Ferguson Slide Permanent Restoration Project

On State Route 140 from 8 miles east of Briceburg to
7.6 miles west of El Portal in Mariposa County, California
District 10-MPA-140-PM 42.0/42.7
Project ID 10-0000-0198
SCH# 2008011118

Draft Environmental Impact Report/ Environmental Impact Statement

Prepared by the
State of California Department of Transportation

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

July 2013

Caltrans

General Information About This Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, has prepared this Draft Environmental Impact Report/Environmental Impact Statement, which examines the potential environmental impacts of alternatives being considered for the proposed project located in Mariposa County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this Draft Environmental Impact Report/Environmental Impact Statement. Additional copies of the document and related technical studies are available for review at the Caltrans district office at 1976 East Dr Martin Luther King Jr. Blvd, Stockton, CA 95201; the Mariposa County Library at 4978 10th Street, Mariposa, CA 95338; and the El Portal Post Office at 5508 Foresta Road, El Portal, CA 95318.
- Attend the public hearings on September 11, 2013 in El Portal or September 12, 2013 in Mariposa..
- We welcome your comments. If you have any concerns about the proposed project, please attend the public hearings or send your written comments to Caltrans by the deadline. Submit comments via U.S. mail to Caltrans at the following address: Scott Smith, Senior Environmental Planner, Central Region, California Department of Transportation, 855 M Street, Suite 200, Fresno, CA 93721.
- Submit comments via email to: ferguson.slide.project@dot.ca.gov.
- Submit comments by the deadline: September 26, 2013

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration, may do additional environmental and/or engineering studies. A Final Environmental Impact Report/Environmental Impact Statement will be circulated; the final document will include responses to comments received on the Draft Environmental Impact Report/Environmental Impact Statement and will identify the preferred alternative. Following circulation of the Final Environmental Impact Report/Environmental Impact Statement, if the decision is made to approve the project, a Notice of Determination will be published for compliance with the California Environmental Quality Act and a Record of Decision will be published for compliance with the National Environmental Policy Act. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Scott Smith, Senior Environmental Planner, Central Region Environmental, 855 M Street, Suite 200, Fresno, CA 93721; 559-445-6172 Voice, or use the California Relay Service TTY number, 1-800-735-2929 or 711.

SCH# 2008011118
10-MPA-140-PM 42.0/42.7
10-0000-0198

Restore full highway access between the communities of Mariposa and El Portal via State Route 140 from 8 miles east of Briceburg to 7.6 miles west of El Portal in Mariposa County (post miles 42.0 to 42.7)

DRAFT ENVIRONMENTAL IMPACT REPORT /ENVIRONMENTAL IMPACT STATEMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C) and 49 USC 303

THE STATE OF CALIFORNIA
Department of Transportation

and

Cooperating Agencies:
United States Forest Service
National Park Service
United States Army Corps of Engineers
Bureau of Land Management

Participating Agencies:
United States Environmental Protection Agency
Mariposa County Board of Supervisors
California Environmental Protection Agency

7/15/2013
Date of Approval

Carrie L. Bowen
District Director, District 10
California Department of Transportation
CEQA and NEPA Lead Agency

The following persons may be contacted for additional information concerning this document:

Scott Smith, Senior Environmental Planner
Caltrans Central Region Environmental
855 M Street, Suite 200
Fresno, CA 93721
(559) 445-6172

Abstract: The California Department of Transportation (Caltrans) proposes to restore full highway access along State Route 140 in Mariposa County at the section damaged by the Ferguson rockslide. Restoration of State Route 140 would eliminate the detour and provide full access (with the same restrictions on vehicle length that were in place before the slide) to all traffic using State Route 140 between the town of Mariposa and Yosemite National Park. Potential project impacts are described, which include any impacts to the Merced River (designated as a Wild and Scenic River).

Summary

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), 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 (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under CEQA and NEPA. In addition, FHWA'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 United States Code (USC) 327.

Following receipt of comments from the public and reviewing agencies, a Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) will be prepared. Caltrans may undertake additional environmental and/or engineering studies to address comments. The Final Environmental Impact Report/Environmental Impact Statement will include responses to comments received on the Draft Environmental Impact Report/Environmental Impact Statement and will identify the preferred alternative. Following circulation of the Final Environmental Impact Report/Environmental Impact Statement, if the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA, and a Record of Decision will be published for compliance with NEPA.

Overview of Project Area

The project is located on State Route 140 in Mariposa County, from 8 miles east of Briceburg, a small community anchored by a Bureau of Land Management Visitor Center, to 7.6 miles west of El Portal (post miles 42.0 and 42.7) where the Ferguson rockslide covered the highway with 798,000 tons of rock and debris in April 2006. Within the limits of the proposed project and prior to the Ferguson rockslide, State Route 140 was a two-lane, undivided highway. Following the rockslide and the completion of a temporary detour, State Route 140 now bridges across the Merced River, follows an old railroad grade, and then bridges back across the Merced River to bypass the rockslide, as a one-lane road. This bypass route provides for one-directional traffic that is controlled by traffic signals. The Merced River flows alongside the highway within the project area, as it does throughout the Merced River Canyon. There are no other proposed or ongoing projects within the project vicinity.

Purpose and Need

The first rockslides within the Merced River Canyon began on April 29, 2006. Since April 2006, rockslides have damaged and blocked a portion of State Route 140 between Mariposa and El Portal. The Ferguson rockslide closed State Route 140 to traffic from 8 miles east of Briceburg to 7.6 miles west of El Portal.

The purpose of the project is to reopen and restore full highway access between Mariposa and El Portal via State Route 140. Full highway access for this portion of State Route 140 means a two-lane, all-weather highway that would accommodate all types of vehicles with some restrictions on vehicle length. The route would return to its previous status as a California Legal Advisory Truck Route with a 32-foot kingpin-to-rear-axle restriction. Other length restrictions include: 45 feet for single vehicle, 60 feet for a combination vehicle, and 35 feet for a towed vehicle from hitch to rear bumper. Currently, motorists use a temporary, one-lane bypass route to avoid the portion of State Route 140 that was closed by the Ferguson rockslide. This bypass route restricts vehicles over 45 feet total length from traveling along State Route 140. It also requires that traffic stop and queue before entering the one-lane bypass route when the traffic signal indicates the way is clear. Restoration of State Route 140 would eliminate the detour and provide full access to all traffic on State Route 140 between the town of Mariposa and Yosemite National Park. Yosemite National Park and communities in Mariposa County rely heavily on this access for many types of transportation that serve tourism and residents of the area. State Route 140 is an essential link in supplying goods and services to the Mariposa, El Portal and Yosemite communities. Two build alternatives and the No-Build Alternative are being considered.

Proposed Action

Caltrans proposes to restore full highway access between Mariposa and Yosemite via State Route 140 in Mariposa County, California, by repairing or permanently bypassing the portion of State Route 140 that was blocked and damaged by the Ferguson rockslide.

The existing detour was constructed during a declared emergency and was designed as a temporary solution to the closure of State Route 140. Caltrans has an agreement with the U.S. Forest Service that the pavement and structures used for the detour would be removed once a permanent solution could be constructed. Removing these structures and returning Incline Road to its pre-emergency condition are part of the

proposed action. The total length of the project area is 0.7 mile. The following build alternatives are being proposed:

Alternative R (Rockshed/Tunnel)

This alternative would construct a rockshed/tunnel (cut-and-cover tunnel) through the talus (the debris deposited below the slide) of the slide along the existing State Route 140 alignment and grade.

Alternative T-3 (Tunnel under Slide Realignment)

This alternative would realign the highway by constructing a 2,200-foot-long tunnel under the area of the slide.

No-Build Alternative

The No-Build Alternative would leave State Route 140 damaged and blocked by the Ferguson rockslide. As a result of the No-Build Alternative, the temporary detour would continue to function as State Route 140. Either general wear or damage from flooding in a high water year would eventually require the removal of the bridges, supporting structures, and the detour pavement, leading to the permanent closure of State Route 140 at the section damaged by the rockslide.

The No-Build Alternative requires the same environmental analysis as the proposed build alternatives.

Common to Build and No-Build Alternatives

In 2006 and in 2008, Caltrans installed temporary detours around the slide under a state of emergency. Impacts from these emergency projects were identified and presented in a Categorical Exclusion/Categorical Exemption (Appendix J), and it was agreed that they would be mitigated with the permanent solution.

The mitigation for impacts from the emergency projects will be added to the mitigation identified for whichever alternative is ultimately selected.

Project Impacts

The following table summarizes the potential impacts that would result from construction of each build alternative. For comparison purposes, the existing condition of the project area includes the temporary bridges and detour and is the same as the No-Build Alternative in the short term.

Summary of Major Potential Impacts from Alternatives

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Reopen and Restore Full Access for Traffic	Yes	Yes	Short-term Yes, Long-term No – detour bridges would eventually fail, requiring closure of the highway at the damaged section.
Consistent with Mariposa County General Plan	Yes	Yes	Short-term Yes, Long-term No – detour bridges would eventually fail, requiring closure of the highway at the damaged section.
Wild and Scenic Rivers	Would not affect the free flow of the Merced River, but could have short-term impacts to water quality. Short-term impacts to the *outstandingly remarkable values* of Recreation, Geology, Wildlife and Botany. Would have direct, but not adverse, effects to the Cultural/Historic Landscape.	Would not affect the free flow of the Merced River, but could have short-term impacts to water quality. Short-term impacts to the *outstandingly remarkable values* of Recreation, Geology, Wildlife and Botany. Would have direct, but not adverse, effects to the Cultural/Historic Landscape.	Temporary bridges impede free flow of the river and have impacts to water quality Short-term impacts to the *outstandingly remarkable value* of Geology Direct and adverse effects to Recreation and Cultural/Historic.
Parks and Recreation	Would restore full access to Yosemite and other recreational activities within Mariposa County via State Route 140. Incline Road would be restored as a recreational trail.	Would restore full access to Yosemite and other recreational activities within Mariposa County via State Route 140. Incline Road would be restored as a recreational trail.	The eventual failure of the bridges would close the highway at the rockslide. Temporarily eliminates Incline Road as a recreational trail. Does not provide full access to Yosemite and other recreational activities via State Route 140.
Community Character and Cohesion	Would restore full access between the communities along State Route 140.	Would restore full access between the communities along State Route 140.	Access between the communities would eventually be eliminated when temporary detour bridges fail.

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Utilities/Emergency Services	Would restore full access for emergency vehicles. No utility relocations required.	Would restore full access for emergency vehicles. No utility relocations required.	Access for emergency vehicles would be eliminated when the detour bridges eventually fail.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	Incline Road would be restored to accommodate bicycles and pedestrians. The new roadway would accommodate all vehicle types and would include shoulders within the structures to accommodate bicycles.	Incline Road would be restored to accommodate bicycles and pedestrians. The new roadway would accommodate all vehicle types and would include shoulders within the structures to accommodate bicycles.	Temporarily restricts access for pedestrians and bicycles between communities. Would eliminate all through traffic when the detour bridges eventually fail.
Visual/Aesthetics	Structures would produce an average reduction in visual quality to moderately low.	Structures would improve the overall visual quality of the area to high.	Structures create a short-term visual quality of moderately high. Upon removal of temporary structures, the landscape would be restored to its naturally high visual quality.
Cultural Resources	No adverse effects.	No adverse effects.	Short-term altering of the already-compromised Yosemite Valley Railroad Grade (Incline Road). Upon the removal of the detour, the railroad grade would be returned to its previous state.
Hydrology and Floodplain	Would encroach longitudinally on the floodplain.	Would not encroach on the floodplain.	Footings and abutments currently encroach on the floodplain. Structures would be affected by a 20-year flood.
Water Quality and Storm Water Runoff	Removal of the temporary bridges would cause short-term impacts to surface water.	Removal of the temporary bridges would cause short-term impacts to surface water.	Storm water runoff and bridge maintenance activities could create short-term impacts to surface water. Eventual removal of the temporary bridges would cause short-term impacts to surface water.
Geology/Soils/Seismic/ Topography	Would remove the talus of the rockslide, requiring the disposal and transport of an estimated 80,000 cubic yards of rock material with a potential disposal cost of $4.4 million.	Would remove an estimated 120,000 cubic yards of rock material with a potential disposal cost of $6.6 million.	None

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Hazardous Waste/Materials	Potential exposure to elevated levels of arsenic from Incline Road during removal of detour.	Potential exposure to elevated levels of arsenic from Incline Road during removal of detour.	Potential exposure to elevated levels of arsenic from Incline Road.
Air Quality	Potential for short-term impacts during construction.	Potential for short-term impacts during construction.	Short-term impacts until temporary bridges are removed from signalized one-way detour
Natural Communities	2.10 acres of oak woodland would be removed.	0.45 acre of oak woodland would be removed.	None
Wetlands and other Waters	None	None	None
Plant Species	2.1 acres of Mariposa clarkia and Tompkins sedge habitat would be removed. 1.05 acres of smallflower monkeyflower habitat would be removed.	0.45 acre of Mariposa clarkia and Tompkins sedge habitat would be removed. 0.25 acre of smallflower monkeyflower habitat would be removed. One to two patches of copper moss would be removed.	None
Animal Species	More than 2 acres of bat habitat would be affected, 1.05 acres west of the rockslide and 1.05 acres east of the rockslide.	About 0.45 acre of bat habitat would be affected, 0.2 acre west of the rockslide and 0.25 acre east of the rockslide.	None
Threatened and Endangered Species	Ground disturbance would affect habitat of the ringtail. Would cut into the slope on the south side of the river, potential habitat for Merced clarkia and limestone salamander, affecting 2.1 acres of these habitats.	Ground disturbance would affect habitat of the ringtail. Would cut into the slope on the south side of the river, potential habitat for Merced clarkia and limestone salamander, affecting 0.45 acre of these habitats.	None
Invasive Species	Disturbance of ground would cause dispersal of non-native weeds.	Disturbance of ground would cause dispersal of non-native weeds.	None

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Use of 4(f) Property	No	No	Temporary
Cost	$47.1 million	$225.7 million	$0
Length of Construction	3 years	4 years	N/A

Permits and Approvals Needed

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

Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers	Section 404 Nationwide Permit 14 for filling or dredging waters of the United States	Submittal anticipated before construction
U.S. Forest Service	Biological Evaluation	Submittal anticipated before the final environmental document (no additional NEPA analysis required for this action)
U.S. Forest Service	Section 7(a) Wild and Scenic Rivers Act Evaluation	Evaluation anticipated following the selection of a preferred alternative
U.S. Forest Service	Letter of Consent for the issuance of a Department of Transportation easement	Anticipated before construction (will require additional NEPA analysis by the U.S. Forest Service)
U.S. Forest Service	Special Use permit	Submittal anticipated before construction
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement	Submittal anticipated before construction
California Department of Fish and Wildlife	Section 2081 Permit for the potential take of (impacts to) Merced clarkia and/or limestone salamander during construction	Submittal anticipated before construction
California Regional Water Quality Control Board	Section 401 Certification for a Water Discharge Permit	Submittal anticipated before construction
California Regional Water Quality Control Board	National Pollution Discharge Elimination System Compliance	Submittal anticipated before construction
State Historic Preservation Officer	Determinations of Eligibility for Cultural Resources	Concurrence letters received October 10, 2007 and July 15, 2013. See Appendix D.

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List of Abbreviated Terms

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
PM	post mile
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board

Chapter 1 Proposed Project

1.1 Introduction

The proposed project is a joint effort by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), 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 (CEQA) and the National Environmental Policy Act (NEPA). FHWA'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 United States Code (USC) 327. Caltrans is the lead agency under CEQA and NEPA.

Since April 2006, rockslides have damaged and blocked a portion of State Route 140 between Mariposa and El Portal in Mariposa County. The Ferguson rockslide closed State Route 140 to traffic from 8 miles east of Briceburg to 7.6 miles west of El Portal. Caltrans proposes to restore full highway access between the communities of Mariposa and Yosemite via State Route 140 by repairing or permanently bypassing the portion of the highway that was damaged by the Ferguson rockslide. The total length of the project area is 0.7 mile. Figures 1-1 and 1-2 show the project vicinity and location.

The project area consists mostly of steeply rolling hills that support a mixed oak woodland forest made up of oak trees and pine trees ranging from seedlings to adult trees. The ground is a mix of low broadleaf evergreen shrubs and grasses. Rock outcroppings are common. The existing highway, — Incline Road (also known as the Yosemite Valley Railroad Grade), — and the electric transmission lines are the main human-made elements in the project area. The roadway and associated cut slopes parallel the Merced River. The segment of the Merced River that flows through the project area is classified as recreational (the least restrictive of the three classifications attributed to segments of Wild and Scenic Rivers) because of the presence of the highway and Incline Road, which provide access to the recreational activities on the river.

Communities in the affected area include Mariposa, Midpines, and Briceburg on the west side of the rockslide, and Yosemite Village and El Portal on the east side of the rockslide. Within the limits of the proposed project and prior to the Ferguson

rockslide, State Route 140 was a two-lane, undivided highway. Following the rockslide and completion of a temporary detour, the current State Route 140 bridges the Merced River twice, bypassing the rockslide as a one-lane road. This bypass route provides for one-way traffic that is controlled by traffic signals.

The first rockslides in the area began on April 29, 2006. The slide debris was removed, and installation of steel drapery on the slide face began. On May 10, 2006, Caltrans decided instead to install a rockfall barrier along the eastbound shoulder of the road. The barrier was completed on May 14, 2006, but numerous large rocks fell from another area on the east side of the slide, preventing the highway from opening to two-way traffic. On May 16, 2006, geologists concluded that the landslide mass was moving. The rockfall barrier was then moved to the center of the road, restricting traffic to one-way control. The road was opened the morning of May 25, 2006 and closed again by that evening due to another significant slide that damaged the rockfall barrier. By May 28, 2006, major sections of the 20-foot-high rockfall barrier had been completely covered; by then, the slide buried the highway and extended about 30 feet into the Merced River.

In April 2006, following the first rockslide, a State of Emergency in Mariposa County was declared by the Governor, and Caltrans was directed to request federal assistance to reopen State Route 140. On June 17, 2006, Caltrans received approval to proceed with the construction of a temporary detour around the slide. On August 10, 2006, the FHWA accepted the State of Emergency and approved the use of a Categorical Exclusion under NEPA to permit Caltrans to construct two temporary bridges over the Merced River and a temporary single-lane detour along Incline Road.

In August 2006, Caltrans completed construction of the temporary detour that bypassed the rockslide and, on August 18, reopened State Route 140 to vehicles less than 28 feet long. The temporary detour consisted of two single-lane bridges that crossed the Merced River upstream and downstream of the rockslide and connected to a single-lane paved section of Incline Road directly across the river from the rockslide. Traffic was controlled on this single-lane detour by signals that allowed the passage of one-way traffic. Highway travelers experienced up to a 15-minute delay getting through the detour. Closure of State Route 140 and the restricted vehicle length on the temporary detour created hardships for residents and businesses in the area and prevented tour buses and many recreational travelers from using State Route 140 to enter Yosemite National Park.

When the temporary detour was opened, Caltrans began work on a permanent solution to restore State Route 140. Various alternatives were developed and studied and then circulated to the public through an Initial Study/Environmental Assessment. Comments that were received from the public and regulatory agencies indicated the project could significantly affect the Merced Wild and Scenic River. Caltrans concluded that an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) would be necessary to evaluate a greater range of alternatives and their effect on the river, extending the environmental documentation process beyond what had been originally expected.

Mariposa County had already seen a drop in tourism-generated revenue, mostly due to the vehicle length restriction on the temporary detour, which prevented many tour buses and recreational vehicles from traveling to Yosemite on State Route 140. Because the decision to prepare an Environmental Impact Report/Environmental Impact Statement further delayed a permanent solution, Caltrans, regulatory agencies, and Mariposa County officials began working on another temporary solution that would accommodate vehicles of greater lengths. The new, longer-term temporary solution involved construction of two temporary bridges across the Merced River on a skewed alignment next to the existing temporary bridges. The first set of temporary bridges was then removed. The skewed alignment of the new temporary bridges allowed for a larger turning radius that could accommodate vehicles up to 45 feet long. Traffic was still controlled through this new single-lane detour by signals. The project was completed in June 2008.

In November 2010, Caltrans published a Draft Environmental Impact Report/Environmental Impact Statement with six build alternatives and the No-Build Alternative. The build alternatives included bridge configurations (C, T, and S) from the November 2007 Initial Study/Environmental Assessment, plus a new bridge alterative (S-2), a rockshed/tunnel alternative (R), and a tunnel behind the slide alternative (T-3). Comments received from agencies and the public indicated a strong objection to any bridge alternative because of the potential impact to the Merced River, which is designated as a Wild and Scenic River.

Since the release of the November 2010 Draft Environmental Impact Report/Environmental Impact Statement, Caltrans has been working with the U.S. Forest Service to analyze the impacts to the Merced River. Mariposa County worked with Assembly Member Kristin Olsen in the introduction of Assembly Bill (AB) 1973, which would allow the California Department of Fish and Wildlife to issue a

one-time-only authorization of incidental take of the limestone salamander, a fully protected species. Under the California Endangered Species Act, a take includes hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. Without this legislation, neither Alternative R nor T-3—the only alternatives that do not include bridges (which the public objected to)—could be chosen as a preferred alternative. With this legislation, Alternatives R and T-3 become feasible. Additionally, the various bridge alternatives were no longer considered feasible because of the impacts to the Section 4(f) of the Department of Transportation Act resource – the recreational aspects of the Wild and Scenic River. An alternative that impacts a Section 4(f) resource can only be considered if there is no prudent and feasible alternative to using the land. For this reason, all bridge alternatives have subsequently been removed from further consideration.

This additional information and removal of build alternatives requires that the Draft Environmental Impact Report/Environmental Impact Statement be re-circulated to the public for Caltrans to make a responsible decision.

State Route 140 is the preferred route for entering Yosemite National Park for many travelers because other highways, such as Routes 41 and 120, are more difficult to maneuver and are subject to harsh weather during winter. Communities along State Route 140 have established businesses that rely on travelers through the area for some or most of their sales.

The current project is funded in the State Highway Operation and Protection Plan for fiscal year 2015/2016 under the Major Damage Permanent Restoration Program (201.131). The project has been approved for emergency relief assistance as part of a declared disaster under Damage Assessment Form number JMD-CT10-001-0, approved by FHWA on September 26, 2006. A supplemental Damage Assessment Form number JMD-CT10-001-1 was approved on April 24, 2008 to support changes to the temporary detour. A revised Damage Assessment Form will be prepared for the construction and support costs on the permanent restoration project when a preferred alternative is selected.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the project is to restore full access to State Route 140 to provide a reliable route within the limits of the Ferguson rockslide area and to keep State Route

140 open to vehicular and bicycle traffic, including large commercial trucks, emergency vehicles, and recreational vehicles.

1.2.2 Need

Currently, motorists must use a temporary one-lane detour route to bypass the section of State Route 140 that was blocked and damaged by the Ferguson rockslide. The project is needed because access to Yosemite National Park and the community of El Portal has been severely restricted, resulting in significant economic losses to those areas and the surrounding community. The reduction in tourist travel through the county resulted in the Governor declaring a State of Emergency for Mariposa County.

State Route 140 is an important all-weather transportation link to Yosemite National Park. It is also a school bus route allowing children in El Portal and Yosemite National Park to attend school in Mariposa.

Before State Route 140 was blocked by the rockslide, the route had full highway access and could accommodate all types of vehicles with some restrictions on vehicle length. It was a California Legal Advisory Truck Route with a 32-foot kingpin-to-rear-axle restriction. Other length restrictions include: 45 feet for a single vehicle, 60 feet for a combination vehicle, and 35 feet for a towed vehicle from hitch to rear bumper. The detour was designed to be a temporary solution, which restricted its use to essential traffic. Caltrans entered into an agreement with the U.S. Forest Service stating that the structures used for the detour would be removed once a permanent solution could be constructed.

When the highway was initially closed, an estimated 2.5 hours were added to a one-way trip between Mariposa and Yosemite or El Portal. Mariposa residents working in Yosemite Valley, for example, saw their commutes become as much as 90 miles longer each way. Motorists who would have used State Route 140 had to travel on either State Route 41 or 120, routes that are harder to maneuver with larger vehicles. These alternate routes require motorists to drive longer distances and to do so in harsh weather conditions during winter. When the temporary detour opened, travel time for vehicles less than 28 feet long decreased substantially, but motorists could still expect delays up to 15 minutes in either direction by a stoplight that controls one-way traffic on the single-lane detour.

With the new temporary bridges, vehicles up to 45 feet long were once again able to use the highway. However, the structures supporting the temporary bridges have a predicted lifespan of about 10 years and will ultimately require removal whether a

permanent solution is provided or not. Should the structures reach the end of their useful life before a permanent solution is in place, their necessary removal would lead to the closure of State Route 140 at the section damaged by the rockslide. The temporary bridges sit within the 20-year flood zone and are not expected to withstand flood levels similar to those that occurred in the area in years past.

As the temporary closure of the highway in 2006 proved, a permanent closure of State Route 140 would negatively affect Mariposa County and Yosemite National Park. Such a closure would make the delivery of goods and services, as well as the arrival and departure of tourists, more difficult and time-consuming. Local residents who live on one side of the slide area and work on the other side would experience much longer and more dangerous commutes. State Route 140 is essential in supporting the Mariposa County and Yosemite communities.

The Ferguson rockslide created a debris field that is 650 feet wide by 800 feet long. Underneath that debris field lies a section of State Route 140, damaged and covered by rock. The rockslide also encroached nearly 30 feet into the Merced River. State Route 140 outside the current project area has suffered rockslide damage in the past. Since 1999, approximately $13 million have been spent on rockslide removal, slope stabilization, rockfall barriers, and now, the construction of the temporary detours, all within the project area.

The permanent restoration of State Route 140 would maintain full access for all types of travelers, ranging from recreational to business, and eliminate future repair costs caused by a repeat of the Ferguson rockslide.

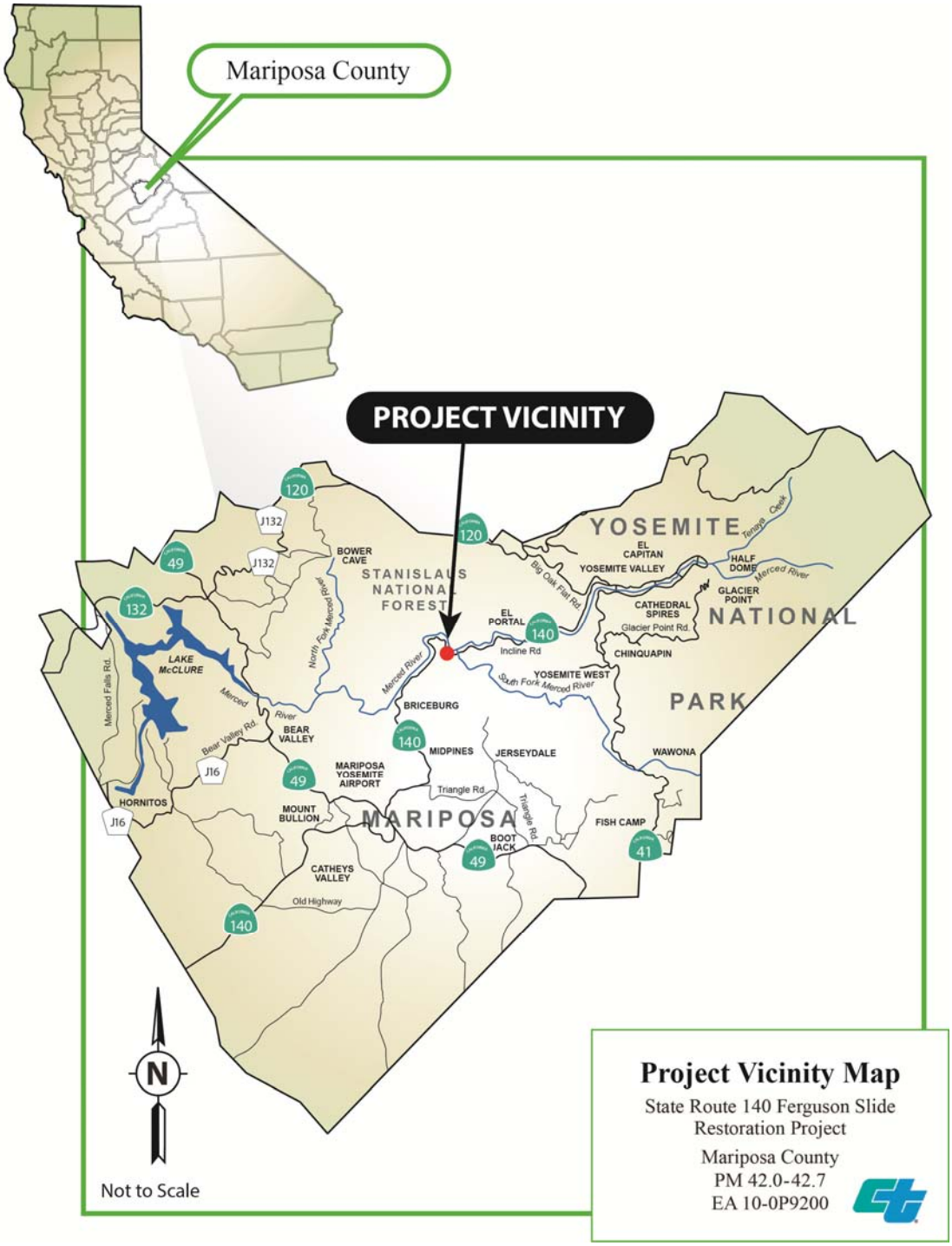


Figure 1-1 Project Vicinity Map

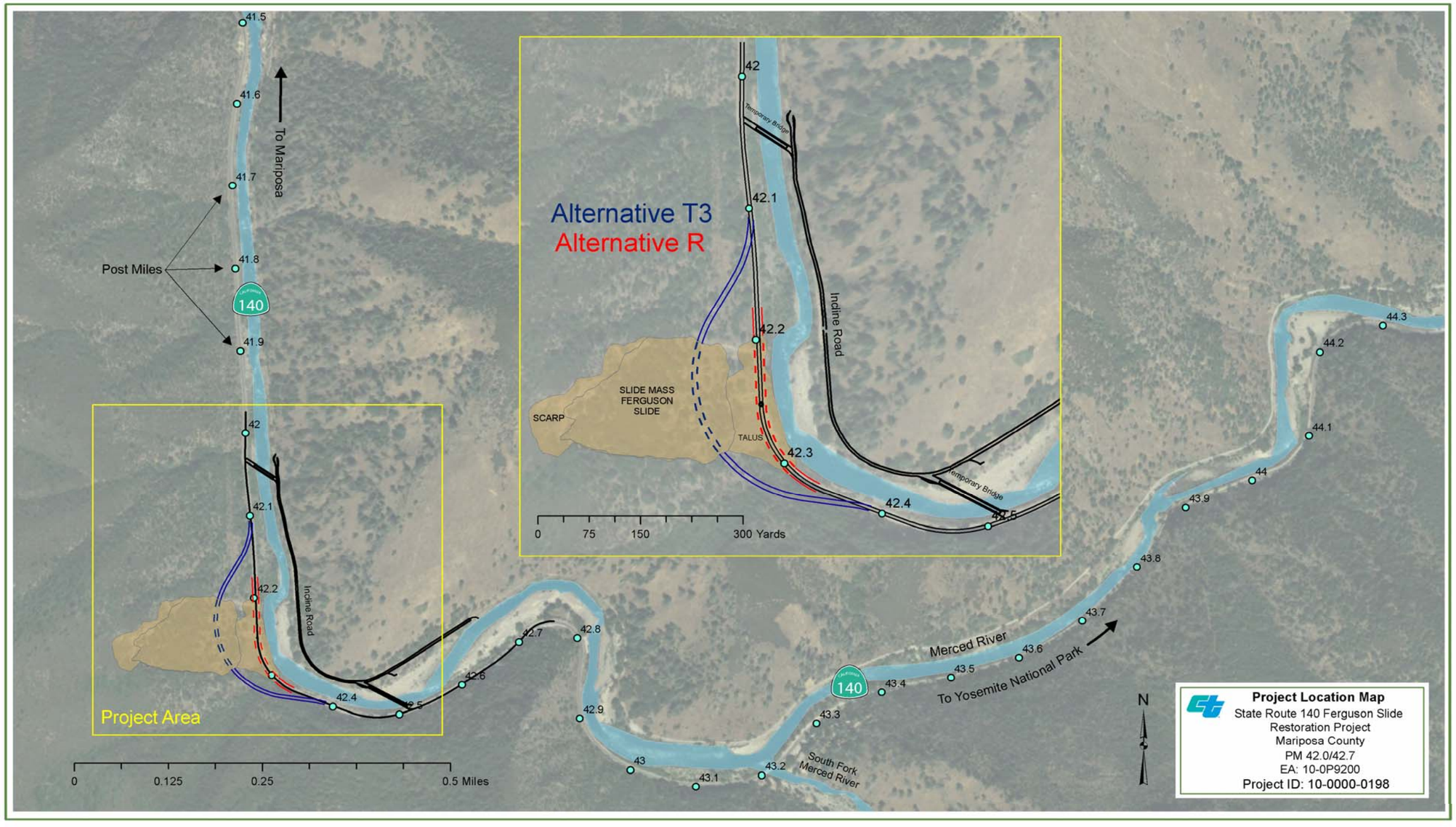


Figure 1-2 Project Location Map

Chapter 2 Project Alternatives

2.1 Alternatives

Caltrans proposes to restore full highway access between the communities of Mariposa and Yosemite National Park via State Route 140 in Mariposa County by repairing or permanently bypassing the portion of the highway that was damaged by the Ferguson rockslide. Restoration of State Route 140 would eliminate the temporary detour now in place and provide full access to all traffic on State Route 140 between the town of Mariposa and Yosemite National Park. This section describes the proposed action and the design alternatives that were developed by an inter-disciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts.

2.1.1 Build Alternatives

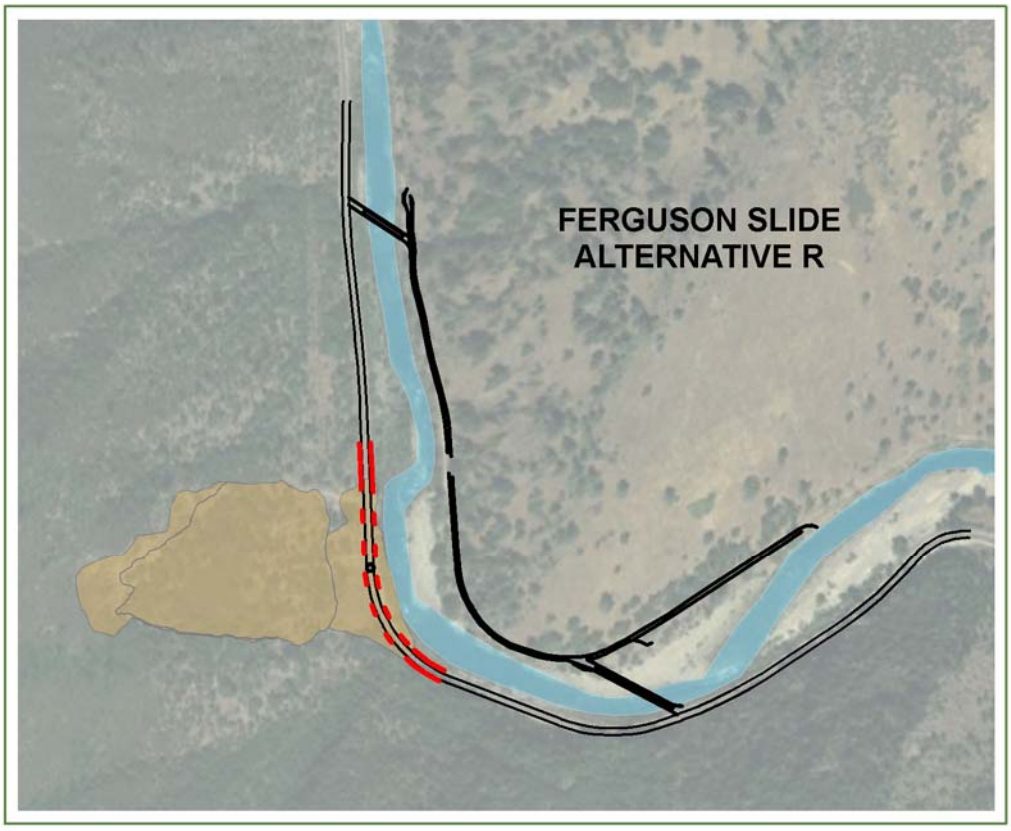
Caltrans created a project development team to identify alternative solutions. The team consists of representatives from several disciplines including transportation engineers, environmental planners, biologists, archaeologists, engineering geologists, and hydraulics engineers. Alternative solutions created by the project development team were evaluated based on cost, schedules, environmental effects, engineering considerations, constructability, and project mitigation. The project development team ensures that state and federal requirements are followed to meet state design standards and to minimize environmental impacts and cost.

The following alternatives propose to fully reopen State Route 140 on the existing alignment, or south of the rockslide through a tunnel.

Alternative R (Rockshed/Tunnel)

- Aligns the highway through a 760-foot-long cut-and-cover rockshed/tunnel (a reinforced concrete box supported on concrete piles and tieback anchors) built through the talus (debris deposited below slide) of the rock slide.
- Uses the existing State Route 140 alignment and grade and keeps the highway on the south side of the Merced River.
- Provides two 12-foot-wide lanes, two 8-foot-wide outside shoulders and a 4-foot-wide emergency walkway on the river's side.
- Cost: $47.1 million in 2013 dollars.

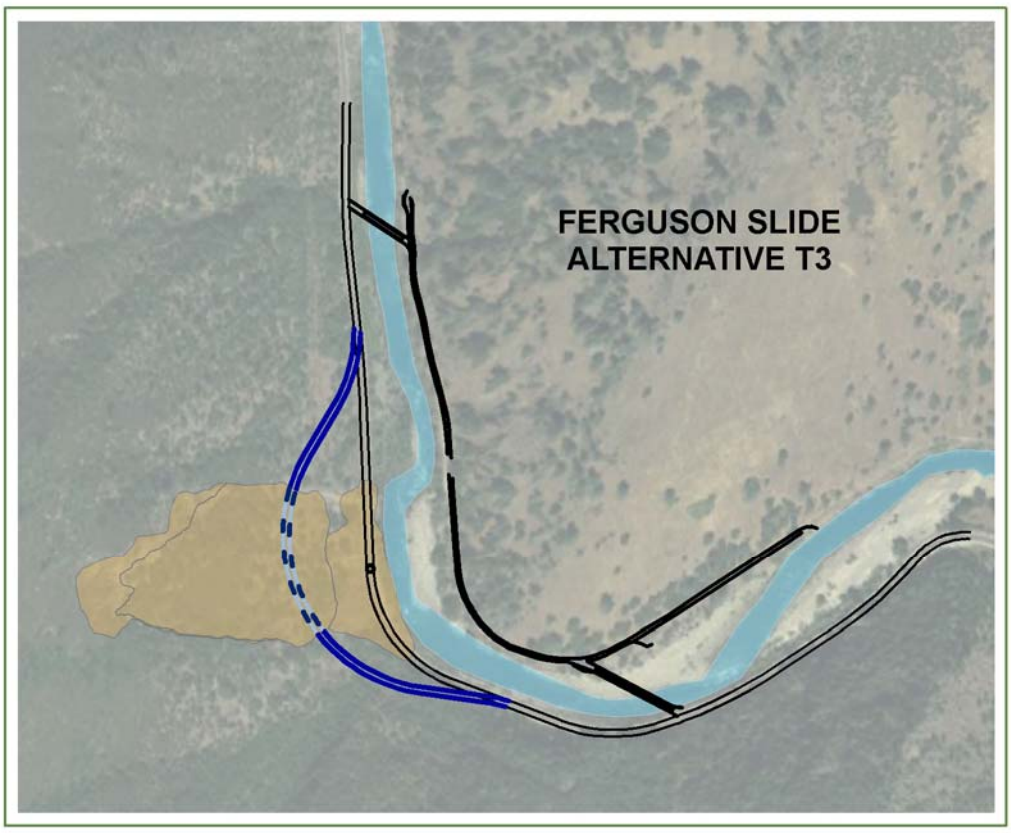
- Calls for a mandatory design exception to accommodate constructing the rockshed/tunnel on the existing alignment, which features a roadway curvature that does not meet current standards.
- Requires construction excavation equipment be modified to operate remotely to minimize exposure of workers to rockfall/slide hazards during construction.
- Requires construction of retaining walls to block rock material from falling onto the highway on the approach ends of the structure where it cuts into the canyon wall.
- Requires transport and disposal of an estimated 80,000 cubic yards of rock material to a disposal site outside of the project area. This equates to approximately 200 trips a day for 30 working days, using the typical 15-ton-capacity mining trucks.



Alternative T-3 (Tunnel under Slide Realignment)

- Realigns the highway through a 2,200-foot-long tunnel built beneath the rockslide debris field.

- Keeps State Route 140 on the south side of the Merced River.
- Provides two 12-foot-wide lanes, two 8-foot-wide outside shoulders and two 4-foot-wide emergency walkways.
- Cost: $225.7 million in 2013 dollars.
- Requires transport and disposal of an estimated 120,000 cubic yards of rock material to a disposal site outside of the project area. This equates to approximately 200 trips a day for 45 working days, using the typical 15-ton-capacity mining trucks.
- Requires construction of retaining walls to block rock material from falling onto the highway on the approach ends of the structure where it cuts into the canyon wall.



Common Design Features of the Build Alternatives

- Calls for an emergency monitoring and reporting system, such as cameras within and at entrances to the rockshed or tunnel. Also requires a tunnel operations and maintenance facility, potentially located at the Midpines Maintenance Station,

where routine 24-hour supervision of the emergency monitoring and reporting systems can be conducted.

- Incurs future operating and maintenance costs of $1.5 million per year, to include full-time monitoring of the rockshed or tunnel, routine cleaning, and repair and replacement of rockshed or tunnel equipment, such as electrical systems, structural components, and water drainage systems.
- Requires transport and disposal of rock material. The exact disposal site is not known at this phase of the project. Caltrans construction contracts allow the selected contractor to choose the location for disposal of excess material. The contractor can sell, use, or dispose of the material as he or she chooses, provided all state and federal laws are followed. There are no known commercial disposal sites in Mariposa County that have the capacity to accept all the excess material. There are sites in Merced County, some 60 to 70 miles from the project site, that would be suitable for disposal. Trucks would most likely travel on State Route 140 through the town of Mariposa to reach disposal destinations in Merced County.
- Once construction is complete for either of the build alternatives, the temporary detour would be removed. All temporary bridges, including the pilings, piers, abutments, and pedestals, would be removed to at least 1 foot below the ground. The embankments behind the abutments would be removed, and the slopes would be restored to their original contours. Abutments from the first temporary bridges would also be removed in the same manner. Pavement on Incline Road would be removed, and the road would be restored to its previous unpaved condition for use by recreational users and the U.S. Forest Service.
- Create an aesthetic design advisory committee that would be guided by Caltrans' Context Sensitive Solutions and that would make recommendations regarding appropriate implementation of the avoidance, minimization, and/or mitigation measures listed in Section 3.1.5. The aesthetic design advisory committee is not a mitigation measure, nor will the committee develop new mitigation measures. The aesthetic design advisory committee would meet after the preferred alternative has been selected and the recommendations of the committee would be reported in the Final Environmental Impact Report/Environmental Impact Statement.
- Mitigation for impacts as a result of the emergency project (installation of temporary bridges and pavement on Incline Road) would be added to any mitigation proposed for either build alternative.

- Culvert systems would be incorporated into the plans and specifications to channelize, collect and discharge storm water runoff using project-specific approved best management practices (BMPs) to minimize non-storm water discharges into the Merced River.
- No utility relocation is required.

2.1.2 No-Build Alternative

Consideration of a No-Build Alternative is required by CEQA and NEPA and requires the same environmental analysis as the proposed permanent build alternatives.

- The No-Build Alternative would leave State Route 140 damaged and blocked by the Ferguson rockslide, and it would leave the temporary bridges in place to function as State Route 140. In addition, the traffic signals controlling the single-lane access through the detour would remain in operation.
- The detour was constructed during a declared emergency as a temporary solution to the closure of State Route 140. It was designed under an agreement with the U.S. Forest Service that the pavement and structures used for the detour would be removed once a permanent solution could be constructed. The agreement allows the detour to remain for 10 years. In the absence of a permanent solution, the detour would be removed when the temporary bridges or abutments fail.
- The temporary bridges and the structures that support them vary in their length of service life, depending on environmental conditions. The steel bridges themselves may have a useful life of between 20 and 25 years. This estimate is based on normal wear, fatigue, and corrosion of the steel components. However, the actual service life of the bridges could depend on the flow of the river. The temporary bridges are designed to allow a 10-year flood to pass safely underneath them, but when greater floods (such as a 20-year flood) occur, the bridges could become damaged to the point of failure.
- The structures supporting the temporary bridges have a service life of 5 to 10 years from the date of installation in 2008. These support structures are what determine the useful age of the detour route. They consist of bridge abutments made partly of galvanized wire retaining walls. Between the fifth and tenth year of use, the maintenance of these walls will increase and, by the tenth year, the walls may require actual replacement, which would not likely be allowed by the U.S. Forest Service. River flows resulting from a four-year flood could damage

the retaining walls and shorten their service life, leading to the closure of the State Route 140 detour.

- The temporary nature of the bridge structures and the fact that they could be overrun with flood waters in the event of a heavy precipitation year leave the area vulnerable to loss of highway access from a sudden failure of the structures. The agreement with the U.S. Forest Service does not allow reconstruction of the temporary detour bridges or abutments.
- When the temporary bridges or abutments are no longer considered safe, the temporary detour would be removed. All temporary bridges, including the pilings, piers, abutments, and pedestals, would be removed to at least 1 foot below the ground. The embankments behind the abutments would be removed, and the slopes would be restored to their original contours. Abutments from the first temporary bridges would also be removed in the same manner. Pavement on Incline Road would be removed, and the road would be restored to its previous unpaved condition.
- Mitigation for impacts as a result of the emergency project would be required when the temporary bridges and pavement are removed.
- The No-Build Alternative does not meet standard design features, and it would not meet the purpose and need of the project to restore the highway to its original operation as a full-access route with some restrictions.

2.1.3 Comparison of Alternatives

Potential environmental effects, cost, and the degree to which they meet the project purpose and need are used to evaluate the proposed project alternatives. The two proposed build alternatives would restore full access between the communities on State Route 140, as well as to Yosemite National Park and other recreational opportunities. Both build alternatives are consistent with the Mariposa County General Plan, the Sierra National Forest Land and Resource Management Plan, and the South Fork and Merced Wild and Scenic River Implementation Plan. The build alternatives would maintain access through the project area for all types of emergency vehicles whereas the No-Build Alternative currently provides short-term access for emergency vehicles. The No-Build Alternative's eventual failure and removal from the environment would cut off emergency access through the area in the long term. The No-Build Alternative is inconsistent with the Mariposa County General Plan and the purpose and need of the project.

The build alternatives as well as the No-Build Alternative would not affect cultural resources. The archaeological and architectural resources within the project area were determined not to be eligible for the National Register of Historic Places.

Alternative R is predicted to reduce scenic quality in the area to moderately low, a more substantial visual impact than Alternative T-3. Alternative T-3 would improve the project area's visual and aesthetic quality. The No-Build Alternative imposes a short-term visual quality of moderately high with the temporary bridges in place. With the removal of the temporary structures, the surrounding landscape would be restored to its naturally high visual quality.

Construction activities associated with the build alternatives would cause short-term impacts to surface water quality and could potentially create long-term surface water impacts through storm water runoff. The temporary structures of the No-Build Alternative would create only short-term storm water runoff impacts since the bridges would eventually be removed. Also, either build alternative, if built, could result in a similar chance of dispersing non-native weed species in the area. Potential hazardous waste and materials exposures are similar in all of the alternatives in that they present the possibility of exposure to elevated levels of arsenic along Incline Road due to soil disturbance.

The build alternatives would have some impact on the Merced River, which is designated as a Wild and Scenic River. Alternatives R and T-3 would not place structures within the free-flowing boundaries of the river, but they both would affect the outstandingly remarkable value of wildlife in the area by removing a portion of limestone salamander habitat, resulting in the likely take of limestone salamanders. Alternative R would remove a little more than 2 acres of salamander habitat, while Alternative T-3 would remove a bit less than half an acre. Incline Road would be restored to its previous condition, removing the temporary use of the Section 4(f) property.

The No-Build Alternative would have short-term impacts on the free flow of the river if the water level exceeds the ordinary high water mark. The temporary structures would eventually be removed from the banks of the river, eliminating the impact to the river. The No-Build Alternative would not affect the limestone salamander during this alternative's temporary lifespan or upon its removal. Incline Road would be restored to its previous condition, removing the temporary use of the Section 4(f) property.

There would be a significant amount of rock removed for both build alternatives through cutting, blasting and drilling. Sediment from construction operations could cause short-term impacts to water quality. Alternative R would remove 80,000 cubic yards of the rockslide talus, requiring 200 truck loads per day for 30 working days. Alternative T-3 would remove 292,000 cubic yards of rock, requiring 200 truck loads per day for 105 working days. The build alternatives have the potential to cause minor rockfall in cut areas and also offer possible exposure to future slides. For the No-Build Alternative, the removal of the temporary bridges would restore the geology of the project area back to its natural contours.

Impacts from construction of the build alternatives would be temporary and would require minimal closures of the highway as traffic would be maintained throughout construction on the current temporary detour. Closure of the detour is not expected, though if needed would be no more than 10 to 15 minutes to move equipment in and out of the construction area.

Blasting and drilling activities would be used to build the rockshed or tunnel, and excess rock material would need to be hauled off to a disposal site outside the project area. Trucks removing excess material would use the detour traffic light cycle to enter the roadway. Trucks would most likely travel on State Route 140 through the town of Mariposa to reach disposal destinations in Merced County. Haul loads would be required to be within the legal amount for the route. Any damage to the state route would be addressed by Caltrans.

Both build alternatives would include restoring Incline Road for use by bicyclists and pedestrians. The No-Build Alternative would eventually cut off through traffic at the project site; at that time, Incline Road would be restored, but would be accessible only from the east side of the Ferguson rockslide. Currently, the temporary detour places short-term impacts on bicyclists and pedestrians because Incline Road is used as a vehicular route with no shoulders.

The build alternatives would have impacts on natural communities, although the magnitude of those impacts varies. Alternative R would remove around 2 acres of oak woodlands. Alternative T-3 would remove under a half acre. The No-Build Alternative would not have any impacts on natural communities.

Both build alternatives would have some effect on special-status plant species habitat, including copper moss, Tompkins sedge, Mariposa clarkia, and smallflower monkeyflower. Alternative R would remove more than an acre of smallflower

monkeyflower habitat and slightly more than 2 acres of habitat for Mariposa clarkia and Tompkins sedge. Alternative T-3 would remove 0.25 acre of smallflower monkeyflower habitat and 0.45 acre of habitat for Mariposa clarkia and Tompkins sedge. Alternative T-3 would also affect one to two patches of cooper moss.

The build alternatives would potentially affect some bat habitat and the habitat of the state fully protected ringtail, at least temporarily, due to ground disturbance related to construction. In addition, Alternatives R and T-3 would both remove potential habitat for the state fully protected limestone salamander.

Both build alternatives and the No-Build Alternative would include mitigation for impacts generated from the installation of the temporary bridges and detour road. Theses impacts include:

- Removal of 13 trees (8 oak trees, 1 upland tree, 4 riparian trees)
- Impact to two Tompkin’s sedge plants

The estimated costs of the build alternatives range between $47.1 million for Alternative R and $225.7 million for Alternative T-3. Table 2.1 compares the alternatives by comparing their environmental effects, cost and construction time. For comparison purposes, the existing condition of the project area includes the temporary bridges and detour and is the same as the No-Build Alternative in the short-term.

Table 2.1 Summary of Major Potential Impacts from Alternatives

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Reopen and Restore Full Access for Traffic	Yes	Yes	Short-term Yes, Long-term No – detour bridges would eventually fail, requiring closure of the highway at the damaged section.
Consistent with Mariposa County General Plan	Yes	Yes	Short-term Yes, Long-term No – detour bridges would eventually fail, requiring closure of the highway at the damaged section.
Wild and Scenic Rivers	Would not affect the free flow of the Merced River, but could have short-term impacts to water quality. Short-term impacts to the *outstandingly remarkable values* of Recreation, Geology, Wildlife and Botany. Would have direct, but not adverse, effects to the Cultural/Historic Landscape.	Would not affect the free flow of the Merced River, but could have short-term impacts to water quality. Short-term impacts to the *outstandingly remarkable values* of Recreation, Geology, Wildlife and Botany. Would have direct, but not adverse, effects to the Cultural/Historic Landscape.	Temporary bridges impede free flow of the river and have impacts to water quality Short-term impacts to the *outstandingly remarkable value* of Geology Direct and adverse effects to Recreation and Cultural/Historic.
Parks and Recreation	Would restore full access to Yosemite and other recreational activities within Mariposa County via State Route 140. Incline Road would be restored as a recreational trail.	Would restore full access to Yosemite and other recreational activities within Mariposa County via State Route 140. Incline Road would be restored as a recreational trail.	The eventual failure of the bridges would close the highway at the rockslide. Temporarily eliminates Incline Road as a recreational trail. Does not provide full access to Yosemite and other recreational activities via State Route 140.
Community Character and Cohesion	Would restore full access between the communities along State Route 140.	Would restore full access between the communities along State Route 140.	Access between the communities would eventually be eliminated when temporary detour bridges fail.

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Utilities/Emergency Services	Would restore full access for emergency vehicles. No utility relocations required.	Would restore full access for emergency vehicles. No utility relocations required.	Access for emergency vehicles would be eliminated when the detour bridges eventually fail.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	Incline Road would be restored to accommodate bicycles and pedestrians. The new roadway would accommodate all vehicle types and would include shoulders within the structures to accommodate bicycles.	Incline Road would be restored to accommodate bicycles and pedestrians. The new roadway would accommodate all vehicle types and would include shoulders within the structures to accommodate bicycles.	Temporarily restricts access for pedestrians and bicycles between communities. Would eliminate all through traffic when the detour bridges eventually fail.
Visual/Aesthetics	Structures would produce an average reduction in visual quality to moderately low.	Structures would improve the overall visual quality of the area to high.	Structures create a short-term visual quality of moderately high. Upon removal of temporary structures, the landscape would be restored to its naturally high visual quality.
Cultural Resources	No adverse effects.	No adverse effects.	Short-term altering of the already-compromised Yosemite Valley Railroad Grade (Incline Road). Upon the removal of the detour, the railroad grade would be returned to its previous state.
Hydrology and Floodplain	Would encroach longitudinally on the floodplain.	Would not encroach on the floodplain.	Footings and abutments currently encroach on the floodplain. Structures would be affected by a 20-year flood.
Water Quality and Storm Water Runoff	Removal of the temporary bridges would cause short-term impacts to surface water.	Removal of the temporary bridges would cause short-term impacts to surface water.	Storm water runoff and bridge maintenance activities could create short-term impacts to surface water. Eventual removal of the temporary bridges would cause short-term impacts to surface water.
Geology/Soils/Seismic/ Topography	Would remove the talus of the rockslide, requiring the disposal and transport of an estimated 80,000 cubic yards of rock material with a potential disposal cost of $4.4 million.	Would remove an estimated 292,000 cubic yards of rock material with a potential disposal cost of $6.6 million.	None

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Hazardous Waste/Materials	Potential exposure to elevated levels of arsenic from Incline Road during removal of detour.	Potential exposure to elevated levels of arsenic from Incline Road during removal of detour.	Potential exposure to elevated levels of arsenic from Incline Road.
Air Quality	Potential for short-term impacts during construction.	Potential for short-term impacts during construction.	Short-term impacts until temporary bridges are removed from signalized one-way detour
Natural Communities	2.10 acres of oak woodland would be removed.	0.45 acre of oak woodland would be removed.	None
Wetlands and other Waters	None	None	None
Plant Species	2.1 acres of Mariposa clarkia and Tompkins sedge habitat would be removed. 1.05 acres of smallflower monkeyflower habitat would be removed.	0.45 acre of Mariposa clarkia and Tompkins sedge habitat would be removed. 0.25 acre of smallflower monkeyflower habitat would be removed. One to two patches of copper moss would be removed.	None
Animal Species	More than 2 acres of bat habitat would be affected, 1.05 acres west of the rockslide and 1.05 acres east of the rockslide.	About 0.45 acre of bat habitat would be affected, 0.2 acre west of the rockslide and 0.25 acre east of the rockslide.	None
Threatened and Endangered Species	Ground disturbance would affect habitat of the ringtail. Would cut into the slope on the south side of the river, potential habitat for Merced clarkia and limestone salamander, affecting 2.1 acres of these habitats.	Ground disturbance would affect habitat of the ringtail. Would cut into the slope on the south side of the river, potential habitat for Merced clarkia and limestone salamander, affecting 0.45 acre of these habitats.	None
Invasive Species	Disturbance of ground would cause dispersal of non-native weeds.	Disturbance of ground would cause dispersal of non-native weeds.	None

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Use of 4(f) Property	No	No	Temporary
Cost	$47.1 million	$225.7 million	$0
Length of Construction	3 years	4 years	N/A

After the public circulation period, all comments will be considered, and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with CEQA, Caltrans will certify that the project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts, if any, that will not be mitigated below a level of significance, and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. Caltrans will then file a Notice of Determination with the State Clearinghouse that will identify whether the project will have significant impacts, whether mitigation measures were included as conditions of project approval, whether findings were made, and whether a Statement of Overriding Considerations was adopted. With respect to NEPA, Caltrans, as assigned by FHWA, will document and explain its decision regarding the selected alternative, project impacts, and mitigation measures in a Record of Decision in accordance with NEPA.

2.1.4 Alternatives Considered but Eliminated from Further Discussion

This section includes all alternatives that were considered during the project development process but were eliminated before this draft environmental document was circulated to the public. Information on when and why alternatives were eliminated from consideration is included. Some alternatives were considered in early planning documents and eliminated by the project development team, while other alternatives were studied in depth and removed by Caltrans and the participating agencies just prior to the circulation of this draft environmental document. Participating agencies for this project are listed on the cover page.

Alternative E (Slide Removal)

Alternative E proposed to remove the debris from the rockslide and restore State Route 140 on the existing alignment. This alternative was considered during the initial alternatives development process and withdrawn by the project development team for the following reasons:

- The rockslide would have to be removed from the top down, which would require building a 30-foot-wide, two-lane road on either side of the rockslide to the top of the rockslide. Approximately 9 acres of Limestone salamander habitat would be impacted.
- The rockslide contains about 800,000 cubic yards of rock material. Removing, transporting and disposing of this material would take 200 trips each day for up to 300 working days, using the typical 15-ton-capacity mining trucks.
- There is a potential that once the rockslide material was removed, additional material upslope could begin to slide down, endangering drivers and recreational users and potentially closing the highway again.

- Based on the geology and stability of the canyon and the massiveness of the slide, removal is not considered a viable long term solution.

These reasons remain true under the current conditions.

Alternative S-2 (Modified Viaduct Realignment)

Alternative S-2 proposed multiple bridge types to span the Merced River and fit within the alignment of the canyon. A total of five bridge types were studied by Caltrans, which included tied-arch, slant-leg, steel-through truss, suspension, and cable stay. This alternative and its variations were considered during the alternatives development process for the November 2010 Draft Environmental Impact Report/Environmental Impact Statement.

The steel-through truss, suspension, and cable stay were determined non-viable by the project development team for the following reasons:

- The topography of the Merced River canyon requires bridge spans to be placed on curved alignments. These bridge types don't allow for curves in the length of their span.
- The confines of the Merced River canyon would not accommodate these bridges and the approaches that would be required to meet current Caltrans design standards.
- This alternative would have a direct and adverse effect to the Merced Wild and Scenic River's outstandingly remarkable value of Recreation and Cultural/Historic.
- This alternative would have a permanent use of 0.05 to 0.07 acre of the Merced River/Incline Road Section 4(f) property, which is prohibited if there is a feasible alternative that avoids the use.

The tied-arch (S2-V1) and slant-leg (S2-V2) bridges were considered during the environmental study process and were presented as viable alternatives in the November 2010 Draft Environmental Impact Report/Environmental Impact Statement. They were removed from further consideration by Caltrans and the participating agencies for the following reasons:

- This alternative would have a direct and adverse effect to the Merced Wild and Scenic River's outstandingly remarkable value of Recreation and Cultural/Historic.
- This alternative would have a permanent use of 0.05 to 0.07 acre of the Merced River/Incline Road Section 4(f) property, which is prohibited if there is a feasible alternative that avoids the use.

Alternative T-2 (Western Tunnel Realignment)

Alternative T-2 proposed to realign the highway south of the Ferguson rockslide by tunneling one mile through the mountain from the existing State Route 140 alignment. This alternative was considered during the alternatives development process for the November 2010 Draft Environmental Impact Report/Environmental Impact Statement, but was rejected by the project development team for the following reasons:

- This alternative is estimated to cost $528 million (2013 dollars). This alternative is economically infeasible.
- This alternative would take up to 7 years to build.
- This alternative would require the transport and disposal of about 500,000 cubic yards of excavated material to a disposal site outside of the project area. This equates to about 200 trips a day for 180 working days, using the typical 15-ton-capacity mining trucks.
- A tunnel of this size would require 3-foot-in-diameter emergency exits placed throughout the entire length of the tunnel to provide vertical access to the top of the mountain from the tunnel. These vertical emergency exits would have to climb up to 2,000 feet in elevation. Engineering, construction, and maintenance of the exits would be economically infeasible.

Alternative A (At-grade Realignment)

Alternative A proposed to realign the highway to the northeast, spanning the Merced River with two at-grade concrete bridges. State Route 140 would bypass the rockslide on a half-mile of Incline Road and then span the river to meet with the existing alignment. This alternative was considered during the alternatives development process for the November 2010 Draft Environmental Impact Report/Environmental Impact Statement, but was rejected by the project development team for the following reasons:

- The design speed of this roadway alignment would be 25 miles per hour at the bridge entrances and exits, which is non-standard and poses a safety concern for motorists.
- A substantial side-hill excavation into a one-half mile section of the northern canyon wall would be required.
- Prolonged closures of the temporary detour would be necessary, denying access to Yosemite National Park via State Route 140.
- The conversion of a half-mile of Incline Road into the state highway would restrict trail use activities to the shoulders of the road, which is prohibited if there is a feasible alternative that avoids the use.

- This alternative would have a permanent use of 3 acres of the Merced River/Incline Road Section 4(f) property.
- An ongoing slide-monitoring program would have to be established due to the potential of future rockslides affecting the at-grade bridges.
- At-grade bridges would be more vulnerable to a future rockslide.
- The at-grade bridges would be built at a level below a 20-year flood event, posing a longitudinal encroachment.

Alternative C (Open-cut Realignment)

Alternative C proposed to realign the highway to the northeast. It would span the Merced River with a concrete bridge bypassing the rockslide, cut through the mountain across the river from the rockslide, and then span back across the river where it would meet the existing alignment. This alternative was considered during the environmental study process and was presented as a viable alternative in both the November 2007 Initial Study/Environmental Assessment and the November 2010 Draft Environmental Impact Report/Environmental Impact Statement. The alternative was removed from further consideration by Caltrans and the participating agencies for the following reasons:

- This alternative would have a direct, un-mitigatable effect to the free flow of the Merced Wild and Scenic River. Under the National Wild and Scenic Rivers Act, any development affecting the free-flowing condition of a Wild and Scenic River would require a congressional waiver.
- This alternative would have a direct and adverse effect to the Merced Wild and Scenic River's outstandingly remarkable values of Recreation and Cultural/Historic, and a direct but not adverse effect to the outstandingly remarkable value of Wildlife.
- This alternative would have a permanent use of 0.02 acre of the Merced River/Incline Road Section 4(f) property, which is prohibited if there is a feasible alternative that avoids the use.

Alternative T (Tunnel Realignment)

Alternative T proposed a similar realignment to Alternative C, spanning the Merced River twice with concrete bridges. Instead of a cut through the mountain on the north side of the river, this alternative featured a 700-foot tunnel through the mountain. This alternative was considered during the environmental study process and was presented as a viable alternative in both the November 2007 Initial Study/Environmental Assessment and the November 2010 Draft Environmental Impact Report/Environmental Impact Statement. The alternative was

removed from further consideration by Caltrans and the participating agencies for the following reasons:

- This alternative would have a direct, un-mitigateable effect to the free flow of the Merced Wild and Scenic River. Under the National Wild and Scenic Rivers Act, any development affecting the free-flowing condition of a Wild and Scenic River would require a congressional waiver.
- This alternative would have a direct and adverse effect to the Merced Wild and Scenic River's outstandingly remarkable values of Recreation and Cultural/Historic, a direct but not adverse effect to the outstandingly remarkable value of Wildlife, and short-term impacts to Recreation and Geology.
- This alternative would have a permanent use of 0.02 acre of the Merced River/Incline Road Section 4(f) property, which is prohibited if there is a feasible alternative that avoids the use.

Alternative S (Viaduct Realignment).

Alternative S proposed to realign the highway to the northeast, spanning the Merced River with a bridge, following the edge of the hillside on the north side of the river with a viaduct and retaining wall then spanning back across the river to meet the existing alignment. This alternative was considered during the environmental study process and was presented as a viable alternative in both the November 2007 Initial Study/Environmental Assessment and the November 2010 Draft Environmental Impact Report/Environmental Impact Statement. The alternative was removed from further consideration by Caltrans and the participating agencies for the following reasons:

- This alternative would have a direct, un-mitigateable effect to the free flow of the Merced Wild and Scenic River. Under the National Wild and Scenic Rivers Act, any development affecting the free-flowing condition of a Wild and Scenic River would require a congressional waiver.
- This alternative would have a direct and adverse effect to the Merced Wild and Scenic River's outstandingly remarkable values of Recreation and Cultural/Historic, and a direct but not adverse effect to the outstandingly remarkable value of Wildlife.
- This alternative would have a permanent use of 0.03 acre of the Merced River/Incline Road Section 4(f) property, which is prohibited if there is a feasible alternative that avoids the use.

2.2 Permits and Approvals Needed

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

Table 2.2 Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers	Section 404 Nationwide Permit 14 for filling or dredging waters of the United States	Submittal anticipated before construction
U.S. Forest Service	Biological Evaluation	Submittal anticipated before the final environmental document (no additional NEPA analysis required for this action)
U.S. Forest Service	Section 7(a) Wild and Scenic Rivers Act Evaluation	Evaluation anticipated following the selection of a preferred alternative
U.S. Forest Service	Letter of Consent for the issuance of a Department of Transportation easement	Anticipated before construction (will require additional NEPA analysis by the U.S. Forest Service)
U.S. Forest Service	Special Use permit	Submittal anticipated before construction
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement	Submittal anticipated before construction
California Department of Fish and Wildlife	Section 2081 Permit for the potential take of (impacts to) Merced clarkia and/or limestone salamander during construction	Submittal anticipated before construction
California Regional Water Quality Control Board	Section 401 Certification for a Water Discharge Permit	Submittal anticipated before construction
California Regional Water Quality Control Board	National Pollution Discharge Elimination System Compliance	Submittal anticipated before construction
State Historic Preservation Officer	Determinations of Eligibility for Cultural Resources	Concurrence letters received October 10, 2007 and July 15, 2013. See Appendix D.

Chapter 3 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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

- Growth—The proposed project is not expected to encourage unplanned growth because the build alternatives would only reestablish full access to State Route 140 (Community Impact Assessment, July 2007).
- Farmlands/Timberlands—There is no farmland or timberland in the project area (Community Impact Assessment, July 2007, and Visual Impact Assessment, April 2009).
- Environmental Justice—There are no communities or residents in the project area (Community Impact Assessment, July 2007).
- Paleontology— The proposed project would not affect paleontological resources because no resources have been identified in the proposed project area. (Paleontological Identification Report, June 2007, and Updated Paleontological Identification Report, August 2008).
- Energy—The proposed project would not affect the way energy is produced or used because the build alternatives would only reestablish full access to the section of State Route 140 damaged by the Ferguson rockslide.

3.1 Human Environment

3.1.1 Land Use

3.1.1.1 Existing and Future Land Use

Affected Environment

Current land use was identified using Mariposa County's 2006 General Plan and the Sierra National Forest Land and Resource Management Plan. More than half of the land in Mariposa County is federally owned. Most notable is Yosemite National Park, which occupies more than 250,000 acres of Mariposa County. Two National Forests—Stanislaus and Sierra—occupy most of the land within the county. The Stanislaus National Forest is mostly west of Yosemite and north of the Merced River. The Sierra National Forest is mostly west of Yosemite and south of the Merced River (see Figure 1-1). The project area lies in the Sierra National Forest. The Bureau of Land Management also owns segments of land, mostly along the Merced River's wild and scenic corridor.

The land within the project area is considered rural and is managed by the U.S. Forest Service. There are no residences or businesses within the limits of the proposed project. The Merced River, which flows through the project area, is designated as a Wild and Scenic River under the Wild and Scenic Rivers Act (see Section 3.1.1.3). The existing State Route 140 operates on Forest Service land pursuant to a Special Use Permit with the U.S. Forest Service. The temporary detour was constructed on Forest Service land through an agreement with the U.S. Forest Service.

Environmental Consequences

The proposed project would not require or encourage a change in land use. The build alternatives would only reestablish full access for motorists using State Route 140. Under the No-Build Alternative, the temporary detour would remain in use until its eventual failure, which would also require an amendment to the current Special Use Permit with the U.S. Forest Service.

Avoidance, Minimization, and/or Mitigation Measures

No mitigation measures would be required.

3.1.1.2 Consistency with State, Regional, and Local Plans

Affected Environment

The Mariposa County General Plan (2006), the Yosemite Valley Plan (November 2000), and the Economic Vitality Strategy and Implementation Plan for Mariposa County (November

2007) focus on maintaining accessibility to Yosemite National Park, rivers, lakes, National Forests, rural scenery, scenic routes, and historic sites within Mariposa County. The plans further promote the enhancement and preservation of the following:

- Yosemite and National Forest lands
- Large and intact areas of agricultural and forest lands
- Separate and unique communities that support larger rural developments
- Close proximity to outdoor recreation
- Historic structures, ruins, and monuments

The Mariposa County General Plan addresses a broader range of goals that include land use, economic development, transit and transportation, and historic resources. In November 2007, Mariposa County developed an Economic Vitality Strategy and Implementation Plan with the primary goal of improving the economy in Mariposa County through encouraging tourism. Efforts to accomplish the goals set forth in the county's general plan and the economic implementation plan include the following:

- Facilitating improvements to state highways that serve Mariposa County
- Maintaining an effective transit system
- Maintaining an effective emergency system
- Preserving, protecting, and enhancing regional tourism opportunities and resources
- Creating visitor access to communities and points of interest
- Providing job growth and sustaining county revenues by enhancing and expanding sectors of the economy that serve visitors
- Using the county's historic sites to increase tourism opportunities
- Creating historic districts to preserve the county's historic character

These efforts depend on State Route 140 as well as other routes to provide full access to all communities and recreational activities within Mariposa County. Maintaining the highways and roads in the county is an important part of accomplishing Mariposa County's goals.

The Sierra National Forest Land and Resource Management Plan was developed to direct the management of the Sierra National Forest. This plan provides goals for the transportation and facility resource and requires a broad range of developed and dispersed recreation opportunities that balance with existing and future demand. Three levels of direction make up the Sierra National Forest Land and Resource Management Plan. The first level is the Forest Goals and Objectives, which provide broad and overall direction for the type and amount of goods and services the forest will provide in the future. The second level is a discussion of

future conditions of the forest. The third level is general Management Prescriptions and Management Standards and Guidelines.

The Sierra National Forest Land and Resource Management Plan states that river segments totaling 82.5 miles will be managed as part of the National Wild and Scenic River System. Facility construction will be implemented within Scenic/Recreational river segment designations commensurate with existing uses and conditions.

The Sierra National Forest Land and Resource Management Plan emphasizes preservation of the free-flowing condition of selected rivers having various outstanding remarkable features and notable values for inclusion in the National Wild and Scenic River System. The plan calls for the management of recommended segments in accordance with the Wild and Scenic Rivers Act of 1968. Recreational segments allow recreational development along the river to provide opportunity to engage in activities enhanced by the river. Recreational designations do not preclude consideration of dams and/or diversions in certain situations.

The management and resource guidance in the Sierra National Forest Land and Resource Management Plan relates to the Merced Wild and Scenic River by prescribing management of designated river corridors according to classification and direction established in the Wild and Scenic River management plans. The administering of permits to whitewater raft on the Merced River would be coordinated with other agencies.

The South Fork and Merced Wild and Scenic River Implementation Plan provides for management guidance per the Wild and Scenic Rivers Act. This plan incorporates the overall standards, recreation river zone objectives, and management guidelines.

Some of the overall standards are the following:

- Cultural Resources—Maintain in a condition that will permit an evaluation of significance.
- Fisheries—Meet all Riparian Standards and Guidelines.
- Transportation System—Maintain trails and roads at designated levels.
- Wildlife—Maintain or improve habitat.

Management guidelines include the following:

- Restrain from developing on slopes more than 25 percent.
- Set back structures so as not to infringe upon the skyline as viewed from the river’s edge.

- Maintain the existing vegetation species diversity at current levels within the river corridor.
- Limit overhead crossing of any type across the river corridor.
- Require all structures that will be in view of the river to meet the motif or color guidelines of the agency involved.
- Encourage a minimum of a 100-foot setback for all newly constructed improvement and structures from the river's edge.
- Require visual screening. Use native vegetation materials to make the facilities subordinate with the existing landscape.

Environmental Consequences

The build alternatives would be consistent with the Mariposa County General Plan, the Yosemite Valley Plan, and the Economic Vitality Strategy and Implementation Plan for Mariposa County by restoring full access to all vehicle types traveling on State Route 140.

Alternative R would introduce a structural element next to the Merced River that could be considered too evident in the landscape and would not be consistent with the Sierra National Forest Land and Resource Management Plan. Alternative T-3 would be consistent with the plan.

The build alternatives have been developed to meet as many of the South Fork and Merced Wild and Scenic River Implementation Plans standards, objective and guidelines as possible. However, the project area is in a narrow river canyon with steep sides, constraining construction options. Alternative R does not propose an overhead crossing, but would be within 100 feet from the river's edge. The exposed wall of the rockshed/tunnel would be textured, patterned, and/or colored to blend into the surroundings. Alternative T-3 would be consistent with the plan.

The No-Build Alternative would not be consistent with any of the federal, state, regional, and local plans because a vital transportation link between communities and access to Yosemite National Park and other tourist activities would be eventually eliminated due to eventual failure of the temporary bridges or their support. Failure of the No-Build Alternative would restrict access to the outstandingly remarkable values associated with the Merced River in the project area by eliminating motor vehicle traffic.

Avoidance, Minimization, and/or Mitigation Measures

Refer to Section 3.1.5 for mitigation measures for the visual impacts of the build alternatives.

3.1.1.3 Wild and Scenic Rivers

Regulatory Setting

Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 U.S. Code 1271) and the California Wild and Scenic Rivers Act (CA Public Resources Code Section 5093.50 et seq.).

There are three types of Wild and Scenic Designations:

1. Wild—undeveloped, with river access by trail only;

2. Scenic—undeveloped, with occasional river access by road; and

3. Recreational—some development is allowed, with road access.

A river along with its immediate environment is included in the National Wild and Scenic Rivers System if it possesses "outstandingly remarkable values," defined by the Wild and Scenic Rivers Act as "scenic, recreational, geologic, fish and wildlife, vegetation, cultural, or other similar values." A river designated wild and scenic shall be preserved in a free-flowing condition, and shall be protected from water quality degradation. In addition, the river's immediate environments are protected for the benefit and enjoyment of future generations. Any development affecting the free-flowing condition of a federally designated Wild and Scenic River would require a congressional waiver of the Wild and Scenic Rivers Act.

Affected Environment

The following reports were used to determine potential impacts to the Merced River as a result of the proposed project: River Geomorphology Report, January 2009; supplemental Natural Environment Study, February 2013; Historic Properties Survey Report, September 2007 and supplemental versions, June 2010 and January 2013; revised Geotechnical Design Report, March 2008; Paleontological Report, August 2008; Water Quality Assessment Report, January 2013; Noise Study Report, May 2010; Recreational Survey Report, June 2011; Merced River, South Fork Merced River Environmental Impact Statement, November 1991; and Merced Wild and Scenic River Section 7(a) Advanced Summary of Effect to Rivers Values, January 2013.

The Merced River originates in the High Sierra of Yosemite National Park. The river collects its water from Mount Hoffman, Mount Raymond, Tenaya Lake, and the Cathedral Range and flows freely into Yosemite Valley. The Merced River creates deep canyons as it continues

through the Sierra and Stanislaus National Forests. The river eventually makes its way down into the San Joaquin Valley.

The Merced River has two major branches. The main river branch goes through Yosemite Valley. The South Fork branch starts at the southern end of Yosemite and flows through some of the wildest and least developed land in the Sierra National Forest before it joins the main branch just upstream of the Ferguson rockslide.

Development near the Merced River, including the former Yosemite Valley Railroad line (now Incline Road and the temporary State Route 140 detour), occurred because of the river's proximity to Yosemite National Park. In 1987, designation as a federal Wild and Scenic River was sought to protect the largely undeveloped Merced River from further development to preserve the wild, scenic, and recreational characteristics.

The segment of the Merced River that flows through the project area is classified as recreational (the least restrictive of the three classifications attributed to segments of Wild and Scenic Rivers) because of the presence of the highway and Incline Road, which provides access to the recreational activities on the river. This 5.5-mile segment extends from the confluence of the South Fork Merced River to the northwest boundary of the Sierra and the southeast boundary of the Stanislaus National Forest. The river here is free flowing; the slopes alongside it are sparsely vegetated, making the river highly visible to the traveling public. Whitewater rafting, fishing, and picnicking are popular activities along this part of the Merced River. The outstandingly remarkable values of the Merced Wild and Scenic River within the project area include geology, recreation, wildlife, vegetation, and cultural/historical benefits. The details of each outstandingly remarkable value are explained below.

The U.S. Forest Service as the river administrator has established the Wild and Scenic River boundary for the segment of the Merced River affected by the proposed project as extending a quarter mile above the two-year flood event (the Q2) on both sides of the river. The Q2 represents the boundaries of the river during a flood event that has a 50 percent chance of occurring in any given year. The U.S. Forest Service has prepared an advance summary of effects to the Merced Wild and Scenic River. See Appendix I for this summary.

Free-Flowing Condition and Water Quality

The Merced River is free flowing and runs a relatively straight path from Yosemite Valley to the San Joaquin Valley, except for a bend to the north of the project area. The water quality at the project area is good to excellent.

The downstream temporary bridge was built above the Q2 flow of the river channel. At the left (south) abutment, the river flow decreases 2 to 3 feet per second; closer to the center of the channel, the flow increases up to 1 foot per second, causing a separation in flow and a minor change in the flow velocity of the river.

The upstream temporary bridge was built slightly below the Q2 flow, causing a narrow strip of decreased water level along the far right (west) bank at the abutment during larger flows. With larger flows, the right bank pier of the bridge may impede the navigability of whitewater rafters.

Geology

The geology outstandingly remarkable value consists of areas where metamorphic and granite rocks contact each other, and where limestone beds form prominent escarpments.

The Merced River Canyon is a steep inner gorge with highly fractured rocks that formed as a result of tectonic uplifting and the cutting of the Merced River. Exposure of the rocks within the canyon has provided an opportunity for understanding the geologic history of the area. Glaciation left its imprint on this part of the Merced River Canyon as glacial outwash deposits.

Between El Portal and Briceburg, the river valley cuts through rocks that are geologically significant. An interpretive sign about a quarter mile west of the Ferguson rockslide describes the rocks within the canyon as very old metamorphic rocks (rocks changed over time by heat, water or pressure). The bedrock in the Merced River Canyon near the Ferguson rockslide consists of these types of rocks, primarily the phyllite and chert of Hite’s Cove. The bedrock also contains limestone lenses or beds (small, localized areas of limestone) with an extensive limestone bed on the west side of the horseshoe bend. This limestone bed is important because it yielded early Triassic fossils.

Recreation

The recreational outstandingly remarkable value consists of four main recreational activities: whitewater rafting, camping, wading/water play, and hiking. Whitewater rafting is the most popular activity on the river within the project area and has been occurring on the river since the 1970s, averaging 8,000 to 10,000 rafters annually. The whitewater rafting season typically begins in March and ends in June or July depending on the snow pack.

Camping and wading/water play are not common in the area because of the steep canyon walls found in the project area. More suitable camping and wading opportunities can be found in the flat open terrain upstream of the project area near the Foresta Road Bridge.

Incline Road provides opportunities for hiking and biking and is occasionally used by equestrians.

The U.S. Forest Service is responsible for the administration of this recreationally classified segment. The Bureau of Land Management, through a Memorandum of Understanding and Letter of Agreement with the U.S. Forest Service, is the lead agency for managing whitewater rafting. The Bureau of Land Management issues permits to whitewater rafting outfitters as well as private boaters that launch boats at locations both above and below the project area. These locations include Redbud, Indian Flat, and Briceburg. In addition to issuing permits, the Bureau of Land Management maintains and monitors the permit system on the Merced River. All issues affecting the recreational value of the river would be reported to the U.S. Forest Service.

Caltrans, the Bureau of Land Management, and the U.S. Forest Service conducted a recreational survey from the fall of 2008 through the summer of 2009. The survey was designed to capture the opinions of recreational stakeholders such as whitewater rafters, campers, hikers, bikers, and anglers, as well as the general public with regards to the proposed project alternatives' impacts on the recreational value of the Merced River.

The Recreational Survey was conducted on-site and on-line. The survey was announced at local libraries and advertised through community groups and commercial rafting operators. A total of 195 individuals responded to the survey. Respondents were asked to indicate their reasons for visiting the river, their evaluation of the build alternatives (which included the two build alternatives and four bridge alternatives that have since been removed from consideration), and the perceived impact on their recreational experience of the Merced Wild and Scenic River.

More than half (55%) of the respondents' primary recreation activity during their visit to the river was whitewater rafting. Hiking accounted for 14% of respondents, and camping accounted for 7%. Other activities included swimming, fishing, sightseeing and bicycling. Most chose this area to view the scenic beauty and be close to nature. When asked to respond to statements about their attachment to the Merced River, respondents indicated that the river means a lot to them, the wild and scenic status of the river is important, they identify strongly with the river, and they are very attached to the river.

Wildlife

The wildlife outstandingly remarkable value includes important riparian-dependent wildlife and state and federal special-status species found in the project area. The limestone

salamander (*Hydromantes brunus)* was designated as a threatened species by the State of California in 1971. The threatened designation by the State of California indicates that the species is at a high risk of extinction due to restricted range and few populations. Threats to this species include gold mining operations, highway construction, water development, and quarrying for limestone. The limestone salamander is also designated as a fully protected species pursuant to the California Fish and Game Code Section 5050. Assembly Bill 1973 was passed in July 2012 to amend Section 5050 and add to Section 2081.9 of the California Fish and Game Code to allow a one-time only authorization by the California Department of Fish and Wildlife to issue a 2081 Incidental Take Permit to Caltrans for the purposes of this project.

Limestone salamanders live in crevices of cliffs and ledges and under the canopy of foothill-oak woodland, especially where the rocks are overgrown with moss. They are active during the fall, winter, and spring rains, and become inactive during the dry hot months sheltering in cracks, crevices, or dense leaf litter.

The limestone salamander occurs only along the following segments of the Merced River drainage, all of which are within a 5-mile radius of the project area: the Merced River Canyon above Briceburg; a short distance up the North Fork of the Merced River; at Hite's Cove on the South Fork of the Merced River; and in the area of the rockslide.

Limestone salamanders were observed during surveys at various locations on the south side of the Merced River within the project area.

Vegetation

The wildlife outstandingly remarkable value includes state and federal special-status species found in the project area. The Merced River Canyon is renowned nationally and internationally for the spectacular display of wildflowers that may be seen in a good rain year. Visitors are especially attracted to the South Fork Trail that leads to Hite's Cove, but the entire river corridor is an attraction because of the flowers' visual appeal.

During plant surveys conducted at the project area, there were two unconfirmed sightings of the state endangered Merced clarkia (*Clarkia lingulata*).

Cultural and Historical Landscape

The cultural and historical outstandingly remarkable value is composed of a combination of prehistoric and historic resources as well as those of ethnographic importance to the Southern Sierra Miwuk.

Within the project area are three historic resources: the Yosemite Valley Railroad Grade (Incline Road), State Route 140, and historic concrete bridge piers and debris (CA-MRP-1552H). There are also five ethnographic features: two prehistoric bedrock mortar sites (CA-MRP-1566 and CA-MRP-2076), two naturally occurring bedrock basins similar to what tribal elders used as medicine basins, and plant collection areas.

Historic Properties are also protected under Section 106 of the National Historic Preservation Act, which specifically looks at the effects of a project on historic properties eligible for and included on the National Register of Historic Places. See Section 3.1.6 for more information on Historic Properties and the Section 106 process.

Environmental Consequences

Free-Flowing Condition

Impacts to free flow are determined by:

- Alteration of the adjacent riparian habitat or floodplain.
- Alteration of the upland conditions—drainage patterns into the river.
- Alteration of hydrological processes—the ability for the river channel to change course or inundate its floodplain.
- Magnitude and extent of off-site change—changes that influence other parts of the river system (up- or downstream).

Alternatives R and T-3 would not place any structures within the bed or bank of the Merced River. These alternatives would not have long-term effects to the free-flowing condition of the river. Construction of the build alternatives may affect or truncate seasonal drainages during construction. However, downstream effects are not expected.

The No-Build Alternative would leave the temporary bridges in place, resulting in short-term impacts to the free-flow condition.

Water Quality

The build alternatives would have no long-term effects on water quality because they are outside of the river channel and culvert systems would be installed as part of the project to collect and discharge stormwater runoff to ensure compliance with the Basin Plan. See Section 3.2.2 for additional information on water quality. Short-term impacts on water quality could occur during the construction of this project under the build alternatives. The potential water quality impacts are as follows:

- Increases in sediments, turbidity (cloudiness), and total dissolved solids from construction adjacent to the river channel and removal of the temporary bridges.

- Toxicity caused by chemical substances originating from construction activities.

The No-Build Alternative could cause short-term water quality impacts from bridge maintenance activities until the eventual removal of the temporary bridges. Best management practices and ongoing coordination with the U.S. Army Corps of Engineers would continue for the life of the temporary bridges to reduce potential impacts as much as practicable.

Geology

The contact between metamorphic rock and granite rock is 3 miles east of the Ferguson rockslide. Because the contact of the two rock types does not occur in the project area, there are no short- or long-term effects for the build alternatives or No-Build Alternative.

Limestone beds with prominent escarpments have been identified in this segment of the Merced River. However, the build alternatives would not excavate near the prominent escarpment of limestone that yielded important early Triassic fossil parts.

Recreation

The following findings resulted from the Recreational Survey:

- Alternatives R and T-3 would be significantly more likely to be considered acceptable, pleasant, desirable, and scenic than any bridge alternative (bridge alternatives were removed from consideration).
- Individuals were more positive about Alternatives R and T-3 than any bridge alternative.
- Boaters perceived Alternatives R and T-3 to be safer for their recreational activity than a bridge alternative.
- 63% of respondents indicated that Alternative T-3 would have the least negative impact on their recreation experience; 25% indicated Alternative R. The other 12% selected the various bridge alternatives that have since been removed from consideration.
- Alternatives R and T-3 were perceived to be more restorative than any bridge alternatives. Perceived restorativeness includes: the feeling of being away from it all, fascination with the area, and the coherence and compatibility with surroundings.
- Respondents indicated that Alternatives R and T-3 would provide benefits of experiencing the river.

Rafting

Alternatives R and T-3 would not affect whitewater rafting because they would be constructed outside the bed and banks of the river. The temporary bridges would be removed in the late summer to avoid short-term impacts to whitewater rafting.

The No-Build Alternative would leave the temporary bridges in place until removed either from general wear or damage to the point of failure. Until that time, the temporary upstream bridge center pier would remain within the river flow, requiring care in navigation. After removal of the temporary bridges, there would be no access from El Portal to Briceburg (the current put-in and take-out areas for rafting the Merced River), which would greatly reduce or eliminate rafting. This alternative would financially affect the existing rafting companies, with the loss of revenue from the annual 8,000 to 10,000 rafters.

Hiking

Impacts from construction of the build alternatives would be temporary and require minimal closures of the highway, as traffic would be maintained throughout construction on the temporary detour. Hikers and bikers passing through the area would also be affected by the construction activities. See Section 3.6 for details on construction methods.

The build alternatives would restore Incline Road to its previous state so it could return to its use as a recreational trail for hiking, biking, and access to private property and U.S. Forest Service maintenance activities.

The No-Build Alternative would continue to restrict recreational use of Incline Road as long as the temporary bridges remain in use as the temporary detour. Once the temporary bridges are removed, through traffic on State Route 140 would not be possible. Trail use would be affected most for users who access the trail from the west side of the Ferguson rockslide, as opposed to those who live in El Portal or locations east of the project area. It is possible for visitors to travel other routes into Yosemite National Park and then take State Route 140 west, but the extra time and fuel expenses would likely not be desirable.

Wildlife

Suitable limestone salamander habitat and the presence of this species occur on the southern slope next to the existing State Route 140. Alternatives R and T-3 would directly remove 2.10 acres and 0.45 acre of limestone salamander habitat and likely cause a take of the species, resulting in short-term effects from construction. Long-term indirect effect of habitat fragmentation may also result from habitat isolation.

The No-Build Alternative does not disturb the southern slope beyond the limits of the remaining highway.

Vegetation

Alternatives R and T-3 would cut into the slopes on the south side of the river where the unconfirmed observations of Merced clarkia were made. Alternative R would affect 2.10 acres of habitat, and Alternative T-3 would affect 0.45 acre of potential habitat.

The No-Build Alternative would not affect the Merced clarkia potential habitat during its lifespan or upon the eventual removal of the temporary bridges.

Cultural and Historical Landscape

The historic and prehistoric sites within the project area along with the ethnographic features are part of the unique historic context of the Merced River Canyon. Little change has occurred to the setting of the canyon since the construction of the historic railroad and highway.

The build alternatives would not physically affect the historic or prehistoric resources in the canyon, but would introduce a structural element or tunnel opening next to the Merced River, altering the setting of the canyon. Both build alternatives would remove the temporary bridges and pavement along Incline Road (the former Yosemite Valley Railroad) after construction. The resulting effect to the outstandingly remarkable value of cultural and historical landscape would be a minimal long-term effect.

Because State Route 140 is part of the historical landscape, any impacts would be reduced by the continuation of the historical function of the transportation system.

The No-Build Alternative leaves intact the temporary bridges and pavement along Incline Road. The eventual removal of the temporary detour would result in the closure of State Route 140. This would greatly affect the historic function of the highway and sever a millennia-old living transportation corridor between the San Joaquin and Yosemite valleys.

Table 3.1 summarizes the impacts to the Merced Wild and Scenic River.

Table 3.1 Wild and Scenic River Impacts

Potential Impact	Alternative R	Alternative T-3	No-Build Alternative
Free-Flowing Condition	Short-term impact during construction to seasonal drainages into river and storm water runoff.	Short-term impact during construction to seasonal drainages into river and storm water runoff.	Short-term impact to velocity and navigability of the river.
Water Quality	Short-term impacts to surface water quality could occur during construction from increases in sediment.	Short-term impacts to surface water quality could occur during construction from increases in sediment.	Short-term impacts to surface water quality could occur from bridge runoff and bridge maintenance activities. There would be no long-term impacts as the bridges would require removal.
Geology	None	None	None
Recreation	No impact to whitewater rafting. Reestablishes Incline Road as a recreational trail. Short-term impacts during construction and removal of temporary bridges.	No impact to whitewater rafting. Reestablishes Incline Road as a recreational trail. Short-term impacts during construction and removal of temporary bridges.	Constructed a temporary bridge pier in the flow of whitewater rafting. Would leave Incline Road paved temporarily and eliminate its recreational uses until the bridges and pavement require removal.
Wildlife	Short-term direct and long-term indirect effect of habitat. Would directly remove 2.10 acres of limestone salamander habitat and likely result in a direct take of the animal itself.	Short-term direct and long-term indirect effect of habitat. Would directly remove 0.45 acre of limestone salamander habitat and likely result in a direct take of the animal itself.	None
Vegetation	Would directly remove 2.10 acres of Merced clarkia habitat.	Would directly remove 0.45 acre of Merced clarkia habitat.	None
Cultural and Historical Landscape	Minimal long-term effects. Exposed rockshed/tunnel wall would alter the historic setting of the Merced River Canyon.	Minimal long-term effects. The tunnel elements would alter the historic setting of the Merced River Canyon	Direct and adverse long-term effects. Removal of the highway would alter the character defining qualities of the historic landscape.

Avoidance, Minimization, and/or Mitigation Measures

Free-Flowing Condition and Water Quality

Alternatives R and T-3 would not impede the free-flowing condition of the river at the Q2 flow. Mitigation measures would not be required for these alternatives with regard to river flow.

Management measures and best management practices would be needed to address any water quality impacts during construction. Best management practices for roads, highways, and bridges include the following:

- Protect areas that provide important water quality benefits or are particularly susceptible to erosion.
- Limit land disturbance such as clearing, grading, cutting, and filling to prevent erosion.
- Limit disturbance of natural drainage features and vegetation.
- Prepare and implement an approved Storm Water Pollution Prevention Plan.
- Ensure proper storage and disposal of toxic material.
- Incorporate pollution prevention into operation and maintenance procedures.
- Develop and implement runoff pollution controls for existing road systems.

The following pollution prevention measures are being proposed in the design of this project:

- Culverts would discharge surface runoff from the project to unlined channels. To minimize scour (erosion), check dams, drainage inlets, and energy dissipation systems would be incorporated into the drainage design.
- Flared end sections and energy dissipation devices would be constructed at all culvert outlets.
- All ditches would be stabilized with erosion control.
- Embankment slopes would be built with a slope of 1:4 or flatter.
- The newly constructed slopes would be stabilized with erosion control.

Geology

There are no feasible mitigation measures for the effects of the rock material removed by each of the build alternatives.

The entrances for both Alternatives R and T-3 would be constructed at least 150 feet away from the flanks of the slide. Placing the entrances at this location would provide adequate distance for more rockfall debris to accumulate without spilling onto the highway and blocking the rockshed or tunnel. For construction of the entrances, the

slopes would be cut at a 1:4 ratio. A catchment area at grade, rockfall barriers, or a combination of the two would also be required for these alternatives to protect the roadway from potential falling rock.

Recreation

The following measures would be used to minimize the temporary construction impacts to the recreation outstandingly remarkable value:

- During the rafting season, construction would be coordinated with the U.S. Forest Service, Bureau of Land Management, and commercial outfitters to safely allow rafting to continue through the project area. Spotters would be placed at the rafting put-in locations and upstream from the construction area to identify time periods during which construction would be suspended. This method was successfully used during installation of the temporary bridges.
- Construction work in, alongside, or above the river during rafting season could potentially impede rafting opportunities. Work may need to be suspended Friday through Sunday during daylight hours.
- During the rafting season, construction activities would be suspended for a four-day duration surrounding both the Memorial Day and July 4th holidays.
- A minimum of a two-week notice would be provided to the U.S. Forest Service, Bureau of Land Management, and the commercial outfitters prior to Caltrans closing the river for any construction activities. Any closure of the river would occur in mid-week, when the river has the least number of boaters. An additional 48-hour notification would occur to specify times that the river would be closed and when the river would be opening to rafting.
- Any road closures would be planned in coordination with the U.S. Forest Service, Bureau of Land Management, and commercial outfitters. Agencies and outfitters would be notified of the closures a minimum of two weeks in advance. An additional 48-hour notice would be provided for specific times of planned closures.
- Trail use opportunities would be restored at the earliest possible date.

Wildlife

Alternatives R and T-3 would require a 2081 Incidental Take Permit from the California Department of Fish and Wildlife. Under normal circumstances, this permit would not be issued because the limestone salamander is a fully protected species. Assembly Bill 1973 was passed in July 2012 to amend Section 5050 and add to Section 2081.9 of the California Fish and Game Code to allow a one-time-only

authorization by the California Department of Fish and Wildlife to issue a 2081 permit to Caltrans for the purpose of this project. The project must begin construction on or before January 1, 2016, which is when the authorization ends.

A construction work window may be established to prevent construction-related activities from occurring on the southern slope during the salamander's active season, December through March. Environmentally sensitive area fencing in the form of 5-foot orange plastic mesh as well as salamander protection fencing in the form of 24-inch sheet metal would be erected if construction-related activities must be pursued next to limestone salamander habitat and during this species' active season.

Alternatives R and T-3 would require off-site compensatory mitigation for impacts to the limestone salamander at an approximately 3 to 1 ratio as part of the 2081 permit. See Section 3.3.5 for additional information on the limestone salamander mitigation.

Vegetation

Some individual plants to be affected would be transplanted with the assistance and concurrence of the U.S. Forest Service botanist.

Caltrans biologists and landscape specialists would continue to coordinate with the U.S. Forest Service on the planting of appropriate vegetation during and after construction. This may include seed collection from affected Mariposa clarkia plants.

Cultural and Historical Landscape

While the bedrock mortar sites are situated away from the location of construction activities, they would be protected during construction by designating the sites as environmentally sensitive areas. Before construction, a professionally qualified staff archaeologist would oversee the placement of environmentally sensitive area fencing around each site. A Native American monitor may also be present during establishment of the fencing. During construction, the archaeologist and a Caltrans construction liaison would regularly inspect the fencing to ensure that it is intact and the protected sites are undisturbed.

The build alternatives and eventually the No-Build Alternative would remove the existing detour pavement from the Yosemite Valley Railroad Grade (Incline Road) and restore it to its previous condition.

3.1.1.4 Parks and Recreation

Affected Environment

The project sits within the Sierra National Forest, which offers many recreational activities, including hunting, fishing, hiking, swimming, and camping. Incline Road is used as a bicycle, pedestrian, and equestrian trail. Refer to Section 3.1.4 Traffic and Transportation/ Pedestrian and Bicycle Facilities.

In the project area, the Merced River is designated as a Wild and Scenic River and protected by the Wild and Scenic Rivers Act (refer to Section 3.1.1.3). The Merced River is also considered a recreational resource and protected by Section 4(f) of the Department of Transportation Act of 1966. A Section 4(f) evaluation, which is prepared in conjunction with participating agencies, can be found in Appendix B.

The Merced River is used for whitewater rafting within the project area. Whitewater rafting season runs from April to July, depending on the winter snow pack. Peak flows of the river occur during April and May. Operating under permit from the Bureau of Land Management, around eight commercial whitewater rafting outfitters provide rafting services on the river. Rafters can rent boats out of El Portal at the Red Bud Picnic Area and Whitewater Rafting Put-in or at the Briceburg Put-in and Take-out areas.

In addition to rafting, camping is popular in the Sierra National Forest. The Bureau of Land Management manages several campgrounds along the Merced River. Three campgrounds below Briceburg—McCabe Flat, Willow Placer, and Railroad Flat—offer both tent and recreational vehicle campsites, but none is within the project area.

Yosemite National Park is east of the project area and is the main tourist attraction of Mariposa County (see Figure 1-1). People from around the world visit the park to sightsee, hike and camp. An average of 3.8 million people visited Yosemite National Park for recreation each year between 2007 and 2011.

Three state highways provide access to Yosemite National Park. State Route 140, which has gentle grades and curves, is one. State Routes 120 and 41 are the other two, but they both have steeper grades and tighter curves than State Route 140 and are difficult to maneuver with larger vehicles, especially during the winter. The Ferguson rockslide temporarily eliminated State Route 140 as the most accessible route for tour buses; State Route 140 brought buses into Yosemite National Park through the Arch Rock entrance. With construction of the emergency project, tour buses were able to

access recreational activities along the highway and Yosemite National Park via State Route 140, but that access is considered temporary.

Environmental Consequences

The build alternatives would allow visitors and recreational users full access to Sierra National Forest and whitewater rafting opportunities as well as Yosemite National Park. The No-Build Alternative requires the eventual closure of the highway and prevents recreational vehicles and tour buses from accessing all recreational activities, including visiting Yosemite National Park, by way of State Route 140.

Alternatives R and T-3 avoid permanent use of the Merced River Section 4(f) resources. Both alternatives would have temporary impacts to Incline Road during construction. Minimization measures used during construction and the restoration of Incline Road to its previous condition would result in a de minimis impact. The No-Build Alternative leaves the temporary detour on Incline Road, which is part of the Section 4(f) resource. Since the temporary bridges and pavement will eventually be removed and Incline Road restored to its previous condition, the No-Build Alternative would result in a de minimis impact to the Section 4(f) resource. See Appendix B for additional information on the Section 4(f) determination.

Avoidance, Minimization, and/or Mitigation Measures

For the build alternatives, see Avoidance, Minimization, and/or Mitigation Measures in Section 3.1.1.3.

3.1.2 Community Impacts

3.1.2.1 Community Character and Cohesion

Regulatory Setting

NEPA 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 FHWA in its implementation of NEPA [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 CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is

related to a physical change, then the 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

A Community Impact Assessment was completed in July 2007, and an Economic Impact Report was completed in May 2007.

Communities

Communities in the affected area include Mariposa, Midpines, and Briceburg on the west side of the rockslide and El Portal and Yosemite Village on the east side of the rockslide. Mariposa is the largest town in the county and supports the county's greatest amount of tourist accommodations. Midpines is a residential area that surrounds a small commercial center minutes east of Mariposa. Briceburg is a small community anchored by a Bureau of Land Management Visitor Center. El Portal is near the entrance to Yosemite National Park in the Merced River Valley. It has a compact residential area and a business and resort center. Yosemite Village has the second largest population in the county. Yosemite Village houses employees of the park as well as individuals who provide services for the park.

Schools and Childcare Facilities

A number of schools and childcare facilities serve the Mariposa County area. Childcare facilities include the Almost Like Home Before and After Schooling Center, the Mariposa Children's Center, Mariposa County Head Start, Mariposa Lutheran Childhood Discovery Program, the El Portal Child Development Center, and the Yosemite Valley Daycare Center. Schools in the Yosemite area include Yosemite Valley School, El Portal Elementary School, and Yosemite Park High School. The Mariposa area schools include Mariposa High School and Mariposa Elementary School. Many children live in one community, but attend schools or childcare facilities in other communities, adding urgency to the need for permanent access between the communities.

Economy and Jobs

Because State Route 140 provides a direct all-weather route to Yosemite Valley, the communities along State Route 140 serve as hosts to thousands of tourists a year. The Mariposa County economy is described mainly as a service-providing economy, with

most of its employment in accommodations, government services, retail trade, and food service establishments.

More than half of the private economic activity and private sector jobs in Mariposa County support tourism, serving mainly visitors on their way to and from Yosemite; a large share of governmental expenditures relates to tourism as well. The economy has typically been affected by the seasonal fluctuation of tourism. During the summer months, more tourists visit the area, increasing seasonal job opportunities. During the winter months, tourism and jobs tend to decrease. While there is a core economy in Mariposa that serves the local residents, businesses, and government employees, the main economic driver in Mariposa County is tourism and the businesses that support tourism.

State Route 140 is essential for supplying goods and services to the different communities throughout the Mariposa and Yosemite National Park area. State Route 140 is the basis of the cohesiveness between area communities.

Environmental Consequences

Immediately after the Ferguson rockslide, businesses in the communities along State Route 140 began suffering economic losses from the diversion of tourist traffic. Even with the original temporary detour in place, the 28-foot vehicle length restriction prevented tour bus companies from bringing many visitors to the area.

Tour bus companies, which carry loads of tourists to the area, were forced to take different routes to the entrance to Yosemite, bypassing the communities along State Route 140. The companies stopped renewing contracts that use State Route 140 as a way of getting to tourist attractions. For additional information on tour buses, see Section 3.1.4.

These ongoing effects caused a sharp drop in the local economy, presenting the possibility of a further economic emergency that might not be survivable for some communities. In response, Caltrans, regulatory agencies, and Mariposa County officials worked on a second temporary solution that allowed vehicles up to 45 feet long to use the rockslide detour on State Route 140. The purpose of the new detour, which opened in June 2008, was to allow tour buses to safely travel on State Route 140.

The build alternatives would provide full access throughout the communities and to tourist attractions, which is important in maintaining community stability and family

and school district cohesion. Tour buses and the tourists themselves could continue to enter Yosemite via State Route 140, supporting the Mariposa County economy and its tourism-related businesses. Community cohesion would be maintained as goods and services could efficiently be supplied between the communities. In addition, school buses would no longer be affected by time delays caused by the temporary detour.

The No-Build Alternative would ultimately eliminate the bridges and close the road due to eventual failure of the temporary bridges or their support. The failure of the No-Build Alternative would eliminate through-access for motor vehicle traffic at the Ferguson rockslide and between communities along State Route 140, keeping children from being transported to schools, making service-providers unable to accept work from the next town over, and eliminating tourism through the communities by way of State Route 140.

Avoidance, Minimization, and/or Mitigation Measures

The build alternatives would maintain community cohesion and therefore not require any avoidance, minimization, and/or mitigation measures.

3.1.3 Utilities/Emergency Services

Affected Environment

Caltrans prepared a Community Impact Assessment (July 2007) for the proposed project.

Law Enforcement

The Mariposa County Sheriff's office is the main law enforcement agency for Mariposa County, including federally owned lands. The Sheriff's office provides such services for the county as coroner/public administrator, animal control, search and rescue, boating and safety on county waterways, civil service, court security, corrections, and emergency 911 dispatches. The Sheriff's office also provides limited services for Yosemite National Park, although the park has its own law enforcement unit. The California Highway Patrol is responsible for traffic enforcement and accident investigation along the highways in the county.

The U.S. Forest Service operates the Bass Lake Ranger Station in North Fork. This ranger station has jurisdiction over the project area and is responsible for enforcement of federal laws and regulations governing National Forest lands and resources.

Fire Protection

The California Department of Forestry operates five fire stations in Mariposa County, one of which is in the town of Mariposa. The Yosemite Fire Department provides wild land and structural fire protection and responds to hazardous material spills, emergency medical calls, searches and rescues, public service, and motor vehicle accidents. The Yosemite Fire Department provides these services to Yosemite Valley, Wawona, El Portal, and other areas of Mariposa County.

The Mariposa Public Utility District Fire Department has been providing fire protection to the historic district of Mariposa. This fire department would also provide and receive aid to and from the Mariposa County Fire Department and the California Department of Forestry.

Hospitals

West of the rockslide, the John C. Fremont Hospital District operates as a countywide independent district. The hospital is in Mariposa and provides a clinic, an extended-care facility, in-patient beds, 24-hour trauma services, and a helicopter for emergency air transport. East of the rockslide, the National Park Service contracts with Doctors Medical Center for medical services within Yosemite National Park at the Yosemite Medical Clinic. This clinic is able to treat minor injuries and medical conditions and provide first aid for incidents occurring within the park and the El Portal area. Larger medical emergencies must be handled by the John C. Fremont Hospital on the other side of the rockslide.

Utilities

There are underground AT&T telephone facilities and Pacific Gas and Electric overhead power facilities within the project area.

Environmental Consequences

The two build alternatives offer full access for emergency services, specifically access to the John C. Fremont Hospital, which offers the only large-scale medical care in the county. Law enforcement and fire services have been established on both sides of the rockslide, but these services would experience unrestricted access (without the delay of up to 15 minutes) with the build alternatives should the need for additional services from other areas occur. There would be short-term closures and delays for construction operations such as blasting for the rockshed or tunnel openings. No long-term closures are expected for the build alternatives. Refer to Section 3.6 for details on construction methods.

The No-Build Alternative provides short-term access for emergency services with minimal delay (up to 15 minutes) resulting from passing through the single-lane detour. The failure of the temporary structures would eventually close the highway, diminishing access for emergency service vehicles and equipment to the east side of the rockslide where additional or specialized services would be needed in the local communities. This alternative may also diminish access to specialized medical care for those residents forced to drive 2.5 hours out of their way to get to the hospital in Mariposa.

During construction and for the No-Build Alternative, the existing signal lights at the entrances and exits of the detour are designed to flash during an emergency situation. The flashing signals would allow emergency vehicles to pass through the temporary detour with minimal delay.

Avoidance, Minimization, and/or Mitigation Measures

The build alternatives would not require any mitigation.

3.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

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

Affected Environment

The Ferguson rockslide is blocking the section of State Route 140 that links the town of Mariposa to El Portal and Yosemite National Park. Currently, the temporary detour serves the purpose of maintaining essential traffic through the area blocked by the rockslide. Yosemite National Park and the communities of Mariposa County rely heavily on full access along this highway for many types of transportation that serve tourists and residents of the area.

Transit

Public transit systems use State Route 140 to transport people through Mariposa County and Yosemite National Park. The VIA-Adventures Tour Service operates 45-foot-long buses between the City of Merced and Yosemite Valley via State Route 140. The Yosemite Area Regional Transportation System, known as YARTS, is another service that provides inter-county transit to Yosemite National Park. It is designed to provide an alternative mode of transportation for both visitors and employees of Yosemite National Park.

Buses

The main vehicle for tourism in this area is the tour bus. These buses are usually about 45 feet long, and they are easier to maneuver along roads like State Route 140 with relatively minor curves and flatter surfaces to avoid accidents and delays. Tour buses also deliver tourists to businesses providing lodging, food and drink, and retail goods while on the way to Yosemite National Park.

Pedestrian and Bicycle Facilities

There are no designated pedestrian and bicycle facilities in the project area. However, bicyclists and pedestrians use the highway's shoulders or edge of the road, and Incline Road serves as a hiking and bicycle trail.

Environmental Consequences

The build alternatives would restore full access on State Route 140. There would be a short-term impact on access due to the construction of either build alternative. Impacts from the construction would be temporary and would require minimal closures of the highway as traffic would be maintained throughout construction on the current temporary detour. Closure of the detour is not expected, however, if needed, would be no more than 10 to 15 minutes to move equipment in and out of the construction area. Blasting and drilling activities would be used to build the rockshed or tunnel, and excess rock material would be hauled off to a disposal site outside the project area. An estimated 200 trucks a day removing excess material would use the detour traffic light cycle to enter the roadway. To remove the excess material for Alternative R, it would take approximately 30 working days; for Alternative T-3, it would take approximately 105 working days.

The No-Build Alternative, which controls traffic through signal lights and has a 45-foot vehicle length restriction, relies on bridge support structures with a service life span of 5 to 10 years. When these temporary bridges fail, the highway will close,

cutting off through-access between Mariposa and El Portal permanently. This impact would place a severe hardship on businesses and residents of Mariposa County.

The project would restore the recreational use of Incline Road by returning the trail to its previous unpaved condition. At the request of the National Park Service and the U.S. Forest Service, the build alternatives would maintain access to Incline Road for pedestrians and bicyclists or other recreational users. All pavement used by the temporary detour would be removed. The No-Build Alternative would eliminate the recreational use of Incline Road throughout the life of the temporary detour.

Although they do not include designated bicycle lanes, the build alternatives would provide 8-foot-wide shoulders in both directions, allowing access for bicyclists along this section of State Route 140. The No-Build Alternative is a one-lane roadway with no shoulders.

Avoidance, Minimization, and/or Mitigation Measures

During construction of either of the build alternatives, a Traffic Management Plan would accommodate traffic on the existing temporary detour. The Traffic Management Plan would include:

- Short-term (10- to 15-minute) closures to move equipment in and out of the construction area.
- Construction staging areas on the existing highway on each side of the Ferguson rockslide, not being used as part of the detour.

Public notification advertising the dates and location of construction activities would be provided through media press releases, local cable and news broadcasts, a project web page, and the Caltrans Public Information Office. Message and special construction signs, plus highway advisory radio, would inform motorists traveling through the construction zone. The Construction Zone Enhanced Enforcement Program may also be used. This program improves project safety through the use of supplemental California Highway Patrol units that assist in the management of traffic going through the construction zone.

There would be no feasible avoidance, minimization, and/or mitigation measure for the effects of the No-Build Alternative.

3.1.5 Visual/Aesthetics

Regulatory Setting

NEPA 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 FHWA in its implementation of NEPA [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, CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities" [CA Public Resources Code Section 21001(b)].

Affected Environment

A Visual Impact Assessment for the project was completed in April 2009. This assessment was prepared in accordance with the methodologies established by the FHWA's Visual Impact Assessment for Highway Projects Guidance (1981).

Land in the project area is mostly steeply rolling hills that support a mixed oak woodland forest. The forest is made up of oak trees and pine trees ranging from seedlings to adult trees. Pines generally grow on the drier south- and west-facing slopes; the oak trees grow on the north- and east-facing slopes. The ground is a mix of low broadleaf evergreen shrubs and grasses. Rock outcroppings are common.

The existing highway, Incline Road grade, and the electric transmission lines are the main human-made elements in the project area. The roadway and associated cut slopes parallel the Merced River. The steep slopes and winding nature of the river confine the views of roadway travelers, river users, and recreational trail users. Roadway travelers are composed of tourists, sightseers, recreational users, local residents, work commuters, commercial and service-related travelers, and often bicyclists. River users are rafters and kayakers and people fishing from the river bank. Trail users include hikers, bicyclists, and horseback riders using Incline Road.

State Route 140 is designated as a Scenic Highway from its junction with State Route 49 in Mariposa to Yosemite National Park. The intent of the California Scenic

Highway Program is to protect and enhance the natural scenic beauty of the highways by means of special conservation treatments.

Criteria from the FHWA Visual Impact Assessment for Highway Projects Guidance were used to describe the visual character of the project area. The criteria include the following:

- Vividness or the memorable strength of the landscape components as they combine in a distinctive visual pattern.
- Intactness or the visual integrity of the landscape and its freedom from non-typical encroaching elements.
- Unity or the visual harmony of the landscape considered as a whole.

The overall visual quality of the landscape within the Merced River Canyon (free of structures) is high with high vividness and unity and moderately high intactness because of the aesthetic appeal of the vegetated slopes and the patterns created between the vegetation and the rock outcroppings. However, existing conditions with the temporary bridges and detour in place define the project area as having a moderately high overall visual quality. The overall visual quality is measured by averaging the vividness, intactness, and unity.

Environmental Consequences

Table 3.2 summarizes the overall visual quality assigned to each of the alternatives as they affect the driver, the river user, and the trail users. A description of each alternative's visual quality as it affects those users is explained below. For comparison purposes, the existing condition of the project area includes the temporary bridges and detour and is the same as the No-Build Alternative in the short-term. Simulations of proposed views are shown in Figures 3-1 and 3-2.

Table 3.2 Visual Quality of Alternatives Compared to Existing Environment

User Type	Visual Quality of Canyon (free of structures)	Alternative R	Alternative T-3	No-Build Alternative
Driver	High	Moderate	Moderately High	Moderately High
River	High	Moderately Low	High	Moderately High
Trail	High	Moderately Low	High	Moderately High

Figure 3-1 Alternative R Rockshed/Tunnel East Entrance View

Figure 3-2 Alternative R Rockshed/Tunnel Side View

Alternative R

For the approaching driver, the 760-foot-long rockshed/tunnel along with its entrance walls would be a new element in the landscape. As the driver passes through the rockshed/tunnel, views of the outside scenery would be partially blocked. The blocking of the outside scenery and the view of an exposed rockshed/tunnel wall by approaching drivers would decrease the visual quality from moderately high to moderate.

For river users and especially rafters, the 15- to 20-foot-high rockshed/tunnel walls would be very noticeable as the river flows toward and then passes by the roadway alignment. The benefit is that there would be no bridges to block views over the river. The visual quality would be reduced to moderately low.

For trail users, views of the rockshed/tunnel wall would be very similar to that of the river user, except that certain trees or other vegetation may obscure some portions of the wall. Given the presence of the exposed rockshed/tunnel wall, the visual quality would drop from moderately high to moderately low.

Alternative T-3

Much like with Alternative R, the driver would see new elements such as the entrance walls and tunnel walls. But, at 2,200 feet, the T-3 tunnel is much longer. All views of the outside landscape would be blocked as the tunnel curves under the rockslide. Since the tunnel entrance walls would be the only outside visible feature, the visual quality would be maintained at moderately high.

River and trail users alike would notice the entrance walls to the tunnel, especially as the river flows and trail winds northwest and directly toward one of the entrances. These entrance walls would not have a substantial presence within the much larger canyon wall. This alternative also has the benefit of no bridges that would block views over the river. The visual quality is expected to improve to high.

No-Build Alternative

For drivers, river users, and trail users, the temporary bridges, guardrail, detour pavement, and signal lights define the project area as having a short-term visual quality of moderately high. The minimal disturbance to the surrounding vegetation has softened the appearance of the engineered elements such as the bridges, but they do not visually fit within the surrounding landscape. With the eventual failure of the

temporary bridge structures, their removal will be required. The engineered elements would be removed from the landscape, and the scenery would be restored to its naturally high rating.

Avoidance, Minimization, and/or Mitigation Measures

With implementation of avoidance, minimization, and/or mitigation measures, the visual impacts of the build alternatives would be reduced and would not result in substantial changes in scenic quality. The measures would further avoid affecting the designation of State Route 140 as a Scenic Highway. The following measures apply to both of the build alternatives and would maintain the visual quality of the area if the project were built:

- Provide a landscape architect during construction as needed to oversee tree and native vegetation preservation, structural aesthetic applications, and replanting the project area.
- Round toes and tops of slopes to create a more natural appearance.
- Create a natural appearance to any rock outcropping exposed by construction and stain it to give a weathered look.
- Roughen new slopes to create the look of age.
- Apply erosion control to all disturbed slopes except rock outcroppings and prevent runoff into the river.
- Remove existing roadway paving, barriers, and other elements associated with unused portions of State Route 140.
- Where possible, salvage, stockpile, and replace topsoil and duff containing seeds and organic matter from affected areas. Where possible exposed slopes would receive a minimum of 4 inches of topsoil.
- Replace or add plant materials in specific areas, such as the tunnel entrances and removed temporary bridge footings, to visually mitigate for structure heights and cut slopes. Planting ratios shall be a minimum of 1:1, and species mix shall be developed in consultation with the U.S. Forest Service.
- Replant using native species and create natural-appearing patterns.
- Implement a minimum three-year plant establishment period during which supplemental irrigation would be provided to new plants where horticulturally appropriate.
- Restore Incline Road to its previous condition by removing all pavement and temporary bridge abutments.

- Design all visible exterior and interior portions of the rockshed or tunnel to be visually compatible with the natural setting of the State Route 140 corridor.
- Provide texture or pattern to tunnel entrances, and/or exposed walls or visible to drivers and recreational users of the river canyon.
- Use colors on structures that blend into the surroundings.
- Use darkened metal elements or non-reflective surfaces for guardrails and posts.
- Bury culverts when possible, and add color or texture to any exposed sections to fit the landscape.

3.1.6 Cultural Resources

Regulatory Setting

The term "cultural resources" as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include the following.

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations 800). On January 1, 2004, a Section 106 Programmatic Agreement among the Advisory Council, FHWA, State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with FHWA 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 FHWA's responsibilities under the agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 Code of Federal Regulations 773).

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.

Historical resources are considered under CEQA, 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.

The U.S. Forest Service, as the federal land management agency, has regulatory responsibility under the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) codified in Title 43 CFR Part 10.4 (43 CFR 10.4). NAGPRA outlines the protocol followed when Native American human remains, funerary objects, sacred objects and/or objects of cultural patrimony (collectively defined in the act as "cultural items") are discovered unintentionally. Specifically, the statute requires the federal land management agencies to consult with Native American tribes on the disposition and control of Native American human remains and/or cultural items found on federal lands after November 16, 1990 [25 U.S.C. 3002 (d)(2)].

Affected Environment

An Archeological Survey Report was completed for the project in June 2007 and a Historic Resource Evaluation Report (HRER) was completed in August 2007. A Historic Property Survey Report (HPSR) summarizing the results of cultural technical studies was completed in September 2007. Supplemental reports (HRER and HPSR) were completed in June 2010 for the additional alternatives being considered. A second supplemental HPSR was completed in January 2013 to address cultural sites not previously studied. The supplemental report also documented the reduced area of potential effects that resulted from the removal of some of the build alternatives.

The area of potential effects encompasses all of the ground disturbance and development activities proposed by the build alternatives between post miles 42.0 and 42.7 on State Route 140 and any other areas that may be indirectly affected by the undertaking. The area of potential effects is defined on the south by the slope immediately above State Route 140; on the north side, it includes Incline Road. Caltrans conducted record searches and field surveys within the area of potential effects to identify cultural resources that may be historic properties or historical resources.

Archaeology

Caltrans previously surveyed the south side of the canyon within the project area for archaeological resources following severe storm damage to State Route 140 in 1997. During that survey, one archaeological site was recorded within the current project area. Caltrans was informed of an additional archaeological site by Native American representatives and U.S. Forest Service archaeologists. Surveys were conducted in 2011 to locate the second site. The archaeological sites within the area of potential effects are:

- Prehistoric bedrock mortar (CA-MRP-1566)
- Prehistoric bedrock mortar (CA-MRP-2076)

Initially, both bedrock mortar locations were determined not to be eligible for inclusion on the National Register of Historic Places because they are more than 300 feet from any other archaeological features, and periodic river flooding has removed their association with other archaeological artifacts and deposits. The information values of these resources have been recovered through documentation in the project's cultural resources reports. However, the U.S. Forest Service is in the process of defining a historic landscape within the Merced River Canyon that they consider a historic property (eligible to the National Register of Historic Places). The two bedrock mortar sites are potential contributors to that historic property.

Architectural History

Following the Ferguson rockslide in 2006, Caltrans conducted emergency surveys and identified resources that would be affected by the emergency detour and the proposed permanent restoration of State Route 140. These resources include:

- Yosemite Valley Railroad Grade (now Incline Road in the project area)
- State Route 140
- Historic concrete bridge piers and debris (CA-MRP-1552H)

The Yosemite Valley Railroad operated from 1907 to 1945, providing access for tourists to Yosemite National Park and use of natural resources by commercial mining and lumber operations. The railroad grade (Incline Road) in the project area ran parallel to the Merced River on the north side. The rails and ties of the Yosemite Valley Railroad were pulled up and sold with the rest of the equipment in 1946, and flooding in 1955 and 1997 washed away portions of the grade. Both the U.S. Forest

Service and Caltrans staff have agreed that the segment of the railroad bed in the area of potential effects would not be a contributor to an eligible linear resource.

The "All-Weather Highway" (State Route 140), constructed from 1923 to 1927, provides year-round access to Yosemite National Park and is associated with the first use of convict labor to construct public roadways in California. The highway, despite being on its original alignment, was damaged by flooding in 1937 and 1997 and is presently covered by the recent rockslide that deposited thousands of tons of rubble onto its surface. The U.S. Forest Service and Caltrans staff has agreed that the segment of State Route 140 in the area of potential effects would not be a contributor to an eligible linear resource.

In Summary, the portions of the two linear features (the railroad and highway) within the project area were evaluated and determined to have no potential to contribute to the National Register of Historic Places eligibility of the two respective resources as a whole, even if the two linear resources were found to be eligible for inclusion on the National Register of Historic Places.

Within the area of potential effects there are historic concrete bridge piers and debris upstream from the downstream temporary bridge. The bridge remnants consist of six abandoned board-formed concrete piers. They are possibly from a suspension foot bridge, however, the physical integrity of the original bridge structure is missing. The concrete bridge piers and debris lack the integrity of materials, setting, feeling, or design for their respective periods of significance that would make it eligible to the National Register of Historic Places. The U.S. Forest Service staff concurs with this finding.

Native American Concerns

In coordination with a representative of the American Indian Council of Mariposa County, the following two properties of concern were identified:

- Two Bedrock Basins
- Plant Collection Area

The two bedrock basins are naturally formed depressions in an outcrop of metamorphic bedrock next to the Merced River. According to a local Miwuk individual, the basins are similar to what tribal elders reportedly used as medicine basins. Herbs and water were put in similar basins at other locations. Individuals were then placed in the basins to soak and facilitate healing. There is no evidence at this

time that the basins within the project area of potential effects were used. In consultation with the Sierra National Forest, it was decided that Caltrans, on behalf of FHWA, would determine that the basins are not eligible to the National register of Historic Places.

The American Indian Council of Mariposa County has identified native plant species that were and are important to the Miwuk people. The Merced River Canyon, with its array of riparian habitat, contains many of these plants. Members of the Miwuk community have collected plants occasionally within the project area for more than a century. The recent temporary bridges have provided access to the river bottom over the last six or seven years and facilitated plant collection in the project area. But, historically, there were no known defined plant patches or areas of plant manipulation within the project area. There were no traditional plant collecting areas within the area of potential effect that meet the threshold of eligibility to the National Register. The presence of indigenous plants of economic importance to the Miwuk is not enough to designate an area within in the area of potential effects as a traditional Miwuk plant collecting area of significance.

Both Native American properties are determined not eligible to the National Register of Historic Places. There is no evidence that the rock basins were ever associated with human activity. The representative indicated that he never used these resources and he knows of no one who has. The plant collecting area is not a defined property that is over 50 years old. There are defined traditional plant collecting areas in Merced River Canyon, but none is within the area of potential effects of the project.

Environmental Consequences

Caltrans consulted with the State Historic Preservation Officer on the cultural resources determinations without objection per stipulation VIII.c.5 of the January 2004 Programmatic Agreement. This indicates concurrence with Caltrans' findings.

The State Historic Preservation Officer was notified that under the authority of FHWA, Caltrans has determined that no historic properties are affected by this undertaking. However, under the Wild and Scenic Rivers Act the properties discussed in this section are part of a unique historic context of the Merced River canyon. Avoidance and minimization measures required under the Wild and Scenic Rivers Act are discussed in section 3.1.1.3. The California State Historic Preservation Officer concurred with Caltrans' findings on October 10, 2007 and July 15, 2013 (see Appendix D for concurrence letters).

Avoidance, Minimization, and/or Mitigation Measures

During construction, Caltrans and its contractors have the regulatory responsibility under NAGPRA and 43 CFR 10.4(b) to notify immediately the U.S. Forest Service by telephone, with written notification to follow, in the event that Native American human remains and/or cultural items are inadvertently discovered. Caltrans and its contractors are to stop activity in the area of the discovery and make a reasonable effort to protect the remains and cultural items.

As a state agency, Caltrans also has a legal responsibility under the California Health and Safety Code Section 7050.5 when human remains are discovered. Pursuant to California Health and Safety Code Section 7050.5, Caltrans is to stop activities in any area or nearby area suspected to overlie remains, and contact the county coroner.

After the U.S. Forest Service completes the steps in 43 CFR 10.4(d)(1), or 30 days after the U.S. Forest Service has certified written confirmation of the inadvertent discovery, the activity may resume (43 CFR 10.4[d][2]). The activity may also resume if the U.S. Forest Service and the Native American tribes have executed a written legally binding agreement on the recovery of the remains and/or cultural items.

The bedrock mortar sites are within the project area, but are situated away from the location of construction activities and would be protected during construction by designating the sites as environmentally sensitive areas. Before construction, a professionally qualifies staff archaeologist would oversee the placement of environmentally sensitive area fencing around the site. A Native American monitor may also be present during the establishment of the fencing. During construction, the archaeologist and a Caltrans environmental construction liaison would regularly inspect the fencing to determine that it is intact and that the protected sites are undisturbed.

3.2 Physical Environment

3.2.1 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 it 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:

- 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

A Location Hydraulic Study and a Floodplain Evaluation Report Summary were completed in September 2007 using Flood Insurance Rate Maps for the unincorporated areas of Mariposa County. An Addendum to the Location Hydraulic Study was completed in July 2008 to address the additional alternatives.

The Location Hydraulic Study analyzed the potential impacts of the proposed project on the floodplain. According to the Flood Insurance Rate Maps, the damaged section of State Route 140 is within the 100-year base floodplain designated as "Zone A." Zone A is defined as special flood areas inundated by the 100-year flood with no base flood elevations determined. It has been determined that the existing highway within the project area would be inundated by the base flood and the highway with or without the proposed structures would be unusable during such a flood.

The floodplain in the project area possesses natural and beneficial uses, which include recreational opportunities, a very high water quality, groundwater discharge, and fish, wildlife and plant habitats.

Environmental Consequences

Alternative R is considered a longitudinal encroachment into the floodplain because it would place a rockshed/tunnel structure parallel to the Merced River below the predicted high water mark for a 100-year flood event. A 100-year flood event would inundate the existing highway in the project area to a maximum depth of 8.65 feet, rendering the highway impassable. During such an event, the rockshed/tunnel would also be subject to flooding, with resulting damage to the operational appurtenances of the rockshed/tunnel.

Alternative T-3 would not adversely affect the base floodplain, but rather provide an alternate passage for some of the base floodwaters. During a 100-year flood event, the tunnel could pass water up to 8 feet deep. This alternative places a structure within the base floodplain, but is not considered a longitudinal encroachment because it does not parallel the river.

The No-Build Alternative would be temporarily affected by a 20-year event because of its at-grade alignment with the existing highway. Should these temporary bridges be damaged by floodwaters, they could be found unsafe to carry traffic and the highway would be cut off to traffic. Upon these bridges' removal from general wear, all the structures associated with the temporary detour would be removed from the base floodplain. There would no longer be an impact to the floodplain or its beneficial values.

Avoidance, Minimization, and/or Mitigation Measures

There would be no feasible mitigation measures for Alternative R. Building the rockshed/tunnel would result in a longitudinal encroachment, and Executive Order 11988 directs that longitudinal encroachments on the floodplain should be avoided unless it is the only practicable alternative. No mitigation measures would be required for Alternative T-3.

3.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States, from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act, this act has been amended by Congress several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important Clean Water Act sections are as follows:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal project or permit to conduct any activity, which may result in a discharge to waters of the United States, to obtain

certification from the State that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).

- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the United States. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program allows for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers.

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

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

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

The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act, and regulating discharges to ensure compliance with the water quality standards. Details on water quality standards in a project area are contained in the applicable Regional Water Quality Control Board Basin Plan.

In California, regional boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the State Water Resources Control Board identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or Waste Discharge Requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads to specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

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

NPDES Program

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

Construction General Permit Order No. 2009-009-DWQ, as amended by 2020-0014-DWG), was adopted on November 16, 2010, and became effective on February 14, 2011. The permit regulates storm water discharges from construction sites that result in a disturbed soil area of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. Operators of regulated construction sites are required to develop storm water pollution prevention plans; implement sediment,

erosion, and pollution prevention control measures; and obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2 and 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring and before-construction and after-construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with a disturbed soil area less than one acre.

Affected Environment

A Water Quality Report was completed for the project in August 2007. An updated Water Quality Assessment Report, which included analysis of additional alternatives, was completed in November 2008. An Amended Water Quality Assessment Report was completed in October 2010 to include additional build alternatives. An addendum to the October 2010 report was completed in January 2013 to reflect the current proposed project conditions.

The project site lies within the North Fork Merced Hydraulic Area 537.30 of the Merced River Hydrologic Unit. The watershed is 160,784 acres, with an annual rainfall of 41.9 inches. Major streams in this area are the Merced and South Fork rivers. The water quality of the Merced River within the project vicinity is good to excellent.

The project sits within the jurisdiction of the Central Valley Regional Water Quality Control Board (Region 5), which has adopted a Water Quality Control Plan (Basin Plan) for the area encompassing the project site. Listed within the Basin Plan are the following designated beneficial uses of the Merced River from its source down to Lake McClure: irrigation, industrial power, recreation, fresh water habitat, and wildlife habitat. Water quality objectives consist of narrative and numerical goals and are established to preserve the beneficial uses of regional water bodies and must comply with the Federal Anti-Degradation Policy. This policy requires that the

Regional Water Quality Control Board maintain the beneficial uses that existed in 1975 or the best possible water quality since that time.

The Upper Merced River is not presently designated as high quality water (Tier 2) and is not subject to the State Anti-Degradation Policy (State Water Resources Control Board Resolution 68-16). Should municipal or domestic use become a future beneficial use, the Upper Merced River could be designated a Tier 2 water and be entitled to a more protective status under Resolution 68-16.

The project area also sits within the Yosemite Valley Groundwater Basin #5-69 in Mariposa County. The basin lies beneath the floor of Yosemite Valley at an approximate elevation of 4,000 feet. Recharge to groundwater occurs through direct precipitation and from the Merced River. Groundwater is of very good quality and is suitable for all uses. The groundwater resources in the project area possess four beneficial uses: municipal or domestic supply, agricultural supply, industrial service supply, and industrial process supply.

Environmental Consequences

Short-term impacts to surface water quality could occur during construction of either build alternative and/or during the removal of the temporary bridges. Similar construction methods would be used for either alternative, so impacts from construction would be the same. The potential surface water quality impacts are as follows:

- Increases in sediments, turbidity (cloudiness), and total dissolved solids from removal of the temporary bridges.
- Toxicity due to chemical substances originating from construction activities.

Impacts may occur from exposing loose soil during excavation as well as grading and filling activities. Suspended solids, dissolved solids, and organic pollutants in surface water runoff could increase when nearby soils are disturbed and dust is generated. Changes in storm water drainage could potentially affect the water quality as well. Sediments suspended in runoff could be carried downstream and may accumulate, potentially harming any downstream aquatic resources and water quality. Accidents or improper use of construction materials such as oil and petroleum products may result in the release of chemical contaminants into surface water resources. Groundwater could be temporarily and minimally affected as it becomes recharged.

The No-Build Alternative would have short-term impacts on water quality from storm water runoff from the bridge structure and bridge maintenance activities. Best Management Practices and coordination with the United States Army Corps would continue for the life of the temporary bridges to reduce potential impacts.

Alternatives R and T-3 would not have any direct construction in the river bed and would have no long-term impacts from storm water.

Storm water runoff rates can be increased from the addition of impervious roadway surface areas. The impervious roadway surfaces were calculated for the proposed project. These surface areas were then used to estimate storm water runoff flows for each alternative.

Table 3.3 compares the impervious roadway surfaces and storm water runoff of each alternative to the storm water runoff for the entire watershed. For the purpose of this comparison, the baseline includes existing State Route 140 not covered by the rockslide, the temporary bridges and the detour on Incline Road.

Table 3.3 Comparison of Storm Water Runoff Flows

Proposed Alternatives	Baseline Impervious Area (Acres)	Proposed Impervious Area (Acres)	Baseline Runoff (Cubic Feet/Second)	Proposed Runoff (Cubic Feet/Second)	Runoff for Watershed (Cubic Feet/Second)
Alternative R	2.20	1.10	1.36	0.68	337,640
Alternative T-3	2.20	0.90	1.36	0.56	337,640
No-Build Alternative (temporary)	2.20	2.20	1.36	1.36	337,640
No-Build Alternative (bridges removed)	2.20	0	1.36	0	337,640

Storm water flows were calculated using the Rational Method (Q=CiA). Q=peak discharge from a given area, C=coefficient relating the runoff to rainfall, i=average rainfall intensity, and A=drainage area.
Source: Water Quality Report, Addendum January 2013

The areas listed in Table 3.3 would be the total proposed impervious acreage for these alternatives. Alternative R would build on the existing alignment, and the detour would be removed, leaving 1.10 acres of impervious area. For Alternative T-3, the abandoned section of State Route 140 next to the rockslide would be removed and restored to a natural condition, and the Incline Road pavement would be removed leaving just the area of the new alignment (0.90 acre) impervious.

The No-Build Alternative would temporarily have an impervious area of 2.20 acres. The impervious area would eventually be reduced to zero within the project area once the temporary bridge structures and temporary detour pavement are removed due to structural failure or damage by floodwaters.

As shown in Table 3.3, Alternative R would produce a 0.68 cubic feet/second runoff flow, an amount less than the baseline flow. Alternative T-3 proposes a runoff flow of 0.56 cubic feet/second. The runoff flow from the proposed project would be minimal when compared to the runoff flow of the entire watershed, which is 337,640 cubic feet/second.

The No-Build Alternative produces a 1.36 cubic feet/second runoff flow. The runoff flow would be reduced to zero cubic feet/second once the temporary bridge structures are removed.

The proposed impervious area and storm water runoff impacts would not violate any water quality standards or waste discharge requirements. Culvert systems would be incorporated into the plans and specifications to channelize, collect and discharge storm water runoff using project-specific approved best management practices (BMPs) to minimize non-storm water discharges into the Merced River. Therefore, the project would not substantially alter the river hydraulics or cause substantial additional sources of polluted runoff.

The proposed build alternatives would sustain the existing water quality and comply with the Federal Anti-Degradation Policy provisions of the Clean Water Act.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the project would require construction activities near the natural flow of the Merced River. Management measures in the form of a Storm Water Pollution Prevention Plan, design pollution prevention best management practices, construction site temporary best management practices, and maintenance best management practices are required to address water quality impacts during planning, design, construction, and operational and maintenance stages. Best management practices for roads, highways, and bridges include the following:

- The proposed project would be programmed to follow the guidelines and procedures outlined in the 2003 Storm Water Management Plan to address storm water runoff or any subsequent Storm Water Management Plan version drafted and approved.

- Prior to work in or near the river, coffer dams, culverts, and/or other temporary water diversion features would be installed to reduce sedimentation during construction. Diverted or impounded water would not be discharged into the river prior to removing sediment.
- Land-disturbing activities and the installation of erosion and sedimentation control practices would be coordinated to reduce on-site erosion and off-site sedimentation. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, sediment desilting basins, sediment traps, and check dams.
- Loose bulk materials may be applied to the soil surface as a temporary cover to protect bare soils from rainfall, increase infiltration, and reduce runoff and erosion.
- Water would be applied to the soil surface to prevent the movement of dust at the project area due to traffic, wind, and grading activities.
- All areas would be restored to pre-construction contours and revegetated with native species.
- Berms would be provided along the tops of slopes to prevent water from running uncontrolled down the slopes. Water would be transported at the berms through an erosion-proof drainage system. Sediment that is collected at the berms would be allowed to settle out and then be removed from the site.
- Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, and ditches.
- All construction-related materials would be hauled off-site after completion of construction.
- All erosion control measures and storm water control measures would be properly maintained until the site has returned to a pre-construction state.
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution.
- All vehicle and equipment maintenance procedures, including fueling, would be conducted off-site if practical.
- All concrete curing activities would be conducted to minimize spray drift and prevent curing compounds from entering the river.
- All construction materials, vehicles, stockpiles, and staging areas would be situated outside of the river channel. All stockpiles would be covered as feasible.

- Work within the bed and banks of the river, if required, would be limited to the period between April 15 and October 15 to avoid the rainy season.

Storm water runoff systems should promote sheet flow through vegetation, use open vegetated channels and conveyances, and minimize the use of curb, dike, and pipe. The following pollution prevention measures are being proposed in the drainage plan of this project:

- Culverts would discharge surface runoff from the project to unlined channels. To minimize scour (erosion), check dams, drainage inlets, and energy dissipation systems would be incorporated into the drainage design.
- Flared end sections and energy dissipation devices would be constructed at all culvert outlets.
- All ditches would be stabilized with erosion control. The newly constructed slopes would be stabilized with erosion control.

The selection of best management practices depends on site- and project-specific circumstances and conditions. The best management practices are applied to control, reduce, or treat runoff water quality impacts to the maximum extent practicable using best conventional technology and best available technology to comply with the water quality objectives of the Basin Plan.

3.2.3 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 CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. 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

The Preliminary Geotechnical Design Report (August 2007) and Geotechnical Design Report (October 2007) documented the literature review and surface/subsurface explorations used to evaluate the nature and extent of the geologic and geotechnical conditions of the project area. A Geotechnical Design Report Addendum was completed in March 2008 and includes analysis of the additional alternatives.

The project lies in the Merced River Canyon, which is in the west-central portion of the Sierra Nevada Geomorphic Province. The canyon is bounded by the Sierra Nevada fault system to the east and the Great Valley to the west. The bedrock that underlies the project area and the Ferguson rockslide are part of the Calaveras Complex, which is made of very hard metamorphic rock called phyllite and chert. In some places, the bedrock is exposed at the surface. At other locations, such as the slopes, the bedrock is covered with a thin layer of soil and angular pieces of rock called colluvium. The river channel is made of alluvium, which is composed of rounded cobbles and boulders. The temporary bridges were constructed on abutments built into the bed and banks of the river channel.

The Ferguson rockslide as a geologic formation occurred in phyllite that has been fractured and folded to a near vertical position. When the rocks become unstable, slide material comes loose from the Ferguson rockslide and falls down the mountain. In the spring of 2006, approximately 10 percent of the slide material cascaded down the slope and covered State Route 140. The volume of slide material still on the slope is roughly 700,000 cubic yards. The rockslide material is composed entirely of elongated, angular, metamorphic boulders up to 20 feet wide. A possible explanation for the most recent rockslide could be that it was caused by a rise in groundwater due to rainfall; however, it is difficult to determine exactly how rainfall totals contributed to the movement of the rockslide. Other dormant slides may exist next to the Ferguson rockslide. In addition, minor rockfalls could occur from natural slopes and existing cuts.

Caltrans has concluded that there is an extremely low probability that the Ferguson rockslide would fail catastrophically and in one rapid motion dam the Merced River and bury Incline Road. This conclusion is based on evidence derived from mapping the rockslide and surrounding terrain. The mapping shows evidence from changes in slope shape and vegetative cover that, at a minimum, two previous episodes of rockslide movement occurred. The mapping further indicates that the time between these episodes could be in the thousands of years.

There are cobble and boulder deposits along the north side of the river. These cobbles and boulders are less than 2 feet in diameter and mostly composed of granite rock with a minor amount of metamorphic rock. The northern slope across the Merced River and opposite the Ferguson rockslide contains no topographic features such as scarps and closed depressions that are associated with rockslides. During soil boring testing, nothing was found that could be interpreted as rockslide debris, which eliminates any history of rockslides large enough to span the river. There is no evidence that debris and rock from these past rockslides were deposited on the north side of the Merced River.

Caltrans also concluded that the rockslide moves at a slow to moderate rate as relatively intact blocks of rock. It is expected that future movements by the Ferguson rockslide would be smaller than the 2006 episode. This is due to the loss of potential energy each time a rockslide occurs. A future rockslide would add to the existing rock debris pile gradually narrowing the river channel, forcing flows toward Incline Road and gradually raising river levels.

A study prepared for the U.S. Geological Survey called *Simulations of Potential Runout and Deposition of the Ferguson Rockslide, Merced River Canyon, California* (2007) stated that the Ferguson rockslide could move extremely rapidly like a sand-and-gravel flow. That statement is contrary to the Geotechnical Design Report performed by Caltrans, which found that the rockslide moves at a slow rate and as intact blocks. A report prepared by the U.S. Forest Service supports the conclusion that the rockslide would move at a slow rate.

The nearest active fault zones are northeast of the project area. They are the Silver Lake fault, the Hartly Springs fault, and the Mono Lake fault. These faults are located between 40 and 45 miles away from the project area. There are no known active faults within the project area.

Groundwater in the form of seeps was found along the highway and the detour alignment.

Environmental Consequences

The natural slopes above the proposed Alternative R and Alternative T-3 entrances could produce rockfall.

The No-Build Alternative would be temporarily exposed to potential rockslides because the detour bridges and alignment are built at the existing highway grade and

do not elevate as they cross the river. The temporary bridges would eventually be removed, and therefore a potential rockslide could no longer affect them.

For the build alternatives, the bedrock may be cut and excavated by using blasting equipment such as hydraulic splitters and hoe rams. The cut and fill slopes for the proposed build alternatives would not be erosive because the bedrock exposed during excavation is made of hard phyllite and chert. The No-Build Alternative would have no effect on the bedrock.

Caltrans' standard practice is to design all structures for seismicity by establishing a Maximum Credible Earthquake. The maximum credible earthquake is established by using correlations between fault lengths, displacement, and area and earthquake magnitudes. Earthquake acceleration for a particular site is also analyzed by comparing three parameters: the maximum credible earthquake, the peak historical acceleration, and the distance from the site to the fault. The Silver Lake fault would produce the highest earthquake acceleration at the project area, and that acceleration is not considered very strong.

Alternatives R and T-3 may be built within or next to topographic features adjacent to the Ferguson rockslide that may be dormant rockslides. The No-Build alternative would avoid disturbing these features.

Groundwater could be encountered during the blasting and drilling of the rockshed or tunnel in Alternatives R and T-3.

Avoidance, Minimization, and/or Mitigation Measures

With use of the blasting equipment mentioned above, the rock material being excavated would be controlled to prevent the spread of rock material, limit ground vibrations, and limit noise.

The entrances for both Alternatives R and T-3 would be built at least 150 feet away from the flanks of the rockslide. Placing the entrances at this location would provide adequate distance for more rockfall debris to accumulate without spilling onto the highway and blocking the rockshed or tunnel. When the entrances are built, the slopes would be cut at a 1:4 ratio. A catchment area at-grade, rockfall barriers, or a combination of the two would be required for these alternatives to protect the roadway from the possibility of falling rock.

3.2.4 Hazardous Waste/Materials

Regulatory Setting

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

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

Other federal laws include the following:

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

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 disturbed during project construction is vital.

Affected Environment

Caltrans completed an Initial Site Assessment for the project on June 13, 2007. An addendum to the Initial Site Assessment studying the additional alternatives was completed on August 28, 2008. A subsequent addendum was completed in July 2009 to include additional alternatives.

Field surveys and record searches were used to identify potential hazardous waste concerns within the project area. The project area consists of State Route 140 running close to the base of the Merced River Canyon slopes and alongside the Merced River. The surrounding land is owned by the U.S. Forest Service and consists of steep mountain slopes with vegetation. A former railroad alignment exists on the north side of the Merced River; a segment of that alignment was converted into the one-lane paved detour around the rockslide.

Soil samples collected next to the former railroad alignment and current one-lane paved detour were analyzed for Title 22 metals. Title 22 metals include elemental, organic, and inorganic compound forms of antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc. Hazardous levels of many of these metals and their numerous compounds can be found in many common contaminant sources, including motor oil, manufacturing/processing wastes, and mine tailings. In some areas, they can be found occurring naturally in rock outcrops.

Elevated arsenic levels were the only potential concern identified within the project area. The total threshold limit concentration for arsenic is 500 micrograms per kilogram. The soluble threshold limit concentration is 5.0 micrograms per liter. The levels of arsenic noted to be in the project area are well below the total threshold and soluble limit levels. However, the arsenic levels exceed the Commercial/Industrial California Human Health Screening Level of 0.24 microgram per kilogram. The Commercial/Industrial California Human Health Screening Level serves as a guideline to aid in determining clean-up levels at contaminated sites.

Environmental Consequences

The results of the analysis identified elevated arsenic levels (24 to 56 micrograms per kilogram) in three of four surface soil samples. The sources of the elevated arsenic levels could be associated with the former railroad alignment, historical mining operations, or localized bedrock mineralized zones.

For the build alternatives and the eventual removal of the temporary detour, elevated arsenic levels may present a health hazard to people working in the area of Incline Road or occupying the area for recreational purposes. The build alternatives propose to restore Incline Road to its previous condition by removing the existing pavement. The No-Build Alternative would continue to use Incline Road temporarily as State Route 140, leaving the pavement in place, which poses no immediate impact. Restoration of Incline Road would occur when the detour is removed from either general wear or construction of the build alternatives.

Avoidance, Minimization, and/or Mitigation Measures

The presence of elevated arsenic levels along the one-lane detour is a project constraint with respect to soil management and disposal where planned roadway improvements generate excess soil from the area. Before off-site disposal of any excess soil generated from excavations within the vicinity of the one-lane detour, soil sampling, testing, and notification of arsenic levels would be provided to the off-site disposal facility for proper disclosure and material acceptance.

Caltrans construction and maintenance personnel and contractors would be properly notified of potential risks associated with elevated arsenic levels in the soil. Dust control and proper hygiene would be practiced during construction. Any planned pedestrian and/or recreational uses of the one-way detour would incorporate risk management controls, such as using dirt free of hazardous materials or paving areas that have a high arsenic content to minimize exposure.

3.2.5 Air Quality

Regulatory Setting

The Federal Clean Air Act, as amended in 1990, is the federal law that governs air quality, while the California Clean Air Act of 1988 is its companion state law. These laws, and related regulation by the U.S. Environmental Protection Agency and the California Air Resources Board, set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), broken down for regulatory purposes into particles of 10 micrometers or smaller—(PM_{10}) and particles of 2.5 micrometers and smaller—($PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). In

addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA and CEQA. In addition to this type of environmental analysis, a parallel "Conformity" requirement under the Federal Clean Air Act also applies.

The Federal Clean Air Act Section 176(c) prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to the State Implementation Plan (SIP) for achieving the goals of Federal Clean Air Act requirements related to the NAAQS. "Transportation Conformity" Act takes place on two levels: the regional—or planning and programming—level and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. Environmental Protection Agency regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for CO, NO_2, O_3, particulate matter, and in some areas SO_2. California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for Pb. However, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (TIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP, and 4 years for the TIP. RTP and TIP conformity is based on use of travel demand and air quality models to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that requirements of the Federal Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization, FHWA, and Federal Transit Administration, make determinations that

the RTP and TIP are in conformity with the SIP for achieving the goals of the Federal Clean Air Act. Otherwise, the projects in the RTP and/or TIP must be modified until conformity is attained. If the design concept, scope, and open to traffic schedule of a proposed transportation project are the same as described in the RTP and TIP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires "hot spot" analysis if an area is "nonattainment" or "maintenance" for CO and/or particulate matter A region is "nonattainment" if one or more of the monitoring stations in the region measures violation of the relevant standard, and U.S. Environmental Protection Agency officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by the U.S. Environmental Protection Agency, and are then called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot spot analysis. In general, projects must not cause the "hot spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Affected Environment

An Air Quality Report was completed in April 2013.

The project area sits in the Mountain Counties Air Basin in Mariposa County. The climate is semi-arid, characterized by hot, dry summers and mild winters. At higher altitudes, distinct wet and dry seasons prevail.

Table 3.4 lists the state and federal designations of the project study area for all criteria pollutants.

Table 3.4 Regional Air Quality Designations

Constituent	State Designation	Federal Designation
PM_{10}	Unclassified	Unclassified/Attainment
$PM_{2.5}$	Unclassified	Attainment/Unclassifiable
Ozone	Non-Attainment	Non-Attainment
SO_2	Attainment	Unclassified

H_2S	Unclassified	No Federal Standard
NO_2	Attainment	Attainment/Unclassified
CO	Unclassified	Attainment/Unclassified

The state and federal ambient air quality standards are show in Table 3.5.

Table 3.5 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[9]	—	
Lead[10,11]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

Table 3.5 Continued

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

9. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

   Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (6/7/12)**

Environmental Consequences

Regional Conformity

Under 40 CFR Section 93.126 Table 3, this project falls under the category of "Changes in Vertical and Horizontal Alignment" and is exempt from regional emission analysis. The table 3 exemption is a full exemption since the area is unclassified/attainment for all hot-spot-related pollutants. Separate listing of the project in the RTP and TIP, and their regional conformity analyses, is not necessary. The project will not interfere with timely implementation of Transportation Control Measures (TCM) identified in the applicable SIP and regional conformity analysis.

Project-Level Conformity

The project has undergone Interagency Consultation with concurrence on the project as fully exempt from conformity analysis.

Carbon Monoxide (CO) Analysis

The project is located in Mariposa County, which is in attainment for the federal and state carbon monoxide standards. There are no carbon monoxide monitors near the project or in Mariposa County.

According to the California Almanac of Emissions and Air Quality (2008 edition), California has reduced carbon monoxide concentrations over the past 10 years. It is expected that improved motor vehicle emissions controls and less-polluting fuels will continue this downward trend.

The U.C. Davis Transportation Project-Level Carbon Monoxide Protocol, dated December 1997, was used to evaluate the potential carbon monoxide impact of this project. The Protocol was created for use by agencies that sponsor transportation projects. The qualitative evaluation Local CO Analysis flow chart located in the Protocol (Chapter 4, Figure 3) was followed. The flow chart asked a series of questions for the basis of deciding if any emission changes are acceptable:

- Is the project in a CO nonattainment area? **No.**
- Was the area redesignated as "attainment" after the 1990 Clean Air Act? **No.**
- Does project worsen air quality? **No**.
- Are there any other reasons to believe the project may have adverse air quality impact? **No.**

The outcome of the flowchart was that the project is satisfactory and no further analysis needed.

Particulate Matter Analysis

A small reduction in $PM_{2.5}$ and PM_{10} is expected when comparing the build alternatives to existing conditions and the near-term no-build conditions because traffic would no longer back up at the signals controlling one-way traffic on the temporary detour. A greater reduction in emissions is expected when comparing the build alternatives to the long-term no-build conditions because of the longer detour created by the removal of the temporary bridges

Mobile Source Air Toxics (MSAT)

In addition to the criteria air pollutants for which there are NAAQS, the U.S. Environmental Protection Agency also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g. airplanes), area sources (e.g. dry cleaners) and stationary sources (e.g. factories or refineries).

For each of the alternatives, the amount of MSAT emitted would be proportional to the vehicle miles traveled, which is obtained by multiplying the annual average daily traffic by the project length. The overall MSAT emissions of the two build and the No-Build alternatives, immediately following construction and in the future, would have no appreciable difference compared to the existing condition. Technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and the effect of this project.

Regardless, emissions will likely be lower in the future than current levels as a result of the U.S. Environmental Protection Agency and California Air Resources Board programs that are projected to reduce MSAT emissions by 65 to 80 percent between 2005 and 2040.

Short-term Construction Impacts

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

The build alternatives would require a large amount of rock material to be removed, then transported to and disposed of at a disposal site outside the project area. Alternative R would require approximately 200 truck trips per day for 30 working days. Alternative T-3 would require approximately 200 truck trips per day for 108 working days. These trips would generate excess dust and add traffic to the state highways and local roads.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of Caltrans Standard Specifications, Section 14-9.02 "Air Pollution Control" and Section 14-9.03 "Dust Control," require the contractor to comply with the Mariposa County's Air Pollution Control District's rules, ordinances, and regulations.

3.2.6 Noise

Regulatory Setting

CEQA and NEPA 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 foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between the two acts.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then 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 NEPA-23 Code of Federal Regulations 772 noise analysis; refer to Chapter 4 for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 Code of Federal Regulations 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria that are used to determine

when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the criterion for residences (67 dBA) is lower than the criterion for commercial areas (72 dBA). Table 3.4 lists the noise abatement criteria for use in NEPA and 23 Code of Federal Regulations 772 analysis.

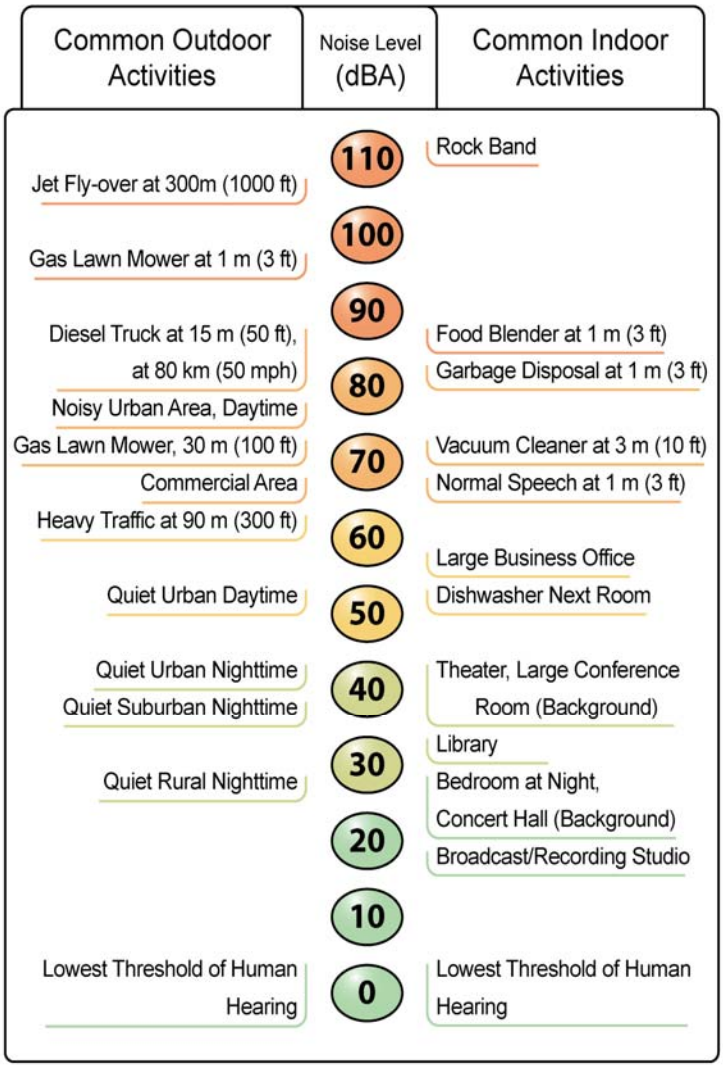
Table 3.4 Activity Categories and Noise Abatement Criteria

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

Source: Caltrans Traffic Noise Analysis Manual, 1998
A-weighted decibels (dBA) are adjusted to approximate the way humans perceive sound

Table 3.6 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in the section with common activities.

Table 3.6 Noise Levels of Common Activites



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

If it is determined that the project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated into the project.

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

Affected Environment

A Noise Report was completed in August 2007. An Amended Noise Report was completed in May 2010 to include additional build alternatives.

Within the project area, the Merced River is used mainly for whitewater rafting, but is also used for fishing and swimming. Incline Road was a U.S. Forest Service Road being used as a bicycle, pedestrian, and equestrian trail until the construction of the one-lane detour, which currently realigns State Route 140 across the river, along Incline Road, and back across the river to the existing alignment. There are no residences or businesses in the project area.

Two field noise measurements were used to document the existing background noise levels generated by the river and to calibrate the noise model for future noise level calculations. Noise measurements were taken on April 25, 2008. Two locations were then modeled to represent recreational users near the temporary downstream and upstream bridges. The existing background noise levels in the area are mostly generated by the river flowing swiftly over rocks in its course. Table 3.7 summarizes the results of the noise impact analysis for the project.

Table 3.7 Existing Noise Levels

Receiver Location	Existing Noise Level (decibels)
Upstream Bridge	61.6
Downstream Bridge	55.0
Upstream Recreational User	61.6
Downstream Recreational User	61.6

Environmental Consequences under NEPA

The build alternatives would not bring traffic closer to the recreational user than what exists with the existing or pre-slide condition. Therefore, recreational users would not experience a permanent or long-term increase in noise levels with the build alternatives. Noise levels would increase during construction. The increased noise would vary in intensity and be temporary and intermittent depending on the type of construction activity. For Alternative R, noise levels would temporarily increase from the cutting and excavating of slopes. Alternative T-3 would build a tunnel and temporarily generate increased noise levels by a combination of blasting and drilling through bedrock.

The No-Build Alternative, which leaves the temporary bridges in place, does not have an immediate or short-term impact on recreational users. However, with the eventual removal of the bridges, construction methods such as excavating the bridge abutments and piers, dismantling the bridge structure, and removing pavement would temporarily affect noise levels within the project area. Once the temporary detour has been taken down, State Route 140 would be severed and the noise receptors within the project area would no longer be affected.

Avoidance, Minimization, and/or Noise Abatement under NEPA

The following measures would be implemented to minimize construction noise for recreational users:

- Whenever possible, use construction methods or equipment that would provide the lowest level of noise (for example, alternative low noise pile installation methods).
- Use newer or well-maintained equipment with improved muffling, and ensure that all equipment items have the manufacturer’s recommended noise abatement

measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational.

- Maintain good public relations with the community to minimize objections to unavoidable construction noise.

3.3 Biological Environment

3.3.1 Natural Communities

Regulatory Setting

This section of the document discusses natural communities of concern with a focus 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.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in Threatened and Endangered Species, Section 3.3.5. Wetlands and other waters are discussed in Section 3.3.2.

Affected Environment

A Natural Environment Study was completed for the project in November 2007. A revised Natural Environment Study, which includes an analysis of the additional alternatives, was completed in January 2009. An additional revised Natural Environment Study was completed in January 2013 to include new information since the release of the previous Draft Environmental Impact Report/Environmental Impact Statement in November 2010.

Oak woodland communities make up a major portion of California's ecosystems, occupying about 10 million acres of land. The oak woodlands in the project area are dominated by foothill pine (*Pinus sabiniana*) and interior live oaks (*Quercus wislizeni*) with a shrubby understory of chamise (*Adenostoma fasciculatum*), buckbrush (*Ceanothus cuneatus*), and grasses. Many animal species depend on oak woodlands, which are also the favored habitat of many plant species. Within the project area, 76 of the 218 plant species observed are native species found under oaks. Included in this number are three rare plant species: Tompkins' sedge (*Carex tompkinsii),* Mariposa clarkia (*Clarkia biloba* ssp. *australis),* and smallflower

monkeyflower (*Mimulus inconspicuous).* Refer to Sections 3.3.3 and 3.3.5 for impacts to these rare plant species.

These species provide a good example of the specific benefits oaks provide. Tompkins' sedge and smallflower monkeyflower were found growing in the shade of oaks, often directly beneath them, benefiting from the moderating influence over temperature and light provided by the shade. These species may also be benefiting from the nutrients particular to oak woodland soils. The clarkia species, in contrast, were usually found in open areas between oaks, but always where they were shaded by an oak or by a rock face. They may be benefiting either directly from the shade produced by the oaks or indirectly by the lower grass density found in the partly shaded open areas between the oaks. Oak woodland communities make up the entire project area outside of the Merced River channel and its adjacent riparian corridor.

The riparian corridor that lines the Merced River channel is characterized by sparse vegetation due to the frequent flooding. The riparian area is dominated by California ash (*Fraxinus latifola*), red willow (*Salix laevigata*), and less frequently, Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*) and dusky willow (*Salix melanopsis*). The shrub cover is dominated by arroyo willow (*Salix lasiolepis*) and buttonbush (*Cephalanthera occidentalis*). The torrent sedge (*Carex nudata*) is the dominant herb along the water margin. California wild grape (*Vitis californica*) forms large colonies on the river bank below the roadway, and redbud (*Cercis occidentalis*) is prominent on the roadsides between the riparian area and the foothill woodland.

Installation of the temporary bridges and detour under the emergency project affected 13 trees: 3 upland trees (2 of which were oak trees) and 10 riparian trees (6 of which were oak trees).

Environmental Consequences

The build alternatives would each affect an area of oak woodland. The build alternatives would not affect the riparian area along the Merced River. Table 3.8 shows the impacts that the proposed alternatives would have on oak woodlands along with the impacts from the past emergency project. Total impacts for the project would include the impact of the build alternative plus the past impacts.

Table 3.8 Oak Woodland Impacts

	Alternative R	Alternative T-3	No-Build Alternative	Past Impacts
Project Impacts (acreage)	2.10	0.45	0	2 upland oaks 1 other upland tree 6 riparian oaks 4 other riparian trees

Source: Natural Environment Study, February 2013

The No-Build Alternative would not affect oak woodland or the riparian area from either temporarily leaving the detour in place or eventually removing the detour from the environment. However, the past impacts from the emergency project would require mitigation.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans would specifically compensate for oak woodland at a minimum 3:1 ratio based on the acreage of impact. Caltrans would purchase a parcel off-site with sufficient acreage of oak woodland and other natural resources affected by the project (discussed throughout Section 3.3). Any parcel purchased for the purpose of mitigation would be from a willing seller. All compensation plans would be approved by the California Department of Fish and Wildlife and the U.S. Forest Service.

The 13 trees removed (indicated as impacts from the emergency project) for the placement of the temporary bridges would be mitigated for through the planting of replacement trees on-site. A 3:1 ratio would likely be used as a replacement value. The 39 trees would be the same species as those removed or possibly include other native upland and riparian species as well. This mitigation would include a monitoring plan. The final design and the monitoring plan would be approved by the U.S. Forest Service and the California Department of Fish and Wildlife.

Caltrans biologists and landscape architects would continue to coordinate with the U.S. Forest Service on the planting of appropriate vegetation during and after construction. These plantings would include native shrubs, plants, herbs and grasses for the purpose of revegetation as well as erosion control. Current coordination efforts have included discussions with the U.S. Forest Service about collecting and planting seeds from the project area to compensate for the removal of oaks as well as other native plant species.

3.3.2 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 main law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: water-loving vegetation, wetland hydrology, and soils subject to saturation/inundation. All three 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 FHWA, and Caltrans as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife and the Regional Water Quality Control Boards. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that would substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife 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 Wildlife 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 U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

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. A Section 401 Water Quality Certification is required before the U.S. Army Corps of Engineers will issue a Section 404 permit for dredge and fill. Please see the Water Quality section for additional details.

Affected Environment

A Natural Environment Study was completed for the project in November 2007. A revised Natural Environment Study, which includes an analysis of the additional alternatives, was completed in January 2009. An additional revised Natural Environment Study was completed in January 2013 to include new information since the release of the previous Draft Environmental Impact Report/Environmental Impact Statement in November 2010.

The Merced River fits under the definition of jurisdictional waters of the United States and has been designated as a Wild and Scenic River (for recreational classification) protected by the Wild and Scenic Rivers Act. Installation of the temporary bridges and detour under the emergency project affected a total of 0.005 acre of fill material in the form of bridge columns placed below the ordinary high water mark of the Merced River channel. For more information on the impacts to the Merced River, see Section 3.1.1.3.

There are no wetlands in the project area.

Environmental Consequences

The build alternatives would have no impacts to waters of the United States. Removal of the temporary bridges would remove the previous fill material and would require coordination with a number of regulatory agencies.

The No-Build Alternative would not affect waters of the United States. The eventual removal of the temporary bridges would remove the previous fill material and would require coordination with a number of regulatory agencies.

Avoidance, Minimization, and/or Mitigation Measures

For activities associated with the removal of the temporary bridges and abutments, Caltrans would request the following:

- Section 404 of the Clean Water Act permit, issued by the U.S. Army Corps of Engineers
- Section 401 of the Clean Water Act certification, issued by the Regional Water Quality Control Board
- Section 1602 of the California Fish and Game Code, Streambed Alteration Agreement with the California Department of Fish and Wildlife

Removal of the temporary bridges would occur in late summer or early fall when the Merced River flows are lowest. The construction contractor would be required to address all potential water quality impacts that could occur through Caltrans Standard Specification Section 13-1 "Water Pollution Control." This specification requires the contractor to prepare and submit to Caltrans for approval a Water Pollution Control Program. This program would detail how standard best management practices would be used to avoid and minimize impacts to water quality.

3.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service and California Department of Fish and Wildlife have regulatory responsibility for the protection of special-status plant species. Special-status species are selected for protection because they are rare and/or subject to population and habitat declines. "Special-status" is a general term for species that are 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 3.3.5, in this document for detailed information on these species.

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

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

Affected Environment

A Natural Environment Study was completed for the project in November 2007. A revised Natural Environment Study, which includes an analysis of the additional alternatives, was completed in January 2009. An additional revised Natural Environment Study was completed in January 2013 to include new information since the release of the previous Draft Environmental Impact Report/Environmental Impact Statement in November 2010.

Tompkins' Sedge

Tompkins' sedge (*Carex tompkinsii)* is a Sierra Nevada species known mainly from the Kings River drainage in Fresno County and the Merced and Tuolumne River drainages in Mariposa and Tuolumne counties. Its preferred habitat is dry rocky soil found in canyon sides and canyon bottoms between 1,900 and 2,950 feet in elevation. Within the project area, Tompkins' sedge occurs on the south side of the river on north- and east-facing slopes. This plant species is rated as U.S. Forest Service Sensitive and California Native Plant Society Rare 4. It is listed as State Rare.

Mariposa Clarkia

Mariposa clarkia (*Clarkia biloba* ssp. *australis*) is a Sierra Nevada species that ranges from Mariposa to Tuolumne counties and resides within the Merced River Canyon along the south fork of the Merced River and in the main stem of the river down to Briceburg. It is also present along Bear Creek from Briceburg to Midpines. It appears to favor sites where there is shade from interior live oak and few shrubs. Large populations of Mariposa clarkia begin above the cut banks of the highway and continue uphill to the edge of the Ferguson rockslide and on intact portions of the rockslide. This plant species is rated as U.S. Forest Service Sensitive and California Native Plant Society Rare 1B.

Copper Moss

Copper moss (*Mielichhoferia elongate*) is geographically widespread with a range that includes North America, Europe, and Asia. It is found within the Merced River

Canyon between Briceburg and El Portal, usually tucked into a corner of a narrow ledge. Its critical habitat factors are low soil-water pH and high concentrations of sulphite ions. Within the project area, four small patches of the moss were observed. Three were found on human-made rock overhangs along the highway and temporary detour; the fourth was on a natural rock overhang on the west-facing slope of the canyon. This plant species is rated as U.S. Forest Service Sensitive and California Native Plant Society Rare 2.

Smallflower Monkeyflower

The smallflower monkeyflower (*Mimulus inconspicuous*) is found in scattered populations of a few individuals in shaded banks of small streams, meadow edges or the north-facing slopes of the canyon. It has threadlike stems, few leaves and a few pale pink flowers. Its current known distribution is entirely within California. This plant is known to occur in the Sierra Nevada foothills from El Dorado County to the Transverse Ranges in Los Angeles County, and in Glenn and Butte counties.

Within the project area, the smallflower monkeyflower population was found beginning about 80 feet above the highway in the deep shade of oaks on the northeast-facing slope and on the eastern side of the rockslide. There are several small patches of about 10 to 200 individuals scattered on the hillside. This plant species is rated as California Native Plant Society Rare 4.

Environmental Consequences

Tompkins' Sedge

The build alternatives would cut into the slopes on the south side of the river where Tompkins' sedge habitat has been identified. Alternative R would affect 2.10 acres of habitat, and Alternative T-3 would affect 0.45 acre of habitat.

Mariposa Clarkia

Alternatives R and T-3 would cut into the slopes on the south side of the river where populations of Mariposa clarkia have been identified. Alternative R would affect 2.10 acres of habitat, and Alternative T-3 would affect 0.45 acre of habitat.

Copper Moss

Alternative R would completely avoid the copper moss. Alternative T-3 would remove one to two patches of copper moss that are along the highway and the temporary detour. The No-Build Alternative would not affect the plant during the removal of the temporary bridges.

The patches of copper moss found within the project area are small and few and represent an insignificant portion of the population of this species in the canyon. The patches of moss that would be removed are on ledges of human-made rock faces that were created when the highway and railroad beds were originally built. Any further cuts into these rock faces that create vertical walls and/or under hangs would reestablish new habitat for the moss rather than diminish any habitat.

Smallflower Monkeyflower

Alternatives R and T-3 could potentially affect 1.05 acres and 0.25 acre of smallflower monkeyflower habitat, respectively. The No-Build Alternative would not affect any known populations of smallflower monkeyflower during removal of the temporary bridges.

Table 3.9 shows the impacts that the proposed alternatives would have on the plant species listed above.

Table 3.9 Plant Species Impacts

Project Impacts	Alternative R	Alternative T-3	No-Build Alternative
Tomkins' sedge (acreage)	2.10	0.45	None
Mariposa clarkia (acreage)	2.10	0.45	None
Copper moss (patches)	None	1 to 2	None
Small-flower monkey-flower (acreage)	1.05	0.25	None

Note: The above species occur within the same habitat area. Impacts would not be cumulative.

Avoidance, Minimization, and/or Mitigation Measures

Tomkins' Sedge

For Alternatives R and T-3, environmentally sensitive area fencing would be placed around the Tompkin's sedge populations to minimize their removal and protect them and their associated habitat to the maximum extent possible. Some individual plants to be affected could be transplanted with the assistance and concurrence of the U.S. Forest Service botanist. Caltrans Standard Specification (SS) 14-1.03 for environmentally sensitive area temporary fencing would be included in the construction contract.

Mariposa Clarkia

For Alternatives R and T-3, environmentally sensitive area fencing (SS 14-1.03) would be placed around the Mariposa clarkia populations to minimize their removal

and protect them and their associated habitat to the maximum extent possible. Caltrans biologists and landscape specialists would continue to coordinate with the U.S. Forest Service and the National Park Service on the planting of appropriate vegetation during and after construction. This may include seed collection from affected Mariposa clarkia plants.

Copper Moss

No mitigation measures would be required.

Smallflower Monkeyflower

For Alternatives R and T-3, environmentally sensitive area fencing (SS 14-1.03) would be placed around the smallflower monkeyflower populations to minimize ground disturbance and protect them and their associated habitat to the maximum extent possible. Caltrans biologists and landscape specialists would continue to coordinate with the U.S. Forest Service and the National Park Service on the planting of appropriate vegetation during and after construction. This may include seed collection from affected smallflower monkeyflower plants.

3.3.4 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 Wildlife 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 as well as California Department of Fish and Wildlife fully protected species are discussed in Section 3.3.5 below. All other special-status animal species are discussed here, including 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

State laws and regulations pertaining to wildlife include the following:

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

Agency regulations that pertain to this project include the U.S. Forest Service South Fork and Merced Wild and Scenic River Implementation Plan. Refer to Sections 3.1.1.2 and 3.1.1.3 for more information.

Affected Environment

A Natural Environment Study was completed for the project in November 2007. A revised Natural Environment Study, which includes an analysis of the additional alternatives, was completed in January 2009. An additional revised Natural Environment Study was completed in January 2013 to include new information since the release of the previous Draft Environmental Impact Report/Environmental Impact Statement in November 2010.

Hardhead Fish

Hardhead (*Mylopharodon conocephalus*) fish are mainly found in low-to mid-elevation streams in the main Sacramento and San Joaquin drainage. The exact timing of spawning activity has not been definitively recognized; some sources state spawning occurs in the spring, perhaps May through June in valley streams, extending into August in foothill streams (NatureServe, 2012) and other sources state that, although spawning can occur as late as August, it usually occurs around April and May (California Fish Website, 2012). Hardhead fish are much less abundant in Central California than they once were, but are still widely distributed in foothill streams. Although surveys for this fish were not conducted, hardhead fish could be present in the Merced River within the project area. This species is rated by the U.S. Forest Service as Sensitive and listed as a State Species of Special Concern.

Foothill Yellow-legged Frog

Foothill yellow-legged frogs (*Rana boylii*) prefer partially shaded, small foothill streams with year-round flow, at elevations of 100 to 3,300 feet. The Merced River within the project area does not provide preferred habitat for this species, although these frogs are present in the smaller tributaries to the river. Because the project area does not have preferred habitat, surveys for the foothill yellow-legged frog were not conducted. This species is rated by the U.S. Forest Service as Sensitive and listed as a State Species of Special Concern.

Ringtail

The ringtail (*Bassariscus astutus*) is a nocturnal species and in the same family as the raccoon. Ringtails live in brushy and wooded areas at the lower and middle elevations. They are commonly found in foothill canyons and along waterways with a preference for chaparral, rocky hillsides, and riparian habitat.

In 1968, the ringtail was designated as Fully Protected through California Fish and Game Code Section 4700. In 1980, the California Department of Fish and Wildlife recommended removing the ringtail from the list because the data showed that ringtails were either stable or increasing in numbers. However, the ringtail is still designated as fully protected and a take of this species cannot be authorized through the Section 2081 permitting process.

During bat surveys, one adult ringtail was observed a quarter mile west of the project area. The Merced River Canyon is considered prime habitat for the ringtail, and it is likely that there are greater numbers of the species present in the area of the project than just the one observed.

Pallid Bat

Pallid bats *(Antrozous pallidus)* frequent rocky outcrops in lower elevations up into the forested oak and pine regions. Daytime roosts consist of rock crevices and buildings where they can retreat out of sight and wedge themselves into tight places. They are intolerant of disturbance and may abandon a roost when disturbed and not return for years. Pallid bats were observed and their calls were identified during surveys within the project area. Additionally, a night roost was seen on the South Fork Merced River bridge only a few miles east of the project area. This species is rated by the U.S. Forest Service as Sensitive and listed as a State Species of Special Concern.

Western Red Bat

Western red bats (*Lasiurus blossevillii)* roost alone in the foliage of large shrubs and trees, frequently in streamside habitats dominated by cottonwoods, oaks, sycamores, and walnuts, but will also roost in fruit orchards within suburban areas. Western red bats or their calls were not positively identified. However, some calls were heard that were similar and could not be ruled out as being this species. This species is rated by the U.S. Forest Service as Sensitive and listed as a State Species of Special Concern.

Migratory Birds

The project area contains trees, shrubs, and rock faces that provide nesting habitat for birds protected by the Migratory Bird Treaty Act.

Environmental Consequences

Hardhead Fish

The build alternatives and eventually the No-Build Alternative would remove the temporary bridges that are within the active river channel. Construction activities such as the creation of small de-watered areas used for the removal of the temporary bridges and abutments may temporarily and indirectly affect hardhead fish as the soil is stirred up and creates cloudiness within the river. This indirect impact may affect downstream habitat as the cloudy water is carried by the current.

Foothill Yellow-legged Frog

The build alternatives and the No-Build Alternative would have no impact to this species.

Ringtail

The proposed alternatives would involve ground disturbance on the southern slope of the canyon, which is potential ringtail habitat. However, construction-related activities would encourage any ringtails to move away to another area; this would then avoid a take of these animals under Section 5050 of the California Fish and Game Code.

Pallid Bat and Western Red Bat

The build alternatives would remove rocks, structures, and forested areas that provide roosting and foraging habitat for pallid and western red bats. Table 3.10 shows the potential impacts to roosting and foraging habitat along with the past impacts.

Table 3.10 Impacts to Bat Roosting and Foraging Habitat

	Alternative R	Alternative T-3	No-Build Alternative	Past Impacts
Project Impacts	2.10 acres	0.45 acre	None	13 trees

Migratory Birds

The build alternatives would remove trees, shrubs and rock faces that provide nesting habitat for birds. The No-Build Alternative, which currently leaves the temporary bridges in place and would eventually require the removal of these bridges, would not affect migratory birds.

Avoidance, Minimization, and/or Mitigation Measures

Hardhead Fish

For activities associated with the removal of the temporary bridges in the water, a "no in-stream work" window may be established to avoid impacts during the spawning season. The exact work window would be decided during consultation with the U.S. Forest Service and the California Department of Fish and Wildlife later in the project development process.

Foothill Yellow-legged Frog

Even though no impact to this species would occur as a result of any of the build alternatives, pre-construction surveys for special-status species would be conducted within 30 days of initial ground disturbance. If foothill yellow-legged frogs are observed, Caltrans would consult with the California Department of Fish and Wildlife regarding a possible work window, no-work buffer zone, or other minimization measures. Caltrans Standard Special Provision 14-6.02, which includes details of pre-construction surveys and species protection, would be included in the construction contract.

Ringtail

If ground disturbance occurs during the ringtail reproductive season, defined as March through August, then qualified biologists would conduct field identification surveys for potentially active dens. If an active den is located, construction activities within 150 feet would temporarily be stopped and the California Department of Fish and Wildlife would be consulted about the protection of the den. Caltrans Standard Special Provision 14-6.02, which includes details of pre-construction surveys and species protection, would be included in the construction contract.

Pallid Bat and Western Red Bat

The compensatory mitigation for oak woodland (see Section 3.3.1) would also benefit pallid and western red bats.

Migratory Birds

Caltrans Standard Specification 14-6.03, which includes details of pre-construction surveys and bird protection, would be included in the construction contract to allow the removal of trees only during the non-nesting season. The nesting season is defined as February 15 through September 1.

3.3.5 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S. Code, Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as FHWA, and Caltrans as assigned, 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 Wildlife is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the California 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 California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife. For projects requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to the California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

In addition to the California Endangered Species Act, the State of California places certain species on a "Fully Protected" list. A fully protected status prevents the California Department of Fish and Wildlife from authorizing a take of any species designated as fully protected through the usual California Fish and Game Code Section 2081 permit process.

Affected Environment

A Natural Environment Study was completed for the project in November 2007. A revised Natural Environment Study, which includes an analysis of the additional alternatives, was completed in January 2009. An additional revised Natural Environment Study was completed in January 2013 to include new information since the release of the previous Draft Environmental Impact Report/Environmental Impact Statement in November 2010.

Merced Clarkia

Merced clarkia (*Clarkia lingulata)* is extremely endemic or associated with a particular area. This plant species is known to be found in only two confirmed locations. One is an upstream location, less than a mile from the project area where the south fork and the main stem of the Merced River meet. The downstream location is also less than a mile away on the slope at the north tip of the Ferguson Ridge. This species is listed as endangered by the California Department of Fish and Wildlife.

The Merced clarkia was not observed during surveys conducted in 2007. During surveys done in the past, two unconfirmed sightings of Merced clarkia were reported within the project area.

Limestone Salamander

Limestone salamanders (*Hydromantes brunus)* are excellent climbers that live in the crevices of cliffs and ledges and in limestone under the canopy of foothill oak woodland, especially where the rocks are overgrown with moss. They are active and

above ground during the fall, winter, and spring rains. They become inactive during the dry hot months, sheltering in cracks, crevices, or dense leaf litter. This species has been found only along the Merced River drainage in Mariposa County.

The limestone salamander was designated as a threatened species by the State of California in 1971. It is also designated as fully protected through Section 5050 of the California Fish and Game Code.

The U.S. Forest Service considers the limestone salamander to be a part of the "outstandingly remarkable value" for wildlife, one of the values by which the Merced River was designated as wild and scenic. Refer to Section 3.1.1.3 for more information.

Limestone salamanders were seen during surveys at various locations on the south side of the Merced River within the project area. All sightings were higher on the slope above the road, closer to the mountain ridge. All areas on the north side of the river within the project area were characterized as unsuitable or potentially poor habitat. See Appendix G for map of limestone salamander habitat.

Environmental Consequences

Merced Clarkia

Alternatives R and T-3 would cut into the slope on the south side of the river where the unconfirmed observations of Merced clarkia were made. Although no confirmed sightings were made, the project area is considered potential habitat. Alternatives R and T-3 would affect 2.10 acres and 0.45 acre of habitat, respectively.

The No-Build Alternative would not affect potential habitat for Merced clarkia while the bridges are in place or upon their eventual removal.

Limestone Salamander

Alternatives R and T-3 would remove 2.10 acres and 0.45 acre of limestone salamander habitat and likely result in a take of the salamanders as defined in the California Endangered Species Act. Take could result from changes in above- and below-ground hydrology and blasting and excavating activities.

The No-Build Alternative would not affect the limestone salamander while the temporary bridges are in place or upon their eventual removal.

Avoidance, Minimization, and/or Mitigation Measures

Merced Clarkia

Although this plant was not observed during surveys, pre-construction surveys would be done in the appropriate bloom period within the year before construction to provide updated data. If the Merced clarkia is observed, environmentally sensitive area fencing would be placed around the population to protect it to the maximum extent possible. The California Department of Fish and Wildlife would be notified if the plant is observed. If the plants cannot be completely avoided, Caltrans would request a Section 2081 Individual Take Permit.

Limestone Salamander

A construction work window may be established during initial ground disturbance activities to prevent construction-related activities from occurring on the southern slope during the salamander's active season, which is defined as December through March. Environmentally sensitive area fencing in the form of 5-foot orange plastic mesh as well as salamander exclusion (protection) fencing in the form of 24-inch sheet metal would be erected if construction-related activities were to occur next to limestone salamander habitat and during their active season.

Alternatives R and T-3 would require a 2081 Incidental Take Permit from the California Department of Fish and Wildlife. Under normal circumstances, the California Department of Fish and Wildlife would not have the ability to issue a 2081 Incidental Take Permit for impacts to a fully protected species. However, Assembly Bill (AB) 1973 amended Section 5050 and Section 2081.9 of California Fish and Game Code to allow a one-time only authorization by the California Department of Fish and Wildlife to issue a 2081 Incidental Take Permit to Caltrans for the purposes of this project. AB 1973, which is included in Appendix H, was passed by the Assembly and Senate, and signed by the Governor on July 12, 2012.

Alternatives R and T-3 would require off-site compensatory mitigation at approximately a 3 to 1 ratio as part of the 2081 Incidental Take Permit. Caltrans would purchase property that would have specific habitat elements indicative of limestone salamander presence, but could be required to have confirmed presence prior to purchase. The parcel would likely be near the existing Limestone Salamander Ecological Reserve that is currently owned and managed by the California Department of Fish and Wildlife. Ownership and management could go to the California Department of Fish and Wildlife or to a non-profit land management organization such as the Sierra Foothill Conservancy. An endowment would also be

required to cover the initial costs of management as well as long-term and recurring costs, and would accompany the property to be managed according to requirements in the 2081 Incidental Take Permit. The details of the plan would be proposed to California Department of Fish and Wildlife for review and approval in the 2081 Incidental Take Permit application.

3.3.6 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." FHWA guidance issued August 10, 1999 directs the use of the state's noxious weed list, currently maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

The U.S. Forest Service has guidelines for noxious weed prevention practices and re-vegetation policy to help prevent the spread of invasive plant species. The goal of the U.S. Forest Service invasive species program is to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species across all landscapes and ownerships.

Affected Environment

A Natural Environmental Study was completed for the project on November 12, 2007. A revised Natural Environment Study, which includes an analysis of the additional alternatives, was completed in January 2009. The Natural Environment Study was revised again (completion date February 2013) to include new information since the release of the previous Draft Environmental Impact Report/Environmental Impact Statement in November 2010.

Within the project area, 40 non-native plant species were found. Most of these non-native species occur exclusively or primarily as roadside weeds. Several are pervasive weeds of open grassy areas. A number of the non-native species are listed by the U.S. Forest Service, Sierra National Forest as special-status noxious weeds. The weeds include cheat grass (*Bromus tectorum*), Himalayan blackberry (*Rubus discolor*),

milkthistle (*Silybum marianum*), perennial pepperweed (*Lepidium latifolium*), spotted knapweed (*Centaurea maculosa*), tocalote (*Centaurea melitensis*), yellow star-thistle (*Centaurea solstitalis*), and woolly mullein (*Verbascum thapsus*).

There are no known aquatic invasive species in the project area, but there are a number within transport range (Source: Aquatic, Non-Vertebrate Invasive Species, Pacific Southwest Region, U.S. Forest Service). These include Asian Clam (*Corbicula fluminea*), chytrid fungus (*Batrachochytrium dendrobatidis*), didymo (*Didymosphenia gerinata*), Eurasian watermilfoil (*Myriophyllum spicatum)*, Hydrilla *(Hydrilla verticillata*), and New Zealand mudsnails (*Potamopyrgus antipodarum*).

The U.S. Forest Service has been conducting extensive integrated weed management for the past decade in the Merced River Canyon, including the area of this project.

Environmental Consequences

Construction-related activities from the build alternatives and the eventual removal of the temporary bridges would potentially promote the distribution of invasive plant species through ground disturbance and invasive aquatic species during work in or next to the river. If aquatic invasive pests were introduced, they could damage the aquatic ecology and diminish the fishing and recreational opportunities in the area. Construction of the emergency project could have also potentially promoted the distribution of invasive plant species through ground disturbance.

Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from FHWA, the following measures would be used to prevent the introduction or spread of invasive species:

- The landscaping and erosion control included in the project would not use species listed as noxious weeds.
- Equipment should arrive at the construction site clean and would be subject to inspection.
- Cleaning measures would be used if equipment is moved between areas that have known invasive species.
- Caltrans would continue to coordinate with the U.S. Forest Service regarding the most feasible program for planting during and after construction.
- A Special Provision would be included in the construction bid package to prevent the introduction and/or spread of invasive and noxious weeds.

3.4 Relationship Between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

The build alternatives would be consistent with the Mariposa County General Plan, the Yosemite Valley Plan, the Economic Vitality Strategy and Implementation Plan for Mariposa County by restoring full access to all vehicle types traveling on State Route 140. The No-Build Alternative would not be consistent with state, regional, and local plans because the roadway would eventually be closed at the project area and access to communities and recreational activities along State Route 140 would be reduced by the failure of the temporary bridges.

The build alternatives would have both beneficial and negative long-term effects. Restoring full access to all vehicle types would provide for long-term tourism to the area, cohesion between the communities within Mariposa County, and a variety of recreational uses including entering Yosemite National Park. Incline Road would be restored to its previous condition and could be used for recreational activities.

The scenic quality of the area would be decreased with Alternative R as a rockshed/tunnel would be added to the area. The build alternatives would permanently remove between 0.45 and 2.10 acres of oak woodland, roosting and foraging habitat for bats, and habitat for both special-status and threatened and endangered plant species. Alternatives R and T-3 would also permanently remove up to 2.10 acres of habitat for the ringtail and the limestone salamander. Short-term, construction activities in the surrounding environment during completion of any of the build alternatives would involve noise from heavy equipment, changes to the visual environment, and potential delays in traffic. The Merced River could be affected in the short term by water quality problems, specifically regarding pH levels and turbidity.

While the proposed project may have some negative effects on the natural habitats within the project area and the build alternatives may have short-term impacts to whitewater rafting, the long-term productivity of Mariposa County would be restored and enhanced by an adequate transportation system that supports recreational mobility, tourism, and the movement of goods and services.

3.5 Irreversible and Irretrievable Commitments of Resources that Would be Involved in the Proposed Project

Implementation of the proposed project involves a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed roadway is considered an irreversible commitment during the time period that the land is used for a highway. However, if a greater need arises for use of the land or if the highway is no longer needed, the land can be converted to another use, as will be the case for unused portions of existing State Route 140 for Alternative T-3.

Fossil fuels, labor, and highway construction materials such as cement and aggregate would be expended in the construction of the structures and roadway. Additionally, labor and natural resources would be used to fabricate and prepare construction materials. These materials are generally not retrievable. However, they are not in short supply, and their use would not have an adverse effect on continued availability of these resources. Any construction would also require an expenditure of federal funds, which are not retrievable. The proposed project cost of $47.1 million to $225.7 million (2013 dollars) would be committed.

Water would be required to produce construction materials and maintain structures such as cleaning bridges and rockshed or tunnel walls.

Commitment of these resources is based on the concept that Mariposa County residents and tourists would benefit from the fully restored State Route 140. These benefits would consist of full and unrestricted access to all recreational possibilities within Mariposa County and for residents traveling between communities, which would be expected to outweigh the commitment of these resources.

3.6 Construction Impacts

Impacts from the construction of the build alternatives would be temporary and would require minimal closures of the highway as traffic would be maintained throughout construction on the temporary detour. Construction activities such as excavation may occur within the river channel. Following construction, the channel would be restored to its pre-construction condition. Methods for constructing the proposed build alternatives are described below.

Construction Access

Staging areas for construction equipment and materials would be placed on the existing State Route 140 next to the rockslide. This portion of State Route 140 is currently not being used as part of the temporary detour.

Rockshed and Tunnel Construction

Alternative R would be a reinforced concrete box structure supported on concrete piles and tieback anchors into the west canyon wall. To move the box structure into place, the rockslide talus, the debris deposited below the slide, would be removed and the structure pushed into place using a rail system. To increase worker safety, rock slope fence protection and remote-controlled equipment could be used. Retaining walls would be built to keep rock debris from falling onto the highway.

Alternative T-3 would require a combination of blasting and drilling techniques to build the tunnel. Retaining walls would be built flanking the entrances and exits of the tunnel to keep rock debris from falling onto the highway.

Both alternatives would require the removal of rock material to build the rockshed or tunnel and cut areas for the highway. All the excess rock material would be hauled to a disposal site outside the project area, requiring multiple trips for a number of trucks. These trips would generate excess dust and add traffic to state highways and possibly local roads.

Use of Construction Equipment

Construction equipment would be used only in the areas created for construction access. The access areas would be lined with barriers to prevent fluid leaks from equipment entering any bodies of water. Concrete trucks that have delivered their loads would be required to wash out on the closed portions of the existing State Route 140 next to the rockslide. Best management practices would be applied to prevent any discharge to the river.

Construction Schedule

Closures of State Route 140 to traffic would be infrequent, with each just long enough to accommodate equipment being moved around, generally about 10 to15 minutes.

Temporary Detour Removal

The detour and the temporary bridges can be removed and the site restored to its previous condition within weeks of the opening of the permanent restoration project.

The asphalt concrete temporary roadway would be ground into a gravel size and hauled off-site. The metal beam guardrail and wood posts along the detour route would be dismantled and hauled to a Caltrans storage facility. The wire mesh gravel-filled retaining walls along the detour would be excavated and cut into pieces to be removed and recycled off-site. All signs and other detour equipment would be removed. Once the pavement is removed, Incline Road would be graded and restored to its previous condition.

The upstream temporary bridge would be elevated up onto rollers and moved toward the detour roadway, incrementally taken apart and hauled off-site for storage. The upstream bridge supports at the ends of this bridge along with the concrete column supports would be jack-hammered into large rock-size pieces and hauled off-site. All concrete used for the temporary bridges would be removed to at least 1 foot below the ground. The downstream temporary bridge structure would be removed from its supports by crane and dismantled into pieces no larger than 7 feet by 10 feet. These bridge segments would then be hauled off-site. The downstream bridge supports would be jack-hammered into rock-sized pieces and hauled off-site for disposal or recycling.

3.7 Cumulative Impacts

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

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive 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.

CEQA 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 CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 Code of Federal Regulations Section 1508.7 of the Council on Environmental Quality Regulations.

Transportation projects and other actions by federal, state or local agencies within the Merced River Canyon are infrequent. Other than routine maintenance of State Route 140, Caltrans has only one current project and no past or reasonably foreseeable projects in the canyon area. The current project is 8 miles west at Bull Creek Road. The project would repair a retaining wall next to State Route 140 and Bear Creek, a tributary to the Merced River. No cumulative impacts are expected as a result of this project in combination with the Ferguson Slide Permanent Restoration.

Impacts from the emergency project, which installed the temporary bridges and detour on Incline Road, are included with the impacts from the build alternatives in the Environmental Consequences and Avoidance, Minimization, and/or Mitigation sections in this chapter. Therefore, they will not be addressed as cumulative impacts.

No other projects in the Merced River Canyon that would, in combination with this project, result in any cumulative impacts were identified during the preparation of this document. Therefore, no cumulative impacts would result from implementation of the Ferguson Slide Permanent Restoration project.

Chapter 4 California Environmental Quality Act Evaluation

4.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and the FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. The FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA 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 CEQA and NEPA.

One of the main differences between CEQA and NEPA is the way significance is determined.

Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS), or some lower level of documentation, would be required. NEPA requires that an EIS 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 CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, 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 (EIR) must be prepared. Each significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance under CEQA. This chapter discusses the effects of this project and CEQA significance.

4.2 Discussion of Significance of Impacts

4.2.1 Less than Significant Effects of the Proposed Project

There would be no impacts on the environment in the following areas:

- Growth – Would not encourage unplanned growth because the build alternative would only reestablish full access to State Route 140.
- Farmlands/Timberlands – There is no farmland or timberland in the project area.
- Paleontology – No paleontological resources were identified within the project area.
- Energy – Would not affect the way energy is produced or used because the build alternatives would only reestablish full access to State Route 140.
- Hydrology and Floodplain – AlternativeT-3 would not encroach longitudinally on the base floodplain.
- Air Quality – A small reduction in emissions is expected when comparing the build alternatives to existing conditions and the near-term no-build conditions because traffic would no longer back up at the signals controlling one-way traffic on the temporary detour. A greater reduction in emissions is expected when comparing the build alternatives to the long-term no-build conditions because of the longer detour created by the removal of the temporary bridges.
- Waters of the United States – The build alternative have no impact to Waters of the United States because their footprints are outside of the Merced River and there are no wetlands in the project area.

For more information on these areas, refer to Chapter 3.

The project would have a less than significant effect on the environment in the following areas:

- Consistency with State, Regional, and Local Plans –The build alternatives would be consistent with these plans, while the No-Build Alternative would not be consistent.
- Parks and Recreation – The build alternatives would restore full access to parks and recreation activities in the area.
- Community Character and Cohesion – The build alternatives would restore full access throughout the communities.

- Utilities/Emergency Services – The build alternatives would restore full access to utility and emergency services.
- Traffic and Transportation/Pedestrian and Bicycle Facilities – The build alternatives would restore full access to these facilities.
- Visual/Aesthetics – Alternative T-3 would not degrade the existing visual character or quality of the project area.
- Cultural Resources – The build alternatives would have no adverse affects to historic properties within the project area.
- Hazardous Waste or Materials – All alternatives would include removing the pavement on Incline Road, which would expose workers to elevated levels of arsenic. The proposed project would incorporate dust control measures and proper hygiene. Any planned pedestrian and/or recreational uses of the one-way detour would incorporate risk management controls, such as using dirt free of hazardous materials or paving areas that have high arsenic content to minimize exposure. These measures would reduce this impact to less than significant.
- Water Quality and Storm Water Runoff –The build alternatives would have short-term impacts during construction activities. Management measures in the form of a Storm Water Pollution Prevention Plan, design pollution prevention best management practices, and construction site temporary best management practices to control, reduce, and treat runoff water, thereby avoiding and minimizing potential short term impacts to a level less than significant. The build alternatives would have no long-term impacts because the footprint is outside of the river channel and culvert systems would be installed as part of the project to collect and discharge stormwater runoff.
- Noise – There would be a temporarily increase in noise levels during construction of the build alternatives.
- Natural Communities – Both build alternatives propose to remove a portion of oak woodland habitat. Compensation for oak woodland at a minimum 3:1 ratio would reduce this impact to less than significant.
- Plant Species – Alternatives R and T-3 would impact sensitive plant species, such as Tompkins' sedge, Mariposa clarkia, and smallflower monkeyflower, and one to two patches of copper moss. Environmental sensitive area fencing and transplanting individual plants would reduce this impact to less than significant.

- Animal Species – The build alternatives would remove up to 2.10 acres of bat roosting and foraging habitat. The compensation for oak woodland would reduce this impact to less than significant.
- Invasive Species – Although the build alternatives would potentially promote the distribution of invasive plant species through ground disturbance, erosion control included in the project would not use species listed as noxious weeds and in areas of particular sensitivity, extra precautions would be taken if invasive species were found in or next to the construction areas, including the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

For a full discussion of less than significant effects and mitigation measures for the above issues, refer to Chapter 3.

4.2.2 Significant Environmental Effects of the Proposed Project

The project would have impacts with a significant effect on the environment in the following areas:

- Visual/Aesthetics – Alternative R would have an average reduction in visual quality to moderate low.
- Geology/Soils/Seismic/Topography – Because the tunnel would be built within the slopes of the Merced River Canyon, Alternative T-3 would remove approximately 292,000 cubic yards of rock material. Disturbances to rock formations would be within the slopes and not exposed to the surrounding landscape. Alternative R would remove approximately 80,000 cubic yards of the rockslide talus.

4.2.3 Unavoidable Significant Environmental Effects

The project would have an unavoidable significant effect on the environment in the following areas:

- Parks and Recreation – The No-Build Alternative would eventually affect access to recreational activities along State Route 140 as well as to Yosemite National Park via State Route 140 when the temporary structures fail due to general wear.
- Community Character and Cohesion – The No-Build Alternative would eventually affect access between communities along State Route 140 when the temporary structures fail due to general wear.

- Utilities/Emergency Services – The No-Build Alternative would eventually diminish access for emergency service vehicles and equipment needing to access the east side of the rockslide because the temporary bridges support structures will eventually fail. It may also diminish access to specialized medical care for those residents forced to drive 2.5 hours out of their way to get to the hospital in Mariposa.
- Traffic and Transportation/Pedestrians and Bicycle Facilities – The No-Build Alternative would eventually cut off access to recreational activities, residents, businesses, and Yosemite National Park via State Route 140 for all through traffic and residential, transit, tour, and school buses, as well as recreational and commercial traffic. The access would be cut off when the temporary bridges fail due to general wear.
- Hydrology and Floodplain – Alternative R would encroach longitudinally on the base floodplain.

For a full discussion of unavoidable significant effects for the above issues, refer to Chapter 3.

4.2.4 Significant Irreversible Environmental Changes

The project would have significant irreversible changes on the environment in the following areas:

- Wild and Scenic Rivers –Alternatives R and T-3 would affect the wildlife value by removing limestone salamander habitat.
- Threatened and Endangered Species – Alternatives R and T-3 propose to remove limestone salamander habitat, which would likely result in a take of the California fully protected limestone salamander.

For a full discussion of irreversible significant changes for the above issues, refer to Chapter 3.

4.2.5 Climate Change under CEQA

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. “Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[1].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing the growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued cooperatively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate.

[1] http://climatechange.transportation.org/ghg_mitigation/

Assembly Bill (AB) 1493, Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order (EO) S-3-05: (signed on June 1, 2005, by former Governor Arnold Schwarzenegger) the goal of this EO is to reduce California's GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32.

Assembly Bill 32, the Global Warming Solutions Act of 2006, Núñez and Pavley: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that the California Air Resources Board create a scoping plan (which includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (signed on October 18, 2006 by former Governor Arnold Schwarzenegger) further directs state agencies to begin implementing AB 32, including the recommendations made by California's Climate Action Team.

Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger) set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by the year 2020.

Senate Bill (SB) 97, Chapter 185, 2007: required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities. This policy

contributes to Caltrans' stewardship goal to preserve and enhance California's resources and assets.

Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the U.S. EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA'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.

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 a reduction in the growth of vehicle hours travelled.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from

new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydro fluorocarbons (HFCs), per fluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009[2]. On May 7, 2010 the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010[3].

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile, (the equivalent to 35.5 miles per gallon [MPG] if

[2] http://www.epa.gov/oms/climate/regulations.htm#1-1
[3] http://epa.gov/otaq/climate/regulations.htm

the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

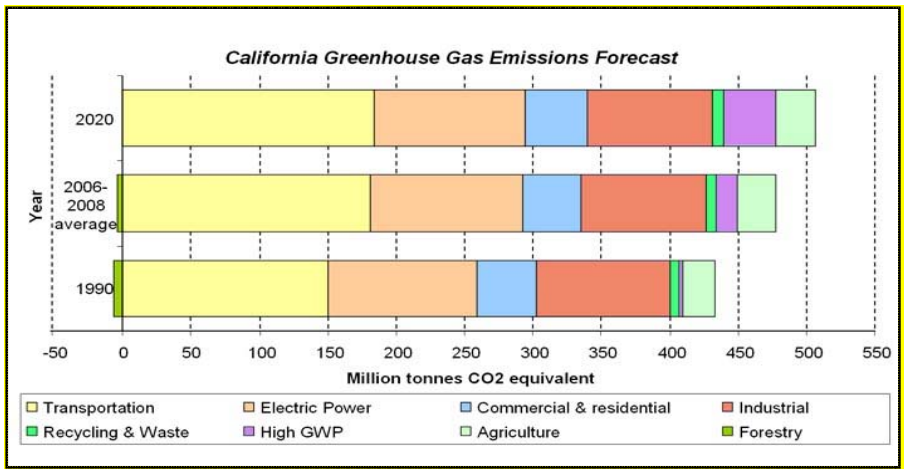
On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[4] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the 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.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

[4] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).



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

Figure 4-1 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, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[5]

One of the main strategies in Caltrans' Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour.

Environmental Consequences

The purpose of the proposed project is to restore and reopen a section of State Route 140 that was closed due to a rockslide that began in 2006. The highway would be replaced in kind with 2 lanes of traffic (one lane in each direction). Vehicles currently stopped at either end of the Ferguson rockslide detour can be delayed for up to 15 minutes, causing increased emissions in the area. Construction of the build alternatives would reduce traffic congestion and/or vehicle time delays caused by the current single-lane detour and traffic signals. Additionally, out of direction travel on State Routes 120 and 41 that was caused as a result of the detour and delay on State

[5] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

Route 140 would be reduced by re-opening the route to all types of vehicles. No additional operational greenhouse gas emissions are expected as a result of the proposed project. If the No-Build Alternative is selected as the preferred alternative, the temporary bridges and detour would eventually be removed. Vehicles would have to use other state highways to access Yosemite National Park or El Portal. This out of direction travel may lead to increase vehicle hours of delay and increased vehicle miles traveled.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by 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. The provisions of Caltrans Standard Specifications, Section 14-1.01 “Air Pollution Control” require the contractor to comply with the Mariposa County’s Air Pollution Control District’s rules and ordinances.

CEQA Conclusion

While construction related activities will result in an increase in greenhouse gas emissions during construction, Caltrans expects that there would be no operational increase in GHG emissions associated with this proposed project. However, it is Caltrans’ determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a determination on the project’s direct impact and its contribution on the cumulative scale to climate change. Nonetheless, Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement EO S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding during the next decade. 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 are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 4.2.

Figure 4-2 Mobility Pyramid

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans also assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting 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 U.S. EPA and the California Air Resources Board.

Table 4.1 summarizes Caltrans and statewide efforts that it is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 4.1 Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency report on October 14, 2010 outlining recommendations to President Obama for how federal agency policies and programs can better prepare the United States to respond to the effects of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

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

On November 14, 2008, former Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency was directed to coordinate with local, regional, state and federal public and private entities to develop. The California

Climate Adaptation Strategy (Dec 2009)[6], which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the California Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The California Natural Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010[7] to advise how California should plan for future sea level rise. The report is to include:

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

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to

[6] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF
[7] Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

Interim guidance has been released by the Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the state's infrastructure due to projected sea level rise.

The proposed project is outside the coastal zone, and direct impacts to transportation facilities due to projected sea level rise are not expected.

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

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be warranted to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

4.3 Mitigation Measures for Significant Impacts under CEQA

Natural Communities – Caltrans would specifically mitigate for oaks at a 3 to 1 ratio based on the acreage of impact. This would be made possible by restoring a currently disturbed site or purchasing and preserving intact oak woodland. All mitigation plans

would be approved by the California Department of Fish and Wildlife and the U.S. Forest Service.

Limestone salamander – The build alternatives would require a 2081 Incidental Take Permit from the California Department of Fish and Wildlife. As part of the permit requirements, Caltrans would purchase off-site compensatory mitigation at approximately a 3 to 1 ratio. A construction work window may be established during initial ground disturbance activities to prevent construction-related activities from occurring on the southern slope during the salamander's active season. Environmentally sensitive area fencing in the form of 5-foot orange plastic mesh as well as salamander exclusion (protection) fencing in the form of 24-inch sheet metal would be erected if construction-related activities were to occur next to limestone salamander habitat and during their active season. All mitigation plans would be approved by the California Department of Fish and Wildlife.

For a full discussion on Avoidance, Minimization, and/or Mitigation Measures, refer to Chapter 3.

Chapter 5 Comments and Coordination

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

Early and Ongoing Coordination

Caltrans project management and various members of the project development team have regularly presented project information to the Mariposa County Board of Supervisors, the U.S. Forest Service, and public officials. Mariposa County officials and the U.S. Forest Service employees have shown interest in this project and support its construction.

Coordination with Public Agencies (23 USC 139)

Caltrans began coordinating with public agencies on the preparation of the Draft Environmental Impact Statement/Environmental Impact Report in February 2008 following the release of the Notice of Intent, which was published in the Federal Register on January 24, 2008. A Notice of Preparation was also circulated to public agencies on January 28, 2008.

During February 2008, letters of invitation were issued to public agencies that were either interested in the proposed project or would have a permitting responsibility on the project. The following agencies received invitations to be cooperating and participating agencies:

- U.S. National Park Service Yosemite – formally accepted cooperating and participating agency status, is actively involved in project interagency meetings, and will provide comments on the environmental document.
- Bureau of Land Management – formally accepted cooperating and participating agency status based on its responsibilities of managing and permitting river

rafting activities, is actively involved in project interagency meetings, and will provide comments on the environmental document.

- U.S. Forest Service – formally accepted cooperating and participating agency status based on its Section 7(a) of the Wild and Scenic Rivers Act role as a river managing agency, is actively involved in project agency meetings, and will provide comments on the environmental document.
- U.S. Army Corps of Engineers – formally accepted cooperating and participating agency status based on its Clean Water Act Section 404 permitting responsibility, is actively involved in project agency meetings, and will provide comments on the environmental document.
- California Department of Fish and Wildlife – declined cooperating and participating agency status, but will be actively involved in project agency meetings based on its Section 1602 of the California Fish and Game Code permitting responsibility and will provide comments on the environmental document.

In February 2009, letters of invitation were issued to additional public agencies that were either interested in the proposed project or would have a permitting responsibility on the project. The following agencies received invitations to be participating agencies:

- U.S. Environmental Protection Agency – formally accepted participating agency status and will provide comments on the environmental document.
- California Regional Water Quality Control Board – formally accepted participating agency status based on its Clean Water Act Section 401 permitting responsibility and will provide comments on the environmental document.
- California Environmental Protection Agency – will be given the opportunity to provide comments on the environmental document.
- Mariposa County Board of Supervisors – formally accepted participating agency status based on its role as a local governing body, is actively involved in project development meetings, and will provide comments on the environmental document.

Interagency meetings were held with specific public agencies for their involvement in the development of: the purpose and need, a reasonable range of alternatives, and the methodology for analyzing impacts to the Merced River. Regular coordination also

occurred with the public agencies. Descriptions of the meetings and coordination are described below. See Table 2.2 for a status of the permits and approvals. Representatives from the following agencies were present at each of the interagency meetings:

- U.S. Forest Service
- Bureau of Land Management
- U.S National Park Service Yosemite
- U.S. Army Corps of Engineers
- California Department of Fish and Wildlife
- Mariposa County Board of Supervisors

Interagency Meetings

Five meetings were held on the following dates:

February 13, 2008: Caltrans announced its role as lead agency for the preparation of the Draft Environmental Impact Statement/Environmental Impact Report and verified the roles of the agencies present. Concurrence on the purpose and need was obtained, and discussions were held on methods for addressing the Wild and Scenic Rivers Act. The agencies requested that Caltrans identify and analyze additional alternatives that avoid adversely affecting the Merced River. The agencies also requested that Caltrans initiate a recreational survey to determine the public's perception of how the proposed alternatives could affect the Merced River corridor.

April 30, 2008: Each agency discussed its individual comments on the Notice of Intent and explained that their comments on the Initial Study with Proposed Negative Declaration/Environmental Assessment should be used during the development of the Draft Environmental Impact Statement/Environmental Impact Report. Caltrans presented Alternatives A and T-3 as alternatives that would be analyzed for their viability and for their ability to avoid the Merced River. Caltrans discussed efforts it had made toward initiating a recreational survey and a river geomorphology report, and updating all other studies previously finalized.

November 19, 2008: Caltrans presented Alternatives E, A, and T-2 as alternatives considered and withdrawn. The agencies concurred as long as adequate documentation is provided. Alternative S-2 was presented as an alternative that would place piers above the ordinary high water mark of the river and avoid affecting limestone salamander habitat. The U.S. Forest Service confirmed that the ordinary

high water is equal to the Q2 flow or 8871 cubic feet per second. Agencies further concurred that the No-Build Alternative is the temporary detour and should be evaluated for its long-term effects on the project area. A status of the environmental studies and recreational survey was also provided.

July 1, 2010: Caltrans provided an update to the cooperating/participating agencies by discussing the status of the draft environmental document, the anticipated scheduled release of the document, the public circulation process, and the finalization of the draft recreational survey report. All agencies concurred that the environmental document should be sent to the agencies at least two weeks in advance of the start of the circulation process to further promote coordination efforts. During the circulation process, the agencies would be reviewing the draft environmental document and the draft survey report. Following their reviews, comments would be provided on both documents. Caltrans would conduct regular meetings with the agencies during the circulation process to facilitate quality reviews and address concerns with the draft environmental document.

November 14, 2012: Caltrans provided agencies with new information that requires Caltrans to circulate a new draft environmental document. This included the passing of Assembly Bill 1973, a Final Recreation Survey of the Merced River, a change to the Merced River Section 4(f) boundary, and an update to the Wild and Scenic Rivers Section 7(a) process. The new information led the interagency group to discuss the removal of the bridge alternatives that were presented in the November 2010 Draft Environmental Impact Statement/Environmental Impact Report. All agencies concurred that Alternatives C, T, and S should be removed from further consideration because of the adverse impact each would have on the Merced Wild and Scenic River's free flow. Additionally, Alternatives S2-V1 and S2-V2 should be removed from further consideration because they would have adverse impacts to several outstandingly remarkable values of the river and would have a direct use of a Section 4(f) property.

Mariposa County Board of Supervisors

Caltrans staff attended various board meetings to give regular updates on the Ferguson Slide Permanent Restoration project. The Mariposa County Board of Supervisors has been given regular opportunities to participate in the development of the project.

California Department of Fish and Wildlife

March 2007: Caltrans received approval in email from Julie Vance for the proposed surveys for limestone salamander.

April 6, 2007: Caltrans requested the use of the Programmatic Streambed Maintenance Agreement for the geotechnical field operations.

April 13, 2007: Caltrans met with Julie Vance and Wendy Cabrera to tour the project site.

September 13, 2007: Caltrans met with Julie Vance and Laura Peterson-Diaz to request their concurrence that impacts to the limestone salamander would be completely avoided with implemented avoidance measures. Also discussed were mitigation measures for impacts to bats, oak woodland, and hardhead fish.

October 3, 2007: Caltrans received an email from Laura Peterson-Diaz accepting Caltrans' proposal of avoidance and mitigation measures for bats, oak woodland, limestone salamander, and hardhead fish.

September 22, 2008: Caltrans discussed the effects of Alternatives R and T-3 on limestone salamander habitat. Caltrans requested that the California Department of Fish and Wildlife provide a letter stating that if any alternative presents a take on the limestone salamander habitat, then a permit could not be issued and that a waiver of the Fully Protected Species Act would need to be pursued for this project.

November 8, 2012: Caltrans met with Laura Peterson-Diaz to discuss mitigation strategies for the limestone salamander.

U.S. Army Corps of Engineers

February 1, 2007: Caltrans spoke with Tom Cavanaugh regarding the need for an individual permit if the U.S. Forest Service determines the project would have an adverse impact on the Merced River, which has a Wild and Scenic designation.

January 28, 2009: The U.S. Army Corps of Engineers participated in the Environmental Focus Group meeting as a cooperating agency on the project.

National Park Service

October 7, 2007: Caltrans spoke by phone with Lisa Acree regarding plant species the Park Service uses for erosion control, as well as the feasibility of collecting and growing local native seed to use on the Ferguson slide project.

July 22, 2010: The National Park Service, the U.S. Forest Service, and Caltrans discussed the process by which impacts to the outstandingly remarkable values would be evaluated. Any impacts to the outstandingly remarkable values are to be evaluated pursuant to the Wild and Scenic Rivers Act. A Section 7(a) evaluation would be prepared for each alternative describing the impacts. The evaluations are prepared by the U.S. Forest Service, which functions as the river administering agency. The Section 7(a) process of the Wild and Scenic Rivers Act is considered a separate analysis from the NEPA process.

National Oceanic and Atmospheric Administration Fisheries Service

October 9, 2007: Caltrans had a phone conference with Madelyn Martinez and Doug Hampton to discuss the potential for essential fish habitat at the project site. Both said they would have no jurisdiction over this project area.

The National Marine Fisheries Service issued a Draft Recovery Plan for Sacramento River winter-run chinook salmon and Central Valley spring-run chinook salmon. A potential recovery scenario would include the reintroduction of steelhead trout above the New Exchequer Reservoir on the main stem of the Merced River and on the South Fork Merced River. Prior to construction of any alternative, Caltrans would coordinate with the National Marine Fisheries Service with respect to the recovery plan.

U.S. Forest Service, Sierra National Forest

February 16, 2007: Caltrans submitted an operating plan for cultural work to the U.S. Forest Service for permitting purposes.

March 2007: Caltrans visited the U.S. Forest Service's district archaeologist's office to review cultural files of the project area.

April 10, 2007: Caltrans discussed the preparation of the Section 7(a) Wild and Scenic Rivers Act Evaluation with Dave Martin, District Ranger, and Jackie Diedrich of the U.S. Forest Service. The preparation should follow the guidance provided in the October 2004 Wild and Scenic Rivers Act technical document.

May 8, 2007: Caltrans talked with the U.S. Forest Service about the "outstandingly remarkable values" used to determine a project's effect on a Wild and Scenic River. These values should be applied to the discussion on the Merced Wild and Scenic River Evaluation as appropriate.

May 9, 2007: Caltrans met with Joanna Clines, Sierra National Forest botanist, at the project site to discuss potential project impacts to special-status plants, avoidance and mitigation measures, and U.S. Forest Service policies.

May 17, 2007: Caltrans spoke with Kevin Williams about the potential presence of special-status animals at the project site.

May 17, 2007: The U.S. Forest Service attended a pre-public information meeting to provide input on the Merced Wild and Scenic River informational display.

May 18, 2007: Caltrans requested a sensitive animal species list from Kevin Williams. Caltrans also forwarded the results of the surveys for limestone salamanders.

May 22, 2007: Caltrans received a sensitive plant list, noxious and invasive non-native weeds of concern list, and the weed prevention practices of the U.S. Forest Service.

June 14, 2007: Caltrans received a sensitive animal species list from the U.S. Forest Service.

July 25, 2007: The U.S. Forest Service suggested that the Bureau of Land Management should also be a reviewing agency of the Section 7(a) Wild and Scenic Rivers Act Evaluation. The Bureau of Land Management is responsible for issuing permits for whitewater rafting on the Merced River. Also, various U.S. Forest Service specialists will be reviewing the evaluation.

July 26, 2007: Caltrans biology and landscape architecture staff met with Joanna Clines to discuss erosion control measures and post-construction plantings.

August 10, 2007: Caltrans sent the U.S. Forest Service a copy of the Public Information Meetings Summary Report.

August 21, 2007: The U.S. Forest Service informed Caltrans that it would be working with its Wild and Scenic River Coordinator on clearly defining the "outstandingly remarkable values." These values should help Caltrans with the Section 7(a) analysis of the Merced River.

August 29, 2007: Caltrans and the U.S. Forest Service discussed the Merced River and whether it has been designated as recreational in terms of being a Section 4(f)

resource or just for the purposes of a Wild and Scenic River. The Merced River was determined to be a 4(f) resource.

November 1, 2007: Caltrans provided the U.S. Forest Service with a copy of the Section 7(a) Merced Wild and Scenic River Evaluation for review. Comments will be provided once the review is complete.

November 5, 2007: The project development team held a meeting that included the U.S. Forest Service about the construction methods and restrictions to be used on this project.

November 6, 2007: Caltrans provided the U.S. Forest Service with a copy of the Ferguson Slide Permanent Restoration Project draft environmental document.

November 9, 2007: Caltrans met with the U.S. Forest Service and the Bureau of Land Management to discuss impacts on the Merced Wild and Scenic River. The agencies requested that Caltrans initiate a recreational survey to determine impacts to the Merced River.

April–June 2008: Weekly coordination meetings were held with the U.S. Forest Service about the construction of the second temporary detour project. The U.S. Forest Service confirmed that, for the purposes of the detour project, the Q2 flow would represent the ordinary high water mark of the river. Impacts to the river would be analyzed based on the Q2 boundary.

August 8, 2008: Caltrans met with the U.S. Forest Service to discuss final comments on the recreational survey plan and gain concurrence on the plan so that the survey could be implemented online and in the field.

September 19, 2008: Caltrans met with the U.S. Forest Service to discuss analyzing the 4(f) properties within the project area. Caltrans confirmed that the Merced River and Incline Road would be considered 4(f) properties.

November 21, 2008: Caltrans met with the U.S. Forest Service to confirm that the proposed alternatives are still subject to a Wild and Scenic River analysis even if they avoid encroaching into the Q2 flow. The analysis would determine if the alternatives affect the river in a manner that the U.S. Forest Service would find adverse.

April 17, 2009: Caltrans met with the U.S. Forest Service to discuss preparation of the Individual Section 4(f) and the Wild and Scenic River section of the environmental document.

June 9, 2009: Caltrans design and structures engineers along with environmental staff met with the U.S. Forest Service at the project site to discuss proposed bridge construction methods and their effect on the Q2 flow of the river. Further discussions would be held to address mitigation for the construction methods.

March 16, 2010: Caltrans and the U.S. Forest Service discussed strategies for the review of the draft environmental document. The U.S. Forest Service has requested to receive the draft environmental document one to two weeks in advance of its release to the public. The U.S. Forest Service will provide comments on the document following the start of circulation and will also be conducting a concurrent review for the draft recreational survey report. This review is being conducted at the same time as the document because the survey report will aid in the preparation of the draft Section 7(a) evaluations. The public circulation process may require up to a 90-day review. The U.S. Forest Service is also requesting that a series of meetings take place at the start of the circulation period, which would involve discussing conceptual design plans. This would facilitate a better review process.

The U.S. Forest Service would be preparing draft Section 7(a) evaluations absent of determinations for each alternative. These evaluations would also be done during the circulation of the draft environmental document. Both the environmental document and the recreational survey report will be used for the preparation of these evaluations. Caltrans confirmed that Section 7(a) determinations (not evaluations) would be required for each alternative if the U.S. Army Corps of Engineers requests them from the U.S. Forest Service. An alternative would typically require a Section 7(a) determination if that alternative affects the river below the ordinary high water mark. This criterion applies to the Wild and Scenic River analysis and not the NEPA analysis. The U.S. Forest Service will be evaluating impacts to the outstandingly remarkable values within the Wild and Scenic Corridor even if determinations are not required for certain alternatives or regardless of whether the U.S. Army Corps of Engineers requests a determination. This type of analysis is also part of the Wild and Scenic Rivers Act and is not a NEPA analysis.

May 19, 2010: Caltrans and the U.S. Forest Service discussed the Sierra National Forest Land and Resource Management Plan. The goals and management objectives were incorporated into the draft environment document.

June 22, 2010: Caltrans presented the project purpose, description, and proposed alternatives to the new Sierra National Forest Supervisor. The supervisor felt that the cost of the project as well as traffic safety would be important factors to consider when Caltrans selects a preferred alternative.

May 5, 2011: Caltrans and the U.S. Forest Service met at the project site for a two-day field review. Topics discussed were the impacts to the Wild and Scenic River and Section 7(a) determinations for each of the build alternatives.

March 7, 2012: Caltrans and the U.S. Forest Service met to discuss potential mitigation for construction impacts.

August 2, 2012: Caltrans and the U.S. Forest Service met to discuss the progress of the Section 7(a) determinations.

May 1, 2013: Caltrans and the U.S. Forest Service met to discuss the eligibility determinations of the cultural resources identified in the project area. The below determinations were agreed upon by both agencies:

- Prehistoric bedrock mortars sites CA-MRP-1566 and CA-MRP-2076– The U.S. Forest Service is in the process of defining a historic landscape within the Merced River Canyon that they consider a historic property. The bedrock mortar sites are potential contributors to that historic property.
- Yosemite Valley Railroad Grade (now Incline Road in the project area)– The segment of the railroad bed in the area of potential effects would not be a contributor to an eligible linear resource.
- State Route 140– The segment of State Route 140 in the area of potential effects would not be a contributor to an eligible linear resource.
- Historic concrete bridge piers and debris (CA-MRP-1552H)– The concrete bridge piers and debris lack the integrity of materials, setting, feeling, or design for their respective periods of significance that would make it eligible to the National Register of Historic Places.
- Two Bedrock Basins– Caltrans, on behalf of FHWA, would determine that the basins are not eligible to the National register of Historic Places.

- Plant Collection Area– The presence of indigenous plants of economic importance to the Miwuk is not enough to designate an area within the area of potential effects as a traditional Miwuk plant collecting area of significance.

Bureau of Land Management

October 8, 2007: Caltrans provided the Bureau of Land Management with the proposed alternatives for the project for review.

November 1, 2007: Caltrans provided the Bureau of Land Management a copy of the Section 7(a) Merced Wild and Scenic River Evaluation for review.

November 6, 2007: Caltrans provided the Bureau of Land Management a copy of the Ferguson Slide Permanent Restoration Project draft environmental document.

November 7, 2007: Caltrans talked with Bureau of Land Management about rafting regulations and safety within the project area. Comments on the Section 7(a) Merced Wild and Scenic Rivers Act Evaluation will be provided with regard to rafting use of the river.

August 20, 2008: Caltrans held discussions with the Bureau of Land Management, the U.S. Forest Service, and Kelly Bricker, Ph.D. (the consultant performing the recreational survey). The agencies provided comments on the proposed recreational survey plan.

June 9, 2009: Caltrans design and structures engineers along with environmental staff met with the Bureau of Land Management at the project site to discuss proposed bridge construction methods and their effect on the Q2 flow of the river. Further discussions would be held to address mitigation for the construction methods.

State Office of Historic Preservation

September 5, 2007: Caltrans sent the completed Historic Property Survey Report, which contained the finding of effect, to the State Historic Preservation Officer.

October 10, 2007: The State Historic Preservation Officer concurred with the findings presented in the Historic Property Survey Report.

Coordination with Native American Groups

Native American Heritage Commission

June 26, 2006: Caltrans contacted Debbie Pilas-Treadway about the project. Caltrans was asked to notify several Native American communities and individuals.

Native American Tribes, Groups, and Individuals

Two federally recognized tribes, The Tuolumne Band of Me-Muk and the North Fork Mono Tribe, were contacted throughout the project study phase. These tribes provided feedback that indicated they do not attach cultural significance to the geographic area of the project. Caltrans also contacted non-federally recognized communities and individuals with possible ties to the project area. Consultation was mainly focused on the American Indian Council of Mariposa County. While not federally recognized, they are historically the group for the area with which the U.S. Forest Service and National Park Service look to for consultation.

June 27, 2006 and May 29, 2007: Caltrans sent letters about the project to the following groups or individuals:

- Mr. Anthony C. Brochini, (former) Tribal Chair, American Indian Council of Mariposa County
- Mr. Randy Sales, Southern Sierra Miwuk
- Ms. Michelle Demirs, Tribal Administrator, North Fork Mono Rancheria
- Ms. Shannon Brawley, Executive Director, California Indian Basket Weavers Association
- Mr. Ron Goode, Tribal Chair, North Fork Mono Tribe
- Mr. Stanley Robert Cox, Cultural Resources Director, Tuolumne Band of Me-Wuk
- Mr. Alex Flores, Environmental Department, North Fork Mono Rancheria
- Reba Fuller, Central Sierra Me-Wuk Cultural and Historical Preservation Committee
- Ms. Reba Fuller, Central Sierra Me-Wuk Cultural and Historical Preservation Committee
- Ms. Judy Fink, Tribal Chair, North Fork Mono Rancheria
- Ms. Elaine Fink, North Fork Mono Rancheria
- Mr. Rod Clements, North Fork Mono Rancheria

- Mr. David Andrews, Yosemite-Mono Lake Paiute Indian Community
- Ms. Lucy Parker, (former) CIBA Chairperson

August 9, 2007: Caltrans attended a Tribal Council meeting held by the American Indian Council of Mariposa County. Caltrans staff presented the proposed alternatives and addressed questions.

January 3, 2008: Caltrans attended a Tribal Council meeting held by the American Indian Council of Mariposa County. Caltrans staff collected comments on the project from the Tribal Council and announced the preparation of a Draft Environmental Impact Statement/Environmental Impact Report.

December 4, 2008: Caltrans attended a Tribal Council meeting held by the American Indian Council of Mariposa County. Caltrans staff presented the proposed alternatives and addressed questions.

August 6, 2009: Caltrans met with the American Indian Council of Mariposa County and provided an update and notification for the project. The council had questions about what would be happening to the interim bridges, what plants would be used for the replanting, and when replanting would occur. The council also requested that its comments be included in the draft environmental document and Native American monitoring be used, if monitoring is needed. The council requested any information Caltrans could provide and asked to continue consultation with Bill Tucker.

May 24, 2011: Caltrans' Brian Wickstrom met with Bill Tucker at the Ferguson rockslide area to obtain more detailed information about the locations of his concern brought to light during his visit to the project area with Forest Service personnel in January 2011.

June 2, 2011: Caltrans attended a Tribal Council meeting held by the American Indian Council of Mariposa County to provide updates on the project and discuss the known resources or sites in the project area. Caltrans provided updated information on the draft environmental document and the current alternatives. The council had a newly elected chairperson, Sandra Vasquez, who replaced former chairperson Tony Brochini. Council members requested Native American monitoring during construction and wanted to know when the project would be built and finished.

November 2012: Caltrans contacted the following individuals via phone or email to provide a project update and request comments or concerns:

- Mr. Les James, Spiritual Leader, Southern Sierra Miwuk Nation
- Ms. Elanie Fink, Chairperson, North Fork Mono Rancheria
- Ms. Lorrie Planas, Member, Choinumni Tribe
- Ms. Sandra Vasques, Chairperson, Southern Sierra Miwuk Nation

January 3, 2013: Caltrans held a field visit with Bill Tucker and the U.S. Forest Service to review concerns he voiced over resources brought to Caltrans' attention in previous meetings and at a May 2011 field visit.

Public Participation

Public Information Meetings

May 23, 2007: Caltrans held a public information meeting in the Board of Supervisors Chambers at the Mariposa County Government Center in Mariposa. Caltrans staff planned and implemented the public information meeting to conform to the requirements of applicable federal and state laws, including NEPA and CEQA.

This meeting was the first of two public information meetings and was publicized through a direct mail announcement to residents, local businesses, public agencies, and other interested parties. Caltrans sent letters of invitation to federal, state, and local elected officials. A public notice for the meeting appeared in *The Mariposa Gazette* on May 10 and May 17, 2007.

Approximately 68 residents and interested parties attended. Caltrans provided each attendee with an information sheet containing a project map, an illustration of the project location, a project description, the project cost and purpose, background information, funding sources, and a project timeline. Caltrans explained the format of the public information meeting, and attendees were encouraged to ask questions of the project team. Information stations containing project maps, graphics, and display boards were located around the meeting room. Caltrans personnel were available at each information station to explain the displays and answer questions. Attendees were encouraged to submit written comments. All informational displays presented at the meeting have been made available on the Caltrans District 10 website.

Caltrans received 31 comments from the Mariposa meeting. Most of the comments received from this meeting indicated a preference for Alternative S.

May 29, 2007: Caltrans presented local officials with information on the project in the Board of Supervisors Chambers at the Mariposa County Government Center in

Mariposa. The purpose of the meeting and materials presented were the same as those presented at the Mariposa and El Portal public information meetings.

June 12, 2007: Caltrans held a second public information meeting at the El Portal Community Center (Clark Hall) in El Portal. The notice for this second public information meeting was distributed through the Yosemite National Park Public Information Officer. The public notice was also distributed throughout the communities of Briceburg, Midpines, El Portal, and Mariposa.

Approximately 63 residents and interested parties attended. This meeting was presented in the same format as the one held in Mariposa. Caltrans received 45 comments from the El Portal meeting. Most of the comments received from this meeting indicated a preference for Alternative R.

November 28, 2007: Caltrans held a public hearing in the Board of Supervisors Chambers at the Mariposa County Government Center in Mariposa. The purpose of the meeting was to gather comments on the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment, which had circulated for public review on November 19.

The public hearing was publicized through direct mail announcements sent to residents, local businesses, public agencies, and other interested parties. Caltrans sent letters of invitation to federal, state, and local elected officials. A public notice for the hearing appeared in local newspapers. It appeared in *The Mariposa Gazette* on November 15 and November 22 and in *The Merced Sun-Star* on November 16. The public notice was also distributed throughout the communities of Midpines, El Portal, and Mariposa. Approximately 59 residents and interested parties attended the public hearing on November 28, 2007 in Mariposa.

November 29, 2007: Caltrans held a public hearing at the El Portal Community Center in El Portal. The purpose of the meeting was to gather comments on the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment, which had circulated for public review on November 19.

The public hearing was publicized through direct mail announcements sent to residents, local businesses, public agencies, and other interested parties. Caltrans sent letters of invitation to federal, state, and local elected officials. A public notice for the hearing appeared in local newspapers. It appeared in *The Mariposa Gazette* on November 15 and November 22 and in *The Merced Sun-Star* on November 16. The

public notice was also distributed throughout the communities of Midpines, El Portal, and Mariposa. Approximately 49 residents and interested parties attended the hearing on November 29, 2007 in El Portal.

Caltrans received 81 comments from the Mariposa and El Portal meetings. Most of the comments received from these meetings expressed concerns about the project's impact on the Merced River.

May 21, 2008: Caltrans held a public information meeting in the Board of Supervisors Chambers at the Mariposa County Government Center in Mariposa. Caltrans staff planned and implemented the public information meeting to inform the public that Caltrans is preparing a Draft Environmental Impact Statement/ Environmental Impact Report for the project and to present the proposed alternatives and purpose and need.

The public information meeting was publicized through a direct mail announcement to residents, local businesses, public agencies, and other interested parties. Caltrans sent letters of invitation to federal, state, and local elected officials. A public notice advertising the meeting appeared in *The Mariposa Gazette* on May 8 and 15, 2008, and *The Merced Sun-Star* on May 14, 2008. The notice was also distributed through the Yosemite National Park Public Information Officer.

May 22, 2008: Caltrans held a public information meeting at the El Portal Community Center in El Portal. Caltrans staff planned and implemented the public information meeting to inform the public that Caltrans is preparing a Draft Environmental Impact Statement/Environmental Impact Report for the project and to present the proposed alternatives and purpose and need. The public information meeting was publicized through a direct mail announcement to residents, local businesses, public agencies, and other interested parties. Caltrans sent letters of invitation to federal, state, and local elected officials. A public notice advertising the meeting appeared in *The Mariposa Gazette* on May 8 and 15, 2008, and *The Merced Sun-Star* on May 14, 2008. The notice was also distributed through the Yosemite National Park Public Information Officer.

December 8, 2010: Caltrans held a public hearing at the Board of Supervisors Chambers at the Mariposa County Government Center in Mariposa. The purpose of the meeting was to gather comments on the Draft Environmental Impact Report/Environmental Impact Statement dated November 2010.

The public hearing was publicized through a direct mail announcement to residents, local businesses, public agencies, and other interested parties. Caltrans sent letters of invitation to federal, state, and local elected officials. A public notice advertising the meeting appeared in *The Mariposa Gazette* on Nov 18 and Dec 2, 2010, and *The Merced Sun-Star* on November 15 and December 1, 2010. The notice was also distributed through the Yosemite National Park Public Information Officer.

Approximately 31 people from the public and various agencies attended this meeting. Four members of the public spoke to the court reporter. The comments received expressed concerns about the visual impact of tall bridges and impact to the Merced River.

December 9, 2010: Caltrans held a public hearing at the El Portal Community Center in El Portal. The purpose of the meeting was to gather comments on the Draft Environmental Impact Statement/Environmental Impact Report dated November 2010. The public hearing was publicized with the December 8, 2010 meeting in Mariposa.

Approximately 16 people from the public and various agencies attended this meeting. One member of the public spoke to the court reporter. The comment received expressed concerns about the expense of building the project.

Caltrans received 8 written comments from the Mariposa and El Portal meetings. Most of the comments received requested the No-Build Alternative and expressed concerns about the visual impacts of the alternatives including bridges, environmental impacts of the project, and the project cost.

River Rafting Companies

July 17, 2007: Following the public information meetings for the project, Caltrans received comments from Zephyr Whitewater Expeditions. Concerns were expressed about having the proposed bridges span the entire river if possible or to avoid placing the piers in the middle of the river. In addition, it would be important for the project to avoid negatively affecting the rafting season, typically April through July.

Environmental Focus Group

January 28, 2009: Caltrans met with representatives from Friends of the River, Sierra Club-Tehipite Chapter, Sierra Club, National Park Service, Sierra Nevada Conservancy, Mariposa County Economic Development, Mariposa County Board of

Supervisors, Transportation Involves Everyone, Sierra Sun Times, Mariposans for the Environment and Responsible Government, and the U.S. Army Corps of Engineers.

A brief overview of the project history was given, and a consensus on the purpose and need was established. The proposed build alternatives, No-Build Alternative, and alternatives considered but withdrawn were presented. The anticipated environmental document schedule was provided along with a status of the environmental studies. Open discussions were held on the Wild and Scenic Rivers Act and its relevance to the proposed project and the purpose for Caltrans implementing the recreational survey.

Recreational Survey

At the request of the U.S. Forest Service and the Bureau of Land Management, Caltrans initiated a Recreational Survey designed to capture the opinions of recreational stakeholders such as whitewater rafters, campers, hikers, bikers, and anglers as well as the general public with regard to the proposed project alternatives' impacts on the recreational value of the Merced River. The survey began in 2008 and continued through the rafting season in 2009. Data collected from the survey are included in Section 3.1.1.3.

Chapter 6 List of Preparers

This document was prepared by the following Caltrans Central Region staff and consultants:

Caltrans Staff

Allam Alhabaly, Transportation Engineer (Civil). B.S., School of Engineering, California State University, Fresno; Noise specialist since 2001. Contribution: preparation of Noise Report.

John Bowman, Senior Engineering Geologist. Contribution: Geotech Team Leader and Geotechnical Report preparation.

Jon L. Brady, Associate Environmental Planner/Architectural Historian. B.A., Political Science and Anthropology; M.A., History, California State University, Fresno; over 30 years of experience as a consulting archaeologist and historian. Contribution: Historic Resources Evaluation Report.

Phil Chick, Research Analyst II (GIS). B.A., Anthropology, California State University, Fresno; 13 years of environmental impact assessment experience. Contribution: Document mapping and graphics.

Anthony Cipponeri, P.E., District Hydraulics Engineer. Contribution: Location Hydraulic Study.

Rajeev Dwivedi, Associate Engineering Geologist. Ph.D., Environmental Engineering, Oklahoma State University, Stillwater; 20 years of environmental technical studies experience. Contribution: Preparation of Water Quality Assessment and Air Report.

Susan Greenwood, Associate Environmental Planner. B.S., Environmental Health Science, California State University, Fresno; over 20 years of environmental health, hazardous waste, and hazardous material management experience. Contribution: Hazardous waste surveys and coordination of Initial Site Assessment.

Peter Hansen, Engineering Geologist, P.G. B.S., Geology, California State University, Fresno; 1 year hazardous waste experience; 12 years

paleontology/geology experience. Contribution: Preparation of Paleontological Identification Report.

Grace Magsayo, P.E., Senior Transportation Engineer. B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 11 years in civil engineering and 6 years of project management experience. Contribution: Project Management.

Susan Schilder-Thomas, Senior Environmental Planner. B.A., Geography with emphasis in Urban Studies, California State University, Fresno; 13 years of environmental planning and management experience. Contribution: Document preparation.

Scott Smith, Senior Environmental Planner. B.A., Economics, California State University, Fresno: 12 years of environmental planning experience. Contribution: Document preparation.

Carrie Swanberg, Associate Environmental Planner (Natural Sciences). B.S., Biology, California State University, Fresno; 13 years of biology experience. Contribution: Biological surveys and preparation of Natural Environment Study.

Patricia Teczon, Associate Transportation Engineer (Specialist), Professional Engineer in Civil Engineering. B.S., Civil Engineering, University of the Pacific, Stockton; 30 years of experience in project development and design. Contribution: Project Engineer and development of Project Report, plans, specifications, and estimate.

Matthew Voss, Associate Environmental Planner. B.S., Biological Sciences, California State University, Fresno; 11 years of environmental planning and document writing experience. Contribution: Document preparation.

Brian Wickstrom, Associate Environmental Planner (Archaeologist). M.A., Cultural Resource Management, Sonoma State University; over 25 years of professional archaeological experience. Contribution: Cultural Resources Specialist for prehistoric resources and preparation of the Historical Property Survey Report.

Consultants

Balance Hydrologics, Inc. Mark Strudley, Ph.D., Greg Guensch, P.E., M.S., Shawn Chartrand, C.E.G., M.S., Benjamin Roberts, Ph.D., P.E. Contribution: River Geomorphology Report.

Parsons Transportation Group, Inc. Jeff Lormand, Principal Landscape Architect. Contribution: Visual Impact Assessment

Parsons Transportation Group, Inc. Allison Colwell, Ph.D. Contribution: Botanical Report.

Parsons Transportation Group, Inc. Theodore J. Papenfuss, Ph.D., Contribution: Limestone Salamander Biological Report.

Parsons Transportation Group, Inc. Sean M. Rovito, M.S. Contribution: Limestone Salamander Biological Report.

Kelly S. Bricker, Associate Professor. University of Utah Department of Parks, Recreation, and Tourism. Contribution: Recreational Survey Data Collection and Report.

Chapter 7 Distribution List

The following agencies, organizations and individuals were recipients of the Notice of Availability of the Draft Environmental Impact Statement/Environmental Impact Report.

Federal Agencies and Elected Officials

Bureau of Land Management
5152 Hillsdale Circle
El Dorado Hills, CA 95762

Office of the Secretary
U.S. Department of Agriculture
1400 Independence Avenue, SW
Washington, DC 20250

Center for Disease Control
National Center for Environmental Health
1600 Clifton Road
Atlanta, GA 30333

Office of Environmental Compliance
U.S. Department of Energy
1000 Independence Ave., SW, Room 4G-064
Washington, DC 20585

Environmental Clearance Officer
Department of Housing and Urban Development
P.O. Box 36003
San Francisco, CA 94102

Director, Office of Environmental Policy & Compliance
U.S. Department of the Interior
1849 C Street, NW, MS 2462
Washington, DC 20240

Regional Director
Federal Emergency Management Agency
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105-3901

National Marine Fisheries Services
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814-4708

U.S. Environmental Protection Agency
Electronic submission

Area Conservationist
Natural Resources Conservation Service
4974 East Clinton Avenue, Suite 114
Fresno, CA 93727

U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

U.S. Army Corp of Engineers
1325 J Street, Room 1480
Sacramento, CA 95814-2922

Forest Supervisor, Sierra National Forest
U.S. Forest Service
1600 Tollhouse Road
Clovis, CA 94105

District Ranger
U.S. Forest Service, Bass Lake Ranger District
57003 Road 225
North Fork, CA 93643

The Honorable Tom McClintock
U.S. House of Representatives
8700 Auburn-Folsom Road, Suite 100
Granite Bay, CA 95746

The Honorable Barbara Boxer
United States Senate
2500 Tulare Street, Suite 5290
Fresno, CA 93721

The Honorable Dianne Feinstein
United States Senate
2500 Tulare Street, Suite 5290
Fresno, CA 93721

Superintendent
Yosemite National Park
P.O. Box 577
Yosemite, CA 95389

State Agencies and Elected Officials

California Department of Fish and Wildlife
1234 East Shaw Avenue
Fresno, CA 93710

California Highway Patrol
5264 State Highway 49 N
Mariposa, CA 95338-9501

Dale Harvey
California Regional Water Quality Control Board
1685 E Street
Fresno, CA 93706

California Scenic Highway Program Coordinator
P.O. Box 942874
Sacramento, CA 94274

The Honorable Franklin Bigelow
Assembly Member
California State Assembly
33C Broadway
Jackson, CA 95642

The Honorable Tom Berryhill
Senator
California State Senate
6215 N. Fresno Street, Suite 104
Fresno, CA 93710

Commission Chair
California Transportation Commission
1120 N Street, Mail Station 52
Sacramento, CA 95814

Sierra Nevada Conservancy
5039 Fairgounds Road
Mariposa, CA 95338

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

University of California, Merced
P.O. Box 743
Mariposa, CA 95338

Local Agencies and Elected Officials

Lee Stetson
Supervisor, District 1
Mariposa County Board of Supervisors
P.O. Box 784
Mariposa, CA 95338

Merlin Jones
Supervisor, District 2
Mariposa County Board of Supervisors
P.O. Box 784
Mariposa, CA 95338

Janet Bibby
Supervisor, District 3
Mariposa County Board of Supervisors
P.O. Box 784
Mariposa, CA 95338

Kevin Cann
Supervisor, District 4
Mariposa County Board of Supervisors
P.O. Box 784
Mariposa, CA 95338

John Carrier
Supervisor, District 5
Mariposa County Board of Supervisors
P.O. Box 784
Mariposa, CA 95338

Keith Williams, County Clerk
Mariposa County
P.O. Box 247
Mariposa, CA 95338

Rick Benson, Personnel Director
Mariposa County
P.O. Box 784
Mariposa, CA 95338

Mariposa County Air Pollution Control District
P.O. Box 5
Mariposa, CA 95338

Kathy McCorry, Executive Director
Mariposa County Chamber of Commerce
P.O. Box 425
Mariposa, CA 95338

Jim Wilson, Fire Chief
Mariposa County Fire Department
P.O. Box 162
Mariposa, CA 95338

Mariposa County Library
P.O. Box 106
Mariposa, CA 95338

Sarah Williams, Planning Director
Mariposa County Planning
P.O. Box 2039
Mariposa, CA 95338

Peter Rei, Director
Mariposa County Public Works
4639 Ben Hur Road
Mariposa, CA 95338

Aaron Rosander, Superintendent
Mariposa County Unified School District
P.O. Box 8
Mariposa, CA 95338

Mariposa Public Utility District
P.O. Box 494
Mariposa, CA 95338

Tuolumne County Transportation Council
2 South Green Street
Sonora, CA 95370

Tuolumne County Visitors Bureau
P.O. Box 4020
Sonora, CA 95370

Terry Selk, Executive Director
Yosemite Mariposa County Tourism Bureau
P.O. Box 967
Mariposa, CA 95338

Businesses, Organizations, and Tribes

49er Market
P.O. Box 763
Mariposa, CA 95338

Ms. Lorrie Planas
Choinumni Tribe
2736 Palo Alto
Clovis, CA 93611

All Outdoors Whitewater Rafting
1250 Pine Street, Suite 103
Walnut Creek, CA 94596

Coast Hardware - Do It Best
P.O. Box 749
Mariposa, CA 95338

American River Recreation
P.O. Box 465
Lotus, CA 95651

Comfort Inn-Mariposa
P.O. Box 826
Mariposa, CA 95338

ARTA River Trips
24000 Casa Loma Road
Groveland, CA 95321

Vice President of Operations
DNC Parks & Resorts, Yosemite
P.O. Box 578
Yosemite, CA 95389

Best Western Yosemite Way Station
P.O. Box 1989
Mariposa, CA 95338

Program Manager
DNC Parks & Resorts, Yosemite
P.O. Box 578
Yosemite, CA 95389

Bonton Café
182 Oleander Drive
Chowchilla, CA 93610

El Portal Market
P.O. Box 280
El Portal, CA 95318

California Indian Basketweavers Association
1005 Court Street
Woodland, CA 95695

Foster and Parker Insurance Agency
P.O. Box 465
Oakhurst, CA 93644

California Native Plant Society
2707 K Street, Suite 1
Sacramento, CA 95816-5113

Friends of the River
1418 20th Street, Suite 100
Sacramento, CA 95811

China Station
P.O. Box 1190
Mariposa, CA 95338

Friends of Yosemite Valley
P.O. Box 702
Yosemite, CA 95389

Happy Burger Diner
P.O. Box 886
Mariposa, CA 95338

High Country Health Food & Café
P.O. Box 187
Mariposa, CA 95338

CEO
John C. Fremont Healthcare District
5189 Hospital Road
Mariposa, CA 95338

Kristi's Skate Shop
5024 Highway 140
Mariposa, CA 95338

Mariah Wilderness Expeditions
P.O. Box 1160
Lotus, CA 95651

Mariposa Chevron
P.O. Box 219
Mariposa, CA 95338

Mariposa Gazette
P.O. Box 38
Mariposa, CA 95338

Mariposa Masonic Lodge #24
P.O. Box 443
Mariposa, CA 95338

Mariposa Museum & History Center
P.O. Box 606
Mariposa, CA 95338

Mariposa Properties
P.O. Box 1171
Mariposa, CA 95338

Mariposans for the Environment and Responsible Government
P.O. Box 2121
Mariposa, CA 95338

Martha's Boutique Gift Gallery
4930 Princeton Way
Mariposa, CA 95388

Merced Fruit Barn
512 South Arboleda
Merced, CA 95340

Mercy Medical Transportation, Inc.
P.O. Box 5004
Mariposa, CA 95338

Miner's Inn
P.O. Box 2248
Mariposa, CA 95338

Miriam's Place
P.O. Box 1805
Mariposa, CA 95338

Mother Lode Lodge
P.O. Box 802
Mariposa, CA 95338

Museum of Vertebrate Zoology
3101 Valley Life Sciences Building
Berkley, CA 94720

National Parks Conservation Organization
1550 E. Shaw Ave. Ste. 114
Fresno, CA 93710

Mr. Ron Goode
Chairperson
North Fork Mono Tribe
13396 Tollhouse Rd.
Clovis, CA 93619

Ms. Elaine Bethel-Fink, Chairperson
North Fork Rancheria of Mono Indians
P.O. Box 929
North Fork, CA 93643

O.A.R.S. Inc.
P.O. Box 67
Angels Camp, CA 95222

Odella's Antiques & Nostalgia
P.O. Box 1036
Mariposa, CA 95338

Pioneer Market
P.O. Box 2128
Mariposa, CA 95338

Pony Expresso
5665 Meadow Lane
Mariposa, CA 95338

Sierra Club Tehipite Chapter
P.O. Box 5396
Fresno, CA 93755

Mr. William Tucker
Southern Sierra Miwuk Nation
5396 E. Whitlock Road
Mariposa, CA 95338

Mr. Les James, Spiritual Leader
Southern Sierra Miwuk Nation
P.O. Box 1200
Mariposa, CA 95338

Mr. Anthony Brochini
Southern Sierra Miwuk Nation
Attn: American Indian Council of
Mariposa County
P.O. Box 1200
Mariposa, CA 95388

Ms. Sandra Vasquez, Chairperson
Southern Sierra Miwuk Nation
Attn: American Indian Council of
Mariposa County
P.O. Box 1200
Mariposa, CA 95338

Mr. Jay Johnson, Spiritual Leader
Southern Sierra Miwuk Nation
5235 Allred Rd
Mariposa, CA 95338

Transcom Environmental
3740 E Southern Ave, Suite 218
Mesa, AZ 85206

Transportation Involves Everyone
P.O. Box 167
Midpines, CA 95345

Mr. Robert Stanley Cox
Tuolumne Band of Me-Wuk
P.O. Box 699
Tuolumne, CA 95379

Ms. Reba Fuller
Tuolumne Band of Me-Wuk
P.O. Box 699
Tuolumne, CA 95379

Honorable Chairperson Mr. Kevin Day
Tuolumne Band of Me-Wuk
P.O. Box 699
Tuolumne, CA 95379

Ms. Mary Camp
Tuolumne Band of Me-Wuk
P.O. Box 699
Tuolumne, CA 95379

Upper Merced Watershed Council
P.O. Box 5008-201
Mariposa, CA 95338

VIA Trailways
300 Grogan Avenue
Merced, CA 95340

Whitewater Excitement
P.O. Box 5992
Auburn, CA 95604

Whitewater Voyages
5225 San Pablo Dam Road
El Sobrante, CA 94803

YARTS
369 W. 18th Street
Merced, CA 95340

Yosemite Bug Rustic Mountain Resort
6979 Highway 140
Midpines, CA 95345

Yosemite Gifts
P.O. Box 2160
Mariposa, CA 95338

Yosemite Institute
P.O. Box 487
Yosemite, CA 95389

Yosemite/Mariposa KOA Campgrounds
P.O. Box 545
Midpines, CA 95345

Zephyr Whitewater Expeditions
P.O. Box 510
Columbia, CA 95310

Interested Parties

Bradford Aborn
Laurel Anderson
Dand & Tracey
Anthonijsz
David Bastian
Mary J. Bayler
Susie Beard
JoAnn Belforte
James Patrick Bodin
Winona Brown
Patti Burgess
Rosann Burley
Katherine M. Burnes
Mark Butler
Andrea Canapary
Marya Carr
Hugh Carter
David Cehrs, Ph.D
Leslie Chow
Sue Clark
JoAnne Clarke
Catherine Collamer
Alison Colwell
Andrea Conapary
Cathy Crandall
Alex Crespi
Ninnah Curtis
David Dahler
Dale Dale
Mara Dale
Bill Delaney
Denise Della Santina
Pete Devine
James Donovan
Linda Eade
Sean Eagan
Kevin Eskew
Tim Esquivel
Dan Fillius
Gary Francisco
Adrienne Freeman
Michael Frye
Don Fuhrer
Janette Gamble
Barbara Garcia
Scott Gediman
Elaine Gorman
Alison Grove

Wendy Harrell
John Harrison
Stan Haye
Bobble Hensley
Harvey Holland
Daniel Horner
Jesse Horner
Juliana Howard
Richard C. Hutchinson
Shirley Jorga
Kirstie Kari
Rod & Renea Kennec
Eleanor Keuning
James Landis
Roy Leach
Leonard, Harlaw, &
Alberta Family
Michael E. Lichtenstein
Rosemary MacCallum
Ron Mackie
Dennis Mattiuzzi
Jeff Maurer
Elexis Mayer
Jim McDonald
Bridget McGinniss Kerr
Alton McRar
Pam Meierding
Dr. Ralph Mendershausen
Julie Miller
Joan Mills
William Mittig
Faith Moore
Peggy Moore
Barbara Moritsch
Jen Nersesian
Marsha Novak
Candy O'Donel Browne
Karyn O'Hearn
Sherrod Osborne
Nanette Oswald
Penny Otwell
Jeanetta Phillips
John Phillips
Jack Phinney
Marsh Pitman
Sara Preston
Paul Pyle
Paul Raggio
Kristin Ramsey
Pat Reilly
Lisa Rhudy
Ann Roberts
Anika Ronay
Michael E. Ross
Norman Ross
Glen Rothell
Glen Rothell
Kristina Rylands
Hugh Sakols
Ruth Sellers
Liz Skelton
David Stone
Gretchen Stromberg
Jon M. Sturtevant
Dr. Dean Taylor
Kim Taylor
Dale Thomas
Steve Thompson
Dave Tucker
James C. Tucker
Alison Tudor
Margene and Jan van Wagtendonk
Keith Walklet
Phyllis Weber
Kate Wilkin
Gary C. Willams
Brittany Woiderski
Maggie Wolfe Riley

Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapters 3 and 4 of this Environmental Impact Report/Environmental Impact Statement. Documentation of “No Impact” determinations is provided at the beginning of Chapters 3 and 4. Discussion of all impacts, avoidance, minimization, and/or compensation measures is under the appropriate topic headings in Chapters 3 and 4.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☒	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II. AGRICULTURE AND FOREST 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. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included			

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.			
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b)Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. 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?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Appendix B De Minimis Determination and Resources Evaluated Relative to the Requirements of Section 4(f)

Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 USC 138 and 49 USC 303 to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). This revision provides that once the U.S. Department of Transportation determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a *de minimis* impact on that property, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete. FHWA's final rule on Section 4(f) *de minimis* findings is codified in 23 Code of Federal Regulations (CFR) 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 USC 326 and 327, including determinations and approval of Section 4(f) evaluations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

De minimis impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not adversely affect the activities, features, or attributes of the Section 4(f) resource.

Description of Section 4(f) Properties

One Section 4(f) resource has been identified within the project area. The resource is the recreational portion of the Merced Wild and Scenic River, which includes the bed and bank of the river, Incline Road, which is used as a recreational trail, and the area between the north side of the river and Incline Road.

The Merced River is designated as a federal Wild and Scenic River to protect the largely undeveloped river from further development to preserve the wild, scenic, and recreational characteristics. The segment of the Merced River that flows through the project area is classified as recreational because of the presence of the highway and Incline Road and the recreational activities that the river supports. This 5.5-mile segment extends from the confluence of the South Fork Merced River to the northwest boundary of the Sierra and the southeast boundary of the Stanislaus

National Forests. The river here is free flowing; the slopes alongside it are sparsely vegetated, making the river highly visible to the traveling public. Whitewater rafting, fishing, hiking and picnicking are popular activities along this part of the Merced River.

The portion of Incline Road that parallels the Merced River within the project area is considered to be a recreational trail that the public can use and access via State Route 140. Hiking and biking are popular activities on the trail, with occasional equestrian riders using it as well. The U.S. Forest Service owns and maintains Incline Road for its use as a recreational trail. The recreational aspect of Incline Road contributes to the Wild and Scenic River's outstandingly remarkable value of recreation.

De minimis Impact Finding

Alternatives R and T-3 avoid permanent use of the Section 4(f) resource. With the implementation of minimization measures during construction and the restoration of Incline Road to its previous condition, the build alternatives would not adversely affect the recreational activities of the Section 4(f) resource.

See Figure B-1 at the end of this appendix for a map of the Section 4(f) resource.

Measures to Minimize Harm to the Section 4(f) Resource

Measures to minimize harm to the Merced Wild and Scenic River Section 4(f) resource include the following:

- During the rafting season, construction would need to be coordinated with the U.S. Forest Service, Bureau of Land Management, and the commercial outfitters to safely allow rafting to continue through the project area. Spotters would be placed at the rafting put-in locations and upstream from the construction area to identify time periods during which construction would need to be suspended. This method was successfully used during the installation of the temporary bridges.
- Construction work in, alongside, or above the river during rafting season could potentially impede rafting opportunities. Work may need to be suspended Friday through Sunday during daylight hours.
- During the rafting season, construction activities would need to be suspended for a four-day duration surrounding both the Memorial Day and July 4th holidays.
- A minimum of a two-week notice would need to be provided to the U.S. Forest Service, Bureau of Land Management, and the commercial outfitters prior to Caltrans closing the river for any construction activities. Any closure of the river

would occur mid-week when the river has the least number of boaters. An additional 48-hour notification would need to occur to provide specific times that the river would be closed and when it would be opening to rafting.

- Any road closures would need to be planned in coordination with the U.S. Forest Service, Bureau of Land Management, and the commercial outfitters. Notification of the closures would occur a minimum of two weeks prior to the closure. An additional 48-hour notice would need to be provided for specific times of anticipated delays.
- Caltrans context-sensitive solutions would be included during project development to incorporate naturally existing features into the design.
- Areas would be excavated using measures that preserve roots of adjacent trees.
- Existing rock outcroppings would be retained.
- Any rock outcropping exposed by construction would be given a natural appearance and stained to give a weathered look.
- Erosion control would be applied to all disturbed slopes except rock outcroppings, and prevent runoff into the river.
- Plant materials would be replaced in specific areas to visually mitigate for structure heights and cut slopes. Consult with the U.S. Forest Service on a planting ratio.
- The project would replant using native species and create natural-appearing patterns.
- Colors that blend into the surroundings would be used on structures.
- Incline Road would be restored to its previous condition by removing all pavement and temporary bridge abutments.
- Trail use opportunities would need to be restored at the earliest possible date.

Refer to Chapter 3 for more information on measures to minimize harm to the Merced River and Incline Road.

Coordination

On August 29, 2007, Caltrans and the U.S. Forest Service, the agency with jurisdiction over the Merced River, first discussed the Merced River and whether the river had been classified as recreational in terms of being a Section 4(f) resource or solely for the purposes of a Wild and Scenic River. Talks continued between Caltrans

and the U.S. Forest Service, discussing the Merced River as being protected by the Wild and Scenic Rivers Act and as a 4(f) resource due to its recreational classification. These discussions took place during a field visit in February 2008, throughout interagency meetings of the same year, and at a focused 4(f) meeting held on September 19, 2008.

On April 17, 2009, Caltrans met with the U.S. Forest Service to discuss preparation of the Individual Section 4(f) and the Wild and Scenic River section of the environmental document. It was concluded that the Section 4(f) evaluation should analyze both the Merced River and Incline Road as 4(f) resources, have a 4(f) resource boundary equivalent to the Wild and Scenic River recreationally classified segment boundary (1/2 mile out from edge of the river), and discuss impacts to the 4(f) resources similarly to the impacts affecting the Wild and Scenic River corridor.

In November of 2010, a Draft Environmental Impact Report/Environmental Impact Statement was circulated to the public using the above Section 4(f) boundary. At that time there were 6 build alternatives, all of which impacted the Section 4(f) resource because of the large area it covered. No avoidance alterative to using the Section 4(f) resource was feasible. In June 2010, a recreation survey of the Merced Wild and Scenic River was complete, however the finding of the survey were not included in the November 2010 document. Caltrans has now analyzed the survey findings and determined that the ½ mile in each direction boundary did not follow the intent of the Section 4(f) law.

During October to December 2012, Caltrans had several discussions with the U.S. Forest Service about the Section 4(f) boundaries of the Merced Wild and Scenic River and use of each alternative. In a letter dated January 25, 2013, the U.S. Forest Service agreed that the Section 4(f) resource should be reduced to the recreational portion of the Merced Wild and Scenic River, which includes the bed and bank of the river, Incline Road, and the area between the north side of the river and Incline Road. This letter is attached at the end of this appendix. The January 2013 letter supersedes the April 2009 boundary decision.

Resources Evaluated Relative to the Requirements of Section 4(f)

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection because either: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not

permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Yosemite National Park is the main tourist attraction of Mariposa County and considered to be a well-known Section 4(f) resource. The Arch Rock entrance station on State Route 140 is a less than ten miles east of the project and Yosemite Valley is less than 20 miles east. People from around the world visit the park to sightsee, hike and camp. Three state highways access the park. State Route 140 is one, and State Routes 120 and 41 are the other two. While the build alternatives would not use any portion of the park, deny access to, or affect any resource within the park, the unavoidable closure of the highway as a result of the No-Build Alternative would eliminate access to the park for individuals traveling from the west side of the Ferguson rockslide via State Route 140.

Other recreational areas managed by the U.S. Forest Service are nearby and rely on State Route 140 for access. The ten miles between the project site and the Yosemite National Park entrance station is home to several camp grounds, a picnic/day use area, rafting put-ins, and trail-heads.

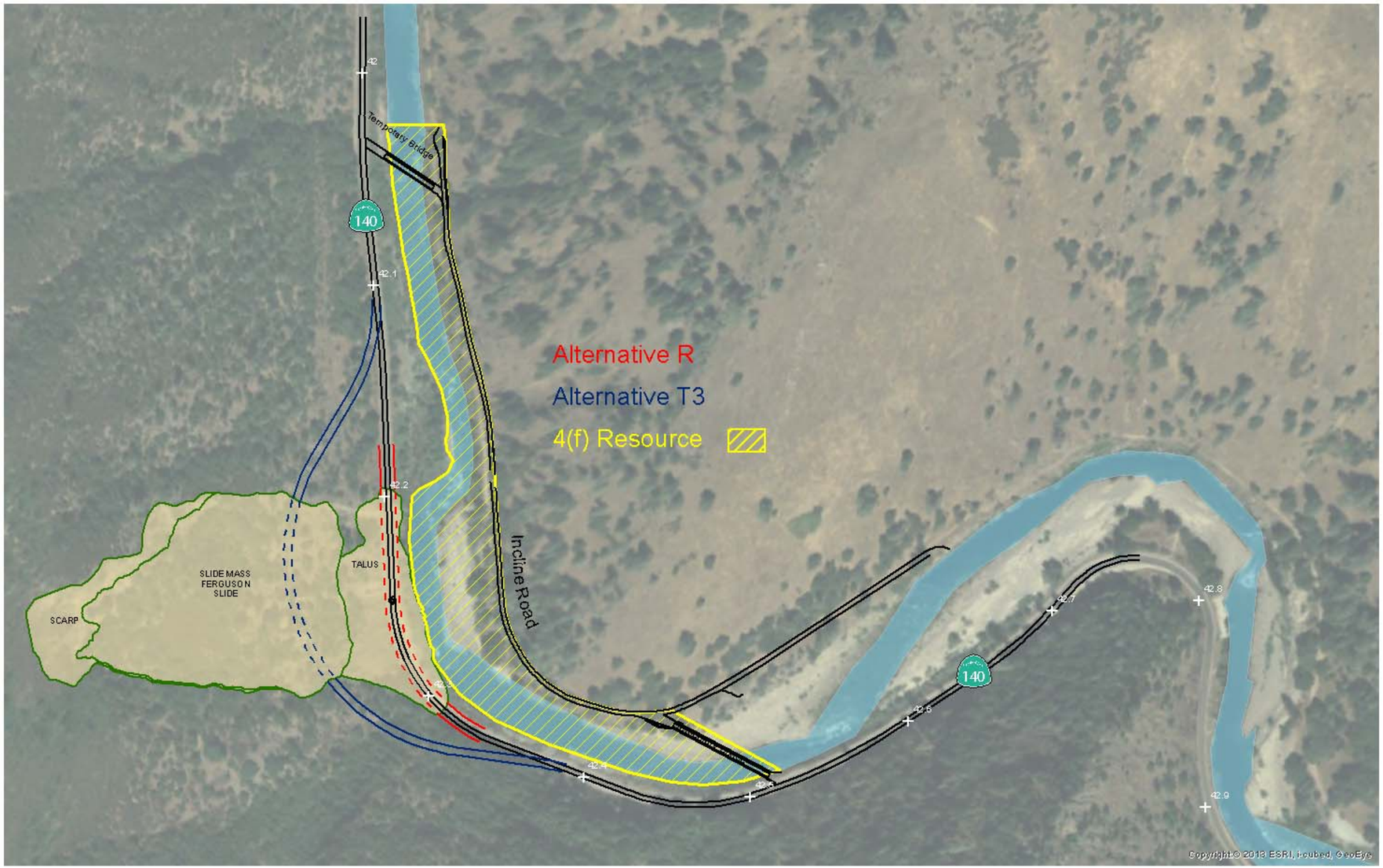


Figure B-1 Section 4(f) Resources

USDA United States Department of Agriculture | Forest Service | Pacific Southwest Region

Regional Office, R5
1323 Club Drive
Vallejo, CA 94592
(707) 562-8737 Voice
(707) 562-9240 Text (TDD)

File Code: 2350/7740
Date: JAN 25 2013

RECEIVED
FEB 06 2013
DEPT. OF TRANSPORTATION DIST. 6
TIME:
ATTENTION: CAL

Carrie L. Bowen
District 10, Director
California Department of Transportation
1976E D. Martin Luther King Jr. Blvd.
Stockton, CA 95205

Dear Ms. Bowen:

Enclosed is an advance summary of effects to river values in accordance with Section 7(a) of the Wild and Scenic Rivers Act (WSRA) for the California Department of Transportation (Caltrans) DEIS/DEIR to develop a permanent solution to bypass a massive landslide on the east side of State Route 140 between the communities of Briceburg and El Portal, Mariposa County, California. The Ferguson Slide Permanent Restoration Project represents a water resources project within a portion of the Merced Wild and Scenic River, on lands administered by the US Forest Service, Region 5, Pacific Southwest Region (RO), Sierra National Forest (SNF). CalTrans, acting as the agent for the Federal Highway Administration, is proposing to provide a permanent solution to the Highway 140 closure caused by a massive landslide in 2006 that blocked the highway.

In order to fulfill their regulatory responsibility under the National Environmental Policy Act, CalTrans has developed a DEIS/DEIR with a total of eight separate alternatives. It is the responsibility of the US Forest Service, under Section 7 (a) of the WSRA, to evaluate effects to river values for all water resources projects that fall within the administrative boundaries of National Forest System (NFS) lands, and that may directly and adversely affect the free-flowing nature of the river and/or those outstandingly remarkable values (ORVs) for which the river was designated.

All of the DEIS alternatives propose either temporary and/or permanent construction and/or construction related activities within the bed and banks at or below the normal high water mark. Each alternative is reviewed under the "direct and adverse" effects standard of Section 7(a) of the Wild and Scenic Rivers Act. Both short- and long-term effects are evaluated.

The following table summarizes the anticipated findings for each alternative for direct and adverse effects to free flow, water quality and ORVs and whether acceptable alternative actions have been proposed to reduce or eliminate direct and adverse effects. The findings for each alternative can be categorized in the following four ways:

- No direct and adverse effect
- Direct and adverse effect but the proposed construction and construction-related activities contained in the Nov. 2010 DEIS (and the additional supplemental

information and analysis provided since then) includes acceptable alternative measures sufficient to eliminate a direct and adverse finding.

- Direct and adverse effect and proposed construction and construction-related activities do NOT include acceptable alternative measures, but the FS has suggestions for acceptable alternative measures that if incorporated into the updated proposal in the next DEIS could eliminate a direct and adverse finding in our determination responsive to that future document.
- Direct and adverse effects – no acceptable alternative measures exist.

Summary of Effects to Free Flow, Water Quality and River Values and Acceptable Alternative Measures

DEIR/DEIS Alternative	Are there short term direct and adverse effects?	Does the proposal include acceptable alternative measures for the short term effects?	Are there long term direct and adverse effects?	Does the proposal include acceptable alternative measures for the long term effects?
C	Yes	More information Needed	Yes	No
T	Yes	More information Needed	Yes	No
S	Yes	More information Needed	Yes	No
S1-V1	Yes	No	Yes	No
S1-V2	Yes	No	Yes	No
R	Yes	Yes	No	Yes
T-3	Yes	Yes	No	Yes
No Build	Yes	No	Yes	No

Based on the evaluation to date, the Forest Service ID team anticipates recommending a finding of adverse short-term effects to the Merced Wild and Scenic River's free flow, water quality and outstandingly remarkable values for all eight alternatives. However, Cal Trans has proposed acceptable measures to 2 of these and acceptable alternative actions may be possible for 3 other alternatives, but more information is needed to make that assessment. Additional Forest Service-identified alternative measures for the some of the remaining direct and adverse short term effects will be recommended to CalTrans in the summary of effects document.

The ID team also anticipates recommending a finding of direct and adverse long-term effects to 6 of the 8 alternatives. While some alternative actions for the long term effects have been included in the CalTrans proposal or identified by the ID team and reduce the impacts, they do not eliminate the adverse effects. Our overall findings of effect of direct and adverse will be

only for those alternatives with long term effects where no effective alternative measures have been proposed or is thought possible.

Additionally, the Ferguson Slide Evaluation provided the necessary analysis to comply with Section 4(f) of the U.S. Department of Transportation Act of 1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. Forest Service has reviewed the impacts to recreation and has identified adverse effects to recreation activities, features and attributes of the property for alternatives C, T, S, S2-V1, S2-V2, and the No Build. There are no known mitigation or enhancement measures that are acceptable that would reduce the adverse impacts.

For any further coordination, please contact Teri Drivas, Ferguson Slide Project Leader at (559) 297-0706 extension 4923 (tdrivas@fs.fed.us) or Christina Boston, Regional Wilderness and Wild and Scenic Rivers Program Leader, at (707) 562-8837 (cboston@fs.fed.us).

Sincerely,

FOR RANDY MOORE
Regional Forester

cc: John Exline, David Martin, Teri Drivas, Christine Cox-Kovacevich, CalTrans, Margaret Lawrence, CalTrans, Grace Magsayo, CalTrans

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov

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Be energy efficient!

March 16, 2012

NON-DISCRIMINATION
POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Mario Solis, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353, TTY 711, fax (916) 324-1869, or via email: *mario_solis@dot.ca.gov*.

MALCOLM DOUGHERTY
Acting Director

"Caltrans improves mobility across California"

Appendix D SHPO Concurrence Letter

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

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.ca.gov
www.ohp.parks.ca.gov

October 10, 2007 Reply To: FHWA070910A

Jeanne Binning, Branch Chief
Central California Cultural Resources Branch
Department of Transportation
2015 East Shields Avenue, Suite A-100
Fresno, CA 93726-5428

Re: Determinations of Eligibility for the Ferguson Slide Permanent Restoration Project, Mariposa County, CA

Dear Ms. Binning:

Thank you for consulting with me about the subject undertaking in accordance with the *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).

The California Department of Transportation is requesting my concurrence, pursuant to Stipulation VIII.C.5 of the PA, that the following properties are not eligible for the National Register of Historic Places:

- CA-MRP-001552H
- Yosemite Valley Railroad Grade
- Jenkins Hill Trail
- State Route 14

Based on my review of the submitted documentation, I concur.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlindquist@parks.ca.gov or Bill Soule at (916) 654-4614 or e-mail at wsoule@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

STATE OF CALIFORNIA – THE RESOURCES AGENCY EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

July 15, 2013 Reply in Reference To: FHWA070910A

Jeanne Day Binning, Ph.D.
Branch Chief, Central California Cultural Resources Branch
California Department of Transportation, District 06
Environmental Division
855 M Street, Suite 200
Fresno, CA 93721

RE: Supplemental Determinations of Eligibility of Properties for the Ferguson Slide Permanent Restoration Project: Consultation with the United States Forest Service (USFS)

Dear Ms. Binning,

Thank you for your letter of June 13, 2013, continuing consultation regarding the above noted undertaking in accordance with the *Programmatic Agreement* (PA) *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.* You are requesting my concurrence on the Area of Potential Effect (APE) and determinations of eligibility for the National Register of Historic Places (NRHP), for properties identified within the APE for the project.

On May 28, 2006 a portion of State Route 140, in Merced River Canyon was covered by a major landslide. Interim measures were employed to temporarily restore passage of traffic around the slide. The proposed project will permanently restore full highway access through the canyon and remove improvements made to the canyon for interim access. In prior consultation, seven alternatives were discussed. At present, the project proposes two alternatives. One alternative will be to construct a Rockshed/Tunnel through the rockslide talus along the original alignment of SR 140. The other alternative is to realign the highway in the slide location by tunneling behind the talus of the slide.

The California Department of Transportation (Caltrans) submitted a Supplemental Historic Property Survey Report under a cover letter dated February 6, 2013 that presented data and determinations of eligibility to the NRHP for resources within the APE for the Ferguson Slide Restoration Project. I responded on February 26, 2013 asking that Caltrans consult with and seek concurrence from the USFS prior to continued consultation with me. Consultation between Caltrans and the USFS occurred on May 1, 2013, and the USFS concurred with Caltrans' findings in a letter dated May 8, 2013.

In addition to your letter of June 13, 2013, you have submitted the following documents in support of this undertaking:

 FHWA070910A

- *Second Supplemental Historic Property Survey Report for the Ferguson Slide Permanent Restoration Project, Mariposa County, California*; California Department of Transportation; January, 2013.

Pursuant to the *Memorandum of Understanding Between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's Participation in the Project Delivery Program Pursuant to 23 U.S.C. 327* on behalf of the Federal Highway Administration (FHWA), Caltrans, in consultation with USFS, has determined the following:

Properties within the APE determined not to be eligible for listing in the NRHP, either individually or as contributors to a larger historic district:

1. Two Rock Basins (FS-2)
2. Trail-way (FS-3)
3. Plant Collecting Area (FS-4)
4. Segment of Yosemite Valley Railroad within the APE
5. Segment of State Route 140 within the APE
6. Segment of Exchequer 70kV Transmission Line within the APE

Property determined to be outside the APE:

7. Bear Symbol (FS-5)

Properties assumed eligible for the purposes of this project only, which will be protected by posting as environmentally sensitive areas during construction:

8. CA-MRP-1566, bedrock milling station with four mortar cups
9. CA-MRP-2076, bedrock milling station with four mortar cups

Based on identification efforts and the information provided in the *Second Supplemental Historic Property Survey Report*, I concur with Caltrans' determinations as listed above. I also have no objections to the delineation of the APE, as depicted in the supporting documentation.

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, Caltrans may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions or concerns, please contact Kim Tanksley of my staff at (916) 445-7035 or via email at kim.tanksley@parks.ca.gov.

Sincerely,

Carol Roland-Nawi, Ph.D.

Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer

cc: Todd Jaffke, Section 106 Coordinator, Office of Cultural and Community Studies, Caltrans
Susan Schilder-Thomas, Senior Environmental Planner, Caltrans Central Region
Douglas C. McKay, Heritage Program Manager, Sierra National Forest
Scott Smith, Branch Chief, Central Sierra Environmental Analysis Branch, Caltrans

Appendix E Minimization and/or Mitigation Summary

The following tables summarize the mitigation and minimization measures required as a result of the proposed project's impacts to the environment.

Table E.1 Summary of Mitigation

Area	Impact	Mitigation
Visual Resources	Alteration of scenic landscape and an overall moderate decrease in the visual quality of the area	Provide an on-site landscape architect during construction to oversee tree and landscape preservation, structural aesthetic applications, and replanting the project area. Round toes and tops of slopes, and roughen slope to create a more natural appearance. Create a natural appearance to any rock outcropping exposed by construction and stain to give a weathered look. Apply erosion control to all disturbed slopes except rock outcroppings. Remove existing roadway elements of unused portions of State Route 140. Salvage, stockpile, and replace topsoil and duff containing seeds and organic matter from affected areas. Planting ratios shall be a minimum of 1:1 and developed with the U.S. Forest Service. Replant using native species. Implement a minimum three-year plant establishment period. Restore Incline Road to its previous condition by removing all pavement and temporary bridge abutments. Provide texture or pattern on all exposed walls or vertical concrete surfaces. Use colors on structures that blend into the surroundings. Use darkened metal elements or non-reflective surfaces for guardrails and posts. Bury culverts and add color or texture to any exposed sections.
Geological Resources	Remove between 80,000 and 292,000 cubic yards of rock material and rockfall on cut slopes	Cut slopes at a 1:4 ratio or flatter. Entrances for rockshed or tunnel would be constructed at least 150 feet away from the flanks of the slide.

Area	Impact	Mitigation
		Rockfall barriers could also be used to protect the roadway from the possibility of falling rock. Use blasting equipment such as hydraulic splitters and hoe rams to control the spread of rocks and limit vibrations and noise.
Natural Communities (Oak Woodlands)	Affect between 0.45 and 2.10 acres of habitat	Mitigate for oaks at a 3:1 ratio based on the acreage of impact. Mitigation plans would be approved by the California Department of Fish and Wildlife and the U.S. Forest Service.
Plant Species	Affect between 0.25 and 2.10 acres of sensitive plant habitat	Environmentally sensitive area fencing. Coordination with the U.S. Forest Service on replacement planting. Seed would be collected from the Mariposa clarkia and smallflower monkeyflower
Animal Species	Indirect effect to hardhead fish and removal of bat habitat	Replace oak woodland at a 3:1 ratio based on the acreage of impact. Remove trees only during the non-nesting season defined as February 15 through September 1. A “no in-stream work” window of April and May could be established to avoid impacts during the spawning season.
Threatened and Endangered Species	Remove Merced clarkia and limestone salamander habitat	Environmentally sensitive area fencing would be placed around the Merced clarkia habitat. Consultation with the California Department of Fish and Wildlife and a 2081 permit for potential take of Merced clarkia and limestone salamander. Exclusionary fencing and monitoring required for limestone salamander. Off-site compensatory mitigation as required by 2081 permit.

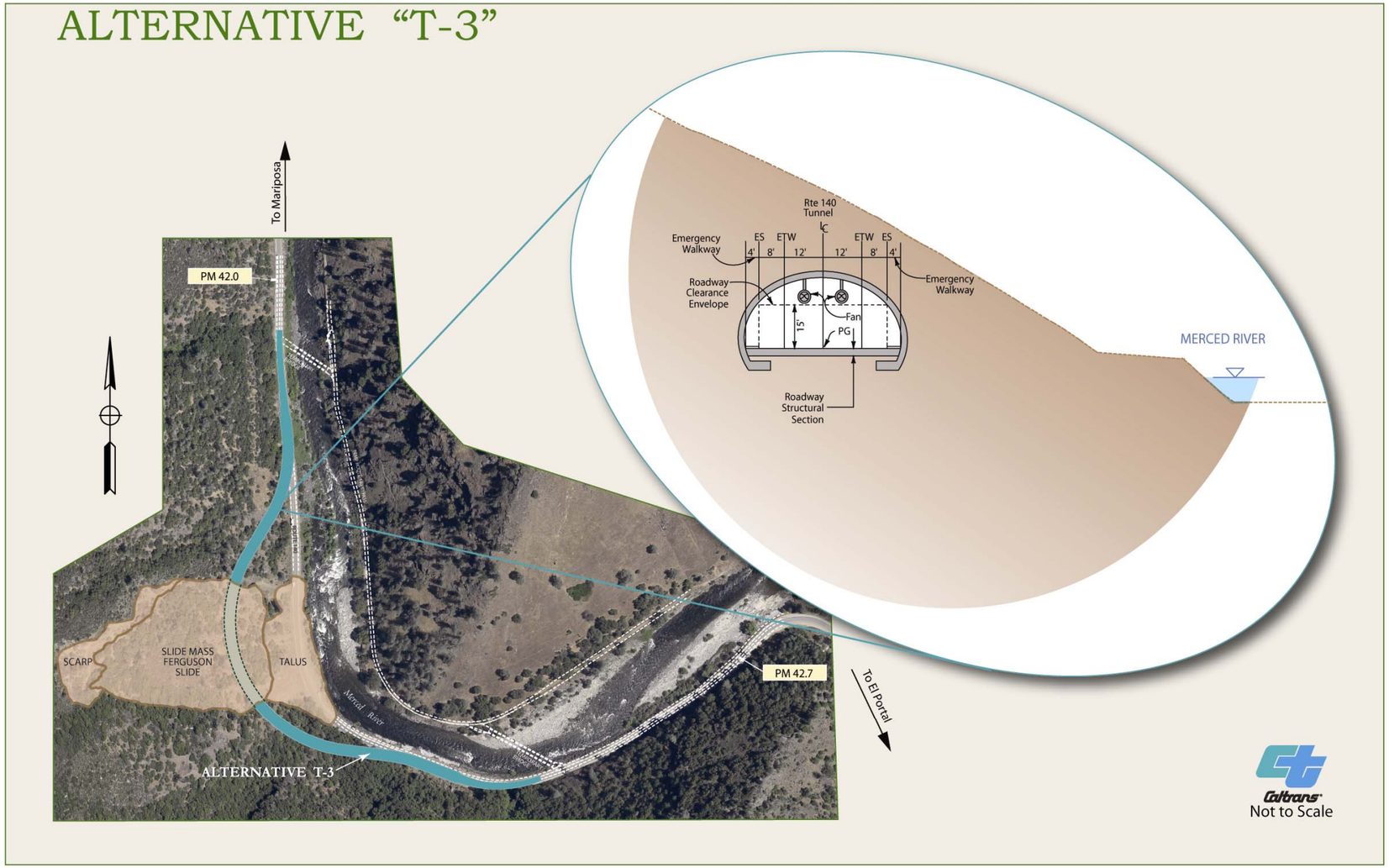
Table E.2 Summary of Minimization and Monitoring

Area	Impact	Mitigation
Wild and Scenic Rivers	Temporary construction impacts on the recreational value of the Merced River	Management measures and best management practices to address any water quality impacts. During the rafting season, construction would to be coordinated with the U.S. Forest Service, Bureau of Land Management, and the commercial outfitters to safely allow rafting to continue in the project area. Would use spotters at the rafting put-in locations and upstream from construction to identify time periods during which construction would need to be suspended. Trail use opportunities would to be restored at the earliest possible date. Environmentally sensitive area fencing would be placed around sensitive plant and animal habitat. Protect bedrock mortar site with environmentally sensitive area fencing.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	Temporary traffic delays and roadway closures from construction activities	The Traffic Management Plan would include: Short-term (10- to 15-minute) closures to move equipment in and out of the construction area. Construction staging.
Cultural Resources	Bedrock mortar sites	Protect sites with environmentally sensitive area fencing.
Water Quality and Storm Water Runoff	Short-term increase in sediment and turbidity (cloudiness) in surface water	Apply erosion control. Implement a Storm Water Pollution Prevention Plan during construction and a Storm Water Management Plan after construction. Incorporate pollution prevention measures such as constructing culverts that carry runoff to unlined channels.
Hazardous Waste/ Materials	Exposure to elevated levels of arsenic	Classify and properly dispose of all hazardous waste materials at a Class 1 landfill. Construction personnel would be notified of potential risks associated with elevated arsenic levels in the soil. Dust control and proper hygiene would be practiced during construction.

Area	Impact	Mitigation
Noise	Temporary noise increase from construction	Use construction methods or equipment that would provide the lowest level of noise (for example, alternative low noise pile installation methods). Use newer or well-maintained equipment with improved muffling, and ensure that all equipment items have the manufacturer's recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational. Maintain good public relations with the community to minimize objections to unavoidable construction noise.
Invasive Species	Distribution of invasive plant species through ground disturbance	The landscaping and erosion control included in the project would not use species listed as noxious weeds. Equipment should arrive at the construction site clean and would be subject to inspection. Cleaning measures would be used if equipment is moved between areas that have known invasive species. Caltrans would continue to coordinate with the U.S. Forest Service regarding the most feasible program for planting during and after construction. A Special Provision would be included in the construction bid package to prevent the introduction and/or spread of invasive and noxious weeds.

For more detailed information on mitigation, minimization, and monitoring commitments, refer to Chapter 3, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures for these impact areas.

Refer to Section 4.3 for mitigation measures required to address significant impacts under the California Environmental Quality Act.


ALTERNATIVE "T-3"
To Mariposa
PM 42.0
SCARP
SLIDE MASS
FERGUSON
SLIDE
TALUS
Merced River
ALTERNATIVE T-3
PM 42.7
To El Portal
Rte 140
Tunnel
Emergency
Walkway
ES
ETW
4'
8'
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12'
8'
4'
Emergency
Walkway
Roadway
Clearance
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Roadway
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MERCED RIVER
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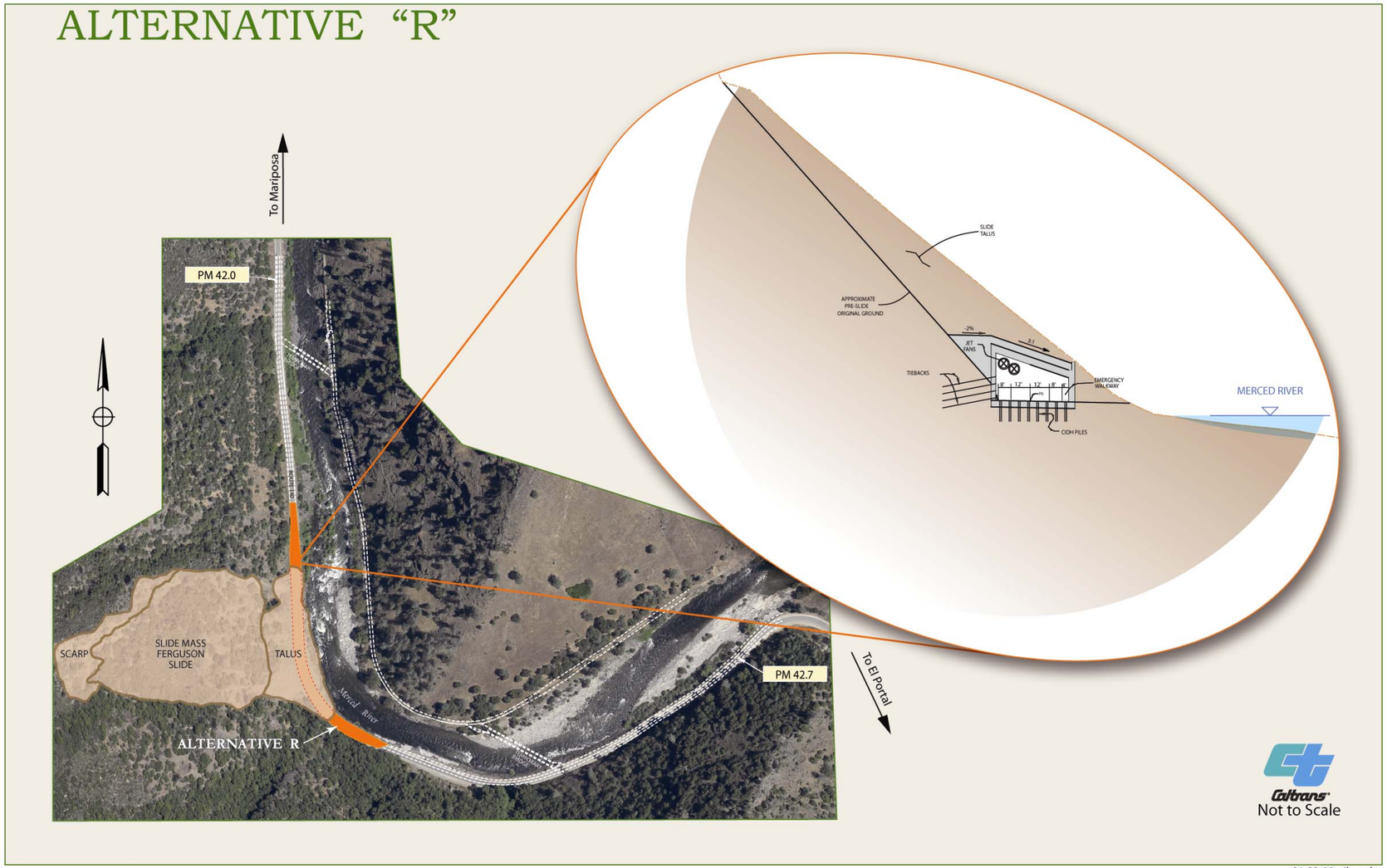
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To Mariposa
PM 42.0
SCARP
SLIDE MASS
FERGUSON
SLIDE
TALUS
ALTERNATIVE R
Merced River
PM 42.7
To El Portal
SLIDE TALUS
APPROXIMATE PRE-SLIDE ORIGINAL GROUND
JET FANS
TIEBACKS
EMERGENCY WALKWAY
MERCED RIVER
CIDH PILES
Caltrans
Not to Scale
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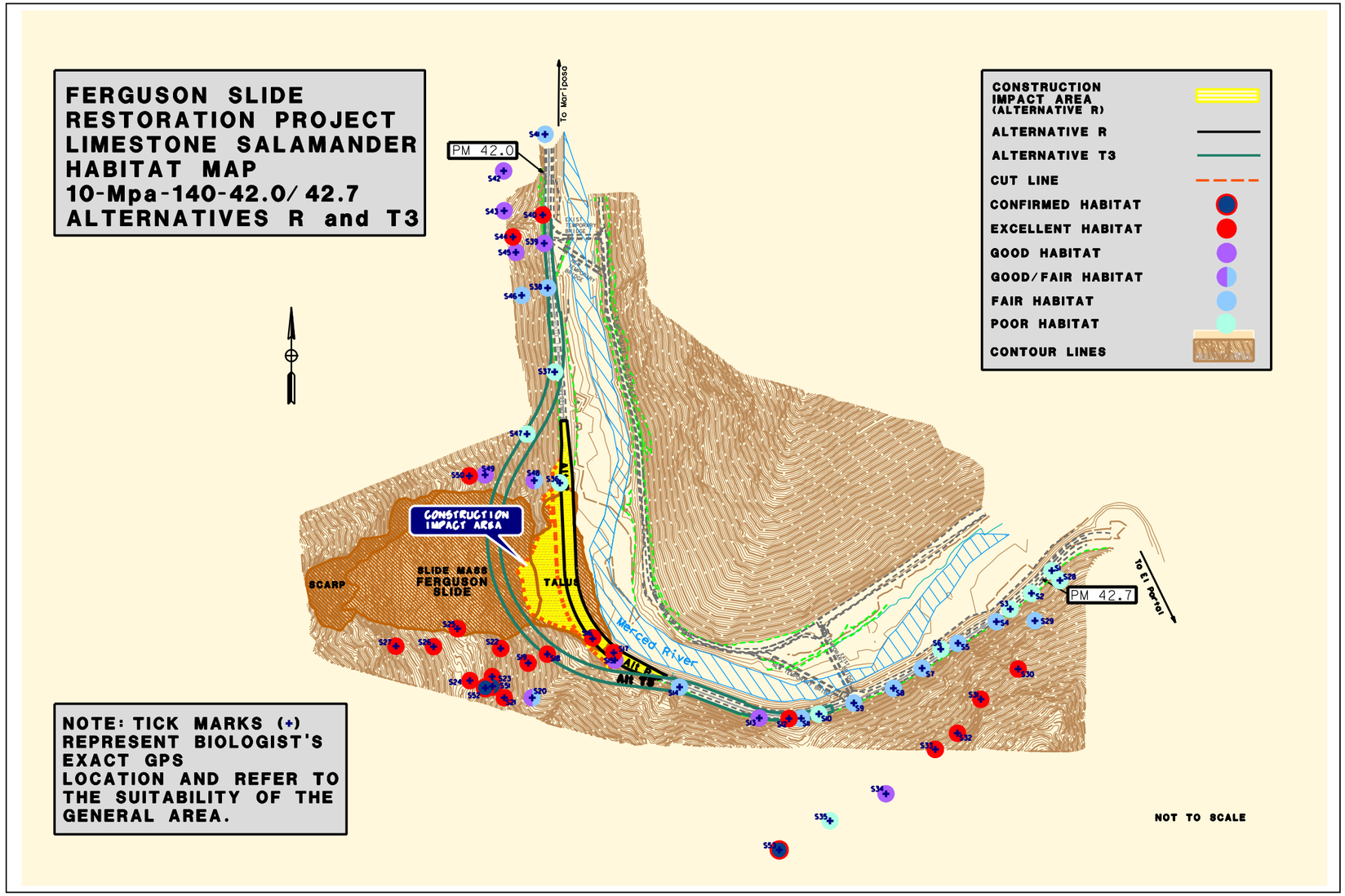
FERGUSON SLIDE
RESTORATION PROJECT
LIMESTONE SALAMANDER
HABITAT MAP
10-Mpa-140-42.0/ 42.7
ALTERNATIVES R and T3
To Mariposa
PM 42.0
PM 42.7
To El Portal
CONSTRUCTION IMPACT AREA
SLIDE MASS FERGUSON SLIDE
SCARP
TALUS
Merced River
Alt R
Alt T3
CONSTRUCTION IMPACT AREA (ALTERNATIVE R)
ALTERNATIVE R
ALTERNATIVE T3
CUT LINE
CONFIRMED HABITAT
EXCELLENT HABITAT
GOOD HABITAT
GOOD/FAIR HABITAT
FAIR HABITAT
POOR HABITAT
CONTOUR LINES
NOTE: TICK MARKS (+) REPRESENT BIOLOGIST'S EXACT GPS LOCATION AND REFER TO THE SUITABILITY OF THE GENERAL AREA.
NOT TO SCALE

Appendix H Assembly Bill 1973

BILL NUMBER: AB 1973 CHAPTERED

BILL TEXT

CHAPTER 121

FILED WITH SECRETARY OF STATE JULY 13, 2012

APPROVED BY GOVERNOR JULY 13, 2012

PASSED THE SENATE JUNE 28, 2012

PASSED THE ASSEMBLY MAY 3, 2012

AMENDED IN ASSEMBLY APRIL 11, 2012

INTRODUCED BY Assembly Member Olsen

(Principal coauthor: Senator Berryhill)

FEBRUARY 23, 2012

An act to amend Section 5050 of, and to add Section 2081.9 to, the Fish and Game Code, relating to wildlife resources.

LEGISLATIVE COUNSEL'S DIGEST

AB 1973, Olsen. Protected species: take: Ferguson Slide Permanent Restoration Project.

The California Endangered Species Act (CESA) prohibits the taking of an endangered or threatened species, except as specified. The Department of Fish and Game may authorize the take of listed species if the take is incidental to an otherwise lawful activity and the impacts are minimized and fully mitigated.

This bill would authorize the department to authorize under CESA the incidental take of limestone salamander (Hydromantes brunus) resulting from impacts attributable to the Department of Transportation's implementation of the Ferguson Slide Permanent Restoration Project, contingent upon the fulfillment of prescribed conditions.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 2081.9 is added to the Fish and Game Code, to read:

2081.9. (a) Notwithstanding Section 5050, the department may authorize, under this chapter, the incidental take of limestone salamander (Hydromantes brunus) resulting from impacts attributable to the Department of Transportation's implementation of the Ferguson Slide Permanent Restoration Project on State Route 140 from 8 miles east of Briceburg to 7.6 miles west of El Portal in Mariposa County, contingent upon the fulfillment of the following conditions:

(1) The Department of Transportation begins construction of the Ferguson Slide Permanent Restoration Project on or before January 1, 2016.

(2) The department has determined that the Department of Transportation will adopt appropriate avoidance and mitigation measures to protect the limestone salamander through enforceable commitments that, at a minimum, include the following:

(A) A construction work window that prevents initial ground-disturbing construction activities from occurring on the southern slope during the salamander's active season of December to March, inclusive.

(B) Environmentally sensitive area fencing in the form of five-foot orange plastic mesh, as well as salamander protection exclusionary fencing in the form of 24-inch sheet metal, will be erected if construction-related activities will occur adjacent to limestone salamander habitat during their active season.

(C) A biological monitor will be onsite during active building to inspect the worksite and all exclusionary fencing.

(D) All ground-disturbing activities within 100 feet will cease if a limestone salamander is detected in an active construction site until the animal can be safely removed from the area according to an agreed-upon salvage plan.

(3) The requirements of subdivisions (b) and (c) of Section 2081 are satisfied for the take of the limestone salamander.

(4) The department ensures that all further measures necessary to satisfy the conservation standard of subdivision (d) of Section 2805 are incorporated into the project.

(5) The take authorization provides for the development and implementation, in cooperation with the department, of an adaptive management process for monitoring the effectiveness of, and adjusting as necessary, the measures to minimize and fully mitigate the impacts of the authorized take. The adjusted measures are subject to Section 2052.1.

(6) The failure to appropriate funds does not relieve the applicant of the obligations of paragraphs (1) and (2).

(7) Any observations of the species in the worksite and any accidental injury or mortality from vehicle strikes or other means will be reported to

the department immediately and the onsite biological monitor will notify the resident engineer who will halt the work immediately.

(b) This section shall not be construed to exempt the Ferguson Slide Permanent Restoration Project on State Route 140 from 8 miles east of Briceburg to 7.6 miles west of El Portal in Mariposa County from any other law.

SEC. 2. Section 5050 of the Fish and Game Code is amended to read:

5050. (a) (1) Except as provided in Section 2081.7, 2081.9, or 2835, fully protected reptiles and amphibians or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected reptile or amphibian, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species. Prior to authorizing the take of any of those species, the department shall make an effort to notify all affected and interested parties to solicit information and comments on the proposed authorization. The notification shall be published in the California Regulatory Notice Register and be made available to each person who has notified the department, in writing, of his or her interest in fully protected species and who has provided an email address, if available, or postal address to the department. Affected and interested parties shall have 30 days after notification is published in the California Regulatory Notice Register to provide any relevant information and comments on the proposed authorization.

(2) As used in this subdivision, "scientific research" does not include any actions taken as part of specified mitigation for a project, as defined in Section 21065 of the Public Resources Code.

(3) Legally imported fully protected reptiles or amphibians or parts thereof may be possessed under a permit issued by the department.

(b) The following are fully protected reptiles and amphibians:

(1) Blunt-nosed leopard lizard (Crotaphytus wislizenii silus).

(2) San Francisco garter snake (Thamnophis sirtalis tetrataenia).

(3) Santa Cruz long-toed salamander (Ambystoma macrodactylum croceum).

(4) Limestone salamander (Hydromantes brunus).

(5) Black toad (Bufo boreas exsul).

Appendix I Merced Wild and Scenic River Section 7(a) Advanced Summary of Effects to River Values

Merced Wild and Scenic River Section 7 (a) Advanced Summary of Effects to River Values Ferguson Slide Permanent Restoration Project

Prepared by:

Teresa A. Drivas (Sierra National Forest, Forest Recreation Officer; Team Leader)
Susan Burkindine (Sierra National Forest, Asst. Forest Recreation Officer)
K. Andrew Stone (Sierra National Forest, District Hydrologist)
Joanna Clines (Sierra National Forest, Forest Botanist)
Alan Gallegos (Sierra National Forest, Geologist)
Phillip Strand (Sierra National Forest, Forest Aquatics Biologist)
Doug McKay (Sierra National Forest, Forest Archaeologist)
Judith Tapia (Sierra National Forest, Environmental Coordinator)
Christina Boston (R5 Regional Office, Wilderness and Wild and Scenic River Specialist)

Table of Contents

Merced Wild and Scenic River Section 7 (a)
Advanced Summary of Effects to River Values
Ferguson Slide Permanent Restoration Project

INTRODUCTION

On November 2, 1987, at the request of the Governor of California, the Secretary of the Interior added the Merced River to the National Wild and Scenic Rivers System (National System) through section 2(a)ii) of the Wild and Scenic Rivers Act (WSRA). On October 23, 1992, it was designated by Congress when P.L. 102-432 was signed into law. The designation originates from its source (including Red Peak Fork, Merced Peak Fork, Triple Peak Fork, and Lyle Fork) in Yosemite National Park and terminates at the normal maximum operating pool (water surface level) of Lake McClure (elevation 867 feet mean sea level). The designation also includes the South Fork from its source in Yosemite National Park to the confluence with the main stem. Eleven and one-half miles of the river is the responsibility of the Sierra National Forest (SNF) and designated as a Wild and Scenic River (WSR). The SNF section begins at the boundary of the SNF and El Portal Administrative Site (Yosemite National Park) to a point 300 feet upstream of the confluence with Bear Creek.

In April 2006, a major landslide occurred on Highway 140 (SR 140) along the Merced WSR, within the boundary of the SNF, and obstructed access to Yosemite National Park from the Mariposa area. The slide is located on the Merced WSR between El Portal and Briceberg, California. Unusually heavy rainfall in March and April of 2006 destabilized a steep hillside above the river and rockslide activity began in the area on April 29, 2006. The state highway was closed to traffic periodically until concrete barriers and protective fencing were erected in late May. One lane of the highway was reopened to vehicles on the morning of May 25, but later that day another landslide damaged the barrier and the highway was closed again. On May 28, a major landslide covered approximately 183 meters (600 feet) of the highway. As a result, SR 140 was closed to traffic from 5.1 kilometers (3.2 miles) east of Briceburg to approximately 9.7 kilometers (6.0 miles) west of El Portal.

Caltrans proposed to restore access temporarily with two temporary bridges. A WSRA Section 7(a) determination was completed and found that the two temporary bridges across the Merced, designed to facilitate single-lane traffic on SR 140, would not have permanent direct or adverse effects to the WSR based on their temporary use and their subsequent removal upon construction of a permanent solution. The Ferguson Rockslide (the "slide") and the detour project are located within Segment 8 the Merced WSR which extends from the confluence of the South Fork Merced to the northwest boundary of the Sierra and the south east boundary of the Stanislaus National Forests, and is classified as "recreational". The length is approximately 5.5 miles.

In November 2010, Caltrans published a draft environmental analysis, The Ferguson Slide Permanent Restoration Project Draft Environmental Impact Statement/Environmental Impact Report (DEIS/DEIR), which analyzes several alternatives to restore permanent access along

State Highway 140. The USFS provided comments in January 2011 that the analysis in the 2010 DEIR/DEIS did not include enough information from which the Forest Service could make its determination and included a detailed list of the additional information needed. In February 2011, CalTrans, the USFS, and several other interested government agencies met to review the project and discuss the additional actions needed to complete the environmental analysis, conduct necessary studies, and identify appropriate alternatives for a permanent solution. Between January 2011 and November 2012, the Forest Service has worked closely with Caltrans to obtain the additional information and analysis needed to make a WSRA Section 7(a) determination on the alternatives outlined in the 2010 DEIS/DEIR. This document is not a determination, but rather a description of expected effects to free flow, water quality and outstandingly remarkable values based on the information contained in the 2012 DEIS/DEIR as well as additional information, both formal and informal, received between January 2010 and November 2012. A formal determination will be made responsive to the planned revised DEIS to be released by CalTrans in 2013.

This document identifies WSRA requirements, evaluates the effects of the 2010 DEIS/DEIR seven action alternatives to provide continued vehicular access along a landslide-impacted portion of California State Route 140 ("SR 140"), and the no action alternative, on the identified WSR values. It also includes an evaluation under the appropriate standard of Section 7(a) of the WSR Act for the Merced River WSR. Specifically, this document evaluates the potential effects to the free-flowing condition, water quality and outstandingly remarkable values (ORVs) of the river. There are five ORVs within this segment: geology, vegetation, wildlife, recreation, and cultural and historical resources.

PROPOSED ACTION

The California Department of Transportation (Caltrans) proposes to restore full highway access between Mariposa and El Portal via State Route 140 in Mariposa County, California by repairing or permanently bypassing the portion of State Route 140 that was blocked and damaged by the Ferguson rockslide. The total length of the project is 0.7 mile. The following build alternatives are being proposed.

Alternative C (Open-cut Realignment)
This alternative would realign the highway to the northeast of its current alignment, spanning the Merced River and bypassing the rockslide. State Route 140 would cut through the mountain across the Merced River from the rockslide and then span back across the river where it would meet the existing alignment. Two bridges would be built across the river. Staging areas may be expanded into upland slopes.

Alternative T (Tunnel Realignment)
This alternative would realign the highway to the northeast of its current alignment, spanning the Merced River and bypassing the rockslide. State Route 140 would tunnel 700 feet through the mountain across the Merced River from the rockslide and then span back across the river where it would meet the existing alignment. Two bridges would be built across the river.

Alternative T-3 (Tunnel under Slide Realignment)
This alternative would realign the highway by constructing a 2,200-foot-long tunnel under the area of the slide. Staging areas may be expanded into upland slopes.

Alternative S (Viaduct Realignment)
This alternative would realign the highway to the northeast of its current alignment, spanning the Merced River with two bridges and bypassing the rockslide with a hillside viaduct and retaining wall.

Alternative S-2 (Modified Viaduct Realignment)
This alternative is similar to Alternative S and would realign the highway to the northeast of its current alignment, spanning the Merced River with two bridges and bypassing the rockslide with a hillside viaduct and retaining wall. This alternative differs from Alternative S in that it proposes two bridge type variations along with their own specific roadway alignments. The first (S2-V1) would construct two tied-arch bridges, which use an arch structure with cables above the bridge deck for support. The second (S2-V2) would construct two slant-leg bridges, which use "V"-shaped columns to support the bridge deck.

Alternative R (Rockshed/Tunnel)
This alternative would follow the existing highway corridor by constructing a rockshed (cut-and-cover tunnel) through the talus (foundation layer) of the slide along the existing State Route 140 alignment.

No-build Alternative

The No-build Alternative would leave State Route 140 damaged and blocked by the Ferguson rockslide. As a result of the No-build Alternative, the temporary detour would continue to function as State Route 140. Either general wear or damage from flooding in a high water year will eventually require the removal of the bridges, supporting structures, and the detour pavement, leading to the permanent closure of State Route 140 at the section damaged by the rockslide. General wear of both the temporary bridges and the structures that support them determines the varying lengths of their service lives. The actual steel bridges themselves may have a useful life of between 20 and 25 years. This estimate is based on normal wear, fatigue, and corrosion of the steel components. The structures supporting the temporary bridges have a service life of 5 to 10 years. These support structures are actually what determine the useful age of the detour route.

The temporary detour was constructed during a declared emergency and was designed as a temporary solution to the closure of State Route 140 after Caltrans reached an agreement with the USFS that the pavement and structures used for the detour would be removed once a permanent solution could be constructed. The No-build Alternative requires the same environmental analysis as the proposed build alternatives.

DESCRIPTION OF GENERAL CONSTRUCTION ACTIVITIES

There are multiple construction practices common to bridge and road construction that could be employed for the alternatives identified. These construction practices include the use of trestles, crane platforms, falsework, cofferdams, temporary access roads, and flat gravel surfaces. Any of these construction practices could have short-term impacts to both the free-flowing condition and water quality of the Merced WSR. Each construction practice will be described below and will tie into the construction practice for each alternative. The terms "river-right" and "river-left" refer to the right or left side of the river as seen looking downstream.

Temporary Roads

Temporary roads will be used to access work areas to build trestles, falsework, and other construction elements. Roads will be constructed and graded from existing road alignments (e.g., Route 140, Incline Road), or be built as clean earthen fill ramps. Location of proposed temporary roads will be discussed for each alternative.

Falsework

Bridge design alternatives call for the bridges to be dominantly made of concrete, and as such, a falsework will need to be constructed in order to support the concrete forms. Falsework is a temporary structure used to support a permanent structure while under construction. The falsework will consist of vertical members supporting horizontal members with a flat wooden platform spanning the vertical members. The flat wooden platform will be a little wider than the width of the permanent bridge. The falsework will essentially be a temporary "support" bridge, and provide a flat surface on which the concrete forms will be constructed, and will support the weight of the wet concrete while it is being poured and cures. The falsework also provides access for construction and inspection personnel during the construction of the permanent structure.

There are multiple methods that could be used to construct the falsework in the channel the most probable method chosen by the contractor would be the construction of a flat gravel surface "platform" (described below). This flat gravel surface provides a substrate on which concrete footings can be founded for the vertical members of the falsework and the trestles, but can also be used for other construction elements to create working areas for equipment.

Trestles

A construction trestle is a temporary platform that resembles the falsework. It will have vertical steel members supporting horizontal members. The spacing of the vertical members will be the same as that of the falsework vertical members located in the channel. The trestle will have a flat wooden platform at the top of the vertical members and be about 40 feet wide. The trestle is needed to provide construction equipment access to the work zones not accessible from the channel banks. Since cranes will be required to erect falsework, they will need to be within 60 feet of the location, and trestles provided this access. Trestles are constructed in the same fashion as falsework.

Flat Gravel Surfaces

A flat gravel surface is used for equipment access (e.g., cranes), construction of falsework, crane pads, and/or trestles. In order to provide a safe working area for equipment close to the river, flat gravel surfaces can also be constructed in areas on the river bank or floodplain where the terrain is uneven. The flat gravel surface is constructed by placing large rocks (in the channel or floodplain) to create a perimeter around the proposed area of the gravel surface. The area enclosed by the large rocks would be filled with cleaned (washed) gravel to create the flat gravel surface (note: a flat gravel surface is also referred to in this document as a "jetty")

Cofferdam
A cofferdam is a temporary wall or system of walls that are used to create a barrier around a work area that is in a waterway. The system will be water tight or virtually water tight and will keep water out of the area the system surrounds. Pumps are installed as necessary to manage seepage. Cofferdams also help to mitigate an increase in turbidity and to prevent concrete contamination during concrete placement in the river. Coffer dams could be used to found the vertical members into the stream bed without creating a jetty. They are more costly and therefore less desirable to a contractor. After the vertical members are founded in the channel bottom, the cofferdam could be removed.

Crane Platforms
Crane platforms will be level surfaces used to support construction cranes. Two types of surfaces will be constructed. One of the surfaces will consist of a gravel roadbed about 25-feet wide and various lengths depending on the location within the project. The other surface will be the top of the construction trestle or a surface created by backfilling behind a temporary retaining wall. Crane platforms are needed to provide access to locations required by the cranes to construct the bridges, temporary construction structures, perform excavations, or other construction activities.

Description of Construction Activities Specific to Bridge Alternatives

Alternative C (Open-Cut Realignment) and T (Tunnel Realignment)

Alternative C would realign Route 140 to the northeast and include two bridges crossing the Merced River. A cut slope would be installed on the hill directly across from the rockslide (north of the river) and would include a 22-foot-wide terrace on either side of the Route to catch rock fall from the hill slope. The bridge segments that cross the Merced River would be supported by columns constructed within the active bankfull channel. The northwest bridge would be 550-feet-long and have two support columns; the southeast bridge would be 650-feet-long and also have two support columns.

To accommodate traffic during construction, the current one-lane detour along Incline Road would be extended and a third temporary bridge would be constructed upstream. This bridge would be constructed using concrete abutments and columns on each side of the river. The newly formed embankment slopes would be protected with the placement of rocks. This temporary bridge would be removed and the river channel restored to its original state once the final bridge is complete.

Alternative T would be the same as Alternative C except for a 700-foot long tunnel that would be constructed through the hillside opposite the rockslide north of the river. The tunnel would be used instead of the cut slope and terrace.

Construction Activities by Location:

Downstream Bridge River-Left

In order to build the falsework for the downstream bridge alternatives C and T, a temporary access road will need to be built down from the abandoned section of Route 140 to the bankfull bench located on river-left. The temporary road would either be cut down from the abandoned section of Route 140 or clean construction-grade fill will be brought in to create a ramp. On the bankfull bench, large rocks would be moved and a 100 foot wide "flat-gravel-fill surface" would be constructed from Route 140 and would be roughly 50 feet either side of the bridge centerline and extend all the way to the water's edge.

The flat-gravel-fill surface provides a substrate on which footings can be poured to support the vertical members for the falsework. It also provides a flat working surface for large construction equipment such as excavators and cranes. The flat-gravel-fill surface would be roughly three to four feet higher than the bankfull bench.

A trestle and falsework would be constructed across the river, parallel to the alignment of the bridge. The trestle would be on-grade with the flat gravel fill surface constructed on the bankfull bench on river-left. The trestle and falsework would require drilled holes in the channel (to support the vertical members) in the river near the edge of water. This is done by "diverting" water to drill the holes. The diversion is constructed by creating a flat-gravel-fill surface that extends into the actively flowing part of the river with large boulders back-filled by clean gravel. The gravel displaces the water and allows for the footings to be drilled through the flat-gravel-fill surface. Once the vertical members are founded in the channel, the flat-gravel-fill surface is removed. The trestle will allow heavy equipment to construct the falseworks and bridge segments over the river.

Downstream Bridge River-Right

For Alternatives C and T, the trestle from the river-left bank would extend to the river-right bank and tie into a temporary access road constructed down from Incline Road. For Alternatives C and T, vertical members supporting the trestle and falsework would be founded in the bedrock on the river-right bank. This trestle would provide the work platform for the equipment on this side of the river.

Upstream Bridge River-Right

Alternatives C and T would cross the river farther upstream from where Alternatives S and S2-V2 are planned. This area is easily accessed by Incline Road and construction would occur on the bankfull bench on river-right. The area would be cleared of rocks and a flat gravel fill surface would be constructed to allow equipment to work safely while building the falsework and trestle. The flat gravel fill surface would be parallel to the bridge alignment (roughly 50 feet either side of the bridge centerline) and extend approximately 75 feet into the river.

Upstream Bridge River-Left
A temporary access road will need to be constructed down from Route 140 to allow equipment access to build the flat-gravel-fill surface (or jetty) for the trestle and falsework footings. This would be required at the left river bank to divert water. This is also needed to provide access for a drill rig to drill a 10 foot diameter hole in the channel for the bridge column. General dimensions of the flat-gravel-fill surface (or jetty) would be 20-feet wide and 250 feet long; the flat-gravel-fill surface will extend approximately 10-feet into the river. Concrete pads will be placed on leveled areas along the sloping bank to support the horizontal falsework members.

Northeast Ridge
A temporary access road will be cut from Incline Road (heading to the southeast) up to the point where the falsework and formwork can be constructed for the bridge abutments, superstructure retaining walls and or tunnel portal. The same type of access road will be mirrored on the opposite side of the ridge for the same construction needs for the upstream bridges. This ground disturbance is well above bankfull elevation and is not expected to impact the free-flowing condition of the river.

Alternative S (Viaduct Realignment)
Alternative S would realign Route 140 to the northeast and include two bridges crossing the Merced River. This Alternative would include a 358-foot-long viaduct and retaining wall on the hill directly across from the rockslide (north of the river) and would include a 10-foot-wide terrace on either side of the Route to catch rock fall from the hill slope. The two bridge that cross the Merced River would be supported by columns constructed within the active bankfull channel. The northwest bridge segment would be 805-feet-long and have two in-stream support columns; the southeast bridge would be 725-feet-long and also have two in-stream support columns.

To accommodate traffic during construction, the current one-lane detour along Incline Road would be extended and a third temporary bridge would be constructed upstream. This bridge would be constructed using concrete abutments and columns on each side of the river. The newly formed embankment slopes would be protected with the placement of rocks. This temporary bridge would be removed and the river channel restored to its original state once the final bridge is complete.

Downstream Bridge River-Left
In order to build the falsework for the downstream bridge alternatives, a temporary access road will need to be built down from the abandoned section of Route 140 to the bankfull bench located on river-left. The temporary road would either be cut down from the abandoned section of Route 140 or clean construction-grade fill will be brought in to create a ramp. On the bankfull bench, the large rocks would be moved and a 100 foot wide "flat-gravel-fill surface" platform would be constructed from Route 140 and would be roughly 50 feet either side of the bridge centerline(s).

The flat gravel fill surface provides a substrate on which footings can be poured to support the vertical members for the falsework. It also provides a flat working surface for

large construction equipment (excavators and cranes). The flat gravel fill surface would be roughly three to four feet higher than the bankfull bench. For Alternative S, the flat-gravel-fill surface would extend from Route 140, cover the bankfull bench, and extend approximately 10-feet into the river.

A trestle and falsework would be constructed across the river, parallel to the alignment of the bridge. The trestle would be on-grade with the flat gravel fill surface constructed on the bankfull bench on river-left. The trestle would require holes drilled in the channel (to support the vertical members) in the river near the edge of water. This is done by "diverting" water to drill the holes. The diversion is constructed by creating a small "jetty" of large boulders back-filled by clean gravel. The gravel displaces the water and allows for the footings to be drilled. Once the vertical members are founded in the channel, the jetty is removed. The trestle will allow heavy equipment to construct the falseworks and bridge segments over the river.

Downstream Bridge River-Right

For Alternatives S, the trestle from the river-left bank would extend to the river-right bank and tie into a temporary access road constructed down from Incline Road. For Alternative S, vertical members supporting the trestle and falsework would be founded in the bedrock on the river-right bank. This trestle would provide the work platform for the equipment on this side of the river.

Upstream Bridge River-Right

For Alternative S, a trestle would need to be constructed across the river. A succession of flat-gravel-filled surfaces would be built across the river to found the footings for the vertical members of the trestle and falsework. Once the footings and vertical members have been constructed (for both falsework and trestle), the flat-gravel-fill surface would be removed and another built further across the river to facilitate construction of the next series of vertical members. It is anticipated that two to three of these flat-gravel-filled surfaces will have to be built to get the trestle and falsework across the river.

Upstream Bridge River-Left

A temporary access road will need to be constructed down from Route 140 to allow equipment access to build the flat-gravel-fill surface (or jetty) for the trestle and falsework footings. This would be required at the left river bank to divert water. This is also needed to provide access for a drill rig to drill a 10 foot diameter hole in the channel for the bridge column. General dimensions of the flat-gravel-fill surface (or jetty) would be 20-feet wide and 250 feet long; the flat-gravel-fill surface will extend approximately 10-feet into the river. Concrete pads will be placed on leveled areas along the sloping bank to support the horizontal falsework members.

Northeast Ridge

Project activities under Alternative S will require construction on the ridge east of the rockslide (north side of the river). One temporary road will be cut up from and parallel Incline Road from north to south to the point where the upstream bridge crosses the river (approximately 500-feet). This road is necessary to accommodate the equipment that will construct the falsework and formwork necessary to construct the bridge abutments, super

structure, and retaining walls for the viaduct and retaining wall. This ground disturbance is well above bankfull elevation and is not expected to impact the free-flowing condition of the river.

BASIS FOR EVALUATION OF EFFECTS TO FREE FLOW, WATER QUALITY AND RIVER VALUES

This evaluation of effect to free flow, water quality and river values is responsive to the alternatives presented in the Caltrans DEIS/DEIR (November 2010) for the Ferguson Slide Restoration Project and to the following supplemental information provided to the Forest Service by Caltrans between January 2011 and November 2012, including construction activities descriptions developed jointly by Caltrans and Forest Service:

a. Description of construction activities prepared for each Ferguson Slide DEIS/DEIR alternative (Forest Service and Caltrans, May, 2012)
b. River Geomorphology Study for the Merced River at the Ferguson Rock Slide: Effects of Proposed Transportation Alternatives on River Morphology and Flood Flow Behavior, Balance Hydrologics, Inc., Technical Report 207240 for the California Department of Transportation.
c. Archeological Reconnaissance Records, provides by the Forest Service and Caltrans.
d. Acceptance of Forest Service response to release of DEIS (January 13, 2011),
e. State Assembly Bill AB1973 (July 13, 2012) allowance for "take" of the Limestone Salamander,
f. Geotechnical Report, Ferguson Rockslide Geology Report, prepared for Caltrans, 2008 ,
g. All environmental studies that addressed impacts that the project would have on the human, physical and biological environments within the project area and part of the DEIS project record
h. Merced Recreation Study, Caltrans, 2011
i. Visual Quality Assessment prepared for the Ferguson Slide Restoration Project, Caltrans, 2007
j. Botanical Report – Ferguson Slide Permanent Restoration Project, Caltrans Study, 2007
k. Limestone salamander biological report for Ferguson Slide Area, Prepared for Caltrans, 2007
l. Community Impact Assessment, prepared for the Caltrans, 2009
m. Water Quality Assessment prepared for Ferguson Slide Permanent Restoration Project, Prepared for Caltrans, 2007
n. California Department of Transportation, 2003, Construction Site Best Management Practices (BMP), Caltrans, 2003
o. Statewide Storm Water Management Plan, Caltrans, 2003

DESCRIPTION OF THE MERCED WSR

The Merced River flows through one of the more unique and breathtakingly beautiful environments found in North America. From its source approximately 8,000 feet above sea level in the central Sierra Nevada mountain range, the river tumbles, cascades, and carves its way through 100 million year old granite, glacial valleys, and deeply incised canyons on a 145-mile long journey, eventually joining the San Joaquin River just south of Turlock, CA. The upper portion of the Merced River was federally designated as "Wild and Scenic" on November 2nd, 1987 (Public Law 100-149) and on May 18, 1989 the SNF and BLM finalized boundaries and classifications for the wild & scenic river corridor. An Environmental Impact Statement was completed by the SNF in June, 1991 outlining management alternatives for the main stem and South Fork Merced Rivers. Concurrent with this environmental analysis was the South Fork and Merced River WSR Implementation Plan, which detailed the management zones (i.e., Wild, Scenic, and Recreational), monitoring plan, river corridor boundaries, management direction, and ORV's for the Merced WSR. The segment of the Merced River that flows through the project reach has been classified as "Recreational", which means that the river is readily accessible by road or railroad, may have some development along the shorelines, and/or may have undergone some impoundment or diversion in the past.

On April 29th, 2006, a rock block slide-rock fall complex (the "Ferguson rockslide") buried a segment of California State Highway 140, approximately eight river miles west of El Portal, California, the western gateway to Yosemite National Park. Under emergency directive, the California Department of Transportation installed two temporary (one-way) bridges to re-route traffic around the rockslide. These bridges were replaced by two new (relocated) temporary bridges when it was discovered that the original bridges would not accommodate vehicles with an axel length of greater than 28 feet. The current temporary bridges are one-way and traffic-controlled with stop lights. Thus, there is a clear purpose and need for a long-term solution to bypass the Ferguson rockslide.

WSRs Act Section 7(a) Requirements

Section 7(a) of the WSRA provides for the protection of WSR values from the construction of any water resources project. Forest Service regulations (36 CFR 297) and policy (FSM 2354) provide direction on the process for evaluating water resources projects within a WSR administered by the Secretary of Agriculture through the Forest Service.

A water resources project includes any federally assisted construction of developments which would affect the free-flowing characteristics of a WSR (36 CFR 297.3). All action alternatives identified in Caltrans' DEIR/DEIS appear to have some construction in the river's bed or its banks and, therefore, qualify as a water resources project subject to WSRA Section 7(a).

No license, permit or other authorization can be issued for a federally assisted water resources project on any portion of a WSR without prior notification to the Secretary of Agriculture and a determination in accordance with Section 7(a). In order for the FS, as the WSR-administering agency of this segment, to make its determination, the project authorizing agencies should, to the extent possible, ensure that any environmental studies prepared for a water resources project adequately address the environmental effects of a project on WSR values and continue to apprise the agency of ongoing analyses to facilitate coordination and identification of WSR-related issues (36 CFR 297.6).

The project will be evaluated so as to determine whether any of the action alternatives will result in any direct and adverse effects to the river's values. If adverse effects are identified with one or more action alternative, the Forest Service may recommend measures to eliminate adverse effects and the authorizing agencies may submit revised plans for consideration (36 CFR 297.4 and 297.5). Under FSM 2354.74a, the Regional Forester has the responsibility to make determinations for water resources projects on designated WSRs where other federal agency assistance is involved. This responsibility may not be delegated.

WSRs Act Section 7(a) Evaluation Criteria

The following specific criteria were used to evaluate for direct and adverse effects to the free flow, water quality and ORVs:

Free Flow

- Alteration of riparian and/or floodplain conditions (Relevant floodplain properties such as width, roughness, bank stability, or susceptibility to erosion.)
- Alteration of upland conditions (Relevant hydrologic properties such as drainage patterns or the character of surface and subsurface flows.)
- Alternation of hydrological processes (The ability of the channel to change course, re-occupy former segments, or inundate its flood plain; Stream bank erosion potential, sediment routing and deposition, or debris loading; Surface and subsurface flow characteristics; Flood storage (detention storage); and Aggradation/degradation of the channel.
- Magnitude and extent of off-site changes (Changes that influence other parts of the river system; Processes involved, such as water and sediment, and the movement of nutrients.)

Water Quality

- Dissolved oxygen
- Temperature
- pH
- Turbidity
- Pollutants (oil and grease)
- Floating material
- Sediment
- Settleable material
- Suspended material

Outstandingly Remarkable Values

Recreation

There are 4 elements to the Recreation ORV. They are:

- Whitewater Rafting
- Wading and Water Play
- Camping
- Hiking

Wading, water play and camping are not available along the steep canyon walls in the project area adjacent to the slide, and therefore are not evaluated in this determination

Geology

- Contact between meta-sedimentary and granitic rocks
- Limestone blocks forming prominent escarpments

WILDLIFE

- Important riparian-dependent wildlife: limestone salamander (state-listed rare species)
- Rare, lower elevation, high value, suitable riparian habitat for riparian species [1]

BOTANY

The botany ORV includes four state-listed rare/endangered plants

- Allium yosemitense
- Clarkia lingulata
- Eriophylium Congdonii
- Lewisia Congdonii

Allium yosemitense, Eriophylium Congdonii, and Lewisia Congdonii are not present in the project area along the steep canyon walls adjacent to the slide, and therefore, are not evaluated in this determination

CULTURAL AND HISTORIC LANDSCAPE

The cultural and historical ORVs of the Merced River, as originally designated (U.S. Forest Service 1986), are comprised of an amalgamation of prehistoric and historic period resources, as well as those of ethnographic importance to the Southern Sierra Miwuk. Due to the quantity and complexity of the resources, these ORV's have been combined into a single management unit classified as the Merced River Cultural Landscape (MRCL). The MRCL is comprised of two distinct elements, a historic vernacular landscape and an ethnographic landscape. Within the APE of the Project, eleven (11) features of the MRCL have been identified.

- Historic Vernacular Landscape – There are 6 features:
  - The Yosemite Valley - Railroad (a.k.a. The Incline Road;
  - California State Highway 140;
  - The Exchequer Power line;
  - The Jenkins Hill Trail;
  - A series of historic bridge footings,
  - Historic period foundation and debris.

- Ethnographic Landscape: Five (5) features of the ethnographic landscape of the MRCL are within the APE of the Project.
  - Two prehistoric/ethnographic bedrock milling features.
  - An ethnographic ritual/sacred use, "bathtub" feature.
  - Ethnographic traditional use plant resources along the river.
  - *Üzümati* , sacred site, traditional cultural property (TCP), Bear effigy.[2]

[1] The original 1986 Land and Resources Management Plan Draft Environmental Impact Statement Appendix D cited 177 riparian species however additional species have been identified. The current number of riparian species is undetermined.

In the following sections these specific criteria will be applied to each alternative to determine whether or not it will result in any direct or adverse effects to the Merced WSRs free flow, water quality or outstandingly remarkable values.

[2] The 1986 Land and Resources Management Plan Draft Environmental Impact Statement Appendix D originally identified an additional ethnographic landscape: a prehistoric/ethnographic bedrock milling feature however this landscape no longer exists as it was destroyed by the existing temporary bridge construction.

WSRs Act Section 7(a) Evaluation for Alternative C (*Open-cut Realignment*)

Free Flow

a. Short-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions:***
  - Erecting trestles and falsework would require the construction of flat-gravel-filled surfaces that would be built in the actively flowing part of the river and on the downstream river-left bankfull floodplain bench. As such, floodplain width and roughness would be affected and may inhibit floodplain hydrologic function during high flow events (i.e., groundwater percolation and banking could be affected while the flat-gravel-fill surfaces are in place). Susceptibility to erosion on the floodplain may also increase at high flow where the flat-gravel-fill surface causes a constriction increasing flow velocity.

- ***Alteration of Upland Conditions:***
  - Project activities would require construction on the ridge east of the rockslide (north of the river). Temporary access roads would be constructed up from Incline Road to accommodate the falsework and formwork necessary for the abutments, retaining walls, super structure and or tunnel portals. One road will be constructed on the west side of the ridge with its alignment extending approximately 200-feet from Incline Road up the ridge to the southeast and loop back to Incline Road; another similar road will be constructed on the east side of the ridge with its alignment extending from Incline Road up the ridge to the northwest, looping back to Incline Road.

    The northwest aligned temporary road may truncate one to two ephemeral first-order channels and could intercept groundwater percolating down from recharge areas on the ridge tops. Storm water runoff from the temporary roads, ephemeral surface runoff and groundwater seepage will be addressed in the Caltrans Statewide SWMP plan.

- ***Alteration of Hydrological Processes:***
  - At the project location, the Merced River flows through a deep, steep-sided, V-shaped canyon with relief in excess of 2000 feet. The river geometry is largely controlled by the canyon bedrock, which is comprised of the Calaveras Complex (an assemblage of metamorphic rock), which structurally controls the sinuosity of the river. Although impacts to the river substrate could occur from construction activities impacts to the river's ability to change course or inundate its floodplain along the project reach should not be significant. Infiltration through the flat-gravel-fill surfaces on the river-left bankfull bench could be inhibited if the percentage of fines in the gravel fill is high enough to affect the vertical hydraulic conductivity.

    During high flow events (e.g., 50 to 100-year floods) and/or after catastrophic wildfire within the watershed, there is the potential for debris to accumulate or

"raft" along the trestles, falsework, and flat-gravel-filled surfaces. Although the timing of most of the construction is designed to avoid high flow periods, if a wildfire should occur upstream in the watershed during construction, the rafting potential for debris would be extremely high. Rafting of debris along falsework, trestles and/or flat-gravel-fill surfaces could pose a serious safety concern for whitewater recreation by creating entrapments for swimmers, kayakers, or rafts. Mean peak flow discharge through the project reach has been estimated to be approximately 5000 cubic feet per second (cfs), with bankfull discharge calculated at 8,800 cfs, and potential high peak flow of approximately 49,000 cfs (for a more detailed discussion of stream flow, see hydrology report). Although *in situ* channel scour and alteration of bed features is expected at constriction points, a significant change to the timing of flow for the Merced River from the construction activities is not expected. Moreover, direct and adverse changes to the flow pattern is unlikely, but some short-term changes to subsurface flow characteristics and floodplain detention storage may occur at the downstream, river-left construction area where a flat-gravel-fill surface will occupy approximately 1500 square-feet of floodplain.

- ***Magnitude and Extent of Off-Site Changes:***
  - The potential for long-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is considered low.
  - Time Scale – Falsework in the channel would take about six weeks to construct for both the upstream and downstream components. The superstructure for the falsework would take about 3 weeks to construct. Falsework in the channel would be in place for 6 months, the falsework for the V-bent footings would be in place for 4 months (but out of the bankfull channel). Falsework foundations in the channel would take about three to four weeks to remove. Thus, the falsework would be in the river, on the floodplain or adjacent to the banks for eight to ten months.

    Trestles used for construction support would take approximately six weeks to construct for both the upstream and downstream bridge elements. Trestles would be in the river, on the floodplain, or adjacent to the banks for eight to ten months.

    Flat gravel-filled-surfaces used to construct both the trestles and falsework would need to be in place for a corresponding amount of time; thus these structures will likely be in place for 10 to 24 months.

    Construction operations are scheduled to start in the late summer (June) after spring peak flows when flow conditions are relatively low (approximately 250 cfs – see hydrology report for a peak flow analysis). In-channel construction would be restricted to a nine month construction window between June and March, and thus in-stream construction elements should not be exposed to spring peak flows. Although in an average year the spring peak flow occurs in May (and usually does not exceed 5000 cfs), there are instances where rain-on-snow events have caused extreme flooding (see hydrology report for more information). These large (> 40,000 cfs) peak flow events have occurred between December and February, and

thus there is a chance that both the falsework and trestles (and associated flat-gravel-surfaces) could be subjected to extreme flood stressors.

b. Long-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions:***
  - Although Alternatives C calls for in-stream support columns, the cut slope alignment and tunnel are well out of the 100-year floodplain. As such, no impacts to the floodplain features such as width, roughness, or susceptibility to erosion is expected.

- ***Alteration of Upland Conditions:***
  - As road construction for this alternative is temporary, there would be no long-term effects to upland conditions.

- ***Alteration of Hydrological Processes***
  - Although bridge columns within the active bankfull channel could cause localized impacts to the river substrate or banks (e.g., scour/erosion), impacts to the river's ability to change course or inundate its floodplain along the project reach should not be significant.
  - Each column will be in the actively flowing part of the river channel either year-round or during common bankfull events (floods that have the chance of occurring every two years.) 2-D modeling results showed that changes in velocity and sediment mobility would occur at the upstream bridge, potentially causing erosion to mapped bed features. During high flow conditions, constriction between the bridge columns on the upstream bridge and channel bank could cause an increase in velocity up to 4.0 feet per second, increasing shear stress and sediment mobility on the bed and banks. This alternative has the potential to permanently change the nature of the river through the project reach, although the most pronounced changes would occur at the upstream bridge during high flow conditions. Changes could include modification of channel form and gradient by the development of scour within channel bars, erosions of riffles and enlargement of a large pool mapped mid-way through the project reach. Major changes in channel geometry (e.g., sinuosity and width-to-depth) are not expected.
  - Additionally since this alternative places columns in the active river channel, then rafting potential is high. This would be a particular concern on the upstream bridge along the left bank column. Rafting of debris at bridge columns could result in structural damage during an extreme flood event.

- ***Magnitude and Extent of Off-Site Changes:***
  - The potential for long-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is considered low.

c. Alternative Actions to Reduce or Eliminate Impacts

Construction methodologies that would obviate the need for in-channel support structures such as trestles, falseworks, or flat-gravel-filled surfaces (e.g., segmental bridge construction) would reduce or eliminate the short-term impacts to the free-flowing condition of the Merced River. The use of cofferdams could also reduce some of the impacts imparted by the flat-gravel-fill surfaces. Potential flood and debris impacts to in-stream construction elements such as falsework, trestles, and flat-gravel-fill surfaces could be mitigated by phasing construction seasonally, and shortening the construction windows to six months.

d. Conclusion

The short-term effects to the free-flowing condition of the Merced WSR would be direct and adverse due to the obstruction and constriction to flow by the construction of flat-gravel-filled surfaces, trestles, and falsework within the active bankfull channel. Through this modification of flow, these construction elements have the potential to alter bed and bank morphology. Moreover, the flat-gravel-filled surfaces (depending on the degree of fines and the resulting change in vertical hydraulic conductivity) could inhibit floodplain function by reducing the area available for groundwater infiltration. The likely potential impacts to water quality will be primarily attributable to increases in suspended sediment (i.e., turbidity) being introduced into the Merced River during construction activities.

The long-term effects to the free-flowing condition of the Merced WSR would be the obstruction of flow and the potential for bed and bank alteration by the placement of four bridge columns within the active bankfull channel.

Water Quality

a. Short-term Effects

Water quality, beneficial uses, and water quality objectives are discussed in more detail in the hydrology specialist report, but water quality parameters that may be impacted during construction include:

- Dissolved Oxygen (DO)
- Temperature
- pH
- Turbidity
- Oil and Grease
- Floating Material
- Sediment
- Settleable Material
- Suspended Material
- Tastes and Odors

Changes to DO, temperature, and pH could adversely affect aquatic life in the vicinity and downstream of the project reach. Since it is unclear if impacts to these water quality

parameters will occur, more information is needed for each to determine the extent of the potential short-term impact.

b. Long-term Effects

Long-term water quality impacts (i.e., impacts not associated with short-term construction) are expected to be minor. The geology in the project reach is characterized by relatively stable metamorphic bedrock (phyllite), and river substrate dominantly composed of coarse granitic boulders, cobble, and gravel. Based on this (and that most of the banks in the project reach are bedrock or armored by rip-rap) erosion-related turbidity would be very low. The primary long-term impact to water quality would be from storm water runoff carrying contaminates from the road and bridge surfaces. The primary pollutants would include petroleum distillates, metals, wear products from motor vehicle operation, and hazardous materials spilled in route accidents.

c. Alternative Actions to Reduce or Eliminate Impacts

These concerns have been addressed in the Caltrans Statewide SWMP. The SWMP addresses impacts on water quality standards from erosion, discharges of hazardous materials and disruption of natural drainage patterns in the planning, design and construction phases of the project. The SWMP also assures compliance to the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit issued by the State Water Resources Control Board (SWRCB) for Section 402 of the Clean Water Act.

d. Conclusion

Long-term effects to water quality from any of the alternatives should be negligible.

Recreation Outstandingly Remarkable Value

a. Short-term Effects

- ***Whitewater Rafting***
  - According to the "Advanced Planning Study" for Alternative C the falsework is expected to leave an 80 foot wide gap between the support columns for the falsework, jetties, and trestles. Even though 80 feet would be wide enough to support river rafting during this phase of construction, narrowing the river by 50 percent would increase the flow velocity through the construction site. The increase of flow would change the generally class III river to a class VI making it unsafe for commercial rafters to take customers through the constricted openings of the river.
  - Falsework in the channel will take about six weeks to construct for both the upstream and downstream components. The superstructure for the falsework will take about three weeks to construction. Falsework will remain in the river channel for six months. Falsework in the channel will take about three to four weeks to remove. As a result, falsework will be in the river for eight to ten months. Rafting season is three to six months dependent on river flow. Therefore a minimum of one

rafting season will be adversely impacted. The design of the falsework and construction specifications adversely impacts river rafting as it inhibits the safety of rafting curtailing the rafting business during the construction period. There are six rafting companies running the Merced River. Trips are offered April, May, June and depending on flows, there is potential for trips in July.

- ***Hiking***
  - The current one-lane detour along existing Yosemite Valley Railroad grade would be extended and a third temporary bridge would be constructed upstream. The Merced River Canyon Trail (Yosemite Valley Railroad grade) is approximately 14 miles long. The total amount paved is approximately 0.5 miles. According to the Categorical Exclusion for the temporary bridges the unpaved portion is 2.8 miles from Incline Road to the temporary bridges. Therefore, access is reduced from 14 miles to 2.8. The paving of the existing Yosemite Valley Railroad grade (Incline Road) adversely impacts the use of the railroad grade as a trail (Merced River Canyon Trail).

b. Long-Term Effects

- ***Whitewater Rafting***
  - Rafters would be affected negatively by having two bridges spanning the river. Noise from vehicular traffic overhead, visual impairment from the bridges, bank stabilization, and constructed features would detract from the overall whitewater boating experience. In addition, there are two columns in the river to be avoided by river users. The columns will change the flow in such a way to impact the rafters to paddle away from the obstacle. In addition, there is concern with debris accumulating up against the columns creating an additional hazard. Also Alternative C has an extensive cut slope across from the Ferguson Slide of at least 400 feet long and as high as 130 feet. According to the Visual Impact Analysis conducted by Caltrans, in analyzing the view from visitors using the river, there are some vantage points where only the top of the cutslope would be visible. From other vantage points the "full effect of the slope and its engineered appearance in the landscape would be fully visible." The enormity of the cutslope is not in harmony with the surrounding landscape. The use of the cuts slope next to the river corridor adversely impacts the visual quality to the Visual Quality Objectives level of Retention and therefore impacts the recreation experience of whitewater rafting. According to participants in the Merced Wild and Scenic River Ferguson Slide Recreation Survey Reports prepared for Caltrans by the University of Utah and the Pennsylvania State University, for Alternative C a participant stated this alternative would "make me not want to revisit" and "it would negatively impact my experience of the Merced River."

- ***Hiking***
  - The current one-lane detour along existing Yosemite Valley Railroad grade used as a trail (Merced River Canyon Trail) will have the asphalt removed and restored to natural conditions. However, this section of the trail will be noticeably wider than the remainder of the trail. All that is known from the EIS is the natural conditions

will be met by removing any existing paving.. For trail users the greatest impact is where the new bridges cross over the Merced River Canyon Trail. Per the Visual Impact Analysis conducted by Caltrans, it is likely the abutment walls would be visible to the hikers. Overall visual quality of the area would be reduced for visitors utilizing the Merced River Canyon Trail due to the bridges overhead and the abutment walls will block some views. Visually, the terrain will appear different to the hiker, equestrian or mountain biker. According to participants in the Merced Wild and Scenic River Ferguson Slide Recreation Survey Reports prepared for Caltrans "the options that cross the river would make me not want to hike or bike in the area."

c. Alternative Actions to Reduce or Eliminate Impacts

- Preserve existing vegetation to provide visual screening of constructed features.
- Reduce impacts to the visual intrusion of the bridge by choosing colors of concrete or concrete stain that blends the structure into the surrounding terrain.
- The following alternative actions are recommended for hiking:
    - Use vegetation to soften the cut slopes and or retaining walls.
    - Remove asphalt from the old railroad grade and return it to a natural appearance.

d. Conclusion

Alternative C short-term would impact the finances of those who operate businesses related to whitewater rafting on the Merced River as well as the local economy for communities nearby the slide as rafting related tourism would be curtailed during construction. For the short-term, construction activities would prohibit river use during construction. Hiking and riding on the old Yosemite Railroad grade are impacted due to the management of the section for vehicle travel during construction. For the long-term, whitewater rafting would be impacted as a "new roadway with its wider shoulders and rockfall benches would be a substantial departure from the existing roadway section" (Visual Impact Analysis, Caltrans, 2009). The bridge columns would impact the navigation of the river. For hiking, there would be no hiking or use of the trail for the short-term due to the use of the trail as a roadway for the temporary bridges. For the long-term, hiking would resume after the completion of the project with the overhead bridge and cutslopes impacting the visual landscape. This alternative has a major adverse effect to the Recreation ORV.

Geology Outstandingly Remarkable Value

a. Short-Term Effects

The following short-term effects are expected:

- ***Contact between meta-sedimentary and granitic rocks***

- The contact between the metamorphic rocks (meta-sediments) and the nearest igneous intrusive rocks is three miles to the east of Ferguson Slide around the Indian Flat area and again further east on the Merced River near El Portal. Since the contact between meta-sedimentary and granitic rocks does not occur within the project area, there are no short-term effects.

- ***Limestone rocks forming prominent escarpments***
  - Although limestone beds of prominent escarpments have been identified in segment 8 of the Merced River, within the project area, there is no construction activity within or near the prominent escarpments limestone beds. Since there will be no construction in this area, there will be no short-term effects.

b. Long-Term Effects

The effects are the same as those described under short-term effects.

c. Alternative Actions to Reduce or Eliminate Impacts

No mitigation is necessary as there are no effects.

d. Conclusion

Since the contact between the meta-sedimentary and granitic rocks, and prominent limestone escarpments do not occur within the Ferguson Slide potential effected area, there are not expected short or long-term effects on the identified geological ORVs.

Wildlife Outstandingly Remarkable Value

a. Short-term effects

- ***Limestone salamander***
  - During project implementation, individual limestone salamanders may move onto the closed portion Highway 140 (south side river) staging areas from adjacent habitat at night during rainy periods. Caltrans has not proposed that operations be restricted at night during these periods, which could subject limestone salamander to direct mortality.

- ***Important Riparian Vegetation***
  - The access roads, gravel fill supports, and other structures that would be built within the river would destroy the riparian vegetation in the direct vicinity of the falsework and bridges. Destruction of the riparian vegetation results in a major short-term effect to riparian vegetation. According to the hydrology report, the potential for short-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is considered low. This implies that effects to riparian vegetation downstream should be minimal and that effects to the native riparian vegetation are

expected to be limited to the vicinity of the slide and the construction activities. The destruction of the riparian vegetation would lead to a reduction in wildlife habitat for species that use riparian habitat for nesting, denning or food gathering however there would be possibilities for mobile species to temporarily utilize nearby riparian habitat. The destruction of riparian habitat would be a major impact to riparian species in the project area that are not mobile.

b. Long-Term Effects

- ***Limestone salamander***
  - Upland surface ground disturbance that might represent a long-term affect to limestone salamander habitat would not occur. Rock material generated by the project would be transported off-site to a disposal area beyond the distributional range of the species.

- ***Important Riparian Vegetation***
  - Native riparian vegetation at the disturbed sites (e.g. access and temporary roads) would not recover properly as invasive species may out compete native species and natural successional patterns may be disrupted. This disruption puts the disturbed sites at a high risk of being permanently type-converted to a weed-dominated, erosion-vulnerable, unsightly state. The destruction of the riparian vegetation would lead to a reduction in wildlife habitat for species that use riparian habitat for nesting, denning or food gathering however there would be possibilities for mobile species to utilize nearby riparian habitat. The destruction of riparian habitat would be a major impact to riparian species in the project area that are not mobile.

c. Alternative Actions to Reduce or Eliminate Impacts

- ***Limestone salamander***
  - Caltrans would adopt mitigation measures to protect the limestone salamander as follows:
    - A construction work window that prevents initial ground-disturbing construction activities from occurring on the southern slope during the salamander's active season of November through March, inclusive (Assembly Bill 1973).
    - Environmentally sensitive area fencing in the form of five-foot orange plastic mesh, as well as salamander protection exclusionary fencing in the form of 24-inch sheet metal, will be erected if construction-related activities will occur adjacent to limestone salamander habitat during their active season (Assembly Bill 1973).
    - A biological monitor will be onsite during active building to inspect the worksite and all exclusionary fencing (Assembly Bill 1973).
    - All ground-disturbing activities within 100 feet will cease if a limestone salamander is detected in an active construction site until the animal can be safely removed from the area according to an agreed-upon salvage plan (Assembly Bill 1973).

- Rock material generated by project activities would be transported approximately 20 miles from the project site (Caltrans).
- Enhancement opportunities include providing de interpretative signing at turnouts in the vicinity of the Ferguson Slide that describe the Limestone salamander (U.S. Forest Service).

- ***Important Riparian Vegetation:***
  - Minimize effects to the existing riparian vegetation (e.g. trim back riparian trees and shrubs rather than uproot or cut them to the base).
  - Implement an aggressive re-vegetation plan for the riparian corridor.
  - Use of locally native seeds and cuttings gathered from the site several years prior to implementation would mitigate the damage over time.

d. Conclusion

There is potential for direct mortality to limestone salamander from project related nocturnal use of staging areas along the closed segment of Highway 140 on the south side of the Merced River during the winter, and to salamanders that may attempt to cross Highway 140 at night during project operations. Considering that ground disturbing actions occur in unsuitable habitat; the mitigation measures adopted; and that locations of the known occupied sites near the Ferguson Slide would be unaffected, the wildlife ORV would not be adversely affected.

Construction activities would destroy riparian vegetation over the short-term. However, damage would be mitigated to limit effects and the values that would be affected are not unique to this section of the river. Neither the riparian vegetation nor the riparian vegetation dependent wildlife would be adversely affected once mitigation has been implemented.

Botany Outstandingly Remarkable Value

a. Short-Term Effects

- ***Clarkia lingulata***
  - Since this rare plant is 0.4 miles on either side of the project area and not within the project area, there would be no effect on the Botanical ORV for Alternative C.

b. Long-Term Effects

- ***Clarkia lingulata***
  - Since this rare plant is 0.4 miles on either side of the project area and not within the project area there would be no effect on the Botanical ORV for Alternative C.

c. Alternative Actions to Reduce or Eliminate Impacts

No alternative actions are required.

d. Conclusion

There are no effects to the Botany ORV, specifically none to the Clarkia lingulata, because it is not found in the Alternative C project area.

Cultural and Historical Landscape Outstandingly Remarkable Value

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - There are no short-term effects.
- ***Ethnographic Landscape***
  - The construction of the trestle for the downstream bridge would have a short-term effect on the integrity of setting for the ethnographic resource Üzümati. The trestle and falseworks would block the view of the bear effigy from the vicinity of the downstream bridge and the ethnographic bathtub. This impact should not be permanent and would last until the temporary bridge was removed.

b. Long-term Effects:

- ***Historic Vernacular Landscape***
  - The alignment and construction of Alternative C would impact the historic vernacular landscape of the MRCL by altering the integrity of design and materials of Highway 140, the Yosemite Valley Railroad, and the Jenkins Hill Trail, as well as destroy a series of historic bridge footings and a historic foundation and debris.
  - Construction activities would alter the historic design and materials of Highway 140 by rerouting an approximately 4000-foot section of the highway across the river and installing two new bridges. The construction of access roads would further impact the integrity of materials of Highway 140 by digging through and below the old highway.
  - Similarly, approximately 600 feet of the existing grade of the Yosemite Valley Railroad would be destroyed by the construction of the two bridges and associated terraces, falseworks and trestles, and access roads.
  - Further impacts to its historic design and material would occur by constructing the third temporary bridge and the need to upgrade an additional 1000 feet of the existing historic grade to serve as a temporary one-lane road.
  - The historic design and materials of the Jenkins Hill Trail would be impacted by the construction of the downstream bridge and the cut slope and terrace feature. Approximately 800 feet of the trail would be destroyed.
  - Downstream bridge construction with its associated 100-foot wide flat-gravel fill surface and access roads would destroy a series of historic bridge footings, which lie directly in the path of construction.

- Access road construction on the south side of the river for the upstream bridge, and construction of the third temporary bridge, would destroy historic period foundation and debris scatter.

- ***Ethnographic Landscape***

  - The alignment and construction of Alternative C would impact the ethnographic landscape of the MRCL by altering the integrity of setting and feeling of the traditional cultural property Üzümati, removing many of the ethnographic plant resources, preventing ritualistic use of the ethnographic "bathtub" by destroying the feature, and destroying the integrity of design and materials of the bedrock milling features.
  - Downstream bridge construction with its associated 100-foot wide flat-gravel fill surface and access roads would destroy prehistoric bedrock milling features, which lie directly in the path of construction.
  - Construction of the third temporary bridge would destroy a bedrock milling feature.
  - The extent of the construction activities associated with the upstream bridge on the north side of the river would include a 100-foot wide flat-gravel fill surface to support trestles and falseworks, as well as access road construction that would require that the area be cleared of rocks and graded sufficiently to allow equipment to work safely. These activities would destroy the ethnographic bathtub.
  - Construction activities associated with Alternative C would remove ethnographic plant resources form the project area. The cut slope and terraces across the toe of the ridge on the north side of the river would have the greatest impact.

c. Alternative Actions to Reduce or Eliminate Impacts:

In determining appropriate mitigation, it is important to remember two things. First, what is the inherent value of the resource, and second, how will the public best be served. Many of the features do not possess the ability to provide additional scientific information; however, they have an intrinsic value for public education and recreational enhancement, as well as cultural and religious connotation for the Southern Sierra Miwuk Nation. Additionally, it is important to remember that this portion of the Merced WSR was set aside for its recreational values, not its scenic or wild characteristics. Thus, special attention was given to how best to enhance the recreational experience for the public within the Merced WSR, and maintain the traditional cultural and religious use of the area by the Southern Sierra Miwuk Nation. Therefore, with the aforementioned criteria for guidance, the following mitigation measures were developed:

- Yosemite Valley Railroad Grade - Reconstruct damaged and washed-out portions of the grade to return it to near historic condition. Establish trail for hiking, biking, and equestrian enjoyment. Provide funding to construct interpretive signs to interpret history of the railroad for the public. Provide funding to inventory the grade and identify its character defining features within the main stem of the Merced Wild and Scenic River.

- Highway 140 - Design bridges, tunnels, or rockshed to maintain the historic character of the original highway and complement the historic vernacular landscape. Use complimentary materials and designs that would meet the Secretary of the Interiors Standards. Provide funding to inventory the highway corridor and identify its character defining features within the main stem of the Merced WSR
- The Jenkins Hill Trail - Provide funding to reconstruct damaged and washed-out portions of the trail to return it to near historic condition. Establish trail for hiking. Construct interpretive signs to interpret history of the trail for the public. Provide funding to inventory the trail within the Merced WSR.
- Ethnographic bear effigy, *Üzümati*, Traditional Cultural Property (TCP) - Redesign bridges to be lower and less visually intrusive. Provide funding to document, record, evaluate, and nominate the TCP to the National Register of Historic Places (NRHP).
- Ethnographic "bathtub" - Try to avoid the site. Have a Native American monitor present during construction.
- Prehistoric bedrock milling feature (CA-MRP-1566) - Avoid the site if possible. Have archaeologist and Native American monitor present during construction. Provide funding for interpretive signs to explain Native American use of the area and the bedrock milling feature.
- Ethnographic plant resources - Provide funding to replant affected species in the canyon. Provide funding for interpretive signs that explain Native American use of plant resources.

d. Conclusion

The construction of Alternative C would have an adverse effect on the MRCL by damaging or destroying ten of the identified eleven remaining elements. Additionally, more information is required for the newly discovered bedrock milling feature (FS# 05-16-54-0216), as well as, testing in the vicinity of site to demonstrate subsurface potential. It is important to remember that in order to maintain the historic function of the Highway 140 transportation corridor as a living system, adverse effects to its material and design will occur; however, these adverse effects to the historic fabric are superseded by the need to maintain the historic function of the highway. Following the recommended mitigation measures would allow for the historic function of Highway 140 transportation corridor to continue while limiting the impacts to the cultural landscape.

WSRs Act Section 7(a) Evaluation for Alternative T (*Tunnel Realignment*)

Free Flow

a. Short-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative C
- ***Alteration of Upland Conditions***
  - The effects are the same as Alternative C except that this alternative would not disrupt any of the surface drainage features along the alignment, but may intercept groundwater. Groundwater seepage would be addressed in the Caltrans Statewide SWMP plan.
- ***Alteration of Hydrological Processes***
  - Same as Alternative C
- ***Magnitude and Extent of Off-Site Change***
  - Same as Alternative C

b. Long-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative C
- ***Alteration of Upland Conditions***
  - Same as Alternative C
- ***Alteration of Hydrological Processes***
  - Same as Alternative C
- ***Magnitude and Extent of Off-Site Changes***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Water Quality

a. Short-term Effects

- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Recreation Outstandingly Remarkable Value

a. Short-term Effects

- ***Whitewater Rafting***
  - Same as Alternative C
- ***Hiking***
  - Same as Alternative C

b. Long-term Effects

- ***Whitewater Rafting***
  - Same as Alternative C
- ***Hiking***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Geology Outstandingly Remarkable Value

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion

- Same as Alternative C

Wildlife Outstandingly Remarkable Value

a. Short-term Effects

- ***Limestone salamander***
  - Same as Alternative C
- ***Important Riparian Vegetation***
  - Same as Alternative C

b. Long-term Effects

- ***Limestone salamander***
  - Same as Alternative C
- ***Important Riparian Vegetation***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Botany Outstanding Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

The effects are the same as Alternative C with the exception that the Jenkins Hill Trial will not be impacted.

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - Same as Alternative C
- ***Ethnographic Landscape***
  - Same as Alternative C

b. Long-term Effects

- ***Historic Vernacular Landscape***
  - Same as Alternative C with the exception that the Jenkins Hill Trail will not be impacted
- ***Ethnographic Landscape***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

WILD AND SCENIC RIVERS ACT SECTION 7(A) EVALUATION FOR ALTERNATIVE T-3 (*TUNNEL UNDER SLIDE REALIGNMENT*)

Free Flow

a. Short-Term Effects

- ***Alteration of Riparian and/or Floodplain***
  - Same as Alternative C.
- ***Alteration of Upland Conditions***
  - The effects are the same as C except that temporary access roads would not be constructed up from Incline Road to accommodate the falsework and formwork necessary for the abutments, retaining walls, superstructure and or tunnel portals. Therefore, the effects caused by these access roads would not occur under this alternative.
- ***Alteration of Hydrological Processes***
  - There is one first-order ephemeral channel that may be truncated by temporary road and work area construction on the south side of the river (south of the rockslide). There are two second-order ephemeral channels that may be truncated by the temporary road and work area.
- ***Magnitude and Extent of Off-Site***
  - The potential for short-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is not expected. Storm water runoff from temporary roads or staging areas may contribute to a short-term increase in turbidity and the introduction of petroleum distillates.

b. Long-Term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - If a volumetrically significant amount of talus slides onto the bankfull bench/flood prone area due to construction activities, then changes to floodplain hydrologic function could occur. Changes could include modification of floodplain roughness and potentially (based on the percentage of fines) decrease infiltration capacity due to a change in vertical hydrologic conductivity.
- ***Alteration of Upland Conditions***
  - If talus materials slide into the bankfull bench/flood prone area, the bed and bank morphology may be changed sufficiently to alter the flow velocities and shear stress in that location. This change would be proportional to the additional slide material.
- ***Alteration of Hydrological Processes***
  - Impacts to the hydrological function of the Merced River from these upland disturbances are considered negligible.

- Magnitude and Extent of Off-Site Changes
  - A significant change to the timing of flow for the Merced River from the construction activities for is not expected.

c. Alternative Actions to Reduce or Eliminate Impacts

No alternative actions are required.

d. Conclusion

Ephemeral runoff from these channels would be accommodated by proper culvert sizing and placement defined under the Caltrans road construction BMP's. Mitigation for storm water runoff is addressed in the Caltrans Statewide SWMP. The SWMP addresses impacts on water quality standards from erosion, discharges of hazardous materials and disruption of natural drainage patterns in the planning, design and construction phases of the project.

Water Quality

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Recreation Outstandingly Remarkable Value

a. Short-term Effects

- ***Whitewater Rafting***
  - There are no known short-term effects as the boring under the base of the slide into the hillside would not require any jetties or falsework in the river bed. All construction is based on the existing closed State Route 140. It is not known if rocks will fall into the river during construction which would impact rafting safety if it was to occur. It is unknown how many years it will take for the boring to take. If rafter safety is jeopardized rafting would be curtailed.
- ***Hiking***
  - Same as Alternative C

b. Long-term Effects

- ***Whitewater Rafting***
  - There are minimal long-term effects. The most noticeable change would be the view of the tunnel portals, especially the eastern portal because the flow of the river and the bend near the portal location. The portals are not expected to have a substantial impact to river user's visual experience.

- ***Hiking***
  - There are minimal long-term effects. The most noticeable change is the view of the tunnel portals; however the portals are located on the other side of the river and therefore will not majorly impact the visual landscape.

c. Alternative Actions to Reduce or Eliminate Impacts

Use vegetation to soften the cut slopes and or retaining walls.

d. Conclusion

The tunnel alternative would have short-term negative effects to trail users and whitewater rafters. Trail users would be displaced from using the existing railroad grade (Merced River Canyon Trail). Trail user's recreational experience would not be protected or enhanced in the short-term. Whitewater rafting opportunities may not be protected or enhanced in the short-term with the potential of rocks falling during construction of the tunnel. If the river is closed to whitewater rafting, there would be impacts to the six commercial rafting businesses, as well as tourism in Mariposa County. In the short-term, there are major effects to the Recreation ORV

The alternative would not have long-term negative effects to visitors to the Merced River Canyon Trail and whitewater rafters. There are no bridge spans or vehicle noise along the trail. There are no cut slopes or massive retaining walls as in the other alternatives that could affect the visual experience. One portal would be noticeable to the river rafters however the structure is across the river from the trail visitors which minimizes the visual impact. There are no long-term effects to the Recreation ORV.

Geology Outstandingly Remarkable Value

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion

- Same as Alternative C

Wildlife Outstandingly Remarkable Value

a. Short-Term Effects:

- ***Limestone salamander:***
  - Highway construction represents a threat to limestone salamander and its habitat. Direct effects or mortality to salamanders may occur during road construction (inadvertent burial or death from blasting), or from contact with equipment. Surface ground disturbance may also disrupt the network of fissures among the rock utilized by limestone salamanders for both surface and subsurface movements. Interdependent actions would also occur on areas of suitable limestone salamander habitat. Temporary access roads and retaining walls would be necessary as part of tunnel construction. Staging areas may be expanded into upland slopes, which are also suitable habitat. Mortality of individuals is likely.
- ***Important Riparian Vegetation:***
  - Same as for Alternative C.

b. Long-Term Effects

- ***Limestone salamander***
  - Construction activities would represent a loss of salamander habitat. Staging areas may need to be expanded into upland slopes, which are also suitable habitat. Long-term indirect effects of habitat fragmentation may also result from habitat isolation.
- ***Important Riparian Vegetation***
  - Direct effects or mortality to salamanders may occur during road construction (inadvertent burial or death from blasting), or from contact with equipment. Mortality of individuals is likely in the short term and there is not enough information provided to evaluate the effects to viability in the project area.

c. Alternative Actions

- ***Limestone salamander***
  - Since limestone salamander habitat and the species would be directly affected, species conservation could be enhanced by purchasing property adjacent to the Limestone Salamander Ecological Reserve to expand the size of the reserve. Other alternative effects would be similar to those described under Alternative C. A limited ground-disturbing construction work window covering most of the period of surface activity, the installation of environmental fencing, and the use of biological monitors may reduce these potential effects. Rock material generated by the alternative would be transported approximately 20 miles, which would be outside the distributional range of limestone salamander. Enhancement opportunities

include providing interpretative signing at turnouts in the vicinity of the Ferguson Slide that describe the wildlife ORV - limestone salamander.

- ***Important Riparian Vegetation***
  - Same as Alternative C.

d. Conclusion

Ground disturbing actions would occur on suitable habitat for limestone salamander. Two known occupied sites are within the assumed species maximum dispersal distance from project actions. Suitable habitat would be directly altered and rendered unsuitable, and individual limestone salamander would be directly affected (take). The limestone salamander component of the wildlife ORV would be adversely affected.

There should be no effects to riparian vegetation anticipated. The wildlife riparian vegetation component of the Wildlife ORV would not be adversely affected by the alternative.

Botany Outstandingly Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

a. Short-Term Effects

- ***Historic Vernacular Landscape***
  - Construction of Alternative T-3 would have no short-term effects on the ORVs of the MRCL because the only effect of this alternative would be permanent in nature.

- ***Ethnographic Landscape***
  - Construction of Alternative T-3 would have no short-term effects on the ORVs of the MRCL because the only effect of this alternative would be permanent in nature.

b. Long Term Effects

- ***Historic Vernacular Landscape***
  - Construction of Alternative T-3 would have a minimal long-term effect on the integrity of design and materials of Highway 140 by the introduction of the new tunnel feature into the historic corridor of the highway. Construction of the tunnel would alter the historic design by rerouting the corridor through a tunnel on the south side of the river for approximately 3600 feet.

    While this alteration would constitute an adverse effect to the historic design and materials of the highway, the adverse effect to the historic design is counterbalanced by the maintenance of the historic function of the transportation system.

- ***Ethnographic Landscape***
  - This alternative will not affect the Ethnographic Landscape.

c. Alternative Actions to Reduce or Eliminate Impacts

Since there are minimal effects, no alternative actions are required; however, the historic design and materials of the highway corridor would be achieved by using construction methods that are sympathetic to the historic character of the highway and the surrounding cultural landscape. This could be achieved using a couple of methods. One example would be to leave the tunnel opening unfinished like the Wawona Tunnel on Wawona Road (aka. Hwy. 41) in Yosemite National Park. Another example would be to face the tunnel entrance with rock, matching the existing rock work on the historic bridges that are character defining features of the historic highway corridor.

d. **Conclusion**

Since Highway 140, as a transportation corridor, represents a living system, the impact to the historic fabric would be reduced by the continuation of the historic function of the transportation system.

WSRs Act Section 7(a) Evaluation for Alternative S *(Viaduct Realignment)*

Free Flow

a. Short -Term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative C.
- ***Alteration of Upland Conditions***
  - Impacts to the hydrological function of the Merced River from these upland disturbances are considered negligible. The effects are the same as Alternative C except that temporary access roads would not be constructed up from Incline Road to accommodate the falsework and formwork necessary for the abutments, retaining walls, superstructure and or tunnel portals. Additionally an access road would be constructed up from Incline Road on the northwest side of the ridge and travel southeast along the extent of the alignment, reconnecting with Incline Road on the southeast side. This temporary road would be approximately 0.2 miles long and is required for the construction of the abutments, viaduct and terrace.
- ***Alteration of Hydrological Processes***
  - Disturbances would occur well above the 100-year floodplain elevation and thus impacts to the free-flowing condition or water quality of the Merced River from these upland disturbances are considered negligible. The potential for debris to accumulate or "raft" along the trestles, falsework, and flat-gravel-filled surfaces increases, during high flow events (e.g., 50 to 100-year floods) and/or after uncharacteristic wildfire within the watershed. Although construction activities are designed to avoid high flow periods, if a wildfire should occur upstream in the watershed during construction; rafting potential for debris would be extremely high. Rafting debris along falsework, trestles and/or flat-gravel-fill surfaces could pose serious safety concern for whitewater recreation or potentially result in catastrophic structural failure of these construction elements during an extreme flood event.
- ***Magnitude and Extent of Off-Site Changes***
  - The potential for short-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is considered low

b. Long-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Although Alternative S calls for in-stream support columns, the viaduct alignment would be well out of the 100-year floodplain. As such, no significant impacts to the floodplain features such as width, roughness, or susceptibility to erosion is expected.

- ***Alteration of Upland Conditions***
  - Project activities under Alternative S would require a viaduct to be constructed, which would include a 10-foot cut slope and retaining wall along the slope opposite the rock slide. This construction may truncate two first-order ephemeral drainages and could intercept groundwater percolating down from recharge areas on the ridge tops. Impacts to the hydrological function of the Merced River from these upland disturbances are considered negligible. Ephemeral surface runoff would be addressed in the Caltrans Statewide SWMP plan.

- ***Alteration of Hydrological Processes***
  - During high flow events (e.g., 100-year return floods) and/or after catastrophic wildfire there is the potential for debris to accumulate or "raft" along bridge columns or along the bridge if the flow is high enough. Since Alternative S proposes placement of columns in the active river channel, rafting potential for this alternative is high. This is could be a particular concern on the upstream bridge along the left bank column (as seen looking downstream). Rafting of debris at bridge columns could pose a serious safety concern for whitewater recreation by creating entrapments for swimmers, kayakers, or rafts.

    Mean peak flow discharge through the project reach has been estimated to be approximately 5000 cubic feet per second (cfs), with bankfull discharge calculated at 8,800 cfs, and potential high peak flow of approximately 49,000 cfs (for a more detailed discussion of stream flow, see hydrology report). Although in situ channel scour and alteration of bed features is expected at high flows, a significant change to the timing or flow of the Merced River from Alternative S is not expected. Moreover, major changes to flow pattern, subsurface flow characteristics, and floodplain detention storage potential are unlikely.

- ***Magnitude and Extent of Off-Site Changes***
  - Under high-flow conditions, changes in velocity and hence sediment mobility are predicted for both the upstream and downstream bridge segments. The model suggests constriction of flow along the river-left bridge column on the downstream bridge that may affect the bed and banks adjacent to Route 140. Changes to pool morphology and erosion of channel bars are also predicted. There is a potential to permanently change the nature of the river through the project reach, although the most pronounced changes would occur at the upstream bridge during high flow conditions. Major changes in channel geometry (e.g., sinuosity and width-to-depth) are not expected.

c. Alternative Actions to Reduce or Eliminate Impacts

All actions to comply with BMPs would be address in the storm water runoff from the temporary roads, ephemeral surface runoff and groundwater seepage would be addressed in the Caltrans Statewide SWMP plan.

d. Conclusion

Project activities are not expected to have short or long-term effects to upland conditions because impacts to the hydrological functions of the Merced River from upland disturbances are considered negligible. Changes to pool morphology and erosion of channel bars are also predicted. Long-term effects to subsurface flow characteristics and floodplain detention storage potential are not expected.

Water Quality

a. Short-term Effects

- Same as Alternative C

b. Long-term Effects

- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Recreation Outstandingly Remarkable Values

a. Short-term Effects

- ***Whitewater Rafting***
  - Same as Alternative C
- ***Hiking***
  - Same as Alternative C

b. Long-term Effects

- ***Whitewater Rafting***
  - Same as Alternative C
- ***Hiking***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Geology Outstandingly Remarkable Value

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Wildlife Outstandingly Remarkable Value

a. Short-term Effects

- ***Limestone salamander***
  - Same as Alternative C
- ***Important Riparian Vegetation***
  - Same as Alternative C

b. Long-term Effects

- ***Limestone salamander***
  - Same as Alternative C
- ***Important Riparian Vegetation***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Botany Outstandingly Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
  - Same as Alternative C

d. Conclusion
  - Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - There are no short-term effects

- ***Ethnographic Landscape***
  - The construction of the trestle for the downstream bridge would have a short-term effect on the integrity of setting for the ethnographic resource *Üzümati*. The trestle and falseworks will block the view of the bear effigy from the vicinity of the downstream bridge and the ethnographic bathtub. This impact should not be permanent.

b. Long-term Effects

Although the alignment and construction activities for Alternative S differ somewhat from Alternatives C and T, the long-term effects to cultural resources are essentially the same as under those alternatives with the exception that the Jenkins Hill Trail would not be impacted.

- ***Historic Vernacular Landscape***
  - The alignment and construction of Alternatives S would impact the historic vernacular landscape of the MRCL by altering the integrity of design, and materials of Highway 140, the Yosemite Valley Railroad, as well as destroy a series of historic bridge footings and a historic foundation and debris.
  - Construction activities would alter the historic design and materials of Highway 140 by rerouting an approximately 2700-foot section of the highway across the river and installing two new bridges. The construction of a viaduct and retaining wall and numerous access roads will further impact the integrity of materials of Highway 140 by cutting down from the old highway.
  - Similarly, approximately 800 feet of the existing grade of the Yosemite Valley Railroad would be destroyed by the construction of the two bridges and associated terraces, falseworks and trestles, and access roads. Further impacts to its historic design and material will occur by the construction of the third temporary bridge and the need to upgrade an additional 1000 feet of the existing historic grade to serve as a temporary one-lane road.

- Downstream bridge construction with its associated 100-foot wide flat-gravel fill surface and access roads would destroy a series of historic bridge footings, which lie directly in the path of construction.
- Access road construction on the south side of the river for the upstream bridge, and construction of the third temporary bridge, would destroy a historic foundation and debris.

- ***Ethnographic Landscape***
  - The alignment and construction of Alternatives S would impact the ethnographic landscape of the MRCL by altering the integrity of setting, and feeling of the traditional cultural property *Üzümati*, removing many of the ethnographic plant resources, preventing ritualistic use of the ethnographic "bathtub" by destroying the feature, and destroying the integrity of design and materials of bedrock milling features.
  - Downstream bridge construction with its associated 100-foot wide flat-gravel fill surface and access roads would destroy prehistoric bedrock milling features, which lie directly in the path of construction.
  - Construction of the third temporary bridge will destroy another bedrock milling feature.
  - The extent of the construction activities associated with the upstream bridge on the north side of the river will include a 100-foot wide flat-gravel fill surface to support trestles and falseworks, as well as access road construction that will require that the area be cleared of rocks and graded sufficiently to allow equipment to work safely. These activities would destroy the ethnographic bathtub.
  - Construction activities associated with Alternative S would remove ethnographic plant resources form the project area.

c. Alternative Actions to Reduce or Eliminate Impacts:

- Same as Alternative C.

d. Conclusion:

- Same as Alternative C.

WSRs Act Section 7(a) Evaluation for Alternatives S2-V1 (Modified Viaduct Realignment – 2 Tiered-arch Bridges)

Free Flow

a. Short -Term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative C.
- ***Alteration of Upland Conditions***
  - Same as Alternative S.
- ***Alteration of Hydrological Processes***
  - Same as Alternative S.
- ***Magnitude and Extent of Off-Site Changes***
  - Same as Alternative S except that this alternative uses the falsework construction method, construction elements that may be in channel for up to 12 months. The potential for short-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is considered low.

b. Long-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative S.
- ***Alteration of Upland Conditions***
  - Same as Alternative S.
- ***Alteration of Hydrological Processes***
  - Same as Alternative S.
- ***Magnitude and Extent of Off-Site Changes***
  - Same as Alternative S.

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as for Alternate S

d. Conclusion

- Same as for Alternate S

Water Quality

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Recreation Outstandingly Remarkable Value

a. Short-term Effects:

- ***Whitewater Rafting***
  - Same as Alternative C.
- ***Hiking***
  - The current one-lane detour along existing Yosemite Valley Railroad grade (Incline Road) would be extended an additional 393 feet and a third temporary bridge would be constructed upstream for Alternative S2-V1. The remaining effects are the same as Alternative C.

b. Long-term Effects:

- ***Whitewater Rafting***
  - Whitewater rafters would be affected negatively by having two bridges spanning the river with the presence of a wall and the viaduct. Noise from vehicular traffic overhead, visual impairment from the bridges, and bank stabilization features detract from the overall whitewater rafting experience. Constructed features such as the V-bent supports, will also have impacts to the visitor experience as well as potentially posing as safety hazards during high water events. In addition, there would be a supporting retaining wall on the hill directly across from the rockslide and a 10-foot-wide terrace on either side of the state route which impact the visual experience of rafters.
- ***Hiking***
  - The alternative would impact the use of the Merced River Canyon Trail as the spans and supports impact use of the trail. The alternative would remove the pavement on the Yosemite Valley Railroad grade returning it to a more natural condition; however, the grade was widened to accommodate the width of large trucks, buses, and motorhomes traveling to or from Yosemite. Visually, the terrain would appear

very different to the hiker, equestrian or mountain biker. "The most notable visual difference would be (a) where the new bridges cross over the trail and (b) the viaduct portion of the roadway with its retaining wall paralleling Incline Road. "… The retaining wall would be prominent to the trail users …" (Visual Impact Analysis, Caltrans, 2009). Since the trail would continue to be able to be used, there are no major impacts to hiking, assuming that the trail is restored.

c. Alternative Actions to Reduce or Eliminate Impacts

During rafting season construction times would be adjusted and may be curtailed to minimize impacts on rafting.

For hiking, the alternative actions would be the same as Alternative C.

d. Conclusion

This alternative would have an adverse effect to the Recreation ORV. Placing portions of the bridge abutments in the river or below the high water mark could cause a hazardous condition and may impede river navigability. Even though the alternative description states the V-bents and the abutments are above high water level, the base of the V-bents and abutments are located in such a manner that it could be hazardous to rafters especially during high water events. Further determination of the placement of the V-bents and their impacts to rafters is needed.

For hiking, the effects conclusion is the same as Alternative C.

Geology Outstandingly Remarkable Value

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Wildlife Outstandingly Remarkable Value

a. Short-Term Effects:

- ***Limestone salamander***

- Temporary access roads would be necessary to complete tie-off structures within potential habitat. Salamanders would be directly affected if the subsurface network of crevices in which they reside or travel were disturbed.

- ***Important Riparian Vegetation***
  - Same as for Alternative C.

b. Long-Term Effects:

- ***Limestone salamander***
  - Access roads for construction of two cable support towers and five tie-off features for the bridge would affect potential habitat. These represent temporary features, but habitat recovery and occupancy would not occur within the short-term due the limited dispersal capabilities of limestone salamander and the time needed for disturbed areas to recover.

- ***Important Riparian Vegetation***
  - Same as for Alternative C.

c. Alternative Actions to Reduce or Eliminate Impacts:

- ***Limestone salamander***
  - Since limestone salamander habitat and the species would be directly affected, species conservation could be enhanced by purchasing property adjacent to the Limestone Salamander Ecological Reserve to expand the size of the reserve. Other alternative actions would be similar to those described under Alternative C and would require a limited ground-disturbing construction work window covering most of the period of surface activity, the installation of environmental fencing, and the use of biological monitors may reduce these potential effects. Rock material generated by the alternative would be transported beyond the distributional range of the species. Enhancement opportunities include providing interpretative signing at turnouts in the vicinity of the Ferguson Slide that describe the limestone salamander.

- ***Important Riparian Vegetation***
  - Same as Alternative C.

d. Conclusion
  - Same as Alternative C.

Botany Outstandingly Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - Although the alignment and construction activities for Alternative S2-V1 differ somewhat from Alternative S, the short-term effects to cultural resources are essentially the same.
- ***Ethnographic Landscape***
  - Although the alignment and construction activities for Alternative S2-V1 differ somewhat from Alternative S, the short-term effects to cultural resources are essentially the same.

b. Long-term Effects

Although the alignment and construction activities for Alternative S2-V2 differ somewhat from Alternatives C and T, the long-term effects to cultural resources are essentially the same as under those alternatives with the exception that the Jenkins Hill Trail would not be impacted.

- ***Historic Vernacular Landscape***
  - Long-term effects are essentially the same as Alternative C, T and S.
- ***Ethnographic Landscape***
  - Long-term effects to the MRCL are essentially the same as Alternative C, T and S, with the exception that construction of the downstream bridge would affect the integrity of setting and feeling of the traditional cultural property *Üzümati.*

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

WSRs Act Section 7(a) Evaluation for Alternative S2-V2 (Modified Viaduct Realignment – Slant-leg V Column Bridges)

Free Flow

a. Short -Term Effects

The effects are the same as Alternative S however northwest aligned temporary road disturbances would occur well above the 100-year floodplain elevation and thus impacts to the free-flowing condition of the Merced River from these upland disturbances are considered negligible.

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative C.
- ***Alteration of Upland Conditions***
  - Same as Alternative C.
- ***Alteration of Hydrological Processes***
  - Same as Alternative C.
- ***Magnitude and Extent of Off-Site Changes***
  - Same as Alternative C however the foundations would be constructed above the bankfull elevation, and should not be exposed to spring peak flows.

b. Long-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - Same as Alternative S.
- ***Alteration of Upland Conditions***
  - Same as Alternative S.
- ***Alteration of Hydrological Processes***
  - Same as Alternative S.
- ***Magnitude and Extent of Off-Site Changes***
  - Same as Alternative S.

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative S.

d. Conclusion

- Project activities are not expected to have short or long-term effects to upland conditions because impacts to the hydrological functions of the Merced River from upland disturbances Same as Alternative S.

Water Quality

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Recreation Outstandingly Remarkable Value

a. Short-term Effects:

- ***Whitewater Rafting***
  - Same as for Alternative S2-V1.
- ***Hiking***
  - Same as for Alternative S2-V1.

b. Long-term Effects:

- ***Whitewater Rafting***
  - Same as for Alternative S2-V1.
- ***Hiking***
  - Same as for Alternative S2-V1.

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as for Alternative S2-V1.

d. Conclusion
- Same as for Alternative S2-V1.

Geology Outstandingly Remarkable Value

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Wildlife Outstandingly Remarkable Value

a. Short-Term Effects:

- ***Limestone salamander***
  - Same as for Alternative S2-V1.
- ***Important Riparian Vegetation***
  - Same as for Alternative C.

b. Long-Term Effects:

- ***Limestone salamander***
  - Same as for Alternative C S2-V1.
- ***Important Riparian Vegetation***
  - Same as for Alternative C.

d. Alternative Actions to Reduce or Eliminate Impacts:

- ***Limestone salamander***
  - Same as Alternative S2-V1.
- ***Important Riparian Vegetation***
  - Same as for Alternative C.

e. Conclusion

- Same as for Alternative C.

Botany Outstandingly Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***

- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - Although the alignment and construction activities for Alternative S2-V2 differ somewhat from Alternative S2-V1, the short-term effects to cultural resources are essentially the same with the exception that the site of the historic foundation with debris feature would not be impacted.
- ***Ethnographic Landscape***
  - Although the alignment and construction activities for Alternative S2-V2 differ somewhat from Alternative S2-V1, the short-term effects to cultural resources are essentially the same with the exception that the prehistoric bedrock milling feature would not be impacted.

b. Long-term Effects

- ***Historic Vernacular Landscape***
  - Long-term effects to the MRCL are essentially the same as Alternative C, T and S, with the exception that the historic foundation with debris would not be impacted.
- ***Ethnographic Landscape***
  - Long-term effects to the MRCL are essentially the same as Alternative C, T and S, with the exception that construction of the downstream bridge would affect the integrity of setting and feeling of the traditional cultural property *Üzümati.* The historic foundation with debris and a prehistoric bedrock milling feature would not be impacted.

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as for Alternative C

d. Conclusion

- Same as for Alternative C

WSRs Act Section 7(a) Evaluation for Alternatives R *(Rockshed/Tunnel)*

Free Flow

a. Short-term Effect

- ***Alteration of Riparian and/or Floodplain Conditions***
  - No significant impacts to the floodplain features such as width, roughness, or susceptibility to erosion are expected. However, this alternative has the likelihood of remobilizing the rock fall talus during construction.
- ***Alteration of Upland Conditions***
  - Changes to flow velocity, shear stress, or bed and bank features are considered negligible. If, however, a volumetrically significant amount of talus is remobilized during construction, it could slide onto the bankfull bench and/or into the actively flowing part of the river.
- ***Alteration of Hydrological Processes***
  - There is one first-order ephemeral channel that may be truncated by temporary road and work area construction; on the south side of the river (south of the rockslide) there are two second-order ephemeral channels that may be truncated by the temporary road and work area.
- ***Magnitude and Extent of Off-Site Changes***
  - The potential for short-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is not expected.

b. Long-term Effects

- ***Alteration of Riparian and/or Floodplain Conditions***
  - If a volumetrically significant amount of talus slides onto the bankfull bench/flood prone area, then changes to floodplain hydrologic function could occur. Changes could include modification of floodplain roughness and potentially (based on the percentage of fines) decrease infiltration capacity due to a change in vertical hydrologic conductivity.
- ***Alteration of Upland Conditions***
  - If talus material slides into the bankfull, the bed and bank morphology may change sufficiently to alter the flow velocities and shear stress in that location.
- ***Alteration of Hydrological Processes***

- Impacts to the hydrological function of the Merced River from these upland disturbances are considered negligible. A significant change to the timing of flow for the Merced River from the construction activities

- ***Magnitude and Extent of off-site changes***
  - More information on the construction methodologies implemented is necessary to determine the magnitude and effects of off-site changes.

c. Alternative Actions to Reduce or Eliminate Impacts

Storm water runoff from temporary roads or staging areas may contribute to a short-term increase in turbidity and the introduction of petroleum distillates. Ephemeral runoff from these channels would be accommodated by proper culvert sizing and placement defined under the Caltrans road construction BMPs. This runoff would be addressed in the Caltrans SWMP plan. The SWMP addresses impacts on water quality standards from erosion, discharges of hazardous materials and disruption of natural drainage patterns in the planning, design and construction phases of the project.

d. Conclusion

Since construction activities would occur well out of the active bankfull channel, there would be no major effects to the free-flowing condition of the Merced River. Assuming that the construction activities do not remobilize a volumetrically significant amount of talus, then no major impact to the free-flowing condition is expected. If, however, there is a volumetrically significant amount of talus remobilized onto the bankfull bench and/or in the actively flowing river channel, then this action would result in a direct effect to the overall free flow if the WSR.

Water Quality

a. Short-term Effects
- Same as Alternative C

b. Long-term Effects
- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
- Same as Alternative C

d. Conclusion
- Same as Alternative C

Recreation Outstandingly Remarkable Value

a. Short-term Effects:

- ***Whitewater Rafting***
  - The falsework would be located up against the Ferguson Slide talus and would not span the river. There would be potential for unimpeded river rafting during construction. However, there is expectation the slide may be active during construction and there would be a need to prevent the talus from falling into the river and on rafters. The information provided does not show whether the talus would go over the construction in to the river, or be held up above the construction project and therefore for this analysis the most impacts must be assumed. It is therefore assumed that rafting would be unsafe for whitewater rafting during construction of the rock shed.

- ***Hiking***
  - Same as for Alternative C

b. Long-term Effect:

- ***Whitewater Rafting***
  - Alternative R allows for whitewater rafters opportunity to raft under similar conditions as those occurring at the time of designation. However, at the turn in the river it would allow the rafters a clear and unobstructed view of the side wall of the rock shed, which would have a large visual presence along the edge of the river.

- ***Hiking***
  - The Merced River Canyon Trail would be usable. This alternative would allow use of the trail without any overhead structures or abutments in the river area. Visitors to the Trail would be exposed to the downhill wall of the rock shed along the river would be very noticeable in the visual landscape. Visually, the terrain would appear very different to the hiker, equestrian or mountain biker.

c. Alternative Actions to Reduce or Eliminate Impacts

- ***Whitewater rafting***
  - Reduce visual impacts of the linear rock shed by using a dull roof and the wall to blend with the surrounding rock.

- ***Hiking***
  - Reduce visuals of the linear rock shed by using a dull roof and the wall to blend with the surrounding rock.

d. Conclusion

The long term effects are the same as Alternative T-3 for whitewater rafting and hiking with the exception being the addition that the presence of the long wall of the rock shed along the river may be softened with the existing trees along portions of the trail, assuming the trail is

restored, but the wall will still be visually noticeable (Visual Impact Analysis, Caltrans, 2009).

Geology Outstandingly Remarkable Value

a. Short-term Effects

- ***Contact between meta-sedimentary and granitic rocks***
  - The effects of this alternative on this component of the Geology ORV are not permanent and therefore there are no short-term effects.
- ***Limestone rocks forming prominent escarpments***
  - The effects are the same as Alternative C.

b. Long-term Effects:

- ***Contact between meta-sedimentary granitic rocks***
  - This alternative would remove talus material from the project area. Although some of the material would be returned to the base of the Ferguson Slide, the potential for a considerable amount of valuable meta-sedimentary talus rock material would be taken from the site. CalTrans existing easement for Highway 140 allows for removal of material on the highway. This includes material failing from rockfalls and landslides.
- ***Limestone rocks forming prominent escarpments***
  - The effects are the same as short-term effects.

c. Alternative Actions to Reduce or Eliminate Impacts

Where feasible, replace all removed talus material during construction of the rock shed.

d. Conclusion

There are no expected short or long-term effects. When the Merced River was declared a WSR, the Ferguson Slide was a dormant rockslide and the talus deposit did not exist at the time. With the implementation of alternative measures, replace talus materials, adverse effects are not expected to occur.

Wildlife Outstandingly Remarkable Value

a. Short-Term Effects:

- ***Limestone salamander:***
  - Same as Alternative T-3.

- ***Important Riparian Vegetation:***
  - Same as for Alternative C.

b. Long-Term Effects

- ***Limestone salamander***
  - Same as Alternative T-3.
- ***Important Riparian Vegetation***
  - Same as for Alternative C.

c. Alternative Actions

- ***Limestone salamander***
  - Same as Alternative T-3.
- ***Important Riparian Vegetation***
  - Same as for Alternative C.

d. Conclusion

- Same as Alternative T-3.

Botany Outstandingly Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - Construction of Alternative R would have no short-term effects because all effects are permanent.

- ***Ethnographic Landscape***
  - Construction of Alternative R would have no short-term effects because all effects are permanent.

b. Long-term Effects

- ***Historic Vernacular Landscape***
  - Construction of Alternative R would have a long-term effect on the integrity of design and materials of Highway 140 by the introduction of the new rockshed feature into the historic corridor of the highway. Construction activities would widen the existing road.

- ***Ethnographic Landscape***
  - There are no long term effects to the ethnographic landscape.

c. Alternative Actions to Reduce or Eliminate Impacts

- Highway 140 - Design rockshed to maintain the historic character of the original highway and complement the historic vernacular landscape.
- Use complimentary materials and designs that would meet the parkways standards used by the National Park Service.
- Provide funding to inventory the highway corridor and identify its character defining features within the main stem of the Merced WSR.

d. Conclusion

Since Highway 140, as a transportation corridor, represents a living system, the impact to the historic fabric would be offset by the continuation of the historic function of the transportation system.

The alignment and construction of Alternative R would have a minimal effect on the ethnographic landscape of the MRCL; however, depending on which construction method is utilized, it is likely that ethnographic plant resources would be destroyed.

WSRs Act Section 7(a) Evaluation for No-build Alternative (*Removal of Temporary Bridges*)

Free Flow

a. Short-term Effects

Demolition and removal of the abutments and columns would greatly reduce the dust and debris that is currently being introduced into the river by the existing abutments and columns, but will take a longer to complete. No changes to flow velocity, shear stress, or bed and bank features are expected. If demolition work is phased to coincide with low flow conditions, then no effects in channel conditions are expected.

b. Long-term Effects

There will be no long-term effects.

- ***Alteration of Riparian and/or Floodplain Conditions***
  - No significant impacts to the floodplain features such as width, roughness, or susceptibility to erosion are expected because once the temporary bridges are removed the riparian and flood plain conditions will return to pre-bridge conditions over time.
- ***Alteration of Upland Conditions***
  - No impact to upland conditions is expected as no construction will occur in this area and therefore there is not potential to alter upland conditions.
- ***Alteration of Hydrological Processes***
  - No significant changes to the timing of flow for the Merced River from the demolition activities are expected since demolition impacts would be short-term and hydrologic processes would return to pre-bridge conditions over time.
- ***Magnitude and Extent of Off-Site Changes***
  - The potential for long-term indirect effects downstream of the project reach to river characteristics such as flow frequency, sediment transport capacity, or floodplain accessibility is not expected as the river will return to pre-bridge conditions.

c. Alternative Actions to Reduce or Eliminate Impacts

No mitigation is necessary to reduce or eliminate impacts.

d. Conclusion

The free flow would be restored to pre-Ferguson Slide conditions therefore there would be no effect.

Water Quality

a. Short-term Effects

Potential impacts to water quality would be primarily attributable to increases in suspended sediment (i.e., turbidity) being introduced into the Merced River during demolition activities. Storm water runoff from working areas may contribute to a short-term increase in turbidity and the introduction of petroleum distillates.

b. Long-term Effects

Potential impacts to water quality would be primarily attributable to increases in suspended sediment but would return to pre-bridge conditions over time.

c. Alternative Actions to Reduce or Eliminate Impacts

Mitigation for storm water runoff is addressed in the Caltrans Statewide SWMP.

d. Conclusion

Although some of the demolition, removal, and restoration activities would occur on the river-right floodplain for the upstream bridge, the work would be done in six weeks during low flow conditions in the late summer or early fall, and thus there is a very low probability of the work area being inundated by a high flow event and thus a major effect to the free-flowing condition is unlikely. There may be short-term impacts to water quality from increased turbidity due to demolition activities. The SWMP addresses impacts on water quality standards from erosion, discharges of hazardous materials and disruption of natural drainage patterns in the planning, design and construction phases of the project.

Recreation Outstandingly Remarkable Value

a. Short-term Effects

- ***Whitewater Rafting***
  - The temporary bridges are being removed in 2018. If the removal is in the late summer, early fall there would be no short term effects from removal. Until 2018 a column remains in the river requiring care in navigation.
- ***Hiking***
  - The temporary bridges are being removed in 2018; there will continue be no access to hiking on the Merced River Canyon Trail within the Ferguson Slide project area until after 2018 when traffic is scheduled to be eliminated from this section of trail.

b. Long-term Effects

- ***Whitewater Rafting***
  - The bridges will be removed in 2018. At that time, there will be no access from El Portal to Briceburg, (the current put in and take out areas for rafting the Merced River) which will greatly reduce or eliminate rafting. This alternative will financially impact the existing river rafters with the loss of revenue from the 8,000-10,000 rafters who would find Class 3 / 4 rivers elsewhere.

- ***Hiking***
  - When the bridges are removed in 2018 there will be no access from Mariposa or Briceburg. Unless the trail is restored through this section, hiking would be difficult to unpassable in places. Trail use would be impacted most for those who traditionally have accessed the trail via Hwy. 140 from the west as opposed to those who live in El Portal or access the area from the park to the east end of the canyon. It is possible for visitors to travel other routes into Yosemite National Park to exit on State Route 140 to conduct recreation access to Segment 8 of the Wild and Scenic River, however time and fuel expenses would not find this desirable.

c. Alternative Actions to Reduce or Eliminate Impacts

During rafting season deconstruction times would be adjusted and may be curtailed to minimize impacts on rafting. For hiking, the mitigation is to remove asphalt and naturalization of the old Yosemite Railroad grade.

d. Conclusion

The No-build Alternative, once the temporary bridges are removed, would be less practical for rafting from El Portal to Briceburg, the current put in and take out areas for the Merced River, which includes the Ferguson Slide area. There will continue be no access to hiking on the Merced River Canyon Trail within the Ferguson Slide project area until after 2018 when traffic is scheduled to be eliminated from this section of trail. When the bridges are removed in 2018 there will be no access from Mariposa or Briceburg. Unless the trail is restored through the project area, hiking would be difficult to impassable in places. Assuming the trail is restored, it will be possible for visitors to travel other routes into Yosemite National Park to exit on State Route 140 to conduct recreation access to Segment 8 of the Wild and Scenic River, however time and fuel expenses would not find this desirable. This alternative will financially impact the existing river rafters with the loss of revenue from the 8,000-10,000 rafters who would find Class 3 / 4 rivers elsewhere. In the long term with the bridges removed there is a direct and adverse effect to the Recreation ORV.

Geology Outstandingly Remarkable Value

a. Short-term Effects

- Same as Alternative C

b. Long-term Effects

- Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts

- Same as Alternative C

d. Conclusion

- Same as Alternative C

Wildlife Outstandingly Remarkable Value

a. Short-term Effects

- ***Limestone Salamander***
  - No actions would occur within suitable habitat for limestone salamander. Removal of the temporary bridges and abutments would not occur within suitable salamander habitat. None of the three confirmed occupied sites in the vicinity of the Ferguson Slide are within the assumed 100-meter maximum dispersal zone from ground surface disturbing actions. Rock material generated by the alternative would be transported approximately 20 miles and be deposited outside the range of limestone salamander.

- ***Important Riparian Vegetation***
  - There should be no effects to the riparian vegetation under this alternative because the work done to demolition the bridge would be minimal in the riparian zone and the riparian zone near the temporary bridges is highly impacted currently so no additional effects would occur.

b. Long-Term Effects

- ***Limestone Salamander***
  - Effects to habitat and limestone salamander would not occur under the No-build Alternative.

- ***Important Riparian Vegetation***
  - There should be no long-term effects to the riparian vegetation under this alternative as the riparian vegetation will return to pre-bridge status overtime.

c. Alternative Actions to reduce Impacts

No mitigation is required however; enhancement recommendation includes providing an interpretative signing at turnouts in the vicinity of the Ferguson Slide that describe the limestone salamander. No mitigation is required for important riparian vegetation as there would be no effect.

d. Conclusion:

- ***Limestone Salamander***
  - No disturbing actions would occur, thus here would be no effects to limestone salamander anticipated under the No-Build Alternative. Locations of the known occupied sites near the Ferguson Slide would be unaffected by the alternative; and that the locations of other populations and potential habitat along the WSR would be retained, thus the wildlife ORV - limestone salamander would not be adversely affected by the No-build Alternative.

- ***Important Riparian Vegetation***
  - The wildlife riparian vegetation ORV would not be adversely affected by the alternative.

Botany Outstandingly Remarkable Value

a. Short-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

b. Long-term Effects

- ***Clarkia lingulata***
  - Same as Alternative C

c. Alternative Actions to Reduce or Eliminate Impacts
  - Same as Alternative C

d. Conclusion
  - Same as Alternative C

Cultural and Historic Landscape Outstandingly Remarkable Value

a. Short-term Effects

- ***Historic Vernacular Landscape***
  - Unlike the other alternatives that require new construction, this alternative represents the existing built environment; thus, no new construction is necessary. Additionally, as long as Highway 140 is open and functional, there are no short-term adverse effects to the historical vernacular landscape.

- ***Ethnographic Landscape***
  - Unlike the other alternatives that require new construction, this alternative represents the existing built environment; thus, no new construction is necessary.

Additionally, as long as Highway 140 is open and functional, there are no short-term adverse effects to the ethnographic landscape.

b. Long-term Effects

- ***Historic Vernacular Landscape***
  - The No-build Alternative would ultimately have a long-term effect to the historical vernacular landscape by closing this portion of Highway 140. Closing the highway would end its historic function, thereby changing the character and quality of the living system.

- ***Ethnographic Landscape***
  - While careful monitoring of the deconstruction activities will ensure that none of the remaining ethnographic features would be destroyed, the No-build Alternative would ultimately have a long-term effect to the ethnographic landscape by reducing access to the sites. Closing the highway would end the millennia-old function of the canyon as a transportation corridor; thereby changing the character and quality of the MRCL.

c. Alternative Actions to Reduce or Eliminate Impacts

- This alternative would directly and adversely affect the cultural and historical ORVs of the river by removing the transportation corridor from the MRCL. There are no alternative actions that would mitigate the adverse effect.

d. Conclusion

The No-build Alternative has the greatest potential of all the Alternatives to alter the character defining qualities of the MRCL by eventually closing Highway 140. By closing Highway 140, this alternative would majorly affect the historic function of Highway 140 as the embodiment of the millennia-old living system transportation corridor between the San Joaquin and Yosemite Valleys.

SUMMARY OF EFFECTS TO MERCED RIVER WILD AND SCENIC RIVER VALUES

All of the DEIS alternatives propose either temporary and/or permanent construction and/or construction related activities within the bed and banks at or below the normal high water mark. Each alternative is reviewed under the "direct and adverse" effects standard of Section 7(a) of the Wild and Scenic Rivers Act. Both short- and long-term effects are evaluated.

The following table summarizes the anticipated findings for each alternative for direct and adverse effects to free flow, water quality and ORVs and whether acceptable alternative actions have been proposed to reduce or eliminate direct and adverse effects. The findings for each alternative can be categorized in the following four ways:

- No direct and adverse effect
- Direct and adverse effect but the proposed construction and construction-related activities contained in the Nov. 2010 DEIS (and the additional supplemental information and analysis provided since then) includes acceptable alternative actions sufficient to reduce or eliminate a direct and adverse finding.
- Direct and adverse effect and proposed construction and construction-related activities do NOT include acceptable alternative actions, but the FS has suggestions for acceptable alternative actions that if incorporated into the updated proposal in the next DEIS could reduce or eliminate a direct and adverse finding in our determination responsive to that future document.
- Direct and adverse effects – no acceptable alternative actions exist.

Table 1: Summary of Effects to Free Flow, Water Quality and River Values and Acceptable Alternative Actions

DEIR/DEIS Alternative	Are there short term direct and adverse effects?	Does the proposal include acceptable alternative actions to eliminate or reduce short term effects?	Are there long term direct and adverse effects?	Does the proposal include acceptable alternative actions to eliminate or reduce long term effects?
C	Yes	More Information Needed	Yes	No
T	Yes	More Information Needed	Yes	No
S	Yes	More Information Needed	Yes	No
S1-V1	Yes	No	Yes	No
S1-V2	Yes	No	Yes	No
R	Yes	Yes	No	Yes
T-3	Yes	Yes	No	Yes
No Build	Yes	Yes	Yes	No

Based on the evaluation to date, the Forest Service ID team anticipates recommending a finding of adverse short-term effects to the Merced Wild and Scenic River's free flow, water quality and outstandingly remarkable values for all eight alternatives. However, Cal Trans has proposed acceptable measures to 2 of these and acceptable alternative actions may be possible for 3 other alternatives, but more information is needed to make that assessment. Additional Forest Service-identified alternative measures for the some of the remaining direct and adverse short term effects will be recommended to CalTrans.

The ID team also anticipates recommending a finding of direct and adverse long-term effects to 6 of the 8 alternatives. While some alternative actions for the long term effects have been included in the CalTrans proposal or identified by the ID team and reduce the impacts, they do not eliminate the adverse effects. Our overall findings of effect of direct and adverse will be only

for those alternatives with long term effects where no effective alternative measures have been proposed or is thought possible.

Appendix J Categorical Exemption/ Categorical Exclusion for the Ferguson Slide Emergency Project

This appendix includes two Categorical Exemption/Categorical Exclusions for the Ferguson Slide Emergency Project. The first, signed in August of 2006, was for the installation of temporary one lane bridges and a detour road along Incline Road to bypass the rockslide. The second was signed in April 2008 for the installation of a second set of temporary bridges that would allow larger vehicles to use the detour.

CATEGORICAL EXEMPTION
CATEGORICAL EXCLUSION/PROGRAMMATIC CATEGORICAL EXCLUSION
DETERMINATION FORM

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Dist.-Co.-Rte. (or Local Agency)	K.P./K.P. (P.M./P.M.)	E.A. (State project)	Proj. No. (Local project) (Fed. Prog. Prefix Proj. No., Agr. No.)

PROJECT DESCRIPTION: (Briefly describe project, purpose, location, limits, right-of-way requirements, and activities involved.)

The California Department of Transportation (Caltrans) has undertaken an emergency project to bypass a massive landslide on the eastbound side of State Route 140 between the communities of Briceburg and El Portal. The proposed project erected two bridges across the Merced River, one upstream of the slide area and one downstream, to divert traffic around the Ferguson Rockslide. These bridges tie into Incline Road, a former railroad alignment on the opposite side of the Merced River from State Route 140. This project is Statutorily Exempt from CEQA and is a Categorical Exclusion pursuant to NEPA unless: 1) the scope of project changes to include additional activities or areas; or 2) there is unforeseen discovery of sensitive or cultural resources.

CEQA COMPLIANCE *(for State Projects only)*

Based on an examination of this project, supporting information, and the following statements (See 14 CCR 15300 et seq.):

- If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law.
- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").
- This project does not cause a substantial adverse change in the significance of a historical resource.

CALTRANS CEQA DETERMINATION

☒ **Exempt by Statute** [PRC 21080(b); 14CCR 15260 et seq.]
Based on an examination of this proposal, supporting information, and the above statements, the project is:
☐ **Categorically Exempt.** Class——, (PRC 21084; 14CCR 15300 et seq.) or ☐ **General Rule exemption** (This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment [CCR 15061(b)(3)]).

Margaret L Lawrence — Signature: Environmental Office Chief — 8/8/06 — Date
Hanna Fahmi Kamis — Signature: Project Manager — 8/9/06 — Date

NEPA COMPLIANCE (23 CFR 771.117)

Based on an examination of this project, supporting information, and the following statements:

- This project does not have a significant impact on the environment as defined by the NEPA.
- This project does not involve substantial controversy on environmental grounds.
- This project does not involve significant impacts on properties protected by Section 4(f) of the DOT Act or Section 106 of the National Historic Preservation Act.
- In nonattainment or maintenance areas for Federal air quality standards: this project comes from a currently conforming plan and Transportation Improvement Program or is exempt from regional conformity.
- This project is consistent with all Federal, State, and local laws, requirements or administrative determinations relating to the environmental aspects of this action.

CALTRANS NEPA DETERMINATION

Based on an examination of this proposal, supporting information, and the statements above under "NEPA Compliance", it is determined that the project is a:

☐ **PROGRAMMATIC CATEGORICAL EXCLUSION (PCE):** Based on the evaluation of this project and supporting documentation in the project files, all the conditions of the November 18, 2003 Programmatic Categorical Exclusion Agreement have been met.

☒ **CATEGORICAL EXCLUSION (CE):** For actions that do not individually or cumulatively have a significant environmental effect and are excluded from the requirement to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS). Require FHWA determination.

Margaret R. Lawrence — Signature: Environmental Office Chief — 8/8/06 — Date
Hanna Fahmi Kamis — Signature: Project Manager/DLA Engineer — 8/9/06 — Date

FHWA DETERMINATION

Based on the evaluation of this project and the statements above, it is determined that the project meets the criteria of and is properly classified as a Categorical Exclusion (CE).

Signature: FHWA Project Development Engineer — 8/10/06 — Date

Additional information attached or referenced, as appropriate (e.g. Mitigation commitments **for NEPA only;** Air Quality studies or documentation of exemption from regional conformity or use of CO Protocol; §106 commitments; §4(f) or Programmatic §4(f); date of COE nationwide permit; §7 species survey results; Wetlands Finding; Floodplain Finding; additional studies; design conditions. **Rev. 11/2005**

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Purpose and Need

The California Department of Transportation (Caltrans) has undertaken an emergency project to bypass a massive landslide on the eastbound side of State Route 140 between the communities of Briceburg and El Portal. The slide lies within the Merced River Canyon, at a formation known as the Ferguson Ridge. Unusually heavy rainfall in March and April 2006 apparently destabilized the steep hillside above the highway, and rockslide activity began in the area on April 29, 2006. The state highway was closed to traffic periodically until concrete barriers and protective fencing were erected in late May. One lane of the highway was reopened to vehicles on the morning of May 25, but later that day another landslide damaged the barrier and the highway was closed again. On May 28, a major landslide covered approximately 183 meters (600 feet) of the highway. As a result, State Route 140 was closed to traffic from 5.1 kilometers (3.2 miles) east of Briceburg to approximately 9.7 kilometers (6.0 miles) west of El Portal.

The closure of State Route 140 created severe hardships for residents and businesses in the area. Businesses in Mariposa, El Portal, and other communities along State Route 140 suffered from a pronounced drop in summer tourist income, since travelers to Yosemite National Park were diverted away from State Route 140 to either State Routes 120 or 41. Workers and schoolchildren who normally traveled relatively short distances on Route 140 between Yosemite and El Portal to Mariposa and other nearby towns needed to take two- to three-hour detours to get to their destinations. The slide also created safety issues by compromising emergency vehicle response times in the area. It was necessary to open State 140 as soon as possible to relieve the hardships on local residents and businesses. In recognition of this fact, Governor Arnold Schwarzenegger signed a Proclamation on June 5, 2006 declaring a State of Emergency in Mariposa County. (See attachment.) This proclamation paved the way for expedited work on a temporary highway detour around the landslide, which is formally known as the "Ferguson Rockslide."

Project Description

Build Alternative

The detour project erected two bridges across the Merced River to temporarily divert traffic on State Route 140 around the Ferguson Rockslide until a permanent solution can be developed and built. A Caltrans Director's Order authorizing project funding pursuant to Section 10122(a) of the Public Contract Code – Failure or Threat of Failure of Highway – was approved on June 17, 2006.

The emergency detour project rerouted highway traffic around the Ferguson Rockslide by building two temporary bridges, one upstream of the slide and another downstream of the slide. Both of these bridges tie into Incline Road, an abandoned railroad alignment (formerly used by the Yosemite Valley Railroad) that parallels State Route 140 on the opposite side of the Merced River. (See attachments and photographs that follow.) The detour project was conceived and built in two different but closely linked stages:

Stage 1

The goal of this stage was to restore traffic flow on State Route 140 as soon as possible. Construction work began on June 22, 2006; the following major items of work were included in this stage:

- Widen Incline Road. Since Stage 1 of the detour was to use Incline Road from the slide area all the way to the existing Foresta Road Bridge at kilopost 77.6 (postmile 48.2), but since parts of Incline Road were very narrow, roadway widening was necessary in some areas. Incline Road, which was 2.4 to 3.7 meters (8.0 to 12.0 feet) wide, was widened to become a 4.0 meter (13.0 foot) wide roadbed. Approximately 4.8 kilometers (3.0 miles) of Incline Road was already paved, while approximately 3.2 kilometers (2.0 miles) was already covered with gravel and could accommodate vehicles without much additional work. However, additional gravel needed to be placed on a 1.3 kilometer (0.8 mile) stretch of Incline Road, starting at the location of the downstream bridge and going east up the road, to prepare it for temporary traffic. No additional paving was done on Incline Road at this time.

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- Modify riverside slopes. Some work was required on the uphill and river sides of Incline Road to accommodate the 4 meter (13 foot) wide roadbed. The slopes above the road were cut back in several places to allow for road widening. In another location near the slide, a grader working from Incline Road cleared off and flattened a "bench" area approximately 1.8 meters (6.0 feet) wide. Rock-filled wire baskets (Hilfiker walls) were built on the river side of Incline Road at some areas to achieve the desired roadway width. This type of work was limited in order to minimize artificial alteration of slopes in the Merced River Canyon.
- Build first bridge downstream of the slide area. A one-lane modular bridge was built over the Merced River approximately 0.40 kilometer (0.25 mile) downstream of the slide, at kilopost 67.66 (postmile 42.05). First, abutments to support the bridge structure were constructed on either side of the Merced River. This was done by drilling and excavating into the rock on the banks of the Merced River, forming up a concrete abutment with wing walls, and backfilling the areas behind the new abutments with rock and soil. The riverbank area around the abutment on the State Route 140 side was built up to accommodate movement of heavy equipment. Bridge components were transported by truck up State Route 140 to the slide area, and the one-lane bridge was then assembled on-site, laid out on the highway. On July 24, 2006, the entire bridge was lifted into place across the Merced River with a large crane; several more days of work were then required to affix the bridge to the abutments and prepare it for traffic. This bridge is approximately 36.6 meters (120.0 feet) long and 7.2 meters (23.5 feet) wide, with an open deck area approximately 4.1 meters (13.5 feet) wide.

On July 31, 2006, upon completion of the downstream bridge and improvements to Incline Road, State Route 140 was reopened to limited one-way traffic. Pilot cars were arranged to escort early morning and late evening caravans of vehicles single-file through the slide area at a speed of 24 kilometers per hour (15 miles per hour). At this time the detour route was approximately 9.7 kilometers (6.0 miles) long. Traffic traveling eastbound on State Route 140 was directed onto the bridge, across the Merced River, then up Incline Road to the existing Foresta Road Bridge, where traffic crossed the Merced River and reunited with the existing highway. Westbound traffic from El Portal and Yosemite National Park used this same route in reverse. The temporary detour route accommodates vehicles up to 8.5 meters (28.0 feet) in length, and is also open to pedestrian and bicycle traffic.

Stage 2

The goal of this stage was to provide a shorter detour route that could be safely navigated by the general public without official escorts. The following major items of work were included in this stage:

- Build second bridge upstream of the slide area. A second one-lane modular bridge was built over the Merced River east of the slide area, approximately 0.8 kilometer (0.5 mile) upstream of the first bridge, at kilopost 68.35 (postmile 42.48). As with the first bridge, abutments were built on either side of the Merced River. However, due to the width of the Merced River at this bridge location, the bridge could not be built without additional support. A single pier (consisting of two columns) to help support the weight of the bridge was built within an existing gravel bar along the north side of the Merced River, which required excavation immediately adjacent to the river. Construction methods were chosen to minimize impacts to the river. Unlike the first bridge, the parts of this bridge were assembled in place from the Incline Road side, and the bridge was pushed out over the Merced River as more and more segments were added. Construction of this bridge was begun shortly after installation of the first bridge, and bridge work was scheduled to accommodate ongoing detour traffic. This bridge is approximately 73.2 meters (240.0 feet) long and 7.2 meters (23.5 feet) wide, with an open deck area approximately 4.1 meters (13.5 feet) wide.
- Install traffic control gates and signals. In order to prevent unauthorized access to the slide area, metal gates were installed on State Route 140 at kiloposts 59.9 and 69.2 (postmiles 37.2 and 43.0). The gates were placed at highway locations that provided good visibility and that would allow oversize vehicles a wide enough area to turn around.
- Install guardrail and pave a segment of Incline Road. After completion of the second bridge, the 0.8 kilometer (0.5 mile) long section of Incline Road between the two bridges will be widened to 5.5 meters (18.0 feet), and will be paved to accommodate re-routed highway traffic. Metal beam guardrail has been installed along the river side of this part of Incline Road between the two bridges.
- Installation of traffic signals. Traffic signals and related buried electrical facilities will eventually be installed to provide one-way traffic control through the detour area. The traffic signals will be installed on State Route 140 at each end of

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PROJECT DESCRIPTION CONTINUATION SHEET

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the detour route near the bridges; electrical facilities will be located under the paved section of Incline Road between the two bridges.

Once the second bridge is completed, traffic on State Route 140 will be escorted over one bridge to the short paved segment of Incline Road, and then back over the Merced River to Route 140 via the second bridge. The remaining length of Incline Road will not be used for the detour after completion of the second bridge. Once traffic signals are in place, the limited, escorted vehicle caravans will be discontinued, and traffic will be allowed through the detour area independently, with the signals providing one-way traffic control.

It is anticipated that the temporary detour will be in place for 18 months or more, until landslide activity stops and a future permanent project can be implemented to permanently repair or reroute State Route 140 in the vicinity of the Ferguson Slide.

No-Build Alternative

This alternative would do nothing to address the severe transportation disruption and economic effects caused by the Ferguson Slide; therefore, it is not a viable project alternative.

Environmental Setting

The proposed project is located in north-central Mariposa County in the Merced River Canyon, approximately 16 kilometers (10 miles) west of the western boundary of Yosemite National Park, at an elevation of approximately 420 meters (1380 feet) above sea level. The project area is within the boundaries of the Stanislaus National Forest on the north side of the Merced River and within the Sierra National Forest on the south side, both of which are under the jurisdiction of the U.S. Forest Service and administered by the Sierra National Forest, Bass Lake Ranger District. The Merced River Canyon has very steep slopes; vegetation is a mix of grey pine, poison oak, interior live oak, toyon, and buckbrush. The river's edge up to State Route 140 is also very steep. Many areas of the Merced River have large quantities of rock slope protection and native rock outcrops and thus lack riparian vegetation along the slopes, but there are scattered pockets of willow and redbud along the water's edge.

Environmental Issues

California Environmental Quality Act (CEQA)

The proposed project qualifies as an emergency project pursuant to the California Environmental Quality Act (CEQA), and as such is exempt from the requirements of CEQA. Section 15269(a) of the CEQA Guidelines states that the following type of emergency undertaking is exempt from the requirements of CEQA: "Projects to maintain, repair, restore, demolish, or replace property or facilities damaged or destroyed as a result of a disaster in a disaster stricken area in which a state of emergency has been proclaimed by the Governor pursuant to the California Emergency Services Act, commencing with Section 8550 of the Government Code. This includes projects that will remove, destroy, or significantly alter an historical resource when that resource represents an imminent threat to the public of bodily harm or of damage to adjacent property or when the project has received a determination by the State Office of Historic Preservation pursuant to Section 5028(b) of Public Resources Code."

On June 5, 2006, Governor Arnold Schwarzenegger issued a Proclamation declaring a state of emergency in 20 counties in Northern and Central California due to storm-related damage. This proclamation specifically mentioned the site of the Ferguson Rockslide: "Whereas, on April 29, 2006, and continuing, unusually heavy rains in March and April have triggered a major landslide on State Route 140 approximately 10 miles west of the Yosemite National Park boundary, completely blocking and closing the highway." The proclamation further states that, "I find [Mariposa] county to be in a state of emergency, and under the authority of the California Emergency Services Act, set forth at Title 2, Division 1, Chapter 7 of the California Government Code, commencing with section 8550, I hereby proclaim that a State of Emergency exists in

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Mariposa County." This is the specific reference that must be cited in order for the project to be considered exempt from CEQA, pursuant to Section 15269(a) of the CEQA Guidelines. A copy of the Proclamation is attached.

National Environmental Policy Act (NEPA)

According to Chapter 6, Section N (Environmental Considerations) of the Federal Highway Administration's Emergency Relief Manual, "Repair projects under the Emergency Relief (ER) program must comply with the requirements of the National Environmental Policy Act (NEPA) of 1969. Emergency repairs to restore essential travel, minimize the extent of damage, or protect remaining facilities are normally classified as categorical exclusions under 23 CFR 771.117(c)(9), as are ER projects to restore permanently the existing facility in-kind at the existing location, ref. 23 CFR Part 771.117(d). However, if impacts to protected or otherwise sensitive or high-value resources are possible, advance coordination with the appropriate local, State, and Federal resource agencies should be closely considered to avoid or minimize project delays or shutdowns."

The Code of Federal Regulations (CFR) Title 23, Part 771, Section 117(c)(9), as cited above, states that, "(c) The following actions meet the criteria for CEs in the CEQ [Council on Environmental Quality] regulation (section 1508.4) and Sec. 771.117(a) of this regulation and normally do not require any further NEPA approvals by the Administration: . . . (9) Emergency repairs under 23 U.S.C. 125." The United States Code (USC) Title 23 (Highways) Section 125 (Emergency Relief) states that, "(a) General Eligibility – Subject to this section and section 120, an emergency fund is authorized for expenditure by the Secretary for the repair or reconstruction of highways, roads, and trails, in any part of the United States, including Indian reservations, that the Secretary finds have suffered serious damage as a result of – (1) natural disaster over a wide area, such as by a flood, hurricane, tidal wave, earthquake, severe storm, or landslide; or (2) catastrophic failure from any external cause."

This project was initiated to restore initial travel on a federal-aid highway damaged by landslide activity. In addition, early coordination was initiated with appropriate regulatory and jurisdictional agencies regarding potential project impacts to sensitive resources. Therefore, a Categorical Exclusion is the appropriate level of environmental review pursuant to NEPA.

General

The nature of the project and its setting suggest no potential for adverse impacts to socioeconomic resources. This is not a Type 1 project as defined in 23 CFR 772.5(h); it would not increase the number of through lanes or change the horizontal or vertical alignment of the affected roads, or require noise abatement measures. The project is not within the Coastal Zone. There are no wetlands in the project construction area. The project has no potential for exposure to hazardous materials. The project is not located in an area classified as Prime Farmland, and does not affect any parcels under Williamson Act contract. Section 7 consultation with the U.S. Fish and Wildlife Service is not required. No properties within the project limits are on or eligible for the National Register of Historic Places.

The project is consistent with the plans and goals adopted by the community. The project would not involve changes in access control; however, one-way traffic control measures would be required on State Route 140 after project construction is completed. The project would not require future construction to fully utilize the design capabilities included in the proposed project. There are no publicly-owned parks, or wildlife or waterfowl refuges within project limits. The affected segment of the Merced River is used for recreational rafting, but the river in the project vicinity has been officially closed to recreational uses since the Ferguson Landslide remains active. The project would not cause public controversy based on potential effects to the environment.

Visual/Scenic Resources

Merced Wild and Scenic River

The Wild and Scenic Rivers Act of 1968 established the National Wild and Scenic Rivers System and designated the first Wild and Scenic Rivers. In 1987, the U.S. Congress designated the Merced a Wild and Scenic River. Public Law 100-149, enacted on November 2, 1987, and Public Law 102-432, enacted on October 23, 1992, put 122 miles of the main and south

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forks of the Merced River (from its headwaters in Yosemite National Park to a point just upstream of its confluence with Bear Creek, near the community of Briceburg) into the Wild and Scenic River System.

State Route 140 in the area of the proposed project is south of and adjacent to the main fork of the Merced River. The Ferguson Rockslide and the detour project are located within a segment of the Merced Wild and Scenic River that extends from the Foresta Road Bridge westward to Bear Creek, which is under the jurisdiction of the Sierra/Stanislaus National Forest. Pursuant to Section 2 of the Wild and Scenic Rivers Act, the affected segment of the Merced River has been classified as "recreational" in nature. Recreational river areas are rivers or sections of rivers that may have some existing water impoundment or diversion, that may have some shoreline development, and that are readily accessible by road or railroad. According to the recreational classification criteria, "the existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable." Both State Route 140 and Incline Road parallel the Merced River in the project area, and there are bridge crossings of the Merced River in El Portal and Briceburg. This segment of river is also popular with recreational rafters.

On June 27, 2006, Caltrans sent a letter to Ed Cole, Forest Supervisor for the Sierra National Forest, requesting emergency approval to take any necessary measures to temporarily re-route vehicle travel around the "Ferguson Slide," despite the Wild and Scenic River designation. On June 30, 2006, Mr. Cole replied that, "The Forest Service supports and approves [Caltrans'] current efforts as outlined in your June 27 letter." The following items were listed as rationale for this approval and as important factors for consideration:

1. The slide and subsequent closure of the highway was the basis for a State Declaration of Emergency by Governor Schwarzenegger. There is also a pending Federal declaration.
2. The current effort has been and continues to be articulated by Caltrans as a temporary solution only. All facilities currently being constructed are designed to be removed.
3. A permanent solution to the effects of the slide on the Highway will be undertaken within 18-24 months.
4. Any permanent solution that affects the outstandingly remarkable values and/or the Standards and Guidelines for the Merced Wild and Scenic River corridor will need to be brought into compliance with the Wild and Scenic Rivers Act and the Merced Wild and Scenic River Management Plan. This would include a complete Section 7 Determination by the Regional Forester prior to commencement of any construction activities.

State Scenic Highway

Select segments of the California state highway system are designated as state scenic highways. This designation identifies those portions of the state highway system which, together with the adjacent scenic corridors, will require special scenic conservation treatment. The scenic highway includes not only the pavement or traveled roadway but also the entire publicly owned right-of-way. The scenic corridor is often described as "the view from the road." The view may be a distant panorama as well as the immediate roadside area. A corridor should encompass the outstanding natural features and picturesque landscapes which qualify the highway as scenic; the corridor width will vary depending on terrain, vegetation, and development.

The segment of State Route 140 from kiloposts 36.7 to 80.3 (postmiles 22.8 to 49.9) is an officially designated state scenic highway. The proposed temporary detour project falls within this segment of highway.

Generally, CEQA would not allow preparation of a Categorical Exemption (CE) for a project within a state scenic highway corridor. Article 18, Section 15269(d) of the CEQA Guidelines states that the following emergency projects are exempt from the requirements of CEQA: "Projects undertaken, carried out, or approved by a public agency to maintain, repair, or restore an existing highway damaged by fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide, provided that the project is within the existing right of way of that highway and is initiated within one year of the damage occurring. This exemption does not apply to highways designated as official state scenic highways, nor any project undertaken, carried out, or approved by a public agency to expand or widen a highway damaged by fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide." Furthermore, Article 19, Section 15300.2(d) of the guidelines states that, "A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway."

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Since the proposed detour route extends of outside existing Caltrans right of way, since the segment of Route 140 from kiloposts 36.7 to 80.3 (postmiles 22.8 to 49.9 is an officially designated state scenic highway, and since the addition of two bridges across the Merced River affects the otherwise minimally disturbed viewscape of the scenic highway corridor in the area, a CE would not generally be appropriate for this type of project. However, since an emergency situation has been officially declared, as discussed the "California Environmental Quality Act (CEQA)" section, the normal restrictions on using a CE for a project affecting a scenic resource do not apply, and a CE is the appropriate level of review pursuant to CEQA.

Biology

The California Natural Diversity Database (CNDDB, 2006) was reviewed for known occurrences of special status species in the project area using the El Portal, Kinsley, Feliciana Mt., and Buckingham United States Geological Service's (USGS) 7.5' quadrangles. Official U.S. Fish and Wildlife Service (USFWS) species lists for applicable areas of Mariposa County were downloaded from the USFWS website on July 25, 2006. The Caltrans District 10 Bio-Scoping database was examined to determine the proximity of sensitive species to the project location. The Caltrans Digital Highway Inventory Photography Program (DHIPP) was consulted to identify the environmental setting. Project files and the Environmentally Sensitive Areas (ESA) database were also reviewed. Reconnaissance-level field surveys of the project impact area were conducted from June 19 through June 21, 2006. A Natural Environment Study (NES) was completed for this project in August 2006.

The Merced River Canyon is an extremely sensitive area. Not only does the Merced River itself provide habitat for many species, but the unique geography of the canyon provides habitat for some of the rarest plant species in the world. The spread of yellow star thistle and other noxious/invasive weeds is a very real threat to the ongoing ecological health of the watershed.

Executive Order 13112 requires federal agencies to work cooperatively to prevent and control the introduction and spread of invasive plant and animal species. Transportation systems, highway systems in particular, can facilitate the spread of invasive species outside of their natural range by providing opportunities for them to move throughout the landscape. In order to prevent the spread of exotic weed species into the project area, specific environmental provisions were developed (see Environmental Provisions section below). These provisions were conveyed in the field to the construction contractor and to the Caltrans Resident Engineer for the project. Since all fill material used during project construction was native material acquired from the slide area, there were no concerns about bringing in invasive species in imported fill material.

Cultural Resources

Cultural resource review of the proposed project included: (1) review of Caltrans District 10 cultural files for prior projects in the area; (2) review of the Environmentally Sensitive Area (ESA) database; (3) and an examination of the TEA GIS database and the accompanying volume for Mariposa County. Field surveys of the detour route and project impact area were conducted from June 19 through June 21, 2006. The Caltrans Photolog and the Digital Highway Inventory Photography Program (DHIPP) for the affected portion of State Route 140 were also analyzed.

One cultural property was identified in the direct Area of Potential Effects (APE) for the detour project: a section of the Yosemite Valley Railroad (YVRR). As previously mentioned, the detour project utilized part of this abandoned railroad corridor as a detour route. The narrow-gauge Yosemite Valley Railroad operated from the turn of the century until 1945, and it carried travelers from Merced in the San Joaquin Valley to El Portal near the western boundary of Yosemite National Park.

In 1990, a portion of the YVRR was formally determined ineligible for the National Register of Historic Places through consultation between the State Historic Preservation Officer (SHPO) and the Bureau of Land Management (BLM). This determination was based on the fact that the railroad had suffered a substantial loss of integrity through several factors: the dismantling of its entire railroad infrastructure in 1946; flooding; natural deterioration; and modern road improvements made along parts of the old railroad grade. Although the emergency detour project affects a different segment of the YVRR evaluated in 1990, Caltrans reviewed this determination and feels that the conclusions made by the SHPO and BLM can be reasonably applied to this project as well. Therefore, Caltrans has determined that the YVRR segment affected by the detour project is ineligible for the National Register; SHPO concurrence on this determination is pending.

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Caltrans is also pursuing its responsibilities under Section 106 of the National Historic Preservation Act, and has notified appropriate Native American tribes or interested individuals about the detour project. If cultural resources are inadvertently encountered during the course of project construction, Caltrans will notify appropriate representatives from the Federal Highway Administration (FHWA) and SHPO, and steps will be taken to address the discovery.

Floodplains

Executive Order No. 11988, Floodplain Management, was guidance enacted in May 1977 to "avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

The pier of the second bridge was built within the 100-year base flood plain elevation of the Merced River. However, project activities were designed to minimize floodplain impacts, and since this detour project is being undertaken pursuant to a declared emergency, there was no practicable alternative to placing a bridge pier in the Merced River floodplain.

Water Quality/Stormwater

Work on the detour project occurred in and adjacent to the Merced River. In order to protect the sensitive river environment, numerous Best Management Practices (BMPs) were implemented during project construction, as described in the March 1, 2003 Caltrans Storm Water Quality Handbook – Construction Site Best Management Practice Manual. BMPs implemented include ones addressing temporary soil stabilization, temporary sediment control, wind erosion control, tracking control, non-storm water management, and waste management and materials pollution control.

Despite these measures and customary construction site precautions, an accident occurred on July 6, 2006 during which one of the wooden abutment forms failed while concrete was being poured into it. Approximately 3.8 cubic meters (5.0 cubic yards) of wet concrete entered the Merced River, and another 0.4 cubic meter (0.5 cubic yard) of concrete was spilled on the riverbank. The material that entered the river dissipated very quickly due to high water flows, and the material that was spilled on the bank was cleaned up as soon as possible. The construction contractor filled out an incident report on the spill, which was forwarded to key Caltrans personnel. Caltrans staff immediately notified key jurisdictional agencies of the spill, including the Army Corps of Engineers, the Department of Fish and Game, and the Sierra National Forest. A Notice of Discharge was also prepared and submitted to the Regional Water Quality Control Board.

Air Quality

Mariposa County is designated an Unclassified/Attainment area for the following pollutants: carbon monoxide (CO), particulate matter (PM 10 and PM 2.5), and 1-hour ozone (O_3). The County is in a Non-attainment area for 8-hour ozone.

Air pollutants were generated during project construction. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, the largest percentage of construction-related airborne pollutants is windblown dust generated during excavation, grading, hauling, and various other activities.

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

Agency Coordination and Permits Required

Agency Coordination

On Monday, June 5, the Sierra National Forest activated a Federal Incident Management Team to work with Local, State and Federal Agencies who are coordinating emergency efforts on the Ferguson Rockslide. The agencies involved in this

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effort are listed below. In addition, Caltrans environmental staff members have had direct contact with several of the following agencies – in these instances, the agency name is underlined, and the issues discussed are listed behind the agency name.

- USDA Forest Service (Sierra National Forest) – Dave Martin, District Ranger for the Bass Lake Ranger District, was contacted about work in the Merced Wild and Scenic River corridor, and regarding aquatic and botanical resources in the project vicinity. Ed Cole, Forest Supervisor, gave written authorization for work to proceed within the Merced River Wild and Scenic River area on June 30, 2006. U.S. Forest Service representatives Gayne Sears, Lands Officer for the Bass Lake Ranger District, and Joanna Clines, Forest Botanist, were also consulted.
- Caltrans
- Pacific Gas & Electric
- Mariposa County Sheriff's Office
- Mariposa County Fire
- U.S. Army Corps of Engineers - The Corps verbally communicated with Mr. Kome Ajise, Caltrans District 10 Director, that work could proceed on Saturday, June 24, 2006 to mobilize equipment to the staging area and complete pre-construction testing activities. Corps representative Laura Whitney was contacted regarding work in and around the Merced River, and assisted in processing a conditional General Permit 60 "For Repair and Protection Activities in Emergency Situations," which was issued to Caltrans on June 26, 2006.
- Merced Irrigation District
- Department of Water Resources
- National Park Service, Yosemite National Park – Several National Parks representatives (Elexis Mayer, Sue Beatty, Steve Thompson, Dennis Matsui, Jo Myer, Nick Nicholas, and Jim Roche) were consulted regarding the Merced Wild and Scenic River, hydraulics, and other issues.
- Bureau of Land Management
- California Highway Patrol
- Office of Emergency Services
- California Dept. of Forestry and Fire Protection
- Mariposa Public Utility District
- California Department of Fish and Game – Clarence Mayott was contacted and coordination continues to ensure all the work proposed complies with the 1602 Streambed Alteration Agreement. Paperwork will be submitted to CDFG as soon as possible.

In addition, the following agencies and individuals have also been contacted:

- The State Historic Preservation Officer was contacted about the abandoned Yosemite Valley Railroad.
- The U.S. Army Corps of Engineers (Laura Whitney) was contacted regarding detour work in and around the Merced River.
- The California Regional Water Quality Control Board (Margarita Gordus) has been contacted regarding a permit pursuant to Section 401 of the Clean Water Act. Coordination is ongoing.

Permits Required

Due to the emergency nature of this temporary detour project, several permits normally obtained in writing have been obtained verbally, in order to expedite work on the project. The following regulatory agencies have been consulted for this project:

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- The California Department of Fish and Game (CDFG) – DFG gave Caltrans verbal approval to proceed with emergency work, and agreed to process a 1602 Streambed Alteration Agreement after completion of project construction.
- The U.S. Army Corps of Engineers (ACOE) – A conditional Regional General Permit 60 "For Repair and Protection Activities in Emergency Situations" was issued to Caltrans by ACOE on June 26, 2006.
- The Regional Water Quality Control Board (RWQCB) – A 401 Water Quality Certification will be processed after completion of the project. Verbal confirmation of this is pending.
- The Regional Water Quality Control Board (RWQCB) – Since this project will disturb more than one acre of soil, it is subject to requirements under a statewide Caltrans National Pollutant Discharge Elimination System (NPDES) permit.
- The U.S. Forest Service – A special use permit for work on U.S. Forest Service (USFS) property has been obtained verbally.

Environmental Provisions

Invasive Species

- All earth moving equipment must enter the project area free of dirt, dust, mud, seeds, or other potential contaminants. Equipment exhibiting any dirt or other material attached to frame, tires, wheels, or other parts shall be thoroughly cleaned by the Contractor before entering or leaving the project area. Areas inspected shall include tracks, track guard/housings, belly pans/under covers, buckets, rippers, and other attachments.
- Ground disturbance must be minimized to the greatest extent possible.
- Only certified weed-free erosion control materials will be used. All mulches and seed material shall be certified weed free by the Mariposa County Agricultural commissioner prior to being used at the project site.

Water Quality/Stormwater

- Best Management Practices (BMPs) must be implemented during project construction to ensure that the project would not adversely affect quality of storm water discharge from the highway, as described in the March 1, 2003 Caltrans Storm Water Quality Handbook – Construction Site Best Management Practice Manual

Cultural Resources

- Environmental reevaluation would be required if the scope of the project changes to include additional areas or activities, or if previously unknown sensitive resources are discovered. If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find (Caltrans Environmental Handbook, Volume 2, Chapter 2, Section 2-4.4). If human remains are exposed during project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition, pursuant to Public Resources Code 5097.98.

General

- The project area must be re-graded to match pre-construction conditions after the installation of the bridge piers and abutments.

Caltrans Environmental Staff

Margaret Lawrence	Environmental manager
Kathy Ikeda	Environmental coordinator
Kursten Sheridan	Biologist
Jackie Wait	Archaeologist
Virginia VonBerg	On-site environmental monitor

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Project Area Photographs

The Ferguson Rockslide covering State Route 140 and entering the Merced River
June 14, 2006

Incline Road near the slide prior to widening, as seen looking down the Merced River
June 13, 2006

Abutment for the first (downstream bridge) being constructed alongside Incline Road, as seen from State Route 140
July 6, 2006

First bridge being lifted into place downstream of the Ferguson Slide
July 24, 2006

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Project Area Photographs (continued)

First (downstream) bridge in place across the Merced River, as seen from State Route 140
August 2, 2006

View across the deck of the first (downstream) bridge
August 2, 2006

Second (upstream) bridge being constructed, showing piers and wooden forms in the gravel bar
August 2, 2006

Metal beam guardrail along Incline Road, looking along first bridge toward State Route 140
August 2, 2006

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PROJECT DESCRIPTION: (Briefly describe project, purpose, location, limits, right-of-way requirements, and activities

The California Department of Transportation (Caltrans) has undertaken an emergency project to bypass a massive landslide on the eastbound side of State Route 140 between the communities of Briceburg and El Portal. The proposed project erected two bridges across the Merced River, one upstream of the slide area and one downstream, to divert traffic around the Ferguson Rockslide. These bridges tie into Incline Road, a former railroad alignment on the opposite side of the Merced River from State Route 140. This project is Statutorily Exempt from CEQA and is a Categorical Exclusion pursuant to NEPA unless: 1) the scope of project changes to include additional activities or areas; or 2) there is unforeseen discovery of sensitive or cultural resources.

CEQA COMPLIANCE *(for State Projects only)*

Based on an examination of this proposal, supporting information, and the following statements (See 14 CCR 15300 et seq.):

- If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law.
- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project w ill have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").
- This project does not cause a substantial adverse change in the significance of a historical resource.

CALTRANS CEQA DETERMINATION

☒ **Exempt by Statute.** (PRC 21080[b]; 14 CCR 15260 et seq.)

Based on an examination of this proposal, supporting information, and the above statements, the project is:

☐ **Categorically Exempt. Class ___.** (PRC 21084; 14 CCR 15300 et seq.)

☐ **Categorically Exempt. General Rule exemption.** [This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (CCR 15061[b][3])

Original signed by Christine Cox-Kovacevich	04/23/2008	Original signed by Grace Magsayo	04/23/2008
Signature: Environmental Branch Chief	Date	Signature: Project Manager	Date

NEPA COMPLIANCE

In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:

- does not individually or cumulatively have a significant impact on the environment as defined by NEPA and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and
- has considered unusual circumstances pursuant to 23 CFR 771.117(b) (http://www.fhwa.dot.gov/hep/23cfr771.htm - sec.771.117).

In non-attainment or maintenance areas for Federal air quality standards, the project is either exempt from all conformity requirements, or conformity analysis has been completed pursuant to 42 USC 7506(c) and 40 CFR 93.

CALTRANS NEPA DETERMINATION

☒ **Section 6004:** The State has been assigned, and hereby certifies that it has carried out, the responsibility to make this determination pursuant to Chapter 3 of Title 23, United States Code, Section 326 and a Memorandum of Understanding (MOU) dated June 7, 2007, executed between the FHWA and the State. The State has determined that the project is a Categorical Exclusion under:

- 23 CFR 771 activity (c)(_9_)
- 23 CFR 771 activity (d)(_3_)
- Activity ___ listed in the MOU between FHWA and the State

☐ **Section 6005:** Based on an examination of this proposal and supporting information, the State has determined that the project is a CE under Section 6005 of 23 U.S.C. 327.

Original signed by Christine Cox-Kovacevich	04/23/2008	Original signed by Grace Magsayo	04/23/2008
Signature: Environmental Branch Chief	Date	Signature: Project Manager	Date

Briefly list environmental commitments on continuation sheet. Reference additional information, as appropriate (e.g., air quality studies, documentation of conformity exemption, FHWA conformity determination if Section 6005 project; §106 commitments; § 4(f); § 7 results; Wetlands Finding; Floodplain Finding; additional studies; and design conditions). **Revised September 6, 2007**

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Purpose and Need

The California Department of Transportation (Caltrans) has undertaken an emergency project to bypass a massive landslide on the eastbound side of State Route 140 between the communities of Briceburg and El Portal. The slide lies within the Merced River Canyon, at a formation known as the Ferguson Ridge. Unusually heavy rainfall in March and April 2006 apparently destabilized the steep hillside above the highway, and rockslide activity began in the area on April 29, 2006. The state highway was closed to traffic periodically until concrete barriers and protective fencing were erected in late May. One lane of the highway was reopened to vehicles on the morning of May 25, but later that day another landslide damaged the barrier and the highway was closed again. On May 28, a major landslide covered approximately 183 meters (600 feet) of the highway. As a result, State Route 140 was closed to traffic from 5.1 kilometers (3.2 miles) east of Briceburg to approximately 9.7 kilometers (6.0 miles) west of El Portal.

The closure of State Route 140 created severe hardships for residents and businesses in the area. Businesses in Mariposa, El Portal, and other communities along State Route 140 suffered from a pronounced drop in summer tourist income, since travelers to Yosemite National Park were diverted away from State Route 140 to either State Routes 120 or 41. Workers and schoolchildren who normally traveled relatively short distances on Route 140 between Yosemite and El Portal to Mariposa and other nearby towns needed to take two- to three-hour detours to get to their destinations. The slide also created safety issues by compromising emergency vehicle response times in the area. It was necessary to open State 140 as soon as possible to relieve the hardships on local residents and businesses. In recognition of this fact, Governor Arnold Schwarzenegger signed a Proclamation on June 5, 2006 declaring a State of Emergency in Mariposa County. (See attachment.) This proclamation paved the way for expedited work on a temporary highway detour around the landslide, which is formally known as the "Ferguson Rockslide."

When the original emergency detour opened in August 2006, it was determined that vehicles over 28 feet in length could not utilize the detour. The limited span of the emergency bridges required them to be constructed at right angles to State Route 140 and Incline Road. The right angles of the bridges combined with narrow canyon walls created a detour alignment that resulted in a restricted turning radius at the entrances and exits of the bridges. The existing detour is closed to all tour buses, recreational vehicles, commercial trucks, emergency vehicles, and any vehicle exceeding the 28 feet in length.

Stage 3 of the build alternative is needed to provide full access to all essential traffic utilizing State Route 140 between the town of Mariposa and Yosemite National Park. Businesses of Mariposa and El Portal, as well as Yosemite National Park and tourist companies using the park, are all being hurt economically as a result of the vehicle length restrictions. Yosemite National Park and communities in Mariposa County rely heavily on full access for many types of transportation that serve tourism and residents of the area. State Route 140 is essential in supporting the Mariposa and Yosemite communities because the route is used for supplying goods and services. Prolonged closure of State Route 140 would continue to affect the economic vitality of Mariposa County, where tourism is the primary source of revenue.

Project Description

Build Alternative

The original emergency detour project erected two bridges across the Merced River to temporarily divert traffic on State Route 140 around the Ferguson Rockslide until a permanent solution can be developed and built. A Caltrans Director's Order authorizing project funding pursuant to Section 10122(a) of the Public Contract Code – Failure or Threat of Failure of Highway – was approved on June 17, 2006. An amended Director's Order authorizing funding for the remaining emergency opening work is anticipated to be approved on April 24, 2008.

The original emergency detour project rerouted highway traffic around the Ferguson Rockslide by building two temporary bridges, one upstream of the slide and another downstream of the slide. Both of these bridges tie into Incline Road, an abandoned railroad alignment (formerly used by the Yosemite Valley Railroad) that parallels State Route 140 on the opposite side of the Merced River. (See attachments and photographs that follow.) The detour project was conceived and built in two different but closely linked stages:

Stage 1

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The goal of this stage was to restore traffic flow on State Route 140 as soon as possible. Construction work began on June 22, 2006; the following major items of work were included in this stage:

- Widen Incline Road. Since Stage 1 of the detour was to use Incline Road from the slide area all the way to the existing Foresta Road Bridge at kilopost 77.6 (postmile 48.2), but since parts of Incline Road were very narrow, roadway widening was necessary in some areas. Incline Road, which was 2.4 to 3.7 meters (8.0 to 12.0 feet) wide, was widened to become a 4.0-meter (13.0-foot) wide roadbed. Approximately 4.8 kilometers (3.0 miles) of Incline Road was already paved, while approximately 3.2 kilometers (2.0 miles) was already covered with gravel and could accommodate vehicles without much additional work. However, additional gravel needed to be placed on a 1.3 kilometer (0.8 mile) stretch of Incline Road, starting at the location of the downstream bridge and going east up the road, to prepare it for temporary traffic. No additional paving was done on Incline Road at this time.

- Modify riverside slopes. Some work was required on the uphill and river sides of Incline Road to accommodate the 4 meter (13 foot) wide roadbed. The slopes above the road were cut back in several places to allow for road widening. In another location near the slide, a grader working from Incline Road cleared off and flattened a "bench" area approximately 1.8 meters (6.0 feet) wide. Rock-filled wire baskets (Hilfiker walls) were built on the river side of Incline Road at some areas to achieve the desired roadway width. This type of work was limited in order to minimize artificial alteration of slopes in the Merced River Canyon.

- Build first bridge downstream of the slide area. A one-lane modular bridge was built over the Merced River approximately 0.40 kilometer (0.25 mile) downstream of the slide, at kilopost 67.66 (postmile 42.05). First, abutments to support the bridge structure were constructed on either side of the Merced River. This was done by drilling and excavating into the rock on the banks of the Merced River, forming up a concrete abutment with wing walls, and backfilling the areas behind the new abutments with rock and soil. The riverbank area around the abutment on the State Route 140 side was built up to accommodate movement of heavy equipment. Bridge components were transported by truck up State Route 140 to the slide area, and the one-lane bridge was then assembled on-site, laid out on the highway. On July 24, 2006, the entire bridge was lifted into place across the Merced River with a large crane; several more days of work were then required to affix the bridge to the abutments and prepare it for traffic. This bridge is approximately 36.6 meters (120.0 feet) long and 7.2 meters (23.5 feet) wide, with an open deck area approximately 4.1 meters (13.5 feet) wide.

On July 31, 2006, upon completion of the downstream bridge and improvements to Incline Road, State Route 140 was reopened to limited one-way traffic. Pilot cars were arranged to escort early morning and late evening caravans of vehicles single-file through the slide area at a speed of 24 kilometers per hour (15 miles per hour). At this time the detour route was approximately 9.7 kilometers (6.0 miles) long. Traffic traveling eastbound on State Route 140 was directed onto the bridge, across the Merced River, then up Incline Road to the existing Foresta Road Bridge, where traffic crossed the Merced River and reunited with the existing highway. Westbound traffic from El Portal and Yosemite National Park used this same route in reverse. The temporary detour route accommodates vehicles up to 8.5 meters (28.0 feet) in length, and is also open to pedestrian and bicycle traffic.

Stage 2

The goal of this stage was to provide a shorter detour route that could be safely navigated by the general public without official escorts. The following major items of work were included in this stage:

- Build second bridge upstream of the slide area. A second one-lane modular bridge was built over the Merced River east of the slide area, approximately 0.8 kilometer (0.5 mile) upstream of the first bridge, at kilopost 68.35 (postmile 42.48). As with the first bridge, abutments were built on either side of the Merced River. However, due to the width of the Merced River at this bridge location, the bridge could not be built without additional support. A single pier (consisting of two columns) to help support the weight of the bridge was built within an existing gravel bar along the north side of the Merced River, which required excavation immediately adjacent to the river. Construction methods were chosen to minimize impacts to the river. Unlike the first bridge, the parts of this bridge were assembled in place from the Incline Road side, and the bridge was pushed out over the Merced River as more and more segments were added. Construction of this bridge was begun shortly after installation of the first bridge, and bridge work was scheduled to accommodate ongoing detour traffic. This bridge is approximately 73.2 meters (240.0 feet) long and 7.2 meters (23.5 feet) wide, with an open deck area approximately 4.1 meters (13.5 feet) wide.

- Install traffic control gates and signals. In order to prevent unauthorized access to the slide area, metal gates were installed on State Route 140 at kiloposts 59.9 and 69.2 (postmiles 37.2 and 43.0). The gates were

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placed at highway locations that provided good visibility and that would allow oversize vehicles a wide enough area to turn around.

- Install guardrail and pave a segment of Incline Road. After completion of the second bridge, the 0.8 kilometer (0.5 mile) long section of Incline Road between the two bridges will be widened to 5.5 meters (18.0 feet), and will be paved to accommodate re-routed highway traffic. Metal beam guardrail has been installed along the river side of this part of Incline Road between the two bridges.
- Installation of traffic signals. Traffic signals and related buried electrical facilities will eventually be installed to provide one-way traffic control through the detour area. The traffic signals will be installed on State Route 140 at each end of the detour route near the bridges; electrical facilities will be located under the paved section of Incline Road between the two bridges.

Once the second bridge is completed, traffic on State Route 140 will be escorted over one bridge to the short paved segment of Incline Road, and then back over the Merced River to Route 140 via the second bridge. The remaining length of Incline Road will not be used for the detour after completion of the second bridge. Once traffic signals are in place, the limited, escorted vehicle caravans will be discontinued, and traffic will be allowed through the detour area independently, with the signals providing one-way traffic control.

It is anticipated that the temporary detour will be in place for 18 months or more, until landslide activity stops and a future permanent project can be implemented to permanently repair or reroute State Route 140 in the vicinity of the Ferguson Slide.

Stage 3

In order to complete the emergency opening work remaining, Caltrans is proposing to construct two temporary bridges across the Merced River on a skewed alignment adjacent to the existing temporary bridges. These proposed bridges would serve as the new temporary State Route 140 detour and the existing temporary bridges would be removed. The skewed alignment of the bridges would allow a larger turning radius that can accommodate vehicles up to 45 feet in length. The proposed downstream temporary bridge is one lane, 160 feet in length, and 16 feet wide. The proposed upstream temporary bridge is one lane, 300 feet in length, 16 feet wide with one pier at the edge of the river. The pavement currently on Incline Road would be thickened with an additional layer to handle larger vehicles. The temporary traffic signals would be modified and relocated to accommodate the alignments of the new temporary bridges.

No-Build Alternative

This alternative would do nothing to address the severe transportation disruption and economic effects caused by the Ferguson Slide; therefore, it is not a viable project alternative.

Environmental Setting

The proposed project is located in north-central Mariposa County in the Merced River Canyon, approximately 16 kilometers (10 miles) west of the western boundary of Yosemite National Park, at an elevation of approximately 420 meters (1380 feet) above sea level. The project area is within the boundaries of the Stanislaus National Forest on the north side of the Merced River and within the Sierra National Forest on the south side, both of which are under the jurisdiction of the U.S. Forest Service and administered by the Sierra National Forest, Bass Lake Ranger District. The Merced River Canyon has very steep slopes; vegetation is a mix of grey pine, poison oak, interior live oak, toyon, and buckbrush. The river's edge up to State Route 140 is also very steep. Many areas of the Merced River have large quantities of rock slope protection and native rock outcrops and thus lack riparian vegetation along the slopes, but there are scattered pockets of willow and redbud along the water's edge.

Environmental Issues

California Environmental Quality Act (CEQA)

The proposed project qualifies as an emergency project pursuant to the California Environmental Quality Act (CEQA), and as such is exempt from the requirements of CEQA. Section 15269(a) of the CEQA Guidelines states that the following type of emergency undertaking is exempt from the requirements of CEQA: "Projects to maintain,

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repair, restore, demolish, or replace property or facilities damaged or destroyed as a result of a disaster in a disaster stricken area in which a state of emergency has been proclaimed by the Governor pursuant to the California Emergency Services Act, commencing with Section 8550 of the Government Code. This includes projects that will remove, destroy, or significantly alter an historical resource when that resource represents an imminent threat to the public of bodily harm or of damage to adjacent property or when the project has received a determination by the State Office of Historic Preservation pursuant to Section 5028(b) of Public Resources Code."

On June 5, 2006, Governor Arnold Schwarzenegger issued a Proclamation declaring a state of emergency in 20 counties in Northern and Central California due to storm-related damage. This proclamation specifically mentioned the site of the Ferguson Rockslide: "Whereas, on April 29, 2006, and continuing, unusually heavy rains in March and April have triggered a major landslide on State Route 140 approximately 10 miles west of the Yosemite National Park boundary, completely blocking and closing the highway." The proclamation further states that, "I find [Mariposa] county to be in a state of emergency, and under the authority of the California Emergency Services Act, set forth at Title 2, Division 1, Chapter 7 of the California Government Code, commencing with section 8550, I hereby proclaim that a State of Emergency exists in Mariposa County." This is the specific reference that must be cited in order for the project to be considered exempt from CEQA, pursuant to Section 15269(a) of the CEQA Guidelines. A copy of the Proclamation is attached. In April of 2008, Governor Arnold Schwarzenegger reiterated that Mariposa County remains in a state of emergency based on the impacts of the Ferguson Rock Slide on State Route 140.

National Environmental Policy Act (NEPA)

According to Chapter 6, Section N (Environmental Considerations) of the Federal Highway Administration's Emergency Relief Manual, "Repair projects under the Emergency Relief (ER) program must comply with the requirements of the National Environmental Policy Act (NEPA) of 1969. Emergency repairs to restore essential travel, minimize the extent of damage, or protect remaining facilities are normally classified as categorical exclusions under 23 CFR 771.117(c)(9), as are ER projects to restore permanently the existing facility in-kind at the existing location, ref. 23 CFR Part 771.117(d). However, if impacts to protected or otherwise sensitive or high-value resources are possible, advance coordination with the appropriate local, State, and Federal resource agencies should be closely considered to avoid or minimize project delays or shutdowns."

The Code of Federal Regulations (CFR) Title 23, Part 771, Section 117(c)(9), as cited above, states that, "(c) The following actions meet the criteria for CEs in the CEQ [Council on Environmental Quality] regulation (section 1508.4) and Sec. 771.117(a) of this regulation and normally do not require any further NEPA approvals by the Administration: . . . (9) Emergency repairs under 23 U.S.C. 125." The United States Code (USC) Title 23 (Highways) Section 125 (Emergency Relief) states that, "(a) General Eligibility – Subject to this section and section 120, an emergency fund is authorized for expenditure by the Secretary for the repair or reconstruction of highways, roads, and trails, in any part of the United States, including Indian reservations, that the Secretary finds have suffered serious damage as a result of – (1) natural disaster over a wide area, such as by a flood, hurricane, tidal wave, earthquake, severe storm, or landslide; or (2) catastrophic failure from any external cause."

This project was initiated to restore initial travel on a federal-aid highway damaged by landslide activity. In addition, early coordination was initiated with appropriate regulatory and jurisdictional agencies regarding potential project impacts to sensitive resources. Therefore, a Categorical Exclusion is the appropriate level of environmental review pursuant to NEPA.

After the construction of the original emergency detour project, it was determined that the detour did not provide for all essential travel in the area. The proposed work described in Stage 3 qualifies as emergency opening work remaining and would fulfill the original emergency agreement of establishing all essential travel to State Route 140.

General

The nature of the project and its setting suggest no potential for adverse impacts to socioeconomic resources. This is not a Type 1 project as defined in 23 CFR 772.5(h); it would not increase the number of through lanes or change the horizontal or vertical alignment of the affected roads, or require noise abatement measures. The project is not within the Coastal Zone. There are no wetlands in the project construction area. The project has no potential for exposure to hazardous materials. The project is not located in an area classified as Prime Farmland, and does not affect any parcels under Williamson Act contract. Section 7 consultation with the U.S. Fish and Wildlife Service is not required. No properties within the project limits are on or eligible for the National Register of Historic Places.

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The project is consistent with the plans and goals adopted by the community. The project would not involve changes in access control; however, one-way traffic control measures would be required on State Route 140 after project construction is completed. The project would not require future construction to fully utilize the design capabilities included in the proposed project. There are no publicly-owned parks, or wildlife or waterfowl refuges within project limits. The affected segment of the Merced River is used for recreational rafting. The project would not cause public controversy based on potential effects to the environment.

Merced Wild and Scenic River

The Wild and Scenic Rivers Act of 1968 established the National Wild and Scenic Rivers System and designated the first Wild and Scenic Rivers. In 1987, the U.S. Congress designated the Merced a Wild and Scenic River. Public Law 100-149, enacted on November 2, 1987, and Public Law 102-432, enacted on October 23, 1992, put 122 miles of the main and south forks of the Merced River (from its headwaters in Yosemite National Park to a point just upstream of its confluence with Bear Creek, near the community of Briceburg) into the Wild and Scenic River System.

State Route 140 in the area of the proposed project is south of and adjacent to the main fork of the Merced River. The Ferguson Rockslide and the detour project are located within a segment of the Merced Wild and Scenic River that extends from the Foresta Road Bridge westward to Bear Creek, which is under the jurisdiction of the Sierra/Stanislaus National Forest. Pursuant to Section 2 of the Wild and Scenic Rivers Act, the affected segment of the Merced River has been classified as "recreational" in nature. Recreational river areas are rivers or sections of rivers that may have some existing water impoundment or diversion, that may have some shoreline development, and that are readily accessible by road or railroad. According to the recreational classification criteria, "the existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable." Both State Route 140 and Incline Road parallel the Merced River in the project area, and there are bridge crossings of the Merced River in El Portal and Briceburg. This segment of river is also popular with recreational rafters.

On June 27, 2006, Caltrans sent a letter to Ed Cole, Forest Supervisor for the Sierra National Forest, requesting emergency approval to take any necessary measures to temporarily re-route vehicle travel around the "Ferguson Slide," despite the Wild and Scenic River designation. On June 30, 2006, Mr. Cole replied that, "The Forest Service supports and approves [Caltrans'] current efforts as outlined in your June 27 letter." The following items were listed as rationale for this approval and as important factors for consideration:

1. The slide and subsequent closure of the highway was the basis for a State Declaration of Emergency by Governor Schwarzenegger.
2. The current effort has been and continues to be articulated by Caltrans as a temporary solution only. All facilities currently being constructed are designed to be removed.
3. A permanent solution to the effects of the slide on the Highway is currently being evaluated.
4. Any permanent solution that affects the outstandingly remarkable values and/or the Standards and Guidelines for the Merced Wild and Scenic River corridor will need to be brought into compliance with the Wild and Scenic Rivers Act and the Merced Wild and Scenic River Management Plan. This would include a complete Section 7 Determination by the Regional Forester prior to commencement of any construction activities.

On April 1, 2008, Caltrans met with Federal Highways Administration (FHWA), and the Sierra National Forest to inform them that the State Declaration of Emergency by Governor Schwarzenegger was still in affect due to the continuing economic crisis in Mariposa County. Caltrans formally requested additional emergency funding from FHWA and expedited review of the proposed Stage 3 impacts of the Build Alternative.

A preliminary resource analysis was done to analyze the proposed work described under Stage 3 of the Build Alternative affect on the Wild and Scenic Merced River. During the analysis, each Outstandingly Remarkable Value within the segment of the river affected by the proposed project was assessed on whether the project would diminish the characteristics making up each value. The Outstandingly Remarkable Values along with any impacts to them are listed as follows.

Wildlife

Limestone salamanders (*Hydromantes brunus)* live in crevices of cliffs and ledges and in limestone under the canopy of foothill-oak woodland, especially where the rocks are overgrown with moss. They are active during the fall, winter, and spring rains, especially during cold spells. The Limestone salamander only occurs along some

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segments of the Merced River drainage, all of which are within an approximately 5-mile radius of the project area. The limestone salamander was designated as a threatened species by the State of California in 1971. It is also designated as fully protected, which means that an impact to this species cannot be authorized through the usual permitting process.

The proposed project would not impact the limestone salamander. Biological monitoring will occur throughout the construction of the project at regular intervals to avoid impacts to the salamander. No work upslope above the existing State Route 140 will occur.

Vegetation

The Merced River Canyon is renowned nationally and internationally for the spectacular display of wildflowers that may be seen in a good rain year. People are especially attracted to the South Fork Trail that leads to Hite's Cove, but the entire river corridor is an attraction because of the flowers' visual appeal. During plant surveys, the Forest Service sensitive plants Mariposa clarkia (*Clarkia biloba* spp. a*ustralis*) and the elongate copper moss (*Mielichhoferia elongate*) were identified. Two rare plants, the smallflower monkeyflower (*Mimulus inconspicuous*) and Tompkins' sedge (*Carex tompkinsii*), were also identified.

The proposed project would result in the minor removal of oak woodland. Any removal of oaks would be transplanted to an approved site.

For Stage 3 the following measures will be part of the project:

1) The two large interior live oaks at the downstream abutment for the upstream bridge may be felled, but the logs shall be kept as intact as possible and shall be placed nearby at a location determined by the Forest Service.
2) Prior to project implementation, a biologist should climb the 22" dbh interior live oak to determine whether the large nest toward the top of the tree is active this year or not. If it appears to be active, action will be prescribed by the Forest Service biologist at that time.
3) A minimum of five sapling interior live oaks will be transplanted to a nearby site designated by the Forest Service.
4) The two staging areas should be delimited with temporary fencing in order to prevent inadvertent damage to rare plant habitat.
5) All equipment used for the job should arrive on site free of dirt, mud, or plant parts. Generally this is accomplished by pressure washing prior to setting out the for project area.
6) The Forest Botanist will transplant the two Tompkins' sedge plants prior to start of the project.
7) The loss of the oaks, the native plant understory, and the Tompkins' sedge plants during the placement of the upstream bridge will be taken into account in the revegetation plan developed for the permanent restoration project.

Geology

The Merced River Canyon is a steep inner gorge with highly fractured rocks that formed as a result of tectonic uplifting and the cutting of the Merced River. Exposure of the rocks within the canyon has provided an opportunity for understanding the geologic history of the area. Within the Merced River near the rockslide, there appears to be a rapid that probably formed from deposits left by a previous rockslide. The Ferguson rockslide is considered to be a natural feature that is thousands of years old. It is unlikely that State Route 140 aggravated or initiated the most recent movement of the rockslide.

The proposed project would not impact geologic resources.

Cultural/History Benefits

The Merced River contains a site where there is evidence of occupation or use by Native Americans. The site may have national or regional importance for interpreting prehistory. Sites are of particular importance if they are listed in or eligible for inclusion in the National Register of Historic Places. The Merced River corridor contains features associated with historic mining, logging, and transportation. These features include the Yosemite Valley Railroad Grade, Jenkins Hill Trail, and State Route 140.

The proposed project would not impact cultural/historical benefits.

Recreation

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The recreational outstandingly remarkable value consists of three primary recreational activities, which are whitewater boating, camping, and hiking. Whitewater boating is the most popular activity on the river within the project area and has been occurring on the river since the 1970s, averaging nearly 8,000 to 10,000 boaters annually. The Merced River draws boaters from other states as well as from some of the major cities within California. The whitewater boating season typically begins in March and ends in June or July depending on the snow pack.

Camping is considered very rare within the project area because of the steep canyon walls found in the project area. More suitable camping opportunities s uch as flat open areas are found upstream of the project area near Foresta Bridge. Incline Road provides opportunities for hiking and biking and is occasionally used by equestrian riders.

The proposed project would have minimal short-term impacts on whitewater rafting and boating activities. Measures to reduce these impacts include:

1. Construction occurring **Monday – Thursday** will be coordinated with US Forest Service, Bureau Of Land Management (BLM), and the commercial outfitters to minimize impacts to the Recreational ORV. Spotters will be placed at the rafting put-in locations and upstream from the construction area to identify time periods during which construction will need to be suspended to allow boating to continue through the project area.
2. Construction will occur from 8:00 PM till 8:00 AM, **Friday - Sunday**. (From 8:00 AM to 8:00 PM Construction is suspended except for construction activities which will not impact traffic or involve work in, alongside, or above the river that can impede boating opportunities.)
3. Construction will be suspended on **Memorial Day Weekend** from Thursday May 22, 2008 – Monday May 26, 2008 and on **July 4th Weekend** from Thursday July 3, 2008 – Monday July 7, 2008.
4. A minimum of a two week notice will be provided to the Forest Service and the Bureau of Land Management (BLM), and the commercial outfitters prior to Caltrans closing the river to install the new temporary bridges or remove the existing temporary bridges. Any closure for installation or removal of the temporary bridges will be conducted on a Wednesday. An additional 48 hour notification will occur to provide specific times that river will be closed on Tuesday afternoon and when it will be open to rafting Thursday morning.
5. Any bridge abutments or pillars that are installed in the river will be located out of the main current and preferably in an eddy. A recreational use specialist will be present to provide input on the pillar and abutment locations during installation.
6. Any road closures will be planned in coordination with Forest Service and BLM and commercial outfitters. Notification of closures will occur a minimum of two weeks prior to the closure. An additional 48 hour notice will be provided for specific times of anticipated delays to minimize the impacts to the Recreational ORV.
7. Trail use opportunities will be restored at the earliest possible date.

Visual/Scenic Resources

State Scenic Highway

Select segments of the California state highway system are designated as state scenic highways. This designation identifies those portions of the state highway system, which together with the adjacent scenic corridors, will require special scenic conservation treatment. The scenic highway includes not only the pavement or traveled roadway but also the entire publicly owned right-of-way. The scenic corridor is often described as "the view from the road." The view may be a distant panorama as well as the immediate roadside area. A corridor should encompass the outstanding natural features and picturesque landscapes which qualify the highway as scenic; the corridor width will vary depending on terrain, vegetation, and development. With regards to the Wild and Scenic Rivers Act, "the view from the river" should be considered a contributing element to the recreational outstandingly remarkable value.

The segment of State Route 140 from kiloposts 36.7 to 80.3 (postmiles 22.8 to 49.9) is an officially designated state scenic highway. The proposed temporary detour project falls within this segment of highway.

Generally, CEQA would not allow preparation of a Categorical Exemption (CE) for a project within a state scenic highway corridor. Article 18, Section 15269(d) of the CEQA Guidelines states that the following emergency projects are exempt from the requirements of CEQA: "Projects undertaken, carried out, or approved by a public agency to maintain, repair, or restore an existing highway damaged by fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide, provided that the project is within the existing right of way of that highway and is

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Caltrans is also pursuing its responsibilities under Section 106 of the National Historic Preservation Act, and has notified appropriate Native American tribes or interested individuals about the detour project. If cultural resources are inadvertently encountered during the course of project construction, Caltrans will notify appropriate representatives from the Federal Highway Administration (FHWA) and SHPO, and steps will be taken to address the discovery.

Floodplains

Executive Order No. 11988, Floodplain Management, was guidance enacted in May 1977 to "avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

The pier of the second bridge was built within the active channel (2-year floodplain) and therefore in the 100-year base flood plain elevation of the Merced River. However, project activities were designed to minimize floodplain impacts, and since this detour project is being undertaken pursuant to a declared emergency, there was no practicable alternative to placing a bridge pier in the Merced River floodplain. This will also be the case for Stage 3 of the project.

Water Quality/Stormwater

Work on the detour project occurred in and adjacent to the Merced River. In order to protect the sensitive river environment, numerous Best Management Practices (BMPs) were implemented during project construction, as described in the March 1, 2003 Caltrans Storm Water Quality Handbook – Construction Site Best Management Practice Manual. BMPs implemented include ones addressing temporary soil stabilization, temporary sediment control, wind erosion control, tracking control, non-storm water management, and waste management and materials pollution control. The BMPs will continue to be implemented throughout the construction of Stage 3 of the Build Alternative.

Despite these measures and customary construction site precautions, an accident occurred on July 6, 2006 during which one of the wooden abutment forms failed while concrete was being poured into it. Approximately 3.8 cubic meters (5.0 cubic yards) of wet concrete entered the Merced River, and another 0.4 cubic meter (0.5 cubic yard) of concrete was spilled on the riverbank. The material that entered the river dissipated very quickly due to high water flows, and the material that was spilled on the bank was cleaned up as soon as possible. The construction contractor filled out an incident report on the spill, which was forwarded to key Caltrans personnel. Caltrans staff immediately notified key jurisdictional agencies of the spill, including the Army Corps of Engineers, the Department of Fish and Game, and the Sierra National Forest. A Notice of Discharge was also prepared and submitted to the Regional Water Quality Control Board.

Air Quality

Mariposa County is designated an Unclassified/Attainment area for the following pollutants: carbon monoxide (CO), particulate matter (PM 10 and PM 2.5), and 1-hour ozone (O_3). The County is in a Non-attainment area for 8-hour ozone.

Air pollutants were generated during project construction. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, the largest percentage of construction-related airborne pollutants is windblown dust generated during excavation, grading, hauling, and various other activities.

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

Agency Coordination and Permits Required

Agency Coordination

On Monday, June 5, the Sierra National Forest activated a Federal Incident Management Team to work with Local, State and Federal Agencies who are coordinating emergency efforts on the Ferguson Rockslide. The agencies

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involved in this effort are listed below. In addition, Caltrans environmental staff members have had direct contact with several of the following agencies – in these instances, the agency name is underlined, and the issues discussed are listed behind the agency name.

- USDA Forest Service (Sierra National Forest) – Dave Martin, District Ranger for the Bass Lake Ranger District, was contacted about work in the Merced Wild and Scenic River corridor, and regarding aquatic and botanical resources in the project vicinity. Ed Cole, Forest Supervisor, gave written authorization for work to proceed within the Merced River Wild and Scenic River area on June 30, 2006. U.S. Forest Service representatives Gayne Sears, Lands Officer for the Bass Lake Ranger District, and Joanna Clines, Forest Botanist, were also consulted.

  The U.S. Forest Service met with Caltrans regarding the propos ed Stage 3 work on April 1, 2008. The U.S. Forest Service began coordinating with Caltrans on the preparation of a Wild and Scenic River Section 7 analysis.
- Caltrans
- Pacific Gas & Electric
- Mariposa County Sheriff's Office
- Mariposa County Fire
- U.S. Army Corps of Engineers - The Corps verbally communicated with Mr. Kome Ajise, Caltrans District 10 Director, that work could proceed on Saturday, June 24, 2006 to mobilize equipment to the staging area and complete pre-construction testing activities. Corps representative Laura Whitney was contacted regarding work in and around the Merced River, and assisted in processing a conditional General Permit 60 "For Repair and Protection Activities in Emergency Situations," which was issued to Caltrans on June 26, 2006.

  The U.S. Army Corps of Engineers has been verbally notified about the proposed Stage 3 work. They have requested that Caltrans prepare an amended Conditional Regional General Permit 60 "For Repair and Protection Activities in Emergency Situations".
- Merced Irrigation District
- Department of Water Resources
- National Park Service, Yosemite National Park – Several National Parks representatives (Elexis Mayer, Sue Beatty, Steve Thompson, Dennis Matsui, Jo Myer, Nick Nicholas, and Jim Roche) were consulted regarding the Merced Wild and Scenic River, hydraulics, and other issues.
- Bureau of Land Management
- California Highway Patrol
- Office of Emergency Services
- California Dept. of Forestry and Fire Protection
- Mariposa Public Utility District
- California Department of Fish and Game – Clarence Mayott was contacted and coordination continues to ensure all the work proposed complies with the 1602 Streambed Alteration Agreement.

  The California Department of Fish and Game has been verbally notified about the proposed Stage 3 work. They have requested that Caltrans prepare an amended 1602 Streambed Alteration Agreement.

In addition, the following agencies and individuals have also been contacted:

- The State Historic Preservation Officer was contacted about the abandoned Yosemite Valley Railroad.
- The U.S. Army Corps of Engineers (Laura Whitney) was contacted regarding detour work in and around the Merced River.
- The California Regional Water Quality Control Board (Margarita Gordus) has been contacted regarding a permit pursuant to Section 401 of the Clean Water Act. Coordination is ongoing.

Permits Required

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Due to the emergency nature of this temporary detour project, several permits normally obtained in writing have been obtained verbally, in order to expedite work on the project. The following regulatory agencies have been consulted for this project:

- The California Department of Fish and Game (CDFG) – DFG gave Caltrans verbal approval to proceed with emergency work, and agreed to process a 1602 Streambed Alteration Agreement after completion of project construction. (2006)

  The amended 1602 Streambed Alteration Agreement would be issued following the completion of the Stage 3 work. (2008)

- The U.S. Army Corps of Engineers (ACOE) – A conditional Regional General Permit 60 "For Repair and Protection Activities in Emergency Situations" was issued to Caltrans by ACOE on June 26, 2006.

  The amended Conditional Regional General Permit 60 would be issued following the U.S. Army Corps of Engineers receipt of the No Adverse Section 7 Determination from the U.S. Forest Service. (2008)

- The Regional Water Quality Control Board (RWQCB) – A 401 Water Quality Certification will be processed after completion of the project. Verbal confirmation of this is pending. (2006)

  An amended 401 Water Quality Certification would be issued for Stage 3 work following the approval of the amended General Permit 60. (2008)

- The Regional Water Quality Control Board (RWQCB) – Since this project will disturb more than one acre of soil, it is subject to requirements under a statewide Caltrans National Pollutant Discharge Elimination System (NPDES) permit.

- The U.S. Forest Service – A special use permit for work on U.S. Forest Service (USFS) property has been requested and this document provides the bas is for issuance of that permit. USFS has verbally provided concurrence that the permit will be issued, which includes mitigation measures to minimize harm.

  A No Adverse Determination on the Wild and Scenic Merced River is anticipated to be issued on Wednesday, April 23, 2008 by the U.S Forest Sevice.

Environmental Provisions

Invasive Species

- All earth moving equipment must enter the project area free of dirt, dust, mud, seeds, or other potential contaminants. Equipment exhibiting any dirt or other material attached to frame, tires, wheels, or other parts shall be thoroughly cleaned by the Contractor before entering or leaving the project area. Areas inspected shall include tracks, track guard/housings, belly pans/under covers, buckets, rippers, and other attachments.
- Ground disturbance must be minimized to the greatest extent possible.
- Only certified weed-free erosion control materials will be used. All mulches and seed material shall be certified weed free by the Mariposa County Agricultural commissioner prior to being used at the project site.

Water Quality/Stormwater

- Best Management Practices (BMPs) must be implemented during project construction to ensure that the project would not adversely affect quality of storm water discharge from the highway, as described in the March 1, 2003 Caltrans Storm Water Quality Handbook – Construction Site Best Management Practice Manual

Cultural Resources

- Environmental reevaluation would be required if the scope of the project changes to include additional areas or activities, or if previously unknown sensitive resources are discovered. If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find (Caltrans Environmental Handbook, Volume 2, Chapter 2, Section 2-4.4). If human remains are exposed during project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition, pursuant to Public Resources Code 5097.98.

General

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- The project area must be re-graded to match pre-construction conditions after the installation of the bridge piers and abutments.

Caltrans Environmental Staff

Stage 1, 2:		Stage 3:	
Margaret Lawrence	Environmental senior	Christine Cox-Kovacevich	Environmental Office Chief
Kathy Ikeda	Environmental coordinator	Juergen Vespermann	Environmental senior
Kursten Sheridan	Biologist	Matthew Voss	Environmental coordinator
Jackie Wait	Archaeologist	Carrie Blickenstaff	Biologist
Virginia VonBerg	On-site environmental monitor	Sarah Johnston	Archaeologist

Project Area Photographs (Stages 1 and 2)

The Ferguson Rockslide covering State Route 140 and entering the Merced River
June 14, 2006

Incline Road near the slide prior to widening, as seen looking down the Merced River
June 13, 2006

Abutment for the first (downstream bridge) being constructed alongside Incline Road, as seen from State Route 140
July 6, 2006

First bridge being lifted into place downstream of the Ferguson Slide
July 24, 2006

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Project Area Photographs (continued)

First (downstream) bridge in place across the Merced River, as seen from State Route 140
August 2, 2006

View across the deck of the first (downstream) bridge
August 2, 2006

Second (upstream) bridge being constructed, showing piers and wooden forms in the gravel bar
August 2, 2006

Metal beam guardrail along Incline Road, looking along first bridge toward State Route 140
August 2, 2006

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Proclamation

Governor Schwarzenegger Proclaims State of Emergency in Mariposa County

EXECUTIVE DEPARTMENT

STATE OF CALIFORNIA

PROCLAMATION
by the
Governor of the State of California

WHEREAS a series of severe rainstorms that commenced on December 19, 2005 brought unusually heavy rains that caused flooding, mudslides, the accumulation of debris, washed out and damaged roads, and the loss of human life to Northern and Central California counties; and

WHEREAS I, ARNOLD SCHWARZENEGGER, Governor of the State of California, found that conditions of extreme peril to the safety of persons and property existed in 34 counties as a result of the series of severe rainstorms that commenced on December 19, 2005, and issued State of Emergency Proclamations on January 2, 3, and 12, 2006; and

WHEREAS on April 10 and 13 and May 2, 2006, I proclaimed a state of emergency in a total of 20 counties because of severe weather conditions commencing on March 29, 2006, and continuing, that brought unusually heavy rainfall flooding, mudslides, the accumulation of debris, washed out and damaged roads, and the failure of local levees; and

WHEREAS on May 10, 2006, I proclaimed a state of emergency in a total of 40 counties due to the heavy rains, severe weather, and the damage caused to the transportation infrastructure and ordered the Department of Transportation to seek through the Federal Highway Administration's Emergency Relief Program, Title 23, United States Code section 125, federal assistance for highway repairs; and

WHEREAS on April 29, 2006, and continuing, unusually heavy rains in March and April have triggered a major landslide on State Route 140 approximately 10 miles west of the Yosemite National Park boundary, completely blocking and closing the highway.

I, ARNOLD SCHWARZENEGGER, Governor of the State of California, find that conditions of extreme peril to the safety of persons and property exist within the county of Mariposa resulting from heavy rainfall and landslide movement commencing on April 29, 2006, and continuing. The landslide caused significant damage to public property, and the resulting disruption to highway travel has caused economic losses to businesses and has restricted the mobility of the public and emergency vehicles. Because the magnitude of this landslide exceeds the capabilities of the services, personnel, equipment and facilities of Mariposa County, I find the county to be in a state of emergency, and under the authority of the California Emergency Services Act, set forth at Title 2, Division 1, Chapter 7 of the California Government Code, commencing with section 8550, I hereby proclaim that a State of Emergency exists in Mariposa County.

Pursuant to this proclamation, I hereby direct, to ensure adequate resources and personnel are available to perform emergency response and recovery in Mariposa County where I have proclaimed a State of Emergency, that the California Department of Transportation immediately request assistance through the Federal Highway Administration's Emergency Relief Program, Title 23, United States Code section 125, to obtain federal assistance for highway repairs or reconstruction in Mariposa County.

I FURTHER DIRECT that as soon as hereafter possible, this proclamation be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this proclamation.

IN WITNESS WHEREOF I have here unto set my hand and caused the Great Seal of the State of California to be affixed this the fifth day of June 2006.

/s/ Arnold Schwarzenegger

Governor of California

* * *

Proclamations are posted as soon as possible but may not always be available on the day they are issued.

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Noise Study Report, May 2010
Water Quality Assessment, January 2013
Natural Environment Study, January 2013
Location Hydraulic Studies, July 2008
Historical Property Survey Report, January 2013

- Historic Resource Evaluation Report
- Archaeological Survey Report

Initial Site Assessment, July 2009
Visual Impact Assessment, April 2009
Paleontology Identification Report, August 2008
Geotechnical Design Report, March 2008
Economic Impact Report, May 2007
Community Impact Assessment, July 2007
River Geomorphology Report, January 2009
Recreation Survey Report, June 2011