele Pommerenck, Associate Environmental Planner. B.A., Environmental Studies, California State University, Sacramento; seven years of experience in

environmental project coordination and analysis. Contribution:  
Environmental document preparation and coordination.

Steve Rogers, Project Manager. B.S., Civil Engineering and P.E., California State University Chico; 18 years experience in transportation engineering and 1 year experience in project management. Contribution: Project Manager.

Sandra Rosas, Senior Environmental Planner. M.A., Anthropology, Northern Arizona University; 15 years of experience in environmental project coordination and analysis. Contribution: Environmental Branch Chief.

Erik Schwab, Associate Environmental Planner (Natural Resources). B.S., Agronomy, Production Management, California State University, Fresno; 17 years of experience in conducting biological studies and environmental analysis. Contribution: Natural Environment Study oversight.

Gail St. John, Associate Environmental Planner (Architectural History). B.A., Art History, University of California, Davis; Master of Historic Preservation, University of Georgia; 11 years of experience in conducting historic architectural studies. Contribution: Cultural Resources Study oversight.

Benjamin Tam, Transportation Engineer. B.S., Civil Engineering, San Jose State University; 17 years of engineering experience with ten years performing noise studies. Contribution: Noise Study.

Sharon Tang, Transportation Engineering Technician (Air/Noise). A.A., Business/Engineering, Sacramento City College; six years of experience in performing noise and air quality studies. Contribution: Air Quality Study.

Miguel Villicana, NPDES Storm Water Coordinator. B.S., Environmental Resources Engineering, Humboldt State University. Six years of experience in water quality analysis. Contribution: Water Quality/Storm Water Report oversight.

## Chapter 6 Distribution List

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The following agencies, organizations, and individuals were sent a copy of this Final Environmental Impact Report/Environmental Assessment.

### **Federal Agencies**

U.S. Army Corps of Engineers  
Attn: Regulatory Branch  
1325 J Street, Room 1480  
Sacramento, CA 95814-2922

U.S. Fish and Wildlife Service  
2800 Cottage Way  
Sacramento, CA 95825

Whiskeytown National Recreation  
Area  
National Park Service  
P.O. Box 188  
Whiskeytown, CA 96095-0188

Bureau of Indian Affairs  
Department of the Interior  
1849 C Street, NW  
Washington, DC 20240

Bureau of Land Management  
Redding Field Office  
355 Hemsted Drive  
Redding, CA 96002

U.S. Forest Service  
Shasta-Trinity National Forest  
3644 Avtech Parkway  
Redding, CA 96002

### **State Agencies**

Secretary  
Resources Agency  
1416 Ninth Street  
Sacramento, CA 95814

Dept. of Forestry & Fire Protection  
1416 Ninth Street, Room 1516-24  
Sacramento, CA 95814

Office of Historic Preservation  
P.O. Box 942896  
Sacramento, CA 94296-0001

Department of Fish and Game  
Region 1  
601 Locust Street  
Redding, CA 96001

Native American Heritage  
Commission  
915 Capitol Mall, Room 364  
Sacramento, CA 95814

Executive Officer  
Air Resources Board  
PO Box 2815  
Sacramento, CA 95812

State Water Resources Control Board  
Division of Water Quality  
P.O. Box 944213  
Sacramento, CA 94244-2130

State Clearinghouse  
1400 Tenth Street  
Sacramento, CA 95814

Regional Water Quality Control Board  
Central Valley Region (5)  
3443 Routier Road, Suite A  
Sacramento, CA 95827-3003

California Native Plant Society  
2707 K Street, Suite 1  
Sacramento, CA 95816-5113

**Local Agencies**

City of Redding  
777 Cypress Avenue  
Redding, CA 96001

City of Eureka  
531 K Street  
Eureka, CA 95501

Shasta County Library  
1100 Parkview Avenue  
Redding, CA 96001

Trinity County Library  
351 Main Street  
Weaverville, CA 96093

Humboldt County Library  
1313 Third Street  
Eureka, CA 95501

Shasta County Board of Supervisors  
1450 Court Street, Suite 308B  
Redding, CA 96001-1680

Trinity County Board of Supervisors  
P.O. Box 1613  
Weaverville, CA 96093-1613

Humboldt County Board of  
Supervisors  
825 Fifth Street, Room 111  
Eureka, CA 95501

County Clerk  
Shasta County  
1643 Market Street  
Redding, CA 96001

County Clerk  
Trinity County  
11 Court Street  
Weaverville, CA 96093

County Clerk  
Humboldt County  
825 5<sup>th</sup> Street  
Eureka, CA 95501

Department of Resource Management  
Shasta County  
1855 Placer Street  
Redding, CA 96001

Planning Department  
Trinity County  
61 Airport Road  
Weaverville, CA 96093

Community Development Services  
Department  
Humboldt County  
3015 H Street  
Eureka, CA 95501-4484

Department of Public Works  
Shasta County  
1855 Placer Street  
Redding, CA 96001

Department of Public Works  
Trinity County  
11 Court Street  
Weaverville, CA 96096

Department of Public Works  
Humboldt County  
1106 2<sup>nd</sup> Street  
Eureka, CA 95501

Shasta County Air Quality  
Management District  
1855 Placer Street, Suite 101  
Redding, CA 96001

North Coast Unified Air Quality  
Management District  
2300 Myrtle Avenue  
Eureka, CA 95501

Humbolt County Association  
of Governments  
427 F Street, Suite 220  
Eureka, CA 95501

Shasta County Regional  
Transportation Agency  
1855 Placer Street  
Redding, CA 96001

Trinity County Transportation  
Commission  
P.O. Box 2490  
Weaverville, CA 96093

***Elected Officials***

Barbara Boxer  
U.S. Senator  
501 I Street, Suite 7-600  
Sacramento, CA 95814

Dianne Feinstein  
U.S. Senator  
One Post Street, Suite 2450  
San Francisco, CA 94104

Sam Aanestad  
California State Senator  
State Capitol, Room 2054  
Sacramento, CA 95814

Pat Wiggins  
California State Senator  
State Capitol, Room 4081  
Sacramento, CA 95814

***Other Interested Parties***

Arthur Andreas  
2548 Washington Street  
San Francisco, CA 94115

Larry Lake  
2937 Virginia Avenue  
Shasta Lake, CA 96019

Dan Brummer  
P.O. Box 992722  
Redding, CA 96099

Dennis Fox  
918 Blossom Street  
Bakersfield, CA 93306

Jeremy Mills  
1616 F Street, Apt. A  
Eureka, CA 95501

# Appendix A California Environmental Quality Act Checklist

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The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 2 of this Environmental Impact Report/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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**AESTHETICS** - Would the project:

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

**AGRICULTURE RESOURCES** - In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?   |                          |                          |                          |                                     |
| c) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**AIR QUALITY** - Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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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
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b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

d) Expose sensitive receptors to substantial pollutant concentration?

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

**BIOLOGICAL RESOURCES - Would the project:**

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

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

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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**CULTURAL RESOURCES - Would the project:**

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

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

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Archaeological resources are considered “historical resources” and are covered under a).

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d) Disturb any human remains, including those interred outside of formal cemeteries?

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

**GEOLOGY AND SOILS - Would the project:**

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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ii) Strong seismic ground shaking?

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

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

iv) Landslides?

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

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**HAZARDS AND HAZARDOUS MATERIALS -**

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

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

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

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

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

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

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

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

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

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

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

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

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

**HYDROLOGY AND WATER QUALITY - Would the project:**

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

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

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

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

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or offsite?

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

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite?

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

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

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

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

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

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

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

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

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

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

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**LAND USE AND PLANNING** - Would the project:

a) Physically divide an established community?

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

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

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

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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**MINERAL RESOURCES** - Would the project:

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

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

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

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

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

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

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

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

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

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

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

**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?

**PUBLIC SERVICES -**

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Police protection?

Schools?

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

Other public facilities?

**RECREATION -**

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

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

a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e) Result in inadequate emergency access?

f) Result in inadequate parking capacity?

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

**UTILITY AND SERVICE SYSTEMS -** Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

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

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**MANDATORY FINDINGS OF SIGNIFICANCE -**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

# Appendix B Title VI Policy Statement

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STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**  
OFFICE OF THE DIRECTOR  
1120 N STREET  
P. O. BOX 942873  
SACRAMENTO, CA 94273-0001  
PHONE (916) 654-5266  
FAX (916) 654-6608  
TTY (916) 653-4086



*Flex your power!  
Be energy efficient!*

January 14, 2005

## **TITLE VI POLICY STATEMENT**

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

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

WILL KEMPTON  
Director

*"Caltrans improves mobility across California"*

# Appendix C Summary of Relocation Benefits

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## ***California Department of Transportation Relocation Assistance Program***

### *Relocation Assistance Advisory Services*

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

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

### *Residential Relocation Payments Program*

For more information or a brochure on the residential relocation program, please contact [insert environmental planner's name] at [insert email address], [insert phone number], or [insert address].

The brochure on the residential relocation program is also available in English at [http://www.dot.ca.gov/hq/row/pubs/residential\\_english.pdf](http://www.dot.ca.gov/hq/row/pubs/residential_english.pdf) and in Spanish at [http://www.dot.ca.gov/hq/row/pubs/residential\\_spanish.pdf](http://www.dot.ca.gov/hq/row/pubs/residential_spanish.pdf).

If you own or rent a mobile home that may be moved or acquired by Caltrans, a relocation brochure is available in English at [http://www.dot.ca.gov/hq/row/pubs/mobile\\_eng.pdf](http://www.dot.ca.gov/hq/row/pubs/mobile_eng.pdf) and in Spanish at [http://www.dot.ca.gov/hq/row/pubs/mobile\\_sp.pdf](http://www.dot.ca.gov/hq/row/pubs/mobile_sp.pdf).

### *The Business and Farm Relocation Assistance Program*

For more information or a brochure on the relocation of a business or farm, please contact Sandra Rosas at [sandra\\_rosas@ dot.ca.gov](mailto:sandra_rosas@dot.ca.gov), (530) 741-4017, or 703 B Street, Marysville, CA 95901.

The brochure on the business relocation program is also available in English at [http://www.dot.ca.gov/hq/row/pubs/business\\_farm.pdf](http://www.dot.ca.gov/hq/row/pubs/business_farm.pdf) and in Spanish at [http://www.dot.ca.gov/hq/row/pubs/business\\_sp.pdf](http://www.dot.ca.gov/hq/row/pubs/business_sp.pdf).

### **ADDITIONAL INFORMATION**

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

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

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

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

**IMPORTANT NOTICE**

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

State of California  
Department of Transportation, District 2  
1657 Riverside Drive  
Redding, CA 96001

## Appendix D Minimization and/or Mitigation Summary

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The following avoidance and minimization measures would be implemented to avoid and/or minimize impacts to resources in the project area:

1. Temporary erosion control measures will be implemented on all disturbed areas.
2. Permanent erosion control measures will be implemented upon completion of construction. All disturbed areas will be revegetated with native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions and prevent invasive species from colonizing.
3. Project footprint will be minimized wherever possible.
4. Vegetation removal will take place between August 31 and February 15 to avoid impacts to nesting birds in compliance with the Migratory Bird Treaty Act. This timing is also outside ringtail breeding and kit rearing season, and avoids the breeding season for most special status bat species potentially in the environmental study limit.
5. Protocol-level surveys will be performed for northern spotted owl one to two years prior to project construction. These surveys will be timed so that the data collected are relevant to determining whether avoidance, minimization, or mitigation measures are necessary to compensate for noise disturbance and/or habitat loss, both of which are only necessary if northern spotted owl are nesting or resident within 1.3 miles of the project area.
6. Vegetation removal, cut-and-fill operations will be limited to the minimum necessary within the environmental study limit. Trees, snags, shrubs, other vegetation, woody debris, and uncompacted forest litter will be protected to the extent possible.
7. Tree and shrub removal will be minimized to the extent possible. When feasible, trees or shrubs that interfere with construction or project operation will be pruned or topped, but not removed.

8. Prior to the construction activities Caltrans shall clearly demarcate (with uniquely colored construction stakes or high visibility orange mesh fencing) the limits of construction within environmentally sensitive areas.
9. The mineral springs and Howell's alkali grass located to the east of the project will be protected with Environmental Sensitive Area fencing during construction. Construction staging will not be allowed in the pullout adjacent to State Route 299 at post mile 7.8. Caltrans will consult with the National Park Service to determine avoidance and minimization measures to protect these resources.
10. Prior to the onset of site grading, construction personnel shall be informed about the importance of avoiding ground-disturbing activities outside the designated construction work area. Caltrans project leaders, with support from qualified engineers, compliance specialists, and biologists, will ensure that construction equipment and associated activities avoid any disturbance of sensitive resources outside the project areas.
11. All material stockpiling and staging areas will be located within project right-of-ways in non-sensitive areas, or at designated disturbed/developed areas outside of design construction zones.
12. Vehicle and equipment refueling and lubrication will only be permitted in designated disturbed/developed areas where accidental spills can be immediately contained.
13. Project plans shall clearly indicate the locations of Environmentally Sensitive Areas such as the Willow Creek riparian corridor, boundaries of waters of the United States, and other areas where access or disturbance is prohibited on a temporary or permanent basis.
14. There will be no removal of riparian vegetation for staging purposes.
15. To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will implement the following protection measures to comply with Executive Order 13112:
  - a. Caltrans will develop an Invasive Weed Eradication Plan, targeting invasive species on the California Department of Food and Agriculture list, as well as other non-native, invasive species found on site.

- b. Caltrans will not allow disposal of soil and plant materials from any areas that support invasive species into areas that support stands dominated by native vegetation.
  - c. Plant species used for erosion control will consist of native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions and prevent invasive species from colonizing.
  - d. All equipment that is used in identified invasive species areas will be washed prior to entering the environmental study limits to prevent the spread of invasive weeds. Resident Engineers will be educated on weed identification and the importance of controlling and preventing the spread of identified invasive non-native species. Gravel and/or fill material will come from weed free sources.
15. To minimize project impacts upon hydrologic systems in the environmental study limit, and those species dependent upon them:
- a. No contact between the live stream and wet concrete will be allowed. Groundwater that comes in contact with wet concrete, such as within bridge footing excavations, will not be allowed to enter the creek but will be pumped to a truck or upland for disposal or treatment, or it may be discharged to a sediment-stilling basin on site and percolated back into the soil.
  - b. If drilling muds are used to drill holes within the ordinary high-water zone, all drilling muds and fluid within all drilled holes will be pumped through a closed system, contained on site in tanks, removed from the project area, and disposed of off-site at an appropriate facility.
  - c. The Caltrans contractor will remove all spoils materials from the drilled pier holes and dispose of the material in a manner that will not result in discharge into waters of the United States.
  - d. Heavy equipment will not be operated in the active flow channel of any creek.
  - e. Complete diversion or damming of surface flows will not be allowed. A cofferdam may be installed along the edge of the low flow channel of Willow Creek, but shall not result in complete dewatering or impedance of flows within the creek.

- f. Maintenance and refueling areas for equipment will be located a minimum of 100 ft away from active stream channels. If equipment must be washed, washing will occur where the water cannot flow into the creek channel.
- g. Spill containment booms will be maintained on-site at all times during construction operations and/or staging or fueling of equipment.
- h. All staging areas will be established at least 50 feet from the top of the stream bank or 50 feet from the outer edge of the riparian habitat, whichever is farther. This buffer will be clearly identified on the design drawings and delineated in the field with orange construction barrier fencing.
- i. Sedimentation fencing or other erosion and sediment control measures will be installed between the staging area and the riparian area to prevent sediment and pollutant discharges to creeks and riparian areas.
- j. This project will adhere to the conditions of the National Pollutant Discharge Elimination System Permit for Construction Activities (Order No. 99-08-DWQ, National Pollutant Discharge Elimination System No. CAS000002), which is incorporated by reference to the Caltrans National Pollutant Discharge Elimination System Permit, Storm Water Discharges from the State of California, Department of Transportation (Caltrans) Properties, Facilities, and Activities (Order No. 99-06-DWQ, National Pollutant Discharge Elimination System No. CAS000003). To comply with the conditions of the Caltrans National Pollutant Discharge Elimination System Permit, and to address the temporary water quality impacts resulting from the construction activities of this project, Standard Special Provisions would be included in the Plans, Specifications, and Estimates. These Standard Special Provisions would address water pollution control work and the implementation of a Storm Water Pollution Prevention Plan during construction.
- k. The Storm Water Pollution Prevention Plan will outline construction Best Management Practices to be used to minimize adverse effects on receiving waters. In addition to measures involving sediment detention basins, materials handling and storage, spill prevention and erosion blankets, specific pollution control measures will be included in the project design specifications to limit and minimize erosion, sedimentation and release of chemicals to the water bodies to prevent impacts to water quality during construction.



- a. Areas disturbed during construction will be stabilized and revegetated in accordance with a revegetation plan prepared by Caltrans in consultation with the California Department of Fish and Game, Bureau of Land Management, and the National Park Service as part of the design phase of the project and incorporated into the project plans and specifications.
  - b. The following seed mix is proposed for use during revegetation, pending approval by the California Department of Fish and Game, Bureau of Land Management, and the National Park Service: California brome (*Bromus carinatus*), blue wildrye (*Elymus glaucus*), Idaho fescue (*Festuca idahoensis*), lotus (*Lotus crassifolius/L. purshianus*), and arroyo lupine (*Lupinus succulentus*). The seed will be obtained from a supplier that has certified weed-free, genetically local, and native stock from Shasta County. Seed, fiber, commercial fertilizer, and water will be applied by hydroseeding, in accordance with methods identified as Type D erosion control measures in Section 20-2 through 20-3 of the Caltrans Standard Specifications. Seed will be applied in the fall or spring, when soils are moist or expected to be moist soon after distribution. Certified weed-free straw or rice straw will be used for mulching reseeded areas. The straw will be applied with the hydroseed mix, or spread at least two inches thick so that it contacts the soil. No herbicides or pesticides shall be applied.
  - c. Soil exposure will be minimized during construction through the use of standard Best Management Practices, including but not limited to the use of geo-fabrics, silt fences, straw bales and wattles, and temporary sediment basins. Exposed surfaces creating fugitive dust will be sprinkled daily until wet, but not beyond the minimum necessary, to avoid runoff.
  - d. The Caltrans contractor will conduct daily inspections and maintenance of erosion and sediment control measures. Any failures will be repaired the day they occur.
  - e. All temporary erosion and sediment control measures will be removed after the working area is stabilized or as directed by the project engineer.
17. Hazardous materials spill avoidance and minimization efforts require Caltrans or its contractor to exercise every reasonable precaution to protect streams from pollution from fuels, oils and other harmful materials.

- a. The Contractor will be required to have adequate spill containment equipment on hand at all times.
  - b. All waste petroleum products and empty petroleum product containers will be disposed of properly at a recycling or disposal site legally authorized to accept that type of waste.
  - c. The Trinity and Shasta county Environmental Health Departments and Regional Water Quality Control Boards must be notified immediately in the event of a release of significant quantities of hazardous materials.
  - d. In the event of a release into Willow Creek, the California Department of Fish and Game, Bureau of Land Management, National Park Service, and U.S. Army Corps of Engineers must be notified. If there is a release into Little Grass Valley Creek, the California Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the U.S. Army Corps of Engineers will be notified.
  - e. Structures will be inspected to determine whether asbestos and lead-based paint are present. If any structures to be demolished or disturbed during construction contain asbestos, a qualified asbestos abatement contractor will handle debris removal and disposal. If it is determined that lead-based paint is present at levels above the regulatory threshold, it will be disposed of at an appropriate hazardous waste facility.
  - f. Waste material generated by the removal of yellow thermoplastic and painted traffic striping will be addressed during construction by incorporation of standard special provisions.
18. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be halted until a qualified archaeologist can assess the nature and significance of the find.
19. Implementation of the following measures would reduce any air quality impacts occurring during construction activities:
- a. The construction contractor would comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999). Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibilities regarding issues of concern, such as

air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience of the public; and damage or injury to any person or property as a result of any construction operation.

Section 10 addresses dust control.

- b. Apply water or dust palliative to the site and equipment as frequently as needed to control fugitive dust emissions.
  - c. Spread soil binder on any unpaved roads used for construction purposes and on all construction staging areas.
  - d. Wash trucks as they leave the right of way as needed to control fugitive dust emissions.
  - e. Properly tune and maintain construction equipment and vehicles. Use low sulfur fuel in all construction equipment as required by the California Code of Regulations Title 17, Section 93114.
  - f. Develop a special dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
  - g. Locate equipment and materials storage sites as far away from residential and park uses as practicable. Keep construction areas clean and orderly.
  - h. Use track-out reduction measures such as gravel pads at construction area access points to minimize dust and mud deposits on roads used by construction traffic.
  - i. Cover all transported loads of soils and wet materials prior to transport, or provide adequate space between the top of the material and the top of the truck to reduce the deposition of particulates during transportation.
  - j. Remove dust and mud that are deposited on paved, public roads by construction activity to decrease particulate matter.
  - k. To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
  - l. Install mulch or plant vegetation as soon as practicable after grading to reduce the potential for windblown particulates in the area.
20. During construction, compliance with Caltrans Standard Specification, Section 7-1.01I, “Sound Control Requirements”, would be required. Section 7-1.01I refers

to mandatory mufflers for all internal combustion engines operated within the project and mandatory compliance with local noise ordinances.

The following mitigation measures will address impacts to sensitive resources:

1. Wildlife underpasses or similar structures and directional fencing, particularly along creeks and other natural features that run under the highway, will be designed in consultation with the Department of Fish and Game.
2. Riparian vegetation that will be permanently removed (rather than trimmed or topped) will be replaced at a 1:1 ratio. Replacement may occur in areas where the road is realigned away from Willow Creek, to enhance the riparian corridor. The exact planting locations shall be identified by Caltrans in coordination with the California Department of Fish and Game, and a Riparian Mitigation Plan shall be prepared, including the following elements:
  - a. Prior to construction, a qualified biologist or restoration ecologist shall count and identify riparian tree and shrub species that may be removed to accommodate construction.
  - b. To mitigate for the loss of riparian habitat, Caltrans will conduct mitigation through planting at a ratio of 1:1 (per mature woody riparian plant) for habitat permanently lost due to project construction activities. Replacement of permanently lost riparian habitat would occur within the project area in disturbed areas or other areas currently devoid of riparian vegetation but judged by a qualified restoration ecologist or botanist as having potential to support and sustain riparian vegetation adjacent to Willow Creek.
  - c. Following the completion of construction activities, plantings shall be installed to replace all riparian trees and shrubs removed as a result of the project. All non-native species that are removed will be replaced with native species. Replacement native trees and shrubs should be planted in the appropriate season (i.e., spring or preferably fall) following the completion of construction. Propagules (i.e., shrub cuttings, tree seedlings) shall be obtained either onsite or from a local nursery (local stock) and planted along Willow Creek within the immediate project area.
3. During final design, the number of oaks within the proposed alignment would be estimated and measured. Caltrans would compensate for the impacts of the project

to oak woodlands by in-kind creation/restoration and preservation of oak woodlands on abandoned sections of the existing roadway alignment, as well as on newly acquired parcels as needed. New parcels would be purchased as needed in fee or by a conservation easement and preserved in perpetuity. Oak trees would be initially planted in these areas at the ratio of five new saplings for each oak lost, with the goal of at least three trees surviving after a ten-year monitoring period. Other compensation options, which are listed in the Oak Woodlands Conservation Act (Senate Bill 1334), may include (1) a monetary contribution to the California Oak Woodlands Conservation Fund administered by the state Wildlife Conservation Board for the purpose of purchasing oak woodland conservation easements or (2) use of a California Department of Fish and Game-established oak woodland mitigation bank to fulfill the off-site compensation requirements.

4. To mitigate impacts to visual resources:
  - a. Re-contour disturbed areas and construction access roads to a natural appearance.
  - b. Minimize vegetation removal within the project corridor.
  - c. Prepare abandoned highway for revegetation by removing asphalt and base materials where feasible, ripping the original ground and incorporating soil and/or amendments to facilitate plant growth.
  - d. An open style rail on guardrail placed within the project limits should be used when feasible.
  - e. Vegetate stabilized soil areas with native plants, either by hydroseeding or planting containerized plants.
  - f. Use color (stain and/or paint) and textures that minimize reflectivity, glare and unnatural appearances on walls that are constructed for the project.
5. The State Historic Preservation Officer and Caltrans have negotiated a Memorandum of Agreement, which includes stipulations to take into account the proposed project's effects on historic properties. The Memorandum of Agreement ensures that the adverse effects of the undertaking are resolved by implementing Data Recovery and Environmentally Sensitive Area Action Plans.

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

The following technical studies were prepared to support this environmental document:

- Air Quality Report
- Noise Study Report
- Water Quality Report
- Natural Environment Study
- Location Hydraulic Study
- Historical Property Survey Report
- Hazardous Waste Initial Site Assessment
- Scenic Resource Evaluation/Visual Assessment