197/199 Safe STAA Access Project

Draft Environmental Impact Report/ Environmental Assessment and Resources Evaluated Relative to the Requirements of Section 4(f)

State Clearinghouse Number: 2008082128

SR 197 and US 199 in Del Norte County
Ruby 1, 01-DN-197-PM 4.5; Ruby 2, 01-DN-197-PM 3.2-4.0;
Patrick Creek Narrows, 01-DN-199-PM 20.5-20.9, PM 23.92-24.08, & PM 25.55-25.65;
The Narrows, 01-DN-199-PM 22.7-23.0; Washington Curve, 01-DN-199-PM 26.3-26.5
EA: 01-48110, 01-45490, 01-45000, 01-47940, 01-44830

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 Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

June 2010

Caltrans

General Information about This Document

What's in this document:

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Environmental Impact Report/Environmental Assessment (EIR/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Del Norte County, California. The document tells you why the project is being proposed, what alternatives have been considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Read this EIR/EA. Additional copies of this document, as well as the supportive technical studies, are available for review at the Department's District 1 offices located at 1656 Union Street, Eureka, CA 95501.
- We welcome your comments. If you have any comments regarding the proposed project, please send your written comments to the Department's District 1 North Region Environmental by the deadline below.
  - Submit comments via postal mail to: Kimberly Hayler, California Department of Transportation, North Region Environmental, Unit E1, P.O. Box 3700, Eureka, CA 95502
  - Submit comments via email to: kimberly_hayler@dot.ca.gov
  - Submit comments by the deadline: August 23, 2010

What happens next:

After comments are received from the public and reviewing agencies, the Department, as assigned by the FHWA, may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the Department 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 Department of Transportation, Attn: Kimberly Hayler, California Department of Transportation, North Region Environmental, Unit E1, P.O. Box 3700, Eureka, CA 95502; (707) 441-2058 Voice, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

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Draft Environmental Impact Report/ Environmental Assessment and Resources Evaluated Relative to the Requirements of Section 4(f)

SR 197 and US 199 in Del Norte County

Ruby 1, DN 197-PM 4.5 (EA 01-481100)

Ruby 2, DN 197-PM 3.2–4.0 (01-454900)

Patrick Creek Narrows, DN 199-PM 20.5–20.9 (Location 1), PM 23.92–24.08 (Location 2), PM 25.55–25.65 (Location 3) (EA 01-479400)

The Narrows, DN 199-PM 22.7–23.0 (EA 01-450000)

Washington Curve, DN 199-PM 26.3–26.5 (EA 01-448300)

June 2010

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

STATE OF CALIFORNIA
Department of Transportation

Approved By: _____ Date: June 28, 2010

Charles C. Fielder
District 1 Director
California Department of Transportation

Summary

Introduction

The California Department of Transportation (Department) is proposing to construct improvements at spot locations on State Route 197 (SR 197) and U.S. Highway 199 (US 199) in Del Norte County to be able to reclassify the routes as part of the Surface Transportation Assistance Act (STAA) truck route network. The proposed project is made up of five previously identified, separately proposed projects. These five projects are referred to as Ruby 1, Ruby 2, Patrick Creek Narrows (Locations 1, 2, and 3), the Narrows, and Washington Curve and include a total of seven locations. The proposed project combines these five projects into one and makes use of the names of the five projects to identify the location of each improvement currently proposed. All seven project locations have roadway geometries that can result in STAA trucks and other long-wheelbase vehicles offtracking across the double yellow line and entering the oncoming traffic lane. Additionally, the limited sight distances at all seven project locations do not allow enough time for drivers to react to roadway conditions ahead and make timely decisions to avoid unexpected conditions ahead.

Overview of Project Area

The proposed project is located in Del Norte County on SR 197 and US 199, east of US 101. The project vicinity and locations are shown in Figure 1-1. Within the project limits, SR 197 and US 199 are rugged, two-lane conventional highways with tight curves and steep cut-slopes providing narrow traffic lanes with narrow shoulders, if shoulders exist.

SR 197 is the designated route for the movement of extralegal[1] truck loads between US 101 and the SR 197/US 199 intersection because it avoids traversing Jedediah Smith Redwoods State Park (located along the westernmost segment of US 199 between US 101 and the SR 197/US 199 intersection) and therefore minimizes impacts on the park and associated environmental resources. SR 197, also known as North Bank Road, is a curvilinear two-lane highway built in 1930s. It is an important link between US 199 and US 101. SR 197 primarily serves regional and interregional traffic, providing access to homes and public recreational facilities along the Smith River, including Ruby Van Deventer County Park, which provides river access.

Within the project limits, US 199 traverses the canyon of the Middle Fork Smith River. US 199 within the project limits was built in the early 1920s. Highway attributes that characterize this area include cliffs, rocky outcrops, dramatic views of the Middle Fork Smith River, and a tightly curved alignment. US 199 links US 101 north of Crescent City to I-5 in Grants Pass.

[1] An *extralegal load* is defined in CVC Section 320.5 as a single unit or an assembled item that, because of its design, cannot be reasonably reduced or dismantled in size or weight so that it can be legally transported as a load without a permit as required by CVC Section 35780. This code section does not apply to loads on passenger cars. Section 35780 requires permits for variances such as size and weight.

Purpose and Need

The primary purpose of the proposed project is to improve spot locations on SR 197 and US 199 in Del Norte County so that two STAA trucks passing in opposite directions can be accommodated, while minimizing environmental impacts. By making improvements to accommodate STAA trucks, the prohibition for STAA vehicles would be removed, and the safety and operation of US 199 and SR 197 would be improved. This would improve goods movement and also enhance safety on the routes for automobiles, trucks, and other large vehicles such as motor-homes, buses, and vehicles pulling a trailer.

The lack of STAA truck access on the SR 197–US 199 corridor restricts options for goods movement between Crescent City and Interstate 5 (I-5). Safety-enhancing improvements, including wider lanes, wider shoulders, longer-radius curves, and improved sight distances, are needed to provide a roadway that is easier to maneuver for all users. These improvements are also necessary within the project limits on the SR 197–US 199 corridor to allow safe STAA truck access, which would allow reclassification of the corridor as part of the STAA network of truck routes.

US 199 serves as Del Norte County's most direct transportation link to the interstate highway system (I-5 in Grants Pass, Oregon). The Del Norte County Local Transportation Commission considers US 199 to be the route that contributes the most to goods movement and mobility in support of the county's economy. SR 197 is the designated route for the movement of extralegal loads[2] between US 101 and US 199 (California Department of Transportation 1999a); therefore, it is a secondary component of this transportation link. SR 197 is the existing designated route for the movement of extralegal truck loads between US 101 and the SR 197/US 199 intersection. The SR 197–US 199 corridor is important for the goods movement because Del Norte County has neither a railway nor a deep-water shipping port. Most heavy-freight trucks leaving Del Norte County are hauling export goods bound for distribution hubs and population centers via the most expeditious route.

Alternative access to the interstate highway system is much less direct. Currently, STAA trucks that travel north on US 101 through Del Norte County to I-5 in Grants Pass must travel approximately 247 miles and more than 5 hours. Conversely, with STAA truck access on US 199, a one-way journey to I-5 in Grants Pass would be approximately 90 miles and less than 2 hours (Fehr & Peers 2010). To use US 199 to reach the interstate highway system presently, STAA truck cargo being transported from US 101 must be unloaded and transferred to shorter trucks before entering the SR 197–US 199 corridor; for trailers shorter than 48 feet, tractors can be swapped before entering the corridor.

[2] An *extralegal load* is defined in California Vehicle Code Section 320.5 as a single unit or an assembled item that, because of its design, cannot be reasonably reduced or dismantled in size or weight so that it can be legally transported as a load without a permit as required by California Vehicle Code Section 35780. This code section does not apply to loads on passenger cars. Section 35780 requires permits for variances such as size and weight.

Proposed Project

A summary of the proposed project is described below by project site. Alternatives are described where alternatives are proposed.

Ruby 1 (SR 197: PM 4.5)

One build alternative is being considered at this project location. To improve the roadway, the curve of the road would be lengthened and shoulders would be increased from their existing 0- to 1-foot widths to new varying widths. To match the new roadway width, two existing culverts would be extended and new drainage inlets installed.

Ruby 2 (SR 197: PM 3.2 to 4.0)

Three build alternatives are being considered at this project location: Four-Foot Shoulders, Two-Foot Shoulders, and Two-Foot Widening in Spot Locations Alternatives. Each alternative would improve the existing road curve, roadbed elevation, and roadway width. To match the new roadway width, four culverts would be extended or replaced. The approaches to eight private roads and one public road would be upgraded to match the modified roadway. The differences in the three alternatives are described briefly below.

Four-Foot Shoulders Alternative

This alternative would increase the shoulder widths to 4 feet on both sides of the roadway.

Two-Foot Shoulders Alternative

This alternative would increase the shoulder widths to a minimum of 2 feet on both sides of the roadway.

Two-Foot Widening in Spot Locations Alternative

This alternative would increase the shoulder widths to 2 feet in spot locations.

Patrick Creek Narrows Location 1 (US 199: PM 20.5 to 20.9)

One build alternative is being considered at this project location. The existing roadway curves would be improved and the roadway would be widened to accommodate two 12-foot-wide lanes and 4-foot shoulders. To accommodate the widening and broader roadway curves, an approximately 350-foot-long, 6-foot-tall retaining wall is proposed along the river side of the road above a portion of the existing steep rock-armored riverbank. An existing 36-inch culvert would be replaced with a longer culvert to match the new roadway width at the inlet and outlet. Also, two 18-inch culverts would be replaced with 24-inch culverts.

Patrick Creek Narrows Location 2 (US 199: PM 23.92 to 24.08)

Three alternatives for improvements are being considered at this project location: the Upstream Bridge Replacement, Downstream Bridge Replacement, and Bridge Preservation with Upslope Retaining Wall Alternatives. The alternatives would realign and widen the existing 11- to 12-foot lanes to 12 feet and would increase the shoulders to a width of 4 to 8 feet. A cut slope of 1:1 is anticipated. Because of the fractured nature of the bedrock, rock fall may be expected after construction. Therefore, a permanent rock-fall mitigation system may be needed. This could consist of a wire-mesh drape or incorporate a rock-fall catchment area at roadway level. One culvert within the limits within this project location would be replaced to match the new roadway width. The differences in the three alternatives are described briefly below.

Upstream Bridge Replacement Alternative

This alternative would replace the existing Middle Fork Smith River Bridge with a bridge upstream from its current location. In addition a retaining wall/rock bolting[3] or rock net drapery would be constructed on the cut slope side of the highway. The retaining wall/rock bolting area would be approximately 400 feet long and up to 100 feet high.

Downstream Bridge Replacement Alternative

This alternative would replace the existing bridge with a bridge downstream from the current location. In addition to the retaining wall discussed above under the common features, an additional retaining wall or viaduct would be constructed downstream from the new bridge extending for approximately 250 feet and transition directly into the proposed new bridge approach.

Bridge Preservation with Upslope Retaining Wall Alternative

This alternative would retain the existing bridge but realign the roadway on either end of the bridge to allow large trucks to cross. In addition to the retaining wall discussed above under the common features an additional retaining wall/rock bolting or rock net drapery would be constructed on the cut slope side of the highway, measuring approximately 300 feet long and up to 100 feet high.

Patrick Creek Narrows Location 3 (US 199: PM 25.55 to 25.65)

One build alternative is being considered for this project location. This alternative would increase the shoulder width to 4 feet on both sides of the road and straighten the current “S” curve. To support the wider roadway, an approximately 135-foot-long wall up to an approximate height of 15 feet is proposed on the river side. Two culverts within the limits of this project location would be replaced to match the new roadway width.

[3] The purpose of rock bolting is to pin two planes of rock together by bolting the slipping plane to a solid rock plane. Rock bolts secure permanent steel bars that are grouted, tensioned, and locked into place with a metal faceplate on the final cut slope.

The Narrows (US 199: PM 22.7 to 23.0)

One build alternative is being considered for this project location. This alternative would increase lane widths to 12 feet and provide 2-foot shoulders. Widening would be accomplished by excavating into the existing cut slope. A 1-foot-wide paved drainage ditch would be added at the shoulder of the road for a total paved width of 29 feet. One new culvert and drain inlet would be constructed. Also, an existing culvert and drain inlet would be replaced to match the new edge of pavement. In addition to roadway widening, isolated outcrops of overhanging or loose rock above the excavation limits would be stabilized with rock bolting.

Washington Curve (US 199: PM 26.3 to 26.5)

Two build alternatives are being considered at this project location: the Cut Slope and the Retaining Wall Alternatives. The features common to both build alternatives include the following. These alternatives would straighten the compound curve at this project location and increase the lane width to a minimum of 12 feet. One culvert would be replaced to match the new roadway. The differences in the two alternatives are described briefly below.

Cut Slope Alternative

A new slope would be excavated on the cut slope side of the roadway and the shoulders would be widened to 2 to 6 feet.

Retaining Wall Alternative

This alternative would construct a retaining wall along the cut slope of the roadway to provide additional roadway width.

CEQA/NEPA Environmental Document

The proposed project is a joint project by the Department and the Federal Highway Administration (FHWA), and is subject to state and federal environmental review requirements. Therefore, project documentation has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Department is the lead agency under CEQA. 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 the Department under its assumption of responsibility pursuant to 23 U.S. Code 327.

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

Following receipt of public comments on the Draft EIR/EA and circulation of the Final EIR/EA, the Department will be required to take actions regarding the environmental document. The

Overriding Considerations under CEQA and to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) under NEPA.

Project Impacts

Potential effects of the proposed project are summarized in Table S-1. Each potential effect is categorized as having either "no impact," if it would not affect a given environmental topic; "no adverse impact," if it would not have a harmful effect on an environmental topic; or "adverse," if it could have a significant effect on an environmental topic. Details of each environmental topic, potential effect, and associated avoidance, minimization, and/or mitigation measures are discussed in Chapters 2.

Coordination with Other Public Agencies

Table S-2 describes the permits, reviews, and approvals required for project construction. This information is reiterated in Table 1-5 in Chapter 1.

Table S-2. Permits and Approvals

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act (ESA) Section 7 consultation for threatened and endangered species	Ongoing
National Marine Fisheries Service (NMFS)	ESA Section 7 consultation for threatened and endangered species	Ongoing
U.S. Army Corps of Engineers	Clean Water Act (CWA) Section 404 authorization for fill of waters of the United States	Ongoing
U.S. Department of Agriculture Forest Service	Coordination based on Forest Service sensitive and Northwest Forest Plan species, tree removal permit**,** scenic byway and Wild and Scenic River concurrence for the Middle Fork Smith River (US 199), Section 4(f) coordination and concurrence, and coordination for conducting work within the Department's right-of-way easement held by the Forest Service	Ongoing
Del Norte County Parks Department	Temporary easement in Ruby Van Deventer County Park for driveway improvements	Ongoing
California Department of Fish and Game	California Fish and Game Code Section 1602 streambed alteration agreement, Section 2080.1 agreement, and consistency determination with biological opinions prepared by the USFWS and NMFS	Ongoing
National Park Service	Wild and Scenic River concurrence for the Smith River	Completed
North Coast Regional Water Quality Control Board	CWA Section 401 water quality certification and coverage under the Department's National Pollutant Discharge Elimination System permit (Order 00-06-DWQ)	Ongoing
North Coast Unified Air Quality Management District	Formal notification submitted a minimum of 14 days before construction, permit for compliance with national emission standards for hazardous air pollutants, acceptance of dust control plan, and acceptance of lead compliance plan	Not yet initiated
State Lands Commission	Potential permit for riverbank/channel work at Patrick Creek Narrows Location 2	Not yet initiated

Table S-1. Summary of Potential Effects at SR 197 and US 199 Project Sites

Environmental Topic	Potential Effect	SR 197 Sites and Build Alternatives				US 199 Sites and Build Alternatives								No Build (No Action) Alternative
		Ruby 1	Ruby 2			Patrick Creek Narrows Location 1	Patrick Creek Narrows Location 2			Patrick Creek Narrows Location 3	The Narrows	Washington Curve		
			Four-Foot Shoulders	Two-Foot Shoulders	Two-Foot Shoulders in Spot Locations		Upstream Bridge Replacement	Downstream Bridge Replacement	Bridge Preservation with Upslope Retaining Wall			Cut Slope	Retaining Wall	
Land Use Consistency	Consistency with Crescent City General Plan	Consistent	Consistent			Consistent	Consistent			Consistent	Consistent	Consistent		Consistent
	Consistency with County General Plan	Consistent	Consistent			Consistent	Consistent			Consistent	Consistent	Consistent		Consistent
	Consistency with Six Rivers National Forest/Smith River National Recreation Area	Consistent	Consistent			Consistent	Consistent			Consistent	Consistent	Consistent		Consistent
	Consistency with Mission of Del Norte Local Transportation Commission	Consistent	Consistent			Consistent	Consistent			Consistent	Consistent	Consistent		Consistent
	Consistency with Smith River Scenic Byway	Consistent	Consistent			Consistent	Consistent			Consistent	Consistent	Consistent		Consistent
	Consistency with Existing Land Uses	Consistent	Consistent			Consistent	Consistent			Consistent	Consistent	Consistent		Consistent
Wild and Scenic Rivers	Potential Impacts to Wild and Scenic Rivers	No impacts	No impacts			No impacts	No adverse impacts			No impacts	No impacts	No impacts		No impacts
Parks and Recreation	Temporary Effects on Parks and Recreation Facilities During Construction	No adverse impacts				No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Growth	Potential for Growth Impacts	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Community Character and Cohesion	Temporary Construction-Related Access and Circulation Impacts	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Temporary Impacts on Parking During Construction	No adverse impacts	No impacts	No impacts	No impacts	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Relocations and Real Property Acquisitions	Property Acquisitions for Permanent Right-of-Way	No impacts	No adverse impacts	No adverse impacts	No adverse impacts	No impacts	No adverse impacts	No impacts	No adverse impacts	No adverse impacts	No impacts	No impacts		No impacts
Utilities/Emergency Services	Temporary Delays for Law Enforcement, Fire, and Emergency Service Providers	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Traffic and Transportation/Pedestrian and Bicycle Facilities	Traffic Delays During Construction (see Chapter 1, Tables 1-2 and 1-3)	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Visual/Aesthetics	Change the Existing Visual Character or Quality of Project Site and its Surroundings	No adverse impacts	No adverse impacts	No adverse impacts		No adverse impacts	No adverse impacts	No adverse impacts		No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts	No impacts
Cultural Resources	Potential Cultural Resource Impacts	No impacts	No impacts			No impacts	No impacts			No impacts	No impacts	No impacts		No impacts
Hydrology and Floodplain	Potential Hydrology and/or Floodplain Impacts	No adverse impacts	No adverse impacts			No impacts	No impacts			No impacts	No impacts	No impacts		No adverse impacts
Water Quality and Storm Water Runoff	Potential for Reduced Water Quality from Increased Storm Water Runoff	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts	No impacts
	Potential for Reduced Water Quality from Erosion	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No adverse impacts
	Potential for Reduced Water Quality from Loss of Wetland and Other Jurisdictional Waters	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts

Table S-1. Continued

Environmental Topic	Potential Effect	SR 197 Sites and Build Alternatives				US 199 Sites and Build Alternatives								No Build (No Action) Alternative
		Ruby 1	Ruby 2			Patrick Creek Narrows Location 1	Patrick Creek Narrows Location 2			Patrick Creek Narrows Location 3	The Narrows	Washington Curve		
			Four-Foot Shoulders	Two-Foot Shoulders	Two-Foot Shoulders in Spot Locations		Upstream Bridge Replacement	Downstream Bridge Replacement	Bridge Preservation with Upslope Retaining Wall			Cut Slope	Retaining Wall	
Geology/Soils/Seismic/ Topography	Potential for Erosion, Landslide, and Rock Fall	No adverse impacts	No adverse impacts	No adverse impacts		No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No adverse impacts
	Potential for Construction-Related Soil Erosion and Sedimentation	No impacts	No impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Potential Impacts on Worker Safety during Blasting Operations	No blasting	No blasting			No blasting	No adverse impacts			No blasting	No adverse impacts	No blasting	No blasting	No impacts
	Potential Impacts on Worker Safety from Rock Fall during Construction of Cut Slopes	No impacts	No impacts			No impacts	No adverse impacts	No adverse impacts		No impacts	No adverse impacts	No adverse impacts	No impacts	No impacts
	Potential for Debris to Enter River During Bridge Demolition	No impacts	No impacts			No impacts	No adverse impacts		No impacts	No impacts	No impacts	No impacts		No impacts
Hazardous Waste/ Materials	Potential for Hazardous Material Spills During Construction	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Potential for Exposure to Aerially-Deposited Lead	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Potential for Release of Hazardous Waste/Materials Associated with Construction, Traffic, or Roadway Maintenance	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Potential for Release of Hazardous Waste/Materials Associated with the Removal or Modification of Facilities or Structures	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Potential Impacts Associated With Naturally-Occurring Asbestos	No impacts	No impacts			No adverse impacts	No impacts			No impacts	No impacts	No adverse impacts		No adverse impacts
Air Quality	Temporary Increase in Ozone Precursor (ROG and NOx), CO, and PM10 Emissions during Grading and Construction Activities	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Release of Naturally-Occurring Asbestos Fibers into the Air During Grading and Construction Activities	No impacts	No impacts			No adverse impacts	No impacts			No impacts	No impacts	No adverse impacts		No adverse impacts
Noise and Vibration	Potential Disturbance from Construction Noise Levels (Non-Blasting)	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Potential for Disturbance to Nearby Noise-Sensitive Land Uses from Controlled Blasting Activities	No blasting	No blasting			No blasting	No adverse impacts			No blasting	No adverse impacts	No blasting		No impacts
Natural Communities (See Section 2.3.1 for detailed comparisons of effects by alternative)	Permanent removal of natural communities at a given project location	No adverse impacts	Adverse impact greater than Two-Foot Shoulders in Spot Locations Alternative	No adverse impacts		No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Temporary disturbance and effects on natural communities.	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Permanent removal of redwood trees with a dbh of 36 inches or more	No impacts	Adverse impact greater than Two-Foot Shoulders in Spot Locations Alternative	No impacts		No impacts	No impacts			No impacts	No impacts	No impacts		No impacts
	Permanent removal of trees other than redwoods	No adverse impacts	No adverse impacts			No impacts	No adverse impacts			No impacts	No impacts	No adverse impacts		No impacts
	Temporarily Restrict the Passage of Fish, including Anadromous Fish	No impacts	No impacts			No impacts	No adverse impacts		No impacts	No impacts	No impacts	No impacts		No impacts

Table S-1. Continued

Environmental Topic	Potential Effect	SR 197 Sites and Build Alternatives				US 199 Sites and Build Alternatives								No Build (No Action) Alternative
		Ruby 1	Ruby 2			Patrick Creek Narrows Location 1	Patrick Creek Narrows Location 2			Patrick Creek Narrows Location 3	The Narrows	Washington Curve		
			Four-Foot Shoulders	Two-Foot Shoulders	Two-Foot Shoulders in Spot Locations		Upstream Bridge Replacement	Downstream Bridge Replacement	Bridge Preservation with Upslope Retaining Wall			Cut Slope	Retaining Wall	
Wetlands and Other Waters	Temporary impacts to wetlands and/or other waters	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
(See Section 2.3.2 for detailed comparisons of fill by alternative)	Permanent impacts to wetlands and/or other waters	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Plant Species	Permanent removal of native plant habitat at a given project location	No impacts	No impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
(See Section 2.3.3 for detailed comparisons of effects by alternative)	Permanent Effects on Specific Special-Status and CNPS List 4 Plants	No impacts	No impacts			No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts	No impacts		No impacts
Animal Species	Temporary disturbance to special-status animal species and their habitat	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
(See Section 2.3.4 for detailed comparisons of effects by alternative)	Permanent removal of habitat for animal species	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
	Effects on Chinook salmon	No impacts	No impacts			No impacts	No adverse impacts		No impacts	No impacts	No impacts	No impacts		No impacts
	Effects on coastal cutthroat trout	No impacts	No impacts			No impacts	No adverse impacts		No impacts	No impacts	No impacts	No impacts		No impacts
Threatened and Endangered Species	Temporary disturbance to threatened and endangered species and their habitat	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
(See Section 2.3.5 for detailed comparisons of effects by alternative)	Permanent removal of habitat for threatened and endangered species	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No impacts
Invasive Species	Potential for proposed location improvements to promote spread of invasive species	No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts			No adverse impacts	No adverse impacts	No adverse impacts		No adverse impacts
Potential Cumulative Impacts to Environmental Resources	Contribution to Cumulative Loss of Old-Growth Redwood Trees	No adverse impacts	Adverse impact greater than Two-Foot Shoulders in Spot Locations Alternative		No adverse impacts	No impacts	No impacts			No impacts	No impacts	No impacts		No impacts

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List of Tables and Figures

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List of Acronyms

µg/m^3	micrograms per cubic meter
AADT	annual average daily traffic
AB 1493	Assembly Bill 1493
ACMs	asbestos-containing materials
ADL	aerially deposited lead
ADT	average daily traffic
AMR	American Medical Response
APCO	Air Pollution Control Officer
APE	Area of Potential Effects
APN	Assessor's Parcel Number
ASR	Archaeological Survey Report
ATCMs	Airborne Toxic Control Measures
BFE	Base Flood Elevation
BML	Bald Mountain-Big Lagoon
BMPs	Best Management Practices
BSA	biological study area
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
Cal-IPC	California Invasive Plant Council
Cal-IPC Inventory	California Invasive Plant Inventory
CARB	California Air Resources Board
CAT	Citizens Advisory Team
CCR	California Code of Regulations
CEDS	Comprehensive Economic Development Strategy, Del Norte County, California, 2006–2008
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CIA	Community Impact Assessment
CMV	commercial motor vehicle
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide

Coastal Act	California Coastal Act of 1976
Construction General Permit	General Permit for Construction Activities
COZEEP	Construction Zone Enhanced Enforcement Program
CRHR	California Register of Historical Resources
CSP	corrugated steel pipe
CTSA	Consolidated Transportation Service Agency
CWA	Clean Water Act
dBA	A-weighted decibel
dbh	diameter at breast height
DEMO (HPP)	Federal Demonstration–High Priority Project
Department	California Department of Transportation
DFG	California Department of Fish and Game
DLCRC	District Lane Closure Review Committee
DNADS	Del Norte Association for Developmental Services
DNLTC	Del Norte Local Transportation Commission
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
EA	Expense Authorization
EFH	Essential Fish Habitat
EIR/EA	Environmental Impact Report/Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
Forest Service	U.S. Department of Agriculture Forest Service
FR	Federal Register
Geocon	Geocon Consultants
GHG	greenhouse gas
HAPs	hazardous air pollutants
HFCs	hydrofluorocarbons
HPSR	Historic Property Survey Report
Hz	Hertz
I-5	Interstate 5
IGR	Intergovernmental Review
IPCC	Intergovernmental Panel on Climate Change
IRIS	Integrated Risk Information System
ISA	initial site assessment
ITS	Intelligent Transportation Systems
ITSP	1998 Interregional Transportation Strategic Plan
KPRA	kingpin-to-rear-axle

LCP	lead-containing paint
L_{eq}	equivalent sound level
LID	Low Impact Development
LOS	level of service
LOTB	As-Built Log of Test Borings
MBTA	Migratory Bird Treaty Act of 1918
MCE	Maximum Credible Earthquake
MEP	maximum extent practicable
mg/kg	milligrams per kilogram
MLD	Most Likely Descendent
mpg	miles per gallon
mph	miles per hour
MS4	Municipal Separate Storm Sewer System
MSATs	mobile source air toxics
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NATA	1999 National Air Toxics Assessment
NCAB	North Coast Air Basin
NCIC	North Coastal Information Center
NCRWQCB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act of 1966, as amended
NMFS	National Marine Fisheries Service
NN	National Network
NO	nitric oxide
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NOC	Notice of Construction
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
O_3	ozone
ODOT	Oregon Department of Transportation
OES	Del Norte County Office of Emergency Services
OGFC	open-graded friction course (a type of asphalt concrete)
OHP	California Office of Historic Preservation

OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
Pb	lead
PF	Public Facility
PFCs	perfluorocarbons
Planning Area	Crescent City Planning Area
PM	post mile
PM10	particulate matter less than 10 micrometers in diameter
PM2.5	particulate matter less than 2.5 micrometers in diameter
POC	Port Orford Cedar
POM	Polycyclic organic matter
PPDG	Project Planning and Design Guide
ppm	parts per million
ppv	peak particle velocity
PRC	Public Resources Code
psi	pounds per square inch
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act of 1976
RCT	Redwood Coast Transit
ROD	Record of Decision-Standards and Guidelines
ROG	reactive organic compounds
RR-1/1	Rural Residential—1 dwelling unit per acre
RSA	resource study area
RSP	rock slope protection
RTIP	Del Norte Local Transportation Commission's 2008 Regional Transportation Improvement Program for Del Norte County
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
S&M	Survey and Manage
sf	square feet
SF_6	sulfur hexafluoride
SHOPP	State Highway Operation and Protection Program
SHPO	State Historic Preservation Officer
Six Rivers RMP	Six Rivers National Forest Land and Resource Management Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District's
SO_2	sulfur dioxide
SPGR	Structure Preliminary Geotechnical Report
SR	State Route
SRNF	Six Rivers National Forest
STAA	Surface Transportation Assistance Act
STLC	soluble threshold limit concentration
SWDR	Storm Water Data Report
SWMP	Storm Water Management Plan

TACs	toxic air contaminants
TASAS	Traffic Accident Surveillance and Analysis System
TDM	Transportation Demand Management
THP	timber harvesting plan
THPO	Tribal Historic Preservation Officer
TMDLs	Total Maximum Daily Loads
TMP	Transportation Management Plan
TSM	Transportation System Management
TWW	Treated Wood Waste
U.S.C.	United States Code
UC Davis	University of California Davis
US	U.S. Route
US 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USBM	U.S. Bureau of Mines
USC	U.S Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	vehicle miles traveled
vpd	vehicles per day
VQO	visual quality objectives
WET	Wetland Evaluation Technique
yd^3	cubic yards

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Department) is proposing to construct improvements at spot locations on State Route (SR) 197 and U.S. Route (US) 199 in Del Norte County to be able to reclassify the routes as part of the Surface Transportation Assistance Act (STAA) truck route network. This improvement project is made up of five previously identified and separately proposed projects. These five projects are referred to as Ruby 1, Ruby 2, Patrick Creek Narrows (Locations 1, 2, and 3), the Narrows, and Washington Curve and include a total of seven locations. The proposed project combines these projects into one and makes use of the names of the previously identified projects in order to identify the location of each improvement currently proposed. All seven locations have roadway geometries that can result in STAA trucks and other long-wheelbase vehicles offtracking across the double yellow line and entering the oncoming traffic lane. Additionally, limited sight distances at all seven locations do not allow enough time for drivers to react to roadway conditions ahead.

Because it would provide STAA truck access on the SR 197–US 199 corridor between U.S. Highway 101 (US 101) and the Oregon state line, where STAA truck access is already provided on US 199, the combined need for improvements at the seven project locations has independent utility (i.e., it creates one stand-alone project that is a reasonable expenditure even if no additional transportation improvements in the area are made). No alternatives are proposed on highways other than SR 197 and US 199 because these two highways provide the most direct link to the interstate highway system for Del Norte County. Within the project limits, SR 197 and US 199 are rugged, two-lane conventional highways with tight curves and occasional steep cut slopes providing narrow traffic lanes with narrow shoulders, if shoulders exist. The project locations and the routes' regional context are shown in Figure 1-1.

Following are preliminary details on the funding program and fiscal year that each project is funded in for each of the original five separately funded projects, introduced by original project name and Expense Authorization (EA) number. All original five projects, including all seven locations, must be improved to accommodate STAA trucks in order for the SR 197–US 199 corridor to be reclassified as STAA-accessible. If one or more of the locations is not improved for some reason, the Department would re-assess whether there is a need to make improvements to any of the project locations to improve safety or reduce continual maintenance problems. All of the original five locations are programmed, funded, and ready to proceed with the design process, after the environmental process. The following costs were estimated during development of this draft environmental document; since these estimates will change as more detailed designs are prepared for each location, these estimates should be considered preliminary.

- **Ruby 1, EA 48110:** This originally proposed project (referred to in this document as a *spot location*) is programmed in the fiscal year 2011/2012 District 1 minor allocation (State Highway Operation and Protection Program [SHOPP]) for $581,000 in construction capital.

- **Ruby 2, EA 45490:** This originally proposed project (referred to in this document as a *spot location*) is programmed in the fiscal year 2012/2013 District 1 minor allocation (SHOPP) for $910,000 in construction capital.
- **The Narrows, EA 45000:** This originally proposed project (referred to in this document as a *spot location*) is programmed in the fiscal year 2011/2012 District 1 minor allocation (SHOPP). Construction capitol dollars in access of $990,000 will be funded from Federal Demonstration–High Priority Project (DEMO [HPP]) funds. It is currently estimated that $1,600,000 in DEMO/HPP Federal funds will be needed for this project.
- **Patrick Creek Narrows, EA 47940:** This originally proposed project (referred to in this document as *three spot locations*) is included in the fiscal year 2012/2013 Federal Statewide Transportation Improvement Program for approximately $13 million in Construction capital. It is also included in the State Transportation Improvement Program adopted by the California Transportation Commission on June 13, 2008 and the 2008 Regional Transportation Plan for Del Norte County, adopted by the Del Norte Local Transportation Commission on January 10, 2008. It is this group of locations, based on funding sources, that makes the Del Norte County Local Transportation Commission a co-sponsor of the entire 197/199 Safe STAA Access project with the Department.
- **Washington Curve, EA 44830:** This originally proposed project (referred to in this document as a *spot location*) is programmed in the fiscal year 2012/2013 District 1 minor allocation (SHOPP). Construction capitol dollars in excess of $990,000 will be funded from DEMO (HPP) Federal funds. It is currently estimated that $600,000 in DEMO (HPP) Federal funds will be needed for this project.

1.2 Purpose and Need

1.2.1 Purpose

The primary purpose of the proposed project is to improve spot locations on SR 197 and US 199 in Del Norte County so that two STAA trucks passing in opposite directions can be accommodated. STAA trucks are defined as having either a 48-foot trailer, or as having a 53-foot trailer with a limit of 40-foot distance from kingpin of the cab to the rear axle of the trailer. STAA trucks were made legal on the National Network, a network of federal highways that includes primarily interstates, by the 1982 Federal STAA. A visual comparison of STAA trucks to other vehicles is shown in Figure 1-2. By making improvements to accommodate STAA trucks, the prohibition for STAA vehicles would be removed, and the safety and operation of US 199 and SR 197 would be improved. This would improve goods movement, and also enhance safety on the routes for automobiles, trucks, and other large vehicles such as motor-homes, buses, and vehicles pulling a trailer.

1.2.2 Need

The primary need for the project is the result of sub-standard curves; absence of, or substandard, shoulders along the traveled way; and narrow lanes. Safety-enhancing improvements, including

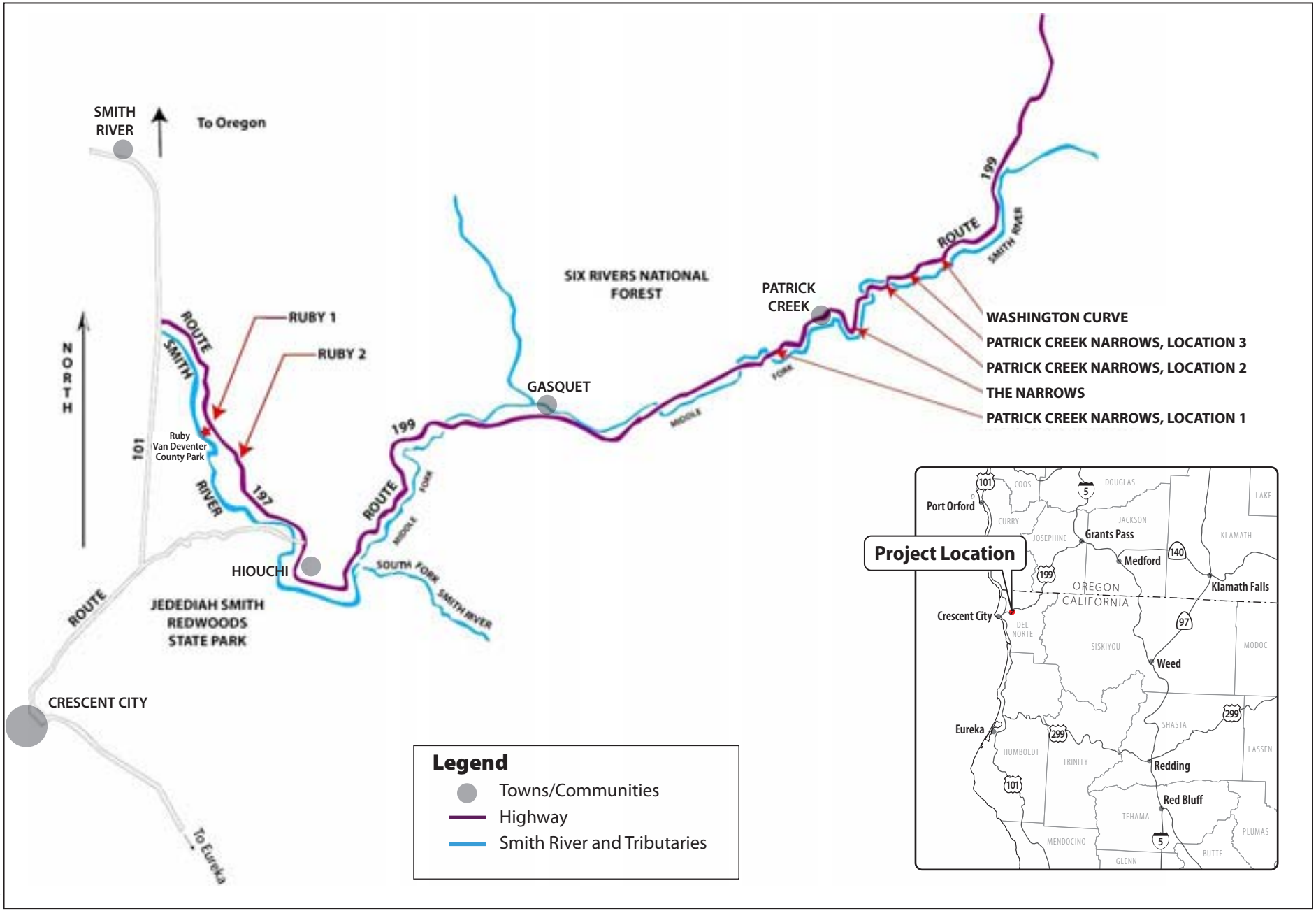

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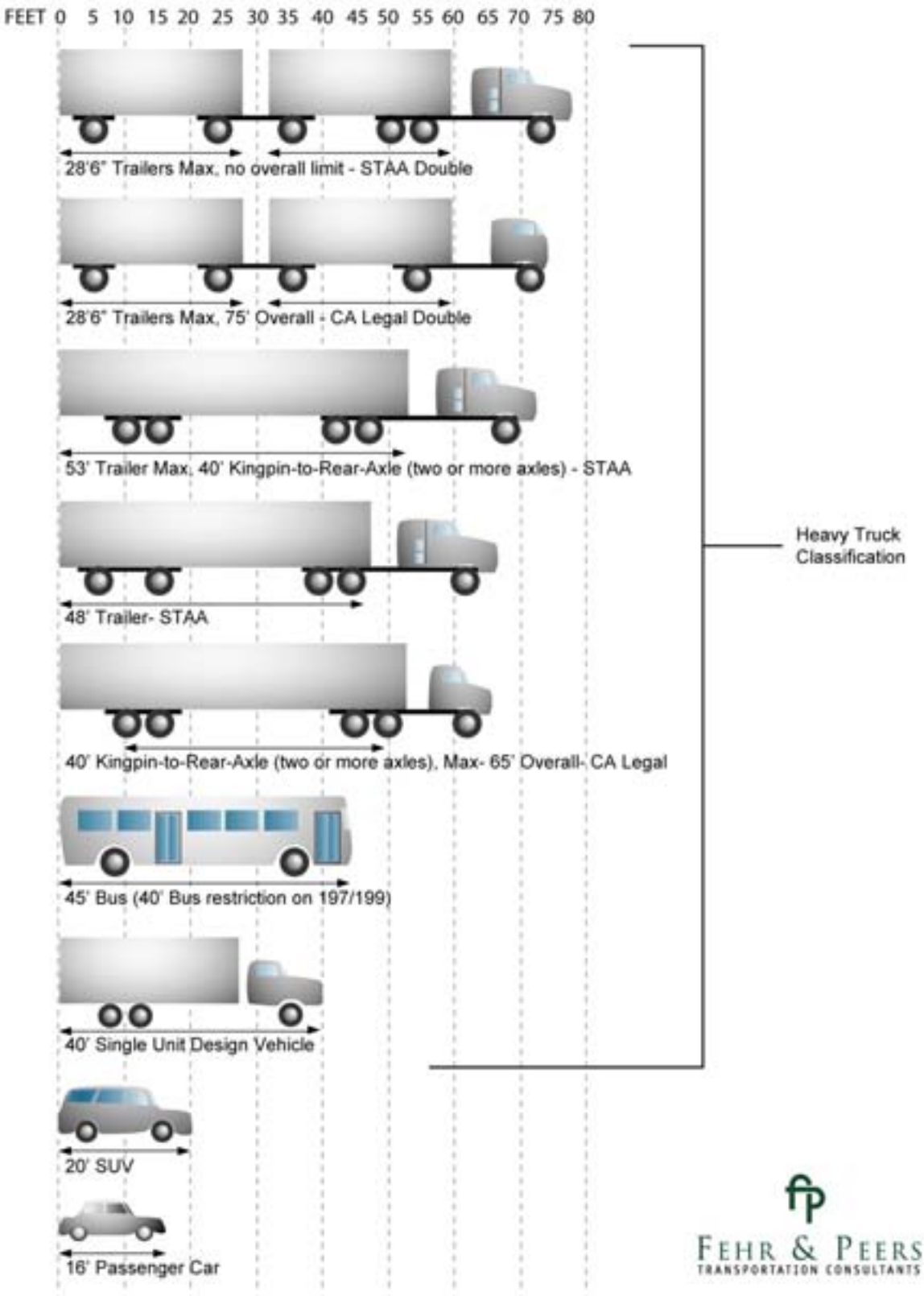
Figure 1-1
Project Vicinity and Location Map



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Source: Fehr & Peers, 197/199 Safe STAA Access Project Traffic Analysis Report, March 2010

Figure 1-2
Visual Comparison of STAA Trucks

wider lanes, wider shoulders, longer-radius curves, and improved sight distances, are needed to provide a roadway that is easier to maneuver for all users. These improvements also are necessary within the project limits on the SR 197–US 199 corridor to allow safe STAA truck access, which would allow reclassification of the corridor as part of the STAA network of truck routes. Both the Department and Del Norte County Local Transportation Commission support this need.

In 1982, the Federal government passed the STAA, requiring that states allow STAA trucks reasonable access to terminals. Appendix F includes a summary of legislation regarding truck route classifications and definitions. STAA trucks are limited to three designations of highways that together comprise the STAA network:

- **National Network**—primarily Interstate and Defense Highways, such as Interstate (I) -5, I-10, and I-80.
- **Terminal Access routes**—portions of state routes or local roads that can accommodate STAA trucks and allow them to travel between National Network routes, or allow STAA trucks to reach the truck's operating facility or a facility where freight originates or terminates.
- **Service Access routes**—routes within one road mile of the National Network, which provide access to fuel, food, lodging, or repair.

In contrast, "California Legal" trucks can use the STAA network and California Legal routes (i.e., state routes that allow California Legal-size trucks). Currently, SR 197 and US 199 do not allow STAA trucks, except under certain exemptions. Some STAA trucks presently are allowed to travel on SR 197 and US 199 to deliver directly to locations on US 199 per an exemption under the California Vehicle Code (CVC) Section 35401.5(f), which provides an exemption to licensed carriers of household goods. This exemption lifts the limitation of STAA access for licensed household goods carriers when directly en route to or from a point of loading or unloading, if travel on restricted STAA access highways is necessary and incidental to the shipment of the household goods. Under these circumstances, STAA household goods carrier trucks are permitted to travel along SR 197 and US 199. However, when exemptions are made, these STAA trucks likely are not able to stay within their travel lane at some locations, especially those with tight curves.

The Department's STAA truck tracking trials[1] and computer modeling software (AutoTURN) concluded that STAA-length vehicles often cross the double yellow line, or offtrack, at the identified pinch point locations based on roadway geometries; these offtracking locations are where widening improvements are proposed. The computer model also helped determine the amount of widening or realignment required at those locations to provide sufficient room for STAA trucks to negotiate the curves without encroaching into the opposing lane. *Offtracking* is

[1] A number of reports and studies have identified the lack of access for STAA trucks on SR 197 and US 199. A key study was the set of STAA truck tracking trials by Caltrans District 1 Traffic Operations/Permits on SR 197 and US 199 in August 2003 and October 2005 (*DN-197/199 Corridor Extra-Legal Load and STAA Vehicle Accessibility Study* (March 2006)). Additional reports identifying improvement strategies needed to upgrade the corridor to accommodate STAA vehicles are listed in Section 3.1 of the draft Project Report for the 197/199 Safe STAA Access project (June 2010).

the tendency for rear tires to follow a shorter path than the front tires when turning and is the primary concern with longer vehicles because rear tires may clip trees, knock down signs, encroach onto shoulders, or cross into the opposing/adjacent lane of traffic. When a large truck offtracks into the opposing lane and meets an unsuspecting driver or other large truck traveling in the opposite direction, there is little to no room available for drivers to avoid collision. The proposed project would improve sections of SR 197 and US 199 by widening, improving tight radius curves, and providing wider shoulders, allowing drivers additional room for recovery and for negotiating tight curves with opposing traffic, or when bicycles or pedestrians are present.

In 1983, California passed Assembly Bill (AB) 866 to implement the STAA provisions. The Department then evaluated the state highway system. The highways with geometric standards high enough to accommodate STAA trucks were designated by the Department as "Terminal Access." The Department continues to evaluate and open STAA access to existing state routes as improvements are made to allow safe access for STAA vehicles, in accordance with the Federal STAA of 1982. Currently, US 101 and I-5 allow STAA trucks (US 101 has existing restriction points for STAA trucks but is classified as terminal access), but US 199 and SR 197 do not (except for exempted STAA vehicles). In addition to failing to meet the federal requirement of providing reasonable access for STAA trucks to terminals, the lack of STAA truck access on the SR 197–US 199 corridor restricts options for goods movement between Crescent City and I-5.

STAA-approved highways are those that have broad enough curves and wide enough travel lanes and shoulders so that STAA trucks do not offtrack into the opposing travel lane. The process for redesignating the SR 197–US 199 corridor as STAA-approved involves determining locations where STAA trucks would cross the double yellow line and determining the amount of widening or realignment required at those locations to provide sufficient room for STAA trucks to negotiate the curves without encroaching into the opposing lane; this has already been accomplished using the Department's truck trials and computer modeling software (AutoTURN), mentioned above. After locations are identified as requiring improvements and the improvements are determined, the environmental review process occurs (currently in progress), followed by designing details for each location. After the improvements are constructed, the Department's District 1 would recommend STAA designation for the SR 197–199 corridor, and the Department's Sacramento office would approve the STAA designation request.

The entire SR 197–US 199 corridor between the SR 197/US 101 intersection and the point where US 199 crosses from California into Oregon was considered and evaluated when the project need was identified. The need was identified conceptually in the September 1989, *Route 199 Route Concept Report*. Individual spot improvement locations were identified and the estimated cost to widen them for STAA access was presented in the June 1998, *Comprehensive Study of Routes 197 and 199.* In Oregon, US 199 is already STAA truck–accessible between the state line and I-5. The proposed project has logical termini (rational end points) as it addresses the roadway segments that currently result in the STAA vehicle prohibition. The project has independent utility as no further improvements on US 199 and SR 197 are required to lift the restriction on STAA vehicles between Crescent City and I-5.

Two route concept reports, one for SR 197 and one for US 199, were prepared by the Department in July 1999 (California Department of Transportation 1999a, 1999b). These planning documents describe the Department's long-range approach to continued development

of these two highways. Each report contains concepts for the facilities themselves, the level of service (LOS)[2], goods movement, rehabilitation, and safety and operational improvements. The reports conclude that the two routes should be widened and realigned to safely accommodate large (STAA) trucks.

US 199 serves as Del Norte County's most direct transportation link to the interstate highway system (I-5 in Grants Pass, Oregon). The Del Norte County Local Transportation Commission considers US 199 to be the route that contributes the most to goods movement and mobility in support of the county's economy. SR 197 is the designated route for the movement of extralegal loads[3] between US 101 and US 199 (California Department of Transportation 1999a); therefore, it is a secondary component of this transportation link. SR 197 is the existing designated route for the movement of extralegal truck loads between US 101 and the SR 197/US 199 intersection. The segment of US 199 between US 101 and the SR 197/US 199 intersection passes through Jedediah Smith Redwoods State Park, winding through old-growth redwood trees on a narrow curvilinear alignment and is not considered part of this transportation link because of potential environmental impacts on the park and associated environmental resources. The SR 197–US 199 corridor is important for the goods movement because Del Norte County has neither a railway nor a deep-water shipping port. Most heavy-freight trucks leaving Del Norte County are hauling export goods bound for distribution hubs and population centers via the most expeditious route. Del Norte County's *Comprehensive Economic Development Strategy* identifies the SR 197–US 199 corridor as the community's key link to I-5 and identifies a specific strategy to "advocate for continued highway 199 and 197 improvements" (Del Norte County 2006). Therefore, local planning policies and strategies are consistent with and support the need for the proposed project.

Alternative access to the interstate highway system is much less direct. Currently, STAA trucks that do not meet the STAA exemption and that travel north on US 101 through Del Norte County to I-5 in Grants Pass must travel approximately 247 miles and more than 5 hours. Conversely, with STAA truck access on US 199, a one-way journey to I-5 in Grants Pass would be approximately 90 miles and less than 2 hours (Fehr & Peers 2010). To use US 199 to reach the interstate highway system presently, STAA truck cargo being transported from US 101 that does not meet the exemption must be unloaded and transferred to multiple, shorter, California Legal trucks before entering the SR 197–US 199 corridor; for trailers shorter than 48 feet, tractors can be swapped before entering the corridor. Alternatively, STAA trucks may choose to travel the longer route.

1.2.2.1 Improvement Needs by Project Location

On SR 197 and US 199, large vehicles that need more roadway width than the existing highways provide (e.g., STAA trucks hauling household goods, exempted from the STAA restriction per CVC Section 35401.5(f) only if transporting goods directly to locations on US 199 and not

[2] *Level of service* is a qualitative measure of operating conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety. Levels of service are categorized from A to F, with level F having the worst delays, maneuverability, and comfort and convenience.

[3] An *extralegal load* is defined in CVC Section 320.5 as a single unit or an assembled item that, because of its design, cannot be reasonably reduced or dismantled in size or weight so that it can be legally transported as a load without a permit as required by CVC Section 35780. This code section does not apply to loads on passenger cars. Section 35780 requires permits for variances such as size and weight.

traveling through the corridor; buses; or vehicles towing a trailer) encroach into the opposing lane to negotiate tight curves or fixed objects at the shoulder's edge, disrupting traffic flow in areas where sight distance is limited. A study on extralegal-load and STAA truck access was conducted by the Department for the SR 197–US 199 corridor to identify the remaining locations that restrict access for large trucks (California Department of Transportation 2006).

All seven locations have roadway geometries, as described below, that can result in STAA trucks and other long-wheelbase vehicles offtracking across the double yellow line and entering the oncoming traffic lane. Additionally, the limited sight distances at all seven project locations do not allow enough time for drivers to react to roadway conditions ahead. For a discussion of outcomes if the proposed project does not occur, please refer to the No Build (No Action) Alternative, discussed in Section 1.3.2. Because the proposed project would provide STAA truck access on the SR 197–US 199 corridor between US 101 and the Oregon state line (STAA access is already provided on the Oregon portion of US 199 to I-5), the combined need for improvements at the seven locations has independent utility (i.e., it creates one stand-alone project that is a reasonable expenditure even if no additional transportation improvements in the area are made).

The seven project locations are described below as part of the five previously identified projects. Specific roadway conditions that support the need for the proposed project are described below for each location. Highway post mile (PM) limits are also provided. PMs for US 199 start at its intersection with US 101, north of Crescent City, and increase going northeast. PMs for SR 197 start at its intersection with US 199 and increase westward to its intersection with US 101.

- **Ruby 1 (SR 197: PM 4.5):** The narrow roadway, short-radius curves, and narrow or nonexistent shoulders often contribute to long-wheelbase vehicles, including California Legal trucks and motor homes, offtracking across the double yellow line.
- **Ruby 2 (SR 197: PM 3.2 to 4.0):** The narrow roadway, short-radius curves, narrow or nonexistent shoulders, and trees and stumps on the side of the roadway often contribute to long-wheelbase vehicles, including California Legal trucks and motor homes, offtracking across the double yellow line.
- **Patrick Creek Narrows, Locations 1, 2, and 3 (US 199: PM 20.5 to 25.7):** The sharply curving alignment, short-radius curves, narrow or nonexistent shoulders, and narrow lanes often contribute to long-wheelbase vehicles, including California Legal trucks and motor homes, offtracking across the double yellow line. When large vehicles cross the Middle Fork Smith River Bridge (Location 2), the entire half-width of the bridge is occupied, leaving no room for pedestrians, bicycles, or maintenance workers.
- **The Narrows (US 199: PM 22.7 to 23.0):** The sharply curving alignment, overhanging rocks on the cliff side of the roadway, metal-beam guardrail on the river side of the roadway, nonexistent shoulders, and narrow lanes often contribute to long-wheelbase vehicles, including California Legal trucks and motor homes, offtracking across the double yellow line.
- **Washington Curve (US 199: PM 26.3 to 26.5):** The overhanging cliffs with steep cut slopes, short-radius curves, narrow or nonexistent shoulders, narrow lanes, and metal-beam guardrail on the river side of the highway often contribute to long-wheelbase vehicles,

including California Legal trucks and motor homes, offtracking across the double yellow line.

1.2.2.2 Corridor Collision Rates

District 1 Traffic Safety Office received a request for a revised collision analysis for seven STAA point locations of SR 197 and US 199. A review of the collision history was completed for the time period of October 1, 2002 thru September 30, 2007; this collision history is summarized in Table 1-1.

The Department of Transportation Collision Analysis memorandum (June 2010) states:

> "Upon a cursory review, District 1 Traffic Safety offers the following comments":
>
> **Ruby 1: DN 197 PM 4.45/4.55**
>
> - This point location is 0.10 of a mile and has experienced two collisions, which resulted in zero fatal, zero injury, and two property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 0.0 and 0.76 times the statewide average for similar facilities, respectively.
> - In addition, two primary traffic patterns are apparent: 1) One hundred percent of collisions are a result of Run-Off-Road (ROR). 2) One hundred percent of all collisions are a result of Unsafe Speed for Conditions. Both collisions occurred during Wet Road Surface and Dark conditions.
>
> **Ruby 2: DN 197 PM 3.2/4.0**
>
> - This point location is 0.445 of a mile and has experienced eight collisions, which resulted in zero fatal, four injury, and four property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 3.33 and 3.04 times the statewide average for similar facilities, respectively.
> - In addition, two primary traffic patterns are apparent: 1) Approximately Sixty-three percent of collisions are a result of Run-Off-Road (ROR). 2) Sixty-two percent of all collisions are a result of Unsafe Speed for Conditions. Eighty-eight percent of collisions occurred during Wet Road Surface conditions.
>
> **Patrick Creek Narrows (PCN) Loc. 1: DN 199 PM 20.4/20.7**
>
> - This point location is 0.30 of a mile and has experienced eight collisions, which resulted in one fatal, four injury, and three property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 2.16 and 1.74 times the statewide average for similar facilities, respectively.
> - In addition, two primary traffic patterns are apparent: 1) Sixty-two percent of collisions are a result of Run-Off-Road (ROR). 2) Thirteen percent of all collisions are a result of Cross Centerline into Opposing Traffic. Seventy-five percent of collisions occurred during Wet Road Surface and fifty percent during Dark conditions.

(PCN) Loc. 2: DN 199 PM 23.9/24.28

- This point location is 0.38 of a mile and has experienced seven collisions, which resulted in zero fatal, four injury, and three property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 1.73 and 1.52 times the statewide average for similar facilities, respectively.
- In addition, three primary traffic patterns are apparent: 1) Forty-three percent of collisions are a result of Run-Off-Road (ROR). 2) Forty-three percent of collisions are a result of Cross Centerline into Opposing Traffic. 3) Forty-three percent of collisions are a result of Unsafe Speed for Conditions.

(PCN) Loc. 3: DN 199 PM 25.55/25.7

- This point location is 0.15 of a mile and has experienced four collisions, which resulted in one fatal, two injury, and one property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 1.30 and 0.87 times the statewide average for similar facilities, respectively.
- In addition, two primary traffic patterns are apparent: 1) Seventy-five percent of collisions are a result of Run-Off-Road (ROR). 2) Twenty-five percent of collisions are a result of Cross Centerline into Opposing Traffic. In addition, all collision occurred during Wet Road Surface conditions.

The Narrows: DN 199 PM 22.7/23.0

- This point location is 0.30 of a mile and has experienced six collisions, which resulted in zero fatal, zero injury, and six property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 0.0 and 1.30 times the statewide average for similar facilities, respectively.
- In addition, three primary traffic patterns are apparent: 1) Fifty percent of collisions are a result Other than Driver. 2) Seventeen percent of collisions are a result of Cross Centerline into Opposing Traffic. 3) Seventeen percent of collisions are a result of Run-Off-Road (ROR).

Washington Curve: DN 199 PM 26.3/26.7

- This point location is 0.40 of a mile and has experienced nine collisions, which resulted in zero fatal, four injury, and five property damage only (PDO) type of collisions. The "Actual" collision rates "F+I" (Fatal plus Injury) and "Tot" (Total) for this segment of highway are approximately 1.73 and 1.95 times the statewide average for similar facilities, respectively.
- In addition, two primary traffic patterns are apparent: 1) Fifty-six percent of collisions are a result of Run-Off-Road (ROR). 2) Fifty-six percent of collisions are a result of Unsafe Speed for Conditions.

Table 1-1. Collision History

Site	Location (PM)		Time Period		Actual Rates*			State Average Rates*		
	From	To	From	To	Fatal	F + I	Total	Fatal	F + I	Total
Ruby 1	004.450	004.550	10/1/2002	9/30/2007	0.000	0.000	0.550	0.017	0.330	0.720
Ruby 2	003.200	004.000	10/1/2002	9/30/2007	0.000	1.100	2.190	0.017	0.330	0.720
Patrick Creek Narrows Location 1	020.400	020.700	10/1/2002	9/30/2007	0.189	0.950	1.510	0.022	0.440	0.870
Patrick Creek Narrows Location 2	023.900	024.280	10/1/2002	9/30/2007	0.000	0.760	1.320	0.022	0.440	0.870
Patrick Creek Narrows Location 3	025.550	025.700	10/1/2002	9/30/2007	0.189	0.570	0.760	0.022	0.440	0.870
The Narrows	022.700	023.000	10/1/2002	9/30/2007	0.000	0.000	1.130	0.022	0.440	0.870
Washington Curve	026.300	026.700	10/1/2002	9/30/2007	0.000	0.760	1.320	0.022	0.440	0.870
* Collision rates are per million vehicles										

1.3 Project Description

This section describes the proposed project and the alternatives that were developed by a multidisciplinary team[4] to achieve the project purpose and need while avoiding or minimizing environmental impacts. Build alternatives at each of the seven specific locations are described, as is the No Build (No Action) Alternative. No alternatives are proposed on highways other than SR 197 and US 199 because the SR 197–US199 corridor provides the most direct link to the interstate highway system for Del Norte County.

The proposed project is located in Del Norte County on SR 197 and US 199, east of US 101. It combines five previously identified, separately proposed projects that individually were intended to correct road features that currently result in offtracking by large vehicles, including STAA trucks that are allowed on the SR 197/US 199 route transporting household goods. The project locations are shown in Figure 1-1. PMs for US 199 start at its intersection of US 101, north of Crescent City, and increase going northeast. PMs for SR 197 start at its intersection with US 199 and increase westward to its intersection with US 101.

The primary purpose of the proposed project is to improve spot locations on SR 197 and US 199 in Del Norte County to allow reclassification of the SR 197–US 199 corridor as part of the STAA network of truck routes. The secondary purpose is to enhance safety on the routes for automobiles, trucks, and other large vehicles at these locations. The posted speed limit would not be raised.

The lack of STAA truck access on the SR 197–US 199 corridor restricts options for goods movement between Crescent City and I-5. Safety-enhancing improvements, including wider lanes, wider shoulders, longer-radius curves, and improved sight distances, would provide a roadway that is easier to maneuver for all users and are necessary within the project limits on the

[4] The multidisciplinary team includes members from the following Department divisions and disciplines: Design, Project Management, Environmental Specialists, Environmental Engineering, Construction, Structures Construction, Geotechnical Engineering, Structures Design, Hydraulics, Right of Way**,** Landscape Architecture, Structures Foundations, and Maintenance.

SR 197–US 199 corridor to allow safe STAA truck access and reclassification of the corridor as part of the STAA network of truck routes.

1.3.1 Project Setting

Within the project limits, SR 197 and US 199 are conventional two-lane undivided highways with narrow lanes and shoulders. SR 197 is the designated route for the movement of extralegal truck loads between US 101 and the SR 197/US 199 intersection because it avoids traversing Jedediah Smith Redwoods State Park (located along the westernmost segment of US 199 between US 101 and the SR 197/US 199 intersection) and therefore minimizes impacts on the park and associated environmental resources. SR 197, also known as North Bank Road, is a curvilinear two-lane highway built in 1930s. It is an important link between US 199 and US 101. SR 197 primarily serves regional and interregional traffic, providing access to homes and public recreational facilities along the Smith River, including Ruby Van Deventer County Park, which provides river access. SR 197 follows the north bank of the Smith River, which is state- and federally designated as Wild and Scenic and is considered one of the "crown jewels" of the National Wild and Scenic River System. SR 197 is listed as eligible for inclusion in the State Scenic Highway System, but Del Norte County has yet to initiate the official designation process. Sharp curvilinear sections of SR 197 have limited sight distance, narrow to nonexistent shoulders, and large redwood trees and stumps at the edge of the pavement or the travel lane.

Within the project limits, US 199 traverses the canyon of the Middle Fork Smith River, a state- and federally designated Wild and Scenic River. US 199 is designated as a U.S. Department of Agriculture Forest Service (Forest Service) scenic byway through the Smith River National Recreation Area. US 199 is also listed as eligible for inclusion in the State Scenic Highway System, but Del Norte County has yet to initiate the official designation process. US 199 within the project limits was built in the early 1920s. Highway attributes that characterize this area include cliffs, rocky outcrops, dramatic views of the Middle Fork Smith River, and a tightly curved alignment. US 199 links US 101 north of Crescent City to I-5 in Grants Pass.

1.3.2 Project Alternatives

This section describes the proposed project and the alternatives that were developed by a multidisciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. Proposed improvements for each of the seven project locations are discussed below. The evaluation of alternatives is based primarily on total project cost and the level of impact on sensitive environmental resources. Water quality and geologic stability were particularly important to consider under the three alternatives at Patrick Creek Narrows Location 2, two of which consider a potential bridge replacement. In-water work (i.e., construction activities in the river) would likely be necessary at Patrick Creek Narrows Location 2 if a bridge replacement alternative is selected. Safety issues related to rock fall for a cut slope versus a retaining wall along the highway are considered, as are potential impacts on sensitive animal and plant species and communities, drainage patterns, large conifer trees, and aesthetics.

1.3.2.1 Ruby 1 (SR 197: PM 4.5)

One build alternative is being considered at this project location (Figure 1-3). It was designed to provide the least impact on Ruby Van Deventer County Park**,** trees, and associated habitats while providing safe STAA access. Specifically, redwood trees and habitat for northern spotted owl and marbled murrelet were primary considerations in the development of this alternative. Other alternatives evaluated were not considered practicable because they would have had more impact on those resources. Details of those other alternatives are described in Section 1.3.6.2, Alternatives Considered but Eliminated from Further Consideration for Ruby 1.

To improve the roadway, the curve of the road would be lengthened, lane widths would remain 12 feet, and shoulders would be increased from their existing 0- to 1-foot widths to new varying widths. On the southbound side, the new shoulders would vary from 0 to 7 feet, transitioning from each end of the project limits. Four-foot shoulders are proposed on the northbound side. Asphalt concrete would be applied to the curve of the roadbed to improve the existing super elevation.[5] In addition, the asphalt surface would be an open-graded friction course (OGFC; a type of asphalt concrete) overlay. These improvements would allow, and are the minimum improvements needed for, safe STAA access.

To match the new roadway width, two existing culverts would be extended and new drainage inlets installed. The extended portion of the culverts, likely built from corrugated steel pipe, would be added to the inlets of the existing culvert. The old drainage inlets would be removed and new one**s** inserted in their place. Work would be done during the dry season, but water diversion or dewatering may be required during construction.

Private right-of-way would need to be acquired on the northbound side of the highway. All work on the southbound side of the highway would occur within the existing prescriptive right-of-way, except where the entrance to Ruby Van Deventer County Park would be modified to match the upgraded highway. The park is considered a recreational property under Section 4(f) of the Department of Transportation Act. One utility pole would be relocated. Existing gravel pullouts nearby would be used to stage equipment.

The estimated cost of this alternative is $581,000.

1.3.2.2 Ruby 2 (SR 197: PM 3.2 to 4.0)

Three build alternatives are being considered at this project location: the Four-Foot Shoulders, Two-Foot Shoulders, and Two-Foot Widening in Spot Locations Alternatives. All three alternatives would provide sufficient width for STAA trucks. The Department's highway design standards specify 4-foot shoulders for two-lane highways with volumes such as those on SR 197, and 2-foot minimum "existing in-place" shoulder width. According to these standards, roadways with existing shoulder widths at or above the 2-foot minimum existing in-place width should be rehabilitated at their current width. Shoulders less than this width should be widened to 4-feet. The Two-Foot Shoulder and Four-Foot Shoulder Alternatives were designed to meet these two standards. The Two-Foot Widening in Spot Locations was designed to prevent impacts to old-

[5] The *super elevation* is the rise in the roadway surface elevation as one moves from the inside edge of the road to the outside edge along a curve.

growth trees while still providing the necessary width for STAA trucks, that width being based on computer modeling. A formal Design Exception documenting the decision process is required if the 4-foot standard is not met. The features common to all three build alternatives are discussed below, followed by a discussion of features unique to each alternative.

Common Features of the Ruby 2 Build Alternatives

Each alternative would improve the existing curves, super elevation (the amount by which the outside of the curved road bed is raised above the inside to provide some of the cornering force required to hold a moving vehicle in the turn, reducing the tendency for the tires to lose adhesion outwards), and roadway width. To widen the roadway, cut slopes of 1:1 (or flatter) and fill slopes of 2:1 (or flatter) are currently proposed. To match the new roadway width, four culverts would be extended or replaced. Work would be done during the dry season, but water diversion or dewatering may be required during construction. Hot mix asphalt would be applied to the curves to improve the existing super elevation. In addition, the roadway would be surfaced with an OGFC overlay to improve traction in wet conditions.

The approaches to eight private roads and one public road would be upgraded to match the modified roadway. Existing gravel pullouts would be used as staging areas.

Currently, several mailboxes are too close to the existing edge of the travel lane**.** This distance is a safety concern for the mail carriers, residents, and traveling public. In rural areas, it is desirable that the distance between the edge of the travel lane and the mailboxes be at least 8 feet. If the recommended distance cannot be met, the mailboxes would need to be relocated as part of the proposed project. The most suitable new location is at the intersection of SR 197 and Kaspar/Keene Road. In general, the U.S. Post Office and the residents must be in agreement if relocation is considered in any of the alternatives.

Unique Features of the Ruby 2 Build Alternatives

The following discussion identifies the unique features of each build alternative.

Four-Foot Shoulders Alternative

This alternative would increase the shoulder widths to 4 feet on both sides of the roadway (Figures 1-4a and 1-4b). The shoulder widths currently vary from 0 to 4 feet. The increased shoulder widths would meet the Department's Design Standards for shoulder width, provide sufficient width for STAA truck access, and would provide more room for service vehicles (e.g., garbage trucks, mail delivery) and the traveling public to pull off the roadway when necessary and would improve the sight distance for residents exiting their driveways. Design exceptions for minimum stopping sight distance and curve radii would be required.

Approximately 1,200 cubic yards of material would be removed. Right-of-way would need to be acquired for this alternative. Right-of-way estimates show that utility poles would need to be relocated. Segments of chain-link fence would also need to be relocated to accommodate the proposed width of the road after construction.

The estimated cost of this alternative is $1.83 million.

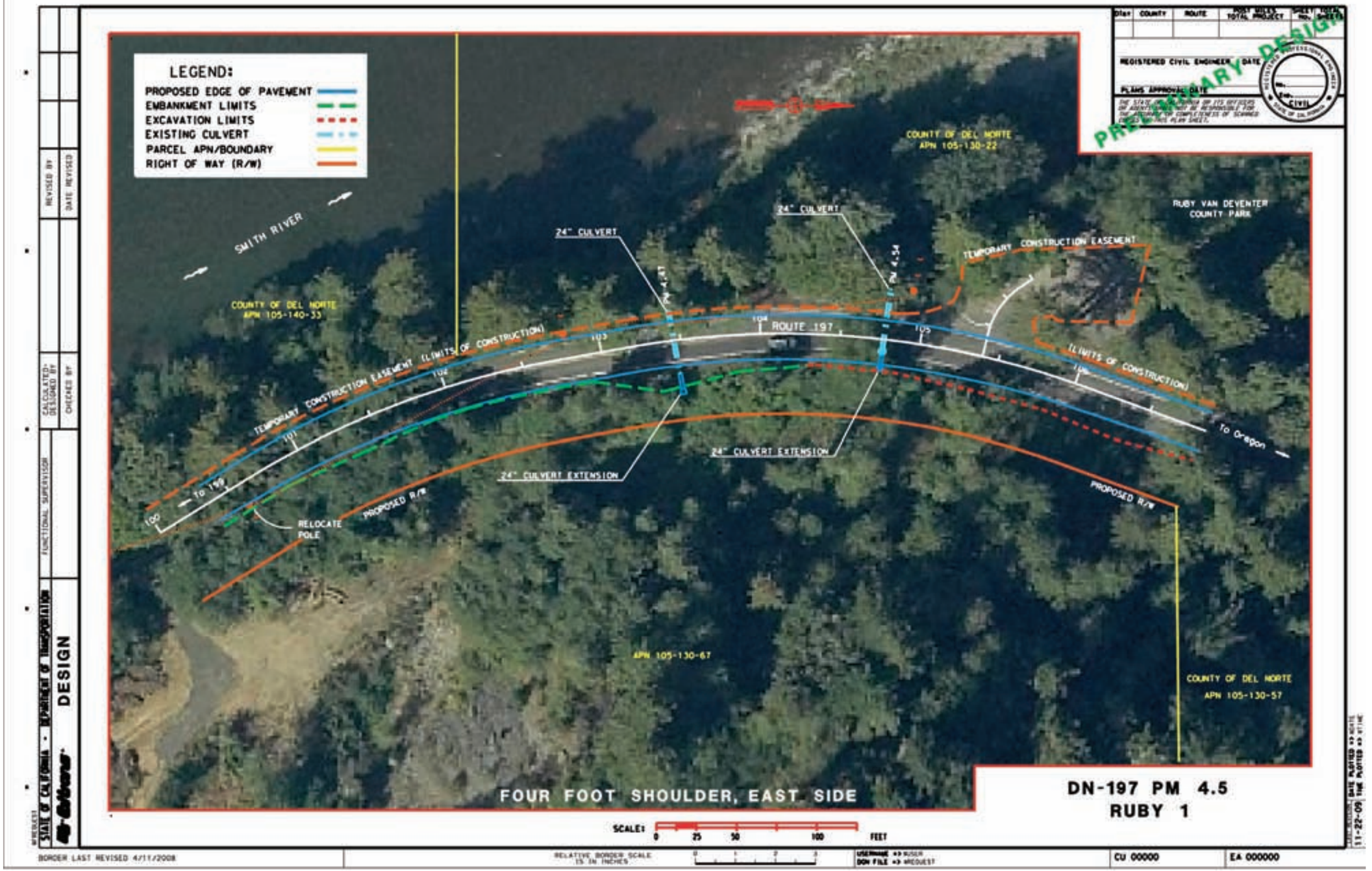

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Figure 1-3
Ruby 1

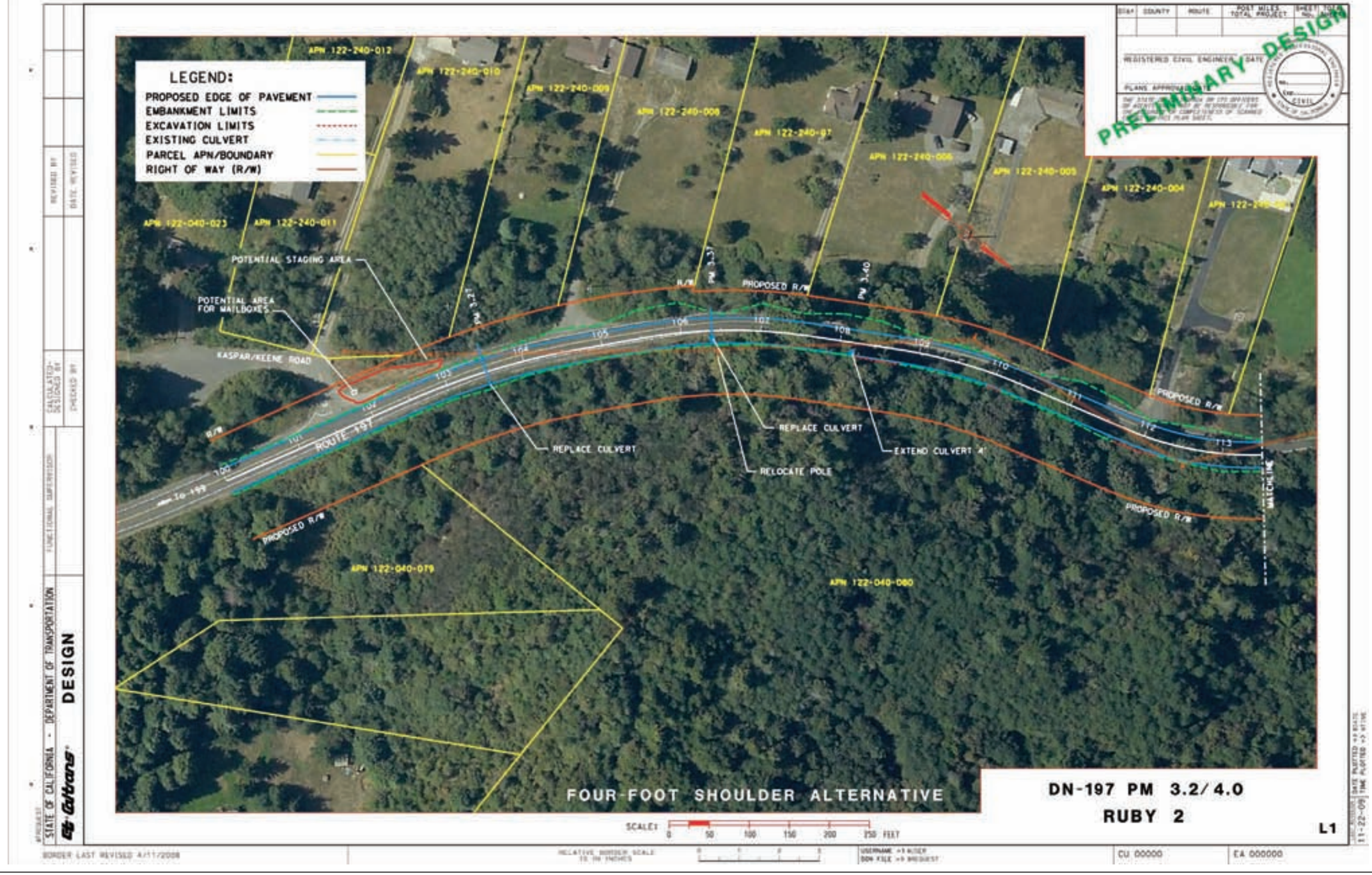

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Figure 1-4a
Ruby 2, Four-Foot Shoulders

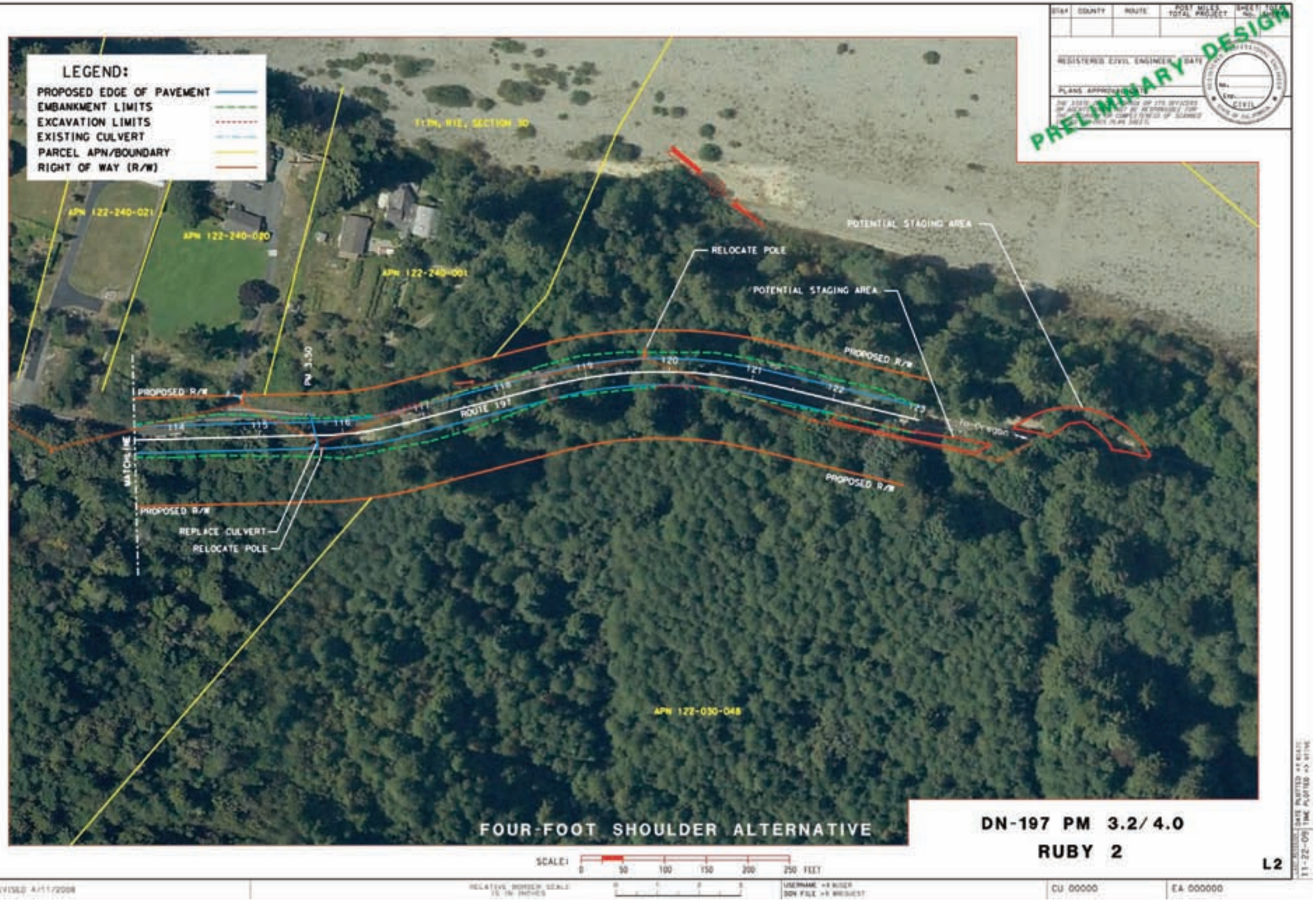

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Figure 1-4b
Ruby 2, Four-Foot Shoulders

Two-Foot Shoulders Alternative

This alternative was developed to meet the "Minimum Existing In-Place" shoulder width standard. It would increase the shoulder widths to a minimum of 2 feet on both sides of the roadway (Figures 1-5a and 1-5b). The shoulder widths currently vary from 0 to 4 feet. This alternative would not meet Department standards for sight distance and shoulder widths; however, this alternative would make the highway STAA-compatible at this location. Design exceptions for shoulder width, minimum stopping sight distance and curve radii would be required.

Approximately 700 cubic yards of material would be excavated to construct the widening. Right-of-way would need to be acquired. Right-of-way estimates show that utility poles would need to be relocated. Segments of chain link fence would need relocation to accommodate the proposed roadway width.

The estimated cost of this alternative is $1.6 million.

Two-Foot Widening in Spot Locations Alternative

This alternative was developed to provide the minimum necessary improvements to provide STAA truck access while avoiding impacts to old-growth redwood trees. It would increase the shoulder widths to 2 feet in spot locations (Figures 1-6a and 1-6b). The shoulder widths currently vary from 0 to 4 feet. No other shoulder improvements would be constructed; however, it would make the highway STAA-compatible**.** Design exceptions for shoulder width, minimum stopping sight distance and curve radii would be required.

Approximately 200 cubic yards of material would be removed. Right-of-way would need to be acquired. No utility relocation is anticipated.

The estimated cost of this alternative is $910,000.

1.3.2.3 Patrick Creek Narrows Location 1 (US 199: PM 20.5 to 20.9)

One build alternative is being considered at this project location. It was designed to avoid geologic instability and provide safe STAA access, with the least effect on the Middle Fork Smith River. The existing roadway curves would be improved. The roadway would be widened to accommodate two 12-foot-wide lanes and 4-foot shoulders. The shoulder widths currently vary from 0 to 3 feet (Figure 1-7). This alternative would not meet Department standards for shoulder widths. A mandatory design exception from these standards would be required.

The embankment on the hill side (westbound lane) of the roadway consists of an 80-foot cut slope of unconsolidated cobbles and boulders. Excavation of the bottom portions of this slope might result in perennial rock fall. Therefore, to accommodate the widening and broader roadway curves, an approximately 350-foot-long, 6-foot-tall retaining wall is proposed along the river side of the road above a portion of the existing steep rock-armored riverbank. Aesthetic treatment of the wall would be incorporated into the wall's design. Additional roadway work would include an OGFC overlay to improve friction and traction, striping, a centerline rumble strip, shoulder backing, and new metal-beam guardrail construction**.** Existing gravel pullouts would be used as staging areas.

Naturally occurring asbestos (NOA) has been identified through testing at Patrick Creek Narrows Location 1, and it is likely that excavated material and material removed during pile installation would contain NOA at levels significantly greater than 1%, which would make it unsuitable for surfacing application. Due to the presence of NOA, the construction Contractor would be required to hire an industrial hygienist to develop an Asbestos Compliance Plan and a Dust Control Plan. In addition, the Contractor would be required to take appropriate measures to contain and dispose of any material with NOA.

An existing 36-inch culvert would be replaced with a longer culvert to match the new roadway width at the inlet and outlet. Also, two 18-inch culverts would be replaced with 24-inch culverts. Work would be done during the dry season, but water diversion or dewatering may be required during construction.

No additional right-of-way is anticipated to be necessary for this project location. No utilities are located within the project limits.

The estimated cost is $1.72 million.

1.3.2.4 Patrick Creek Narrows Location 2 (US 199: PM 23.92 to 24.08)

Three alternatives for improvements are being considered at this project location to address safe STAA access: the Upstream Bridge Replacement, Downstream Bridge Replacement, and Bridge Preservation with Upslope Retaining Wall Alternatives. An existing arch bridge, the Middle Fork Smith River Bridge, is within the limits of this project location under all three alternatives. The bridge, constructed in 1925, is only 24 feet wide and is functionally obsolete. *Functionally obsolete* is a term used by Structure Maintenance and Structure Design in reference to the Middle Fork Smith River Bridge (Bridge number 01-0015). It indicates that widening the existing bridge would require constructing an additional arch on each side of the bridge and would cost as much as a replacement bridge. The widened bridge would have a life expectancy limited to that of its original and oldest components. The theoretical design life of bridges is typically 75-100 years. The American Association of State Highway and Transportation Officials (AASHTO) LFRD Bridge Design Specifications define "service life" as the period of time that the bridge is expected to be in operation. AASHTO specifies 75 years as the theoretical design life. The Middle Fork Smith River Bridge was built in 1925 (85 years) so it has exceeded its theoretical design life. Bridge inspection reports indicate the bridge is in acceptable condition but has indications of some deterioration. The current seismic design criteria designate the Maximum Considered Earthquake (MCE) ground motions to have a probability of exceedance of 3% in 75 years, which is an approximate return period of 2,500 years. The existing bridge would also need to be seismically retrofitted to the new criteria. The bridge is not eligible for protection as a historic resource because it has been modified and widened since its original construction. The features common to all three build alternatives are discussed below, followed by a discussion of features unique to each alternative.

Common Features of the Patrick Creek Narrows Location 2 Build Alternatives

The alternatives would realign and widen the existing 11- to 12-foot lanes to 12 feet. They would increase the shoulders to a width of 4 to 8 feet. The shoulder widths currently vary from 0 to 2 feet. These improvements would allow, and are needed for, safe STAA access.

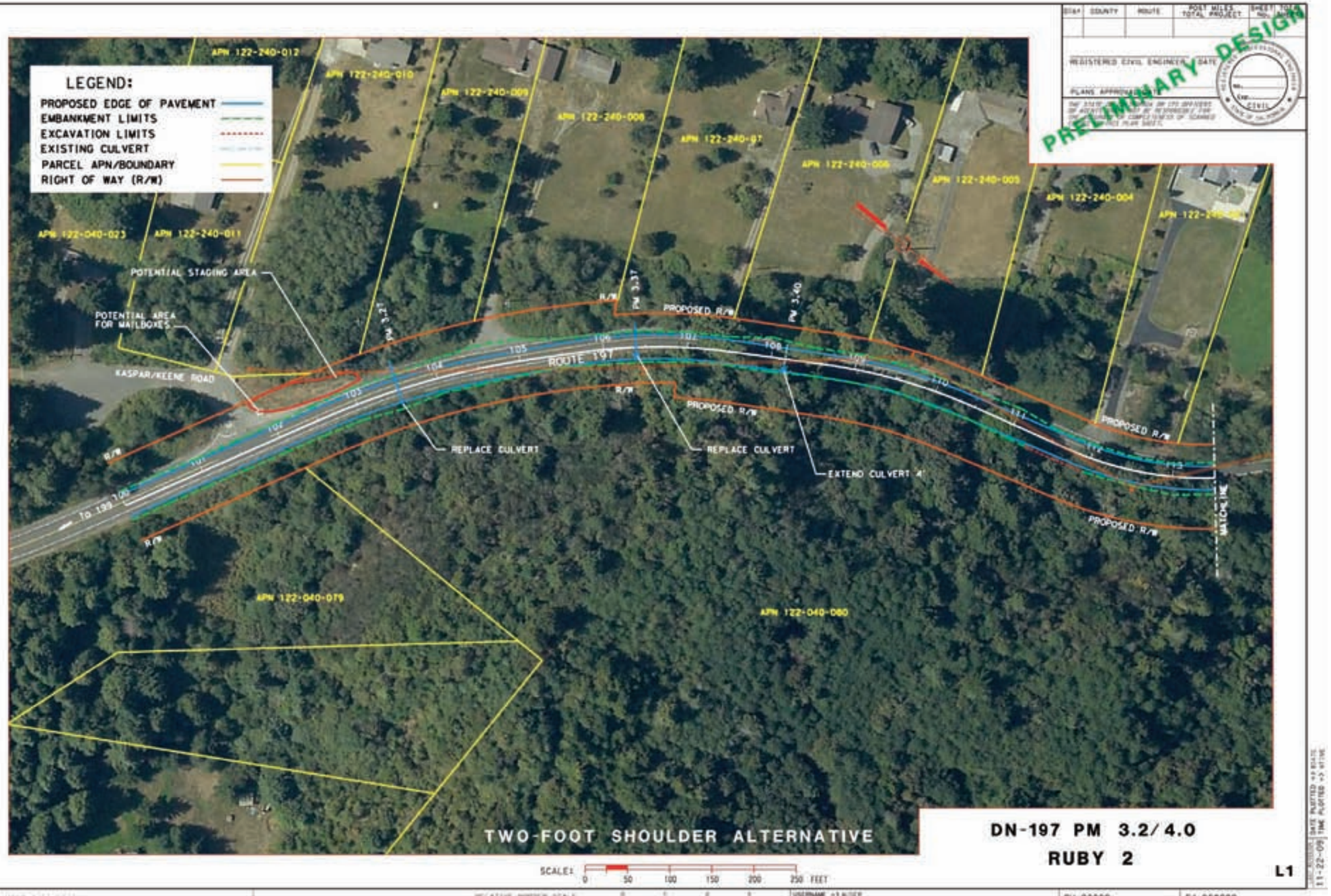

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Figure 1-5a
Ruby 2, Two-Foot Shoulders

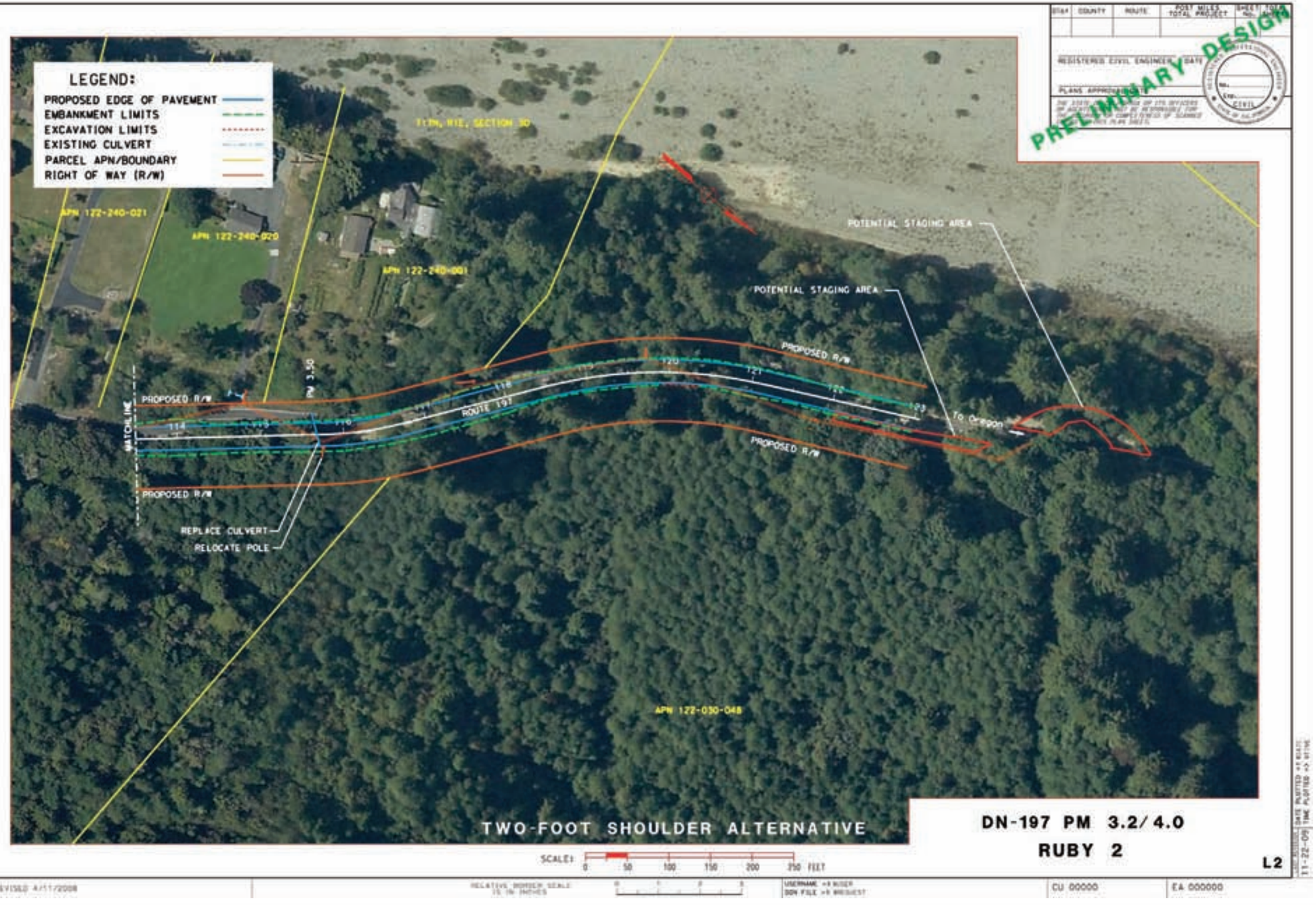

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Figure 1-5b
Ruby 2, Two-Foot Shoulders

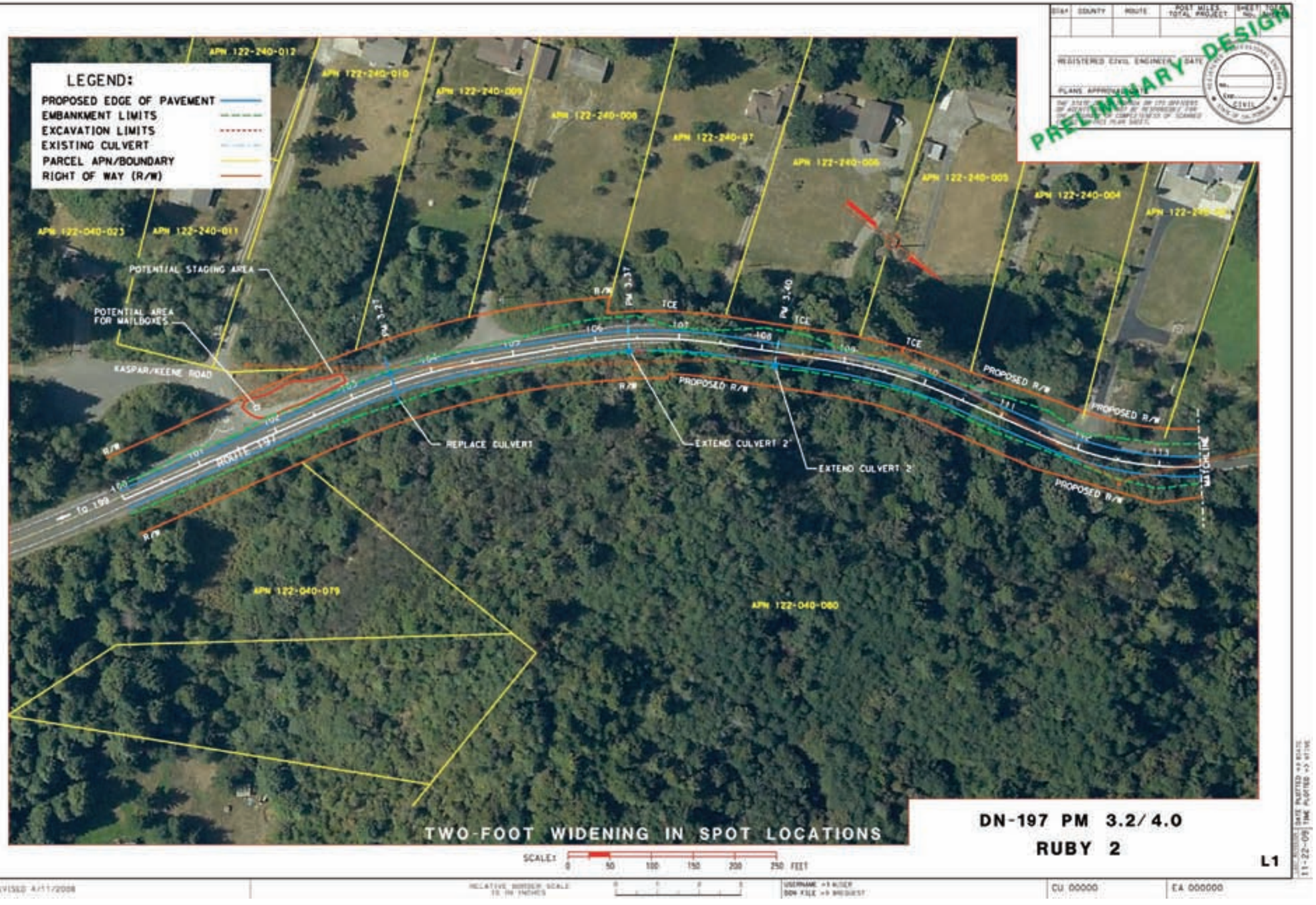

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Figure 1-6a
Ruby 2, Two-Foot Widening in Spot Locations

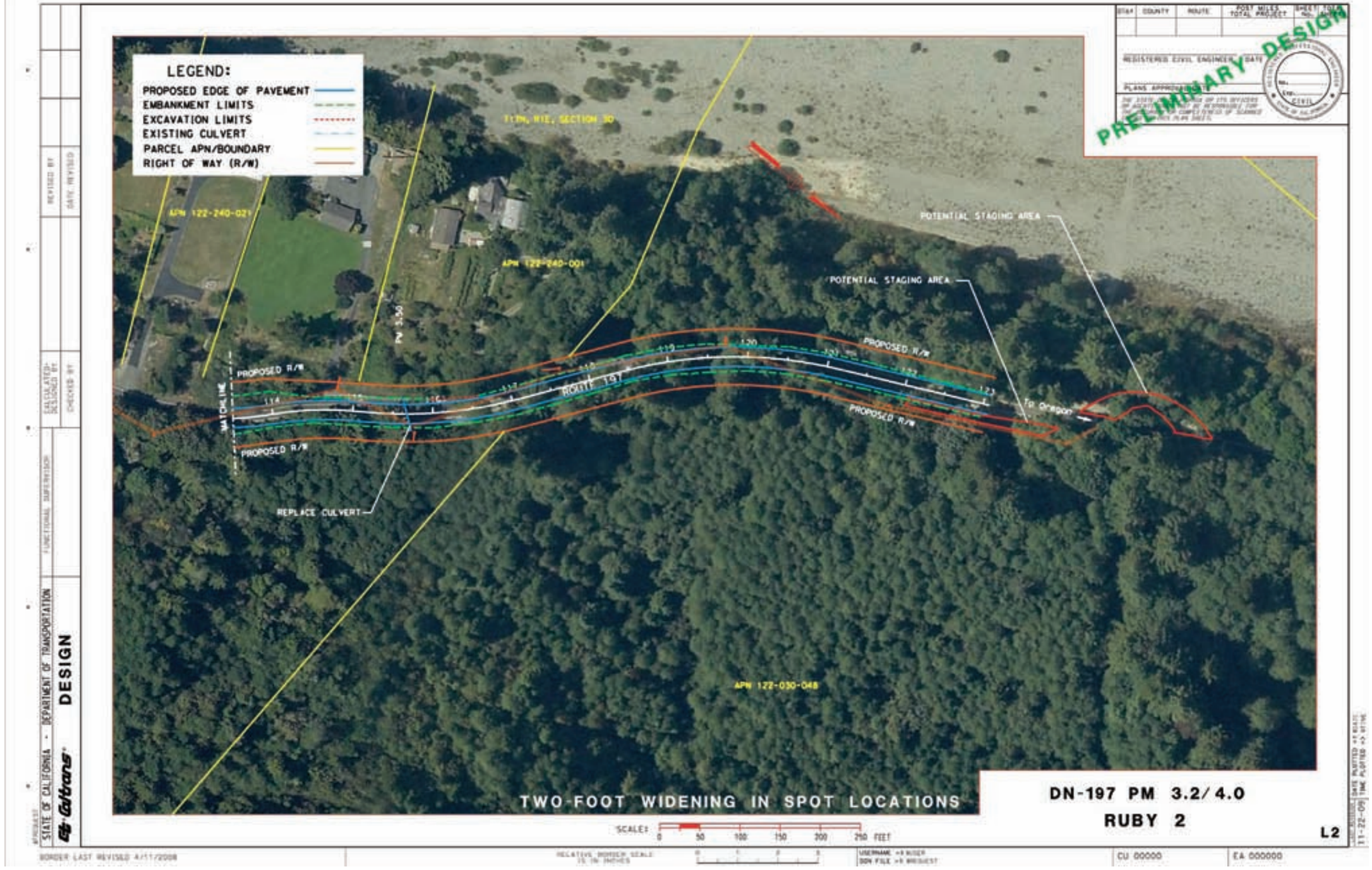

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Figure 1-6b
Ruby 2, Two-Foot Widening in Spot Locations

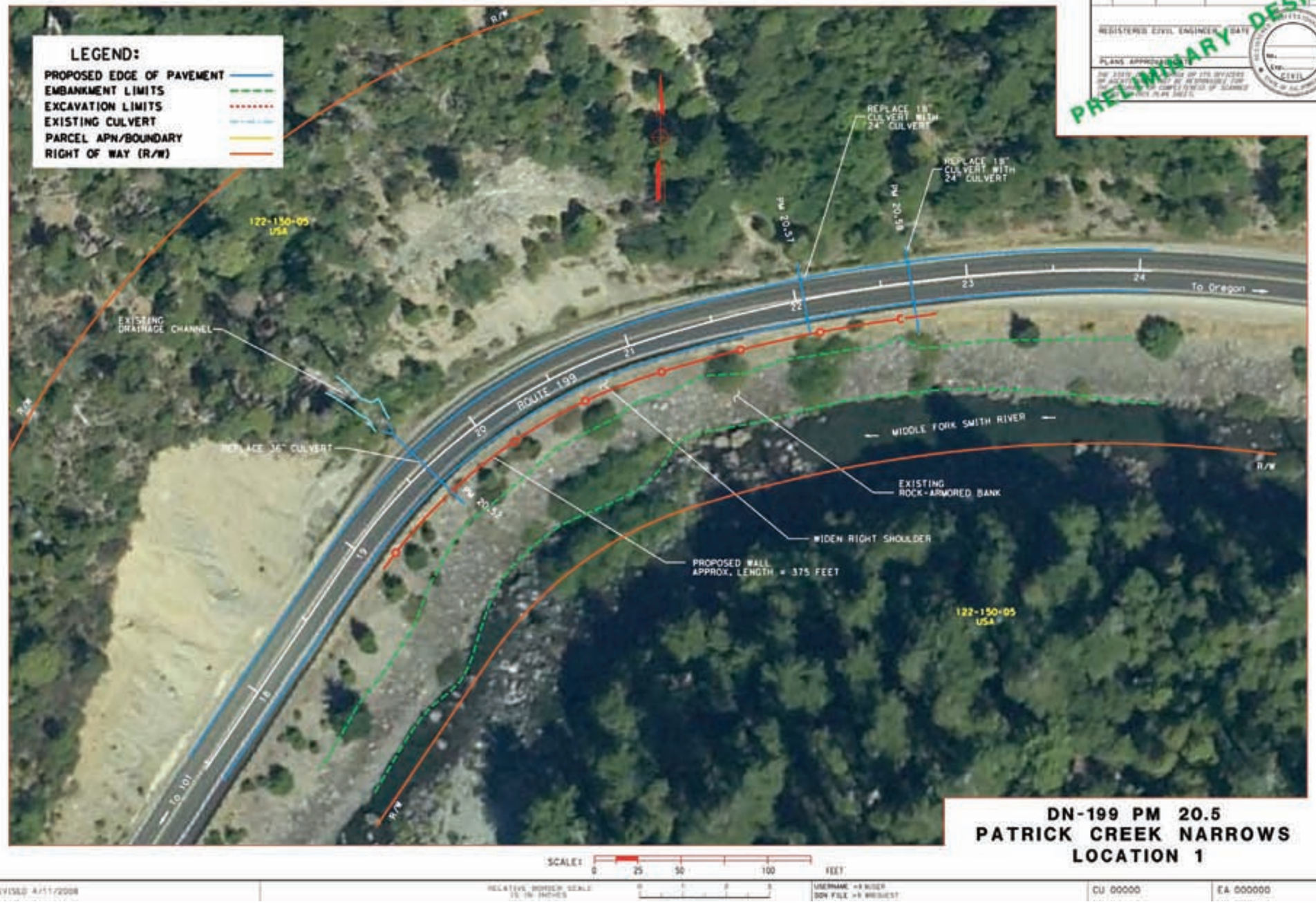

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Figure 1-7
Patrick Creek Narrows Location 1

To accommodate the widening on the westernmost extent of the project location, approximately 20,000 cubic yards of rock excavation from the rock cut slope would be required. Rock excavation would extend more than 100 feet above the highway and expose approximately 1 acre of newly excavated rock slope. A hoe ram, rock splitter, and/or controlled blasting would be required to construct the rock cut slope. A cut slope of 1:1 is anticipated. Because of the fractured nature of the bedrock, rock fall may be expected after construction. Therefore, a permanent rock-fall mitigation system may be needed. This could consist of a wire-mesh drape or incorporate a rock-fall catchment area at roadway level.

One culvert within the limits within this project location would be replaced to match the new roadway width. Work would be done during the dry season, but water diversion or dewatering may be required during construction. Improvements at this location would also include an OGFC overlay to improve friction and traction, striping, a centerline rumble strip, metal-beam guardrail, and shoulder backing.

The proposed top of cut for all three alternatives at this project location may extend slightly beyond the existing right-of-way. Additional right-of-way is anticipated to be necessary for this location. No utilities are located within the project limits. Existing gravel and paved pullouts nearby would be used to stage equipment.

Unique Features of the Patrick Creek Narrows Location 2 Build Alternatives

The following discussion identifies the unique features of each build alternative.

Upstream Bridge Replacement Alternative

This alternative would replace the existing Middle Fork Smith River Bridge with a bridge upstream from its current location. In addition to the excavation described in under "Common Features of the Patrick Creek Narrows Location 2 Build Alternatives," an additional retaining wall/rock bolting[6] or rock net drapery would be constructed on the cut slope side of the highway. The retaining wall/rock bolting area would be approximately 400 feet long and up to 100 feet high and expose an additional approximately 0.5 acre of new rock cut slope and/or disturbed soil area beyond the work described under "Common Features of the Patrick Creek Narrows Location 2 Build Alternatives" (Figure 1-8).

The existing cut slope above the proposed retaining wall/rock bolt area shows evidence of past instability. Excavation of this cut slope for retaining wall construction would be complex and difficult. Controlled blasting could be required in some areas of the cut slope excavation. Rock scaling, rock bolting, and temporary rock-fall barriers could be necessary before construction to ensure worker safety. A rock-fall barrier or drape would likely need to be placed above the proposed cut slope to reduce the risk of rock fall.

Two bridge design options would be evaluated for this alternative: a concrete arch bridge and a concrete box girder bridge. The arch bridge option would be approximately 310 feet long by 40 feet wide, and would have two 12-foot-wide lanes and 8-foot shoulders. The concrete box girder

[6] The purpose of rock bolting is to pin two planes of rock together by bolting the slipping plane to a solid rock plane. Rock bolts secure permanent steel bars which are grouted, tensioned, and locked into place with a metal faceplate on the final cut slope.

bridge option would be approximately 300 feet long by 40 feet wide, and would have two 12-foot-wide lanes and 8-foot shoulders.

After the new bridge is complete, the existing bridge would be removed. Demolition and debris containment plans would be prepared, including provisions to minimize debris entering the Middle Fork Smith River. The temporary supports of the containment system would be similar to bridge falsework and falsework foundation used in the river channel during construction of the new bridge. The existing spread footing foundation would be cut off flush at the ground surface. Also, portions of the old roadway southwest of the old bridge and directly adjacent to the old bridge would be removed and revegetated. The northwest portion of the old roadway would be retained for drainage features.

The estimated cost of this alternative is $9.3 million.

Downstream Bridge Replacement Alternative

This alternative would replace the existing bridge with a bridge downstream from the current location. An additional approximately 0.5 acre of rock cut slope excavation and/or disturbed soil area would be required beyond the work described under "Common Features of the Patrick Creek Narrows Location 2 Build Alternatives."

A retaining wall or viaduct would be constructed downstream from the new bridge. The retaining wall or viaduct would extend for approximately 250 feet and transition directly into the proposed new bridge approach. If a retaining wall were selected, it would extend downslope from the highway level approximately 30 feet and would be supported along the bank of the Middle Fork Smith River. If a viaduct were selected, it would be founded on drilled piles and would cantilever the northbound traffic lane over the bank of the Middle Fork Smith River. The viaduct would also require a curtain wall to be constructed. The curtain wall would extend below the viaduct and would be shorter in height and length than the retaining wall. This alternative would also require a retaining wall on the Oregon side of the bridge that would be approximately 10 feet high and 200 feet long (Figure 1-9).

Two bridge design options would be evaluated for this alternative: a concrete arch bridge and a concrete box girder bridge. The arch bridge option would be approximately 215 feet long by 40 feet wide, and would have two 12-foot-wide lanes and 8-foot shoulders. The concrete box girder bridge option would be approximately 210 feet long by 40 feet wide, and would have two 12-foot-wide lanes and 8-foot shoulders. As with the Upstream Bridge Replacement Alternative, the existing bridge would be removed.

The estimated cost of this alternative is $9.7 million.

Bridge Preservation with Upslope Retaining Wall Alternative

This alternative would retain the existing bridge but realign the roadway on either end of the bridge to allow large trucks to cross. The existing bridge would still be functionally obsolete, but this alternative widens the highway at each end of the bridge (i.e., widens the bridge approaches) so that STAA trucks would be able to align themselves within their respective lane and cross the narrow bridge while staying within their lane. In addition to the excavation described under "Common Features of the Patrick Creek Narrows Location 2 Build Alternatives," an additional retaining wall/rock bolting or rock net drapery would be constructed on the cut slope side of the

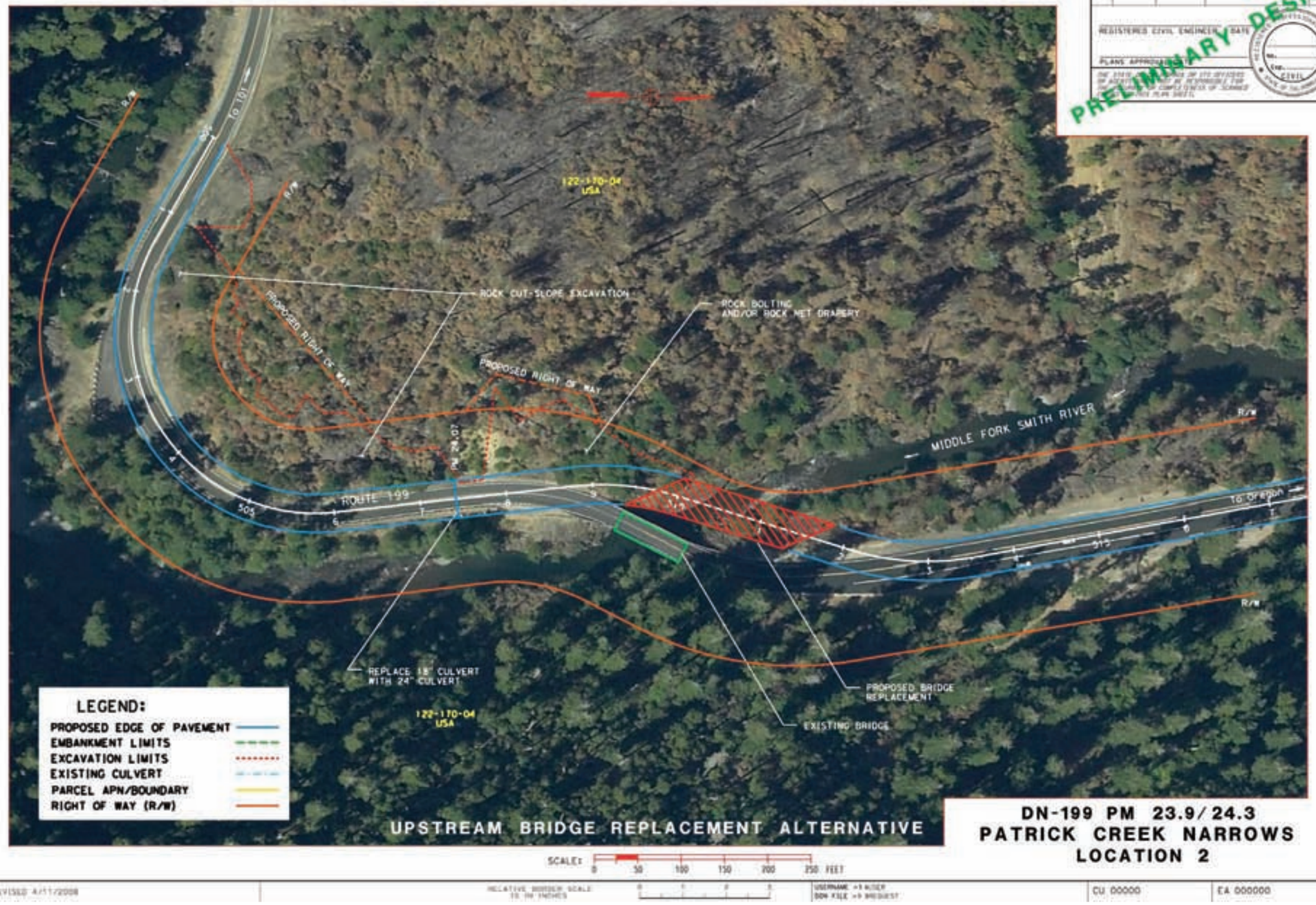

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Figure 1-8
Patrick Creek Narrows Location 2
Upstream Bridge Replacement

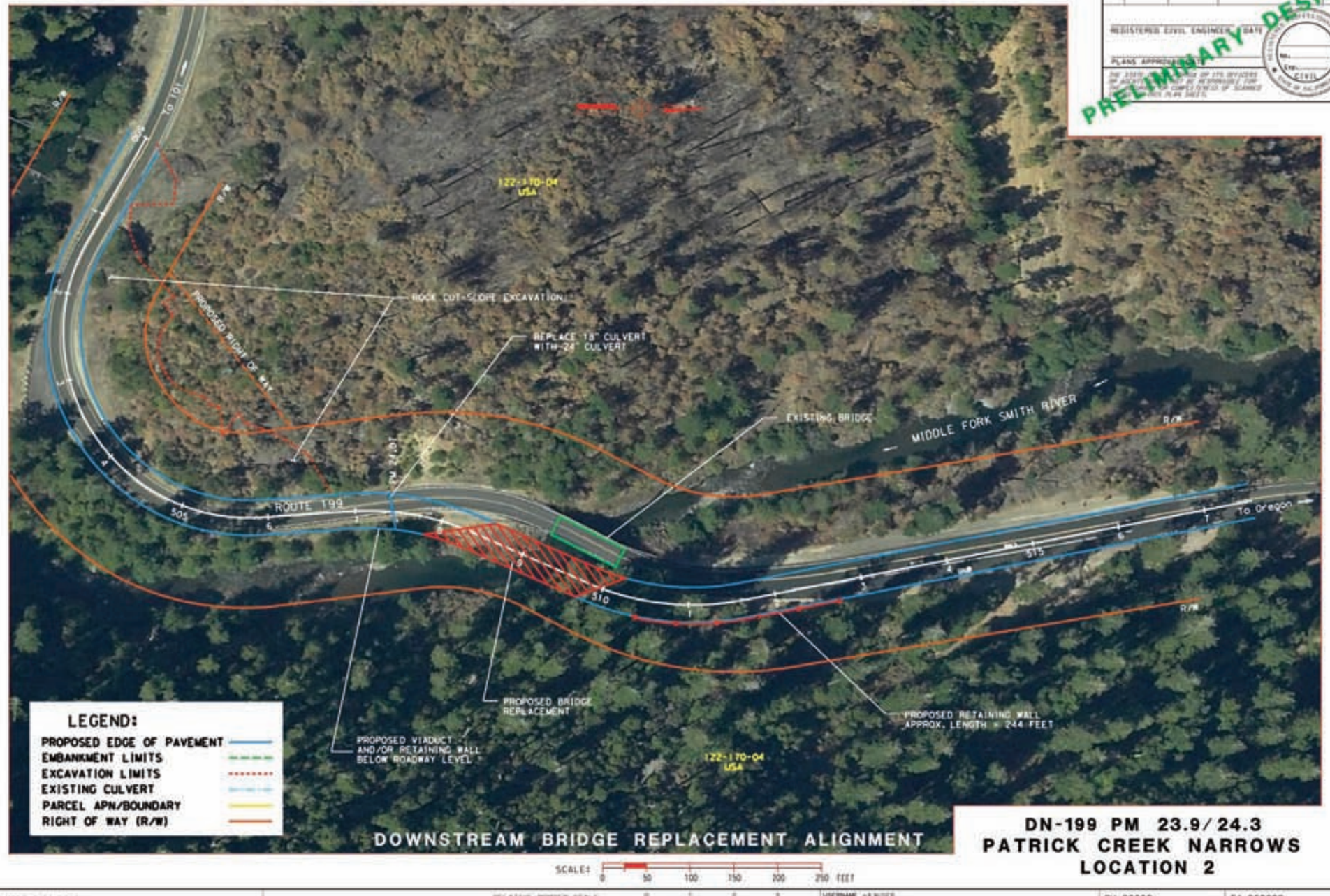

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Figure 1-9
Patrick Creek Narrows Location 2
Downstream Bridge Replacement

highway. The retaining wall/rock bolting area would be approximately 300 feet long and up to 100 feet high and expose an additional approximately 0.25 acre of new rock cut slope and/or disturbed soil area beyond the work described under "Common Features of the Patrick Creek Narrows Location 2 Build Alternatives." The retaining wall or rock bolting would provide additional width to align large vehicles before they cross the narrow bridge. This alternative would not preclude future bridge replacement (Figure 1-10).

The existing cut slope above the proposed retaining wall/rock bolting area shows evidence of past instability. Excavation of this cut slope for retaining wall construction would be complex and difficult. Controlled blasting could be required in some areas of the cut slope excavation. Rock scaling, rock bolting, and temporary rock fall barriers could be necessary before construction to ensure worker safety. A rock-fall barrier or drape would likely need to be placed above the proposed cut slope to reduce the risk of rock fall.

The estimated cost of this alternative is $6.2 million.

1.3.2.5 Patrick Creek Narrows Location 3 (US 199: PM 25.55 to 25.65)

One build alternative is being considered for this project location. The alternative is designed to avoid geologic instability and provide safe STAA access, with the least effect on the Middle Fork Smith River. This section of roadway has an "S" curve with two 12-foot lanes, and the shoulders are currently 1 foot wide. This alternative would increase the shoulder width to 4 feet on both sides of the road and straighten the "S" curve. This alternative would not meet Department standards for shoulder width and clear recovery zones. A mandatory design exception would be required.

To support the wider roadway, an approximately 135-foot-long wall up to an approximate height of 15 feet is proposed on the river side. A drilled-pile foundation may be required. Aesthetic treatment of the wall will be incorporated. Two culverts within the limits of this project location would be replaced to match the new roadway width (Figure 1-11). Work would be done during the dry season, but water diversion or dewatering may be required during construction. An existing overside drain would be replaced. Improvements at Patrick Creek Narrows Location 3 also would include an OGFC overlay to improve friction and traction, striping, a rumble strip, metal-beam guardrail, and shoulder backing.

Permanent right-of-way would need to be acquired at this location from a private landowner. No utility relocation is required. Existing gravel pullouts would be used to stage equipment.

The estimated cost is $1.64 million.

1.3.2.6 The Narrows (US 199: PM 22.7 to 23.0)

One build alternative is being considered for this project location. Widening toward the river was considered, but was found to be infeasible because of costs and potential environmental impacts. The travel lane width currently varies from 10 to 12 feet, and there are no shoulders at this location. This alternative would increase lane widths to 12 feet and provide 2-foot shoulders. Widening would be accomplished by excavating into the existing cut slope. These improvements would allow, and are needed for, safe STAA access.

In slope locations composed of soft material, mechanical equipment such as an excavator would be used. Proposed cut heights range from 0 to 15 feet, with an average height of 10 feet and average depth of 4 feet (Figures 1-12a and 1-12b).

Where extremely irregular rock slopes are vertical or overhanging, sliver cuts would be required. Proposed cut heights vary from 0 to 60 feet, with an average height of 25 feet and average depth of 4 feet (Figures 1-12a and 1-12b). The rock excavation/cut limits would be established by controlled blasting or presplitting, which would involve drilling closely spaced holes in the rock face and creating a shear plane by setting off simultaneous charges of explosives in the holes. The results after presplitting are a clean rock face and reduction in rock-fall potential.

To excavate the cut slope in these areas, drilling would be done by crane only where there is enough room for all traffic to pass through a one-way reversible traffic control. Slopes that cannot be reached by crane without blocking traffic would be drilled by other means, such as using a track-mounted drill or drilling by hand.

A 1-foot-wide paved drainage ditch would be added at the shoulder of the road for a total paved width of 29 feet. One new culvert and drain inlet would be constructed. Also, an existing culvert and drain inlet would be replaced to match the new edge of pavement. Work will be done during the dry season, but water diversion or dewatering may be required during construction.

In addition to roadway widening, isolated outcrops of overhanging or loose rock above the excavation limits would be stabilized with rock bolting. Other work includes an overlay of new OGFC pavement to improve friction and traction, a centerline rumble strip, and new striping. Existing gravel pullouts nearby would be used to stage equipment. No right-of-way acquisition is anticipated for this location. No utility relocations are required.

The estimated cost is $2.568 million.

1.3.2.7 Washington Curve (US 199: PM 26.3 to 26.5)

Two build alternatives are being considered at this project location to address safe STAA access: the Cut Slope and the Retaining Wall Alternatives. The features common to both build alternatives are discussed below, followed by a discussion of features unique to each alternative.

Common Features of the Washington Curve Build Alternatives

These alternatives would straighten the compound curve at this project location. The existing travel lane width varies from 10 to 12 feet, and the shoulders vary from 0 to 4 feet. The improvements would increase the lane width to a minimum of 12 feet. One culvert on the northern side of the project limits would be replaced to match the new roadway. Work will be done during the dry season, but water diversion or dewatering may be required during construction. Work would include an OGFC overlay to improve friction and traction, replace the existing metal-beam guardrail, and install a centerline rumble strip. These improvements would allow, and are needed for, safe STAA access.

NOA has been identified at Washington Curve, and testing indicates that excavated material would contain NOA at levels less than 0.25%. Due to the presence of NOA, the construction Contractor would be required to hire an industrial hygienist to develop an Asbestos Compliance

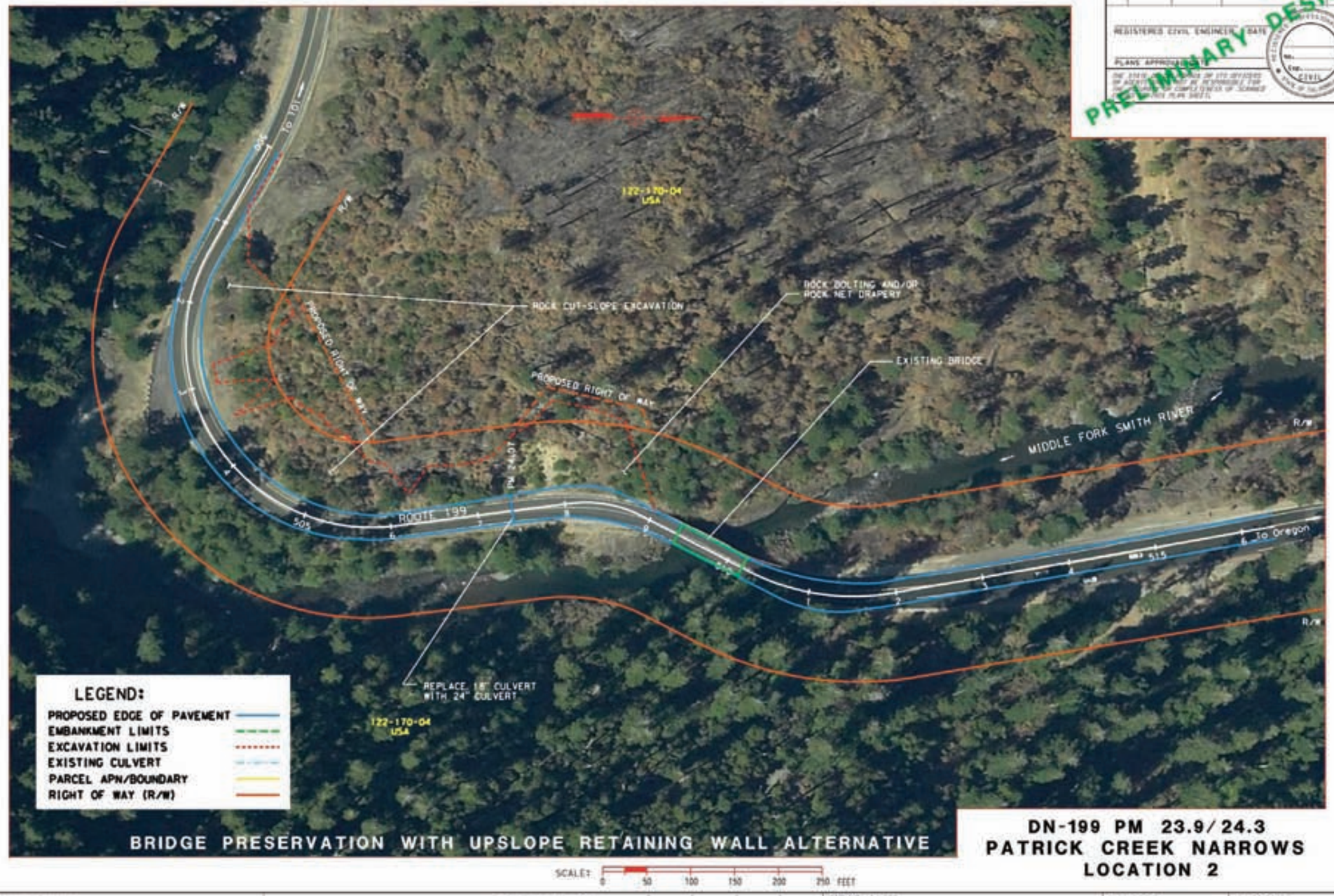

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Figure 1-10
Patrick Creek Narrows Location 2
Bridge Preservation with Upslope Retaining Wall

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Figure 1-11
Patrick Creek Narrows Location 3

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Figure 1-12a
The Narrows

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Figure 1-12b
The Narrows

Plan and a Dust Control Plan. In addition, the Contractor would be required to take appropriate measures to contain and dispose of any material with NOA.

No right-of-way acquisition is anticipated for this project location. No utility relocations are anticipated. Existing gravel pullouts nearby would be used to stage equipment.

Unique Features of the Washington Curve Build Alternatives

The following discussion identifies the unique features of each build alternative. The main differences between the two alternatives are amount of disturbed area and cost. Both alternatives would provide safe STAA access.

Cut Slope Alternative

A new slope would be excavated on the cut slope side of the roadway. The shoulders would be widened to 2 to 6 feet. Roadway excavation would be approximately 20,000 cubic yards. The total disturbed area would be approximately 1 acre. The proposed cut slope would be 1:1, depending on geologic conditions (Figure 1-13).

The estimated cost of this alternative is $1.68 million.

Retaining Wall Alternative

This alternative proposes to construct a retaining wall along the cut slope of the roadway at this project location to provide additional roadway width. Shoulders would be widened and would vary from 2 to 8 feet. Excavation for construction of the wall would be approximately 5,000-6,000 cubic yards. The total disturbed area would be approximately 0.5-0.6 acre. The wall would be approximately 800 feet long. The wall height would be approximately 12 feet, but would extend to a maximum height of 30 feet midway through the length of the wall. The vertical surface area of the wall would be approximately 14,000 square feet (Figure 1-14). Aesthetic treatment would be included.

The estimated cost of this alternative ranges from approximately $3.1 million to $5 million (currently estimated at $4.5 million), depending on type of retaining wall selected if this alternative is chosen.

1.3.2.8 No Build (No Action) Alternative for All Seven Project Locations

The No Build (No Action) Alternative would maintain the California Legal Advisory Route classification on both SR 197 and US 199. No improvements or widening would occur at any of the seven project locations to bring the roadways to STAA network standards. The current exemption for STAA trucks that are licensed carriers of household goods and that are only transporting goods directly to locations on US 199 but not traveling through the corridor would still remain in effect, per CVC Section 35401.5(f). However, some of the improvements could occur individually at the project locations to reduce continual maintenance problems or improve safety. The No Build (No Action) Alternative would not satisfy the project need or achieve the project purpose.

1.3.3 Equipment and Material Staging and Material Disposal Areas

To temporarily store and stage construction equipment and vehicles, access to several existing roadway pullouts would be temporarily blocked off along SR 197 and US 199. Figures 1-15 through 1-18 indicate the potential locations of these staging areas. Excavated material would be disposed of at existing approved facilities.

1.3.4 Preliminary Construction Schedule and Traffic Management

Construction durations at each project location are summarized in Table 1-2. The anticipated traffic management for each location is also described. Table 1-3 shows the preliminary construction schedule for all project locations in a timetable.

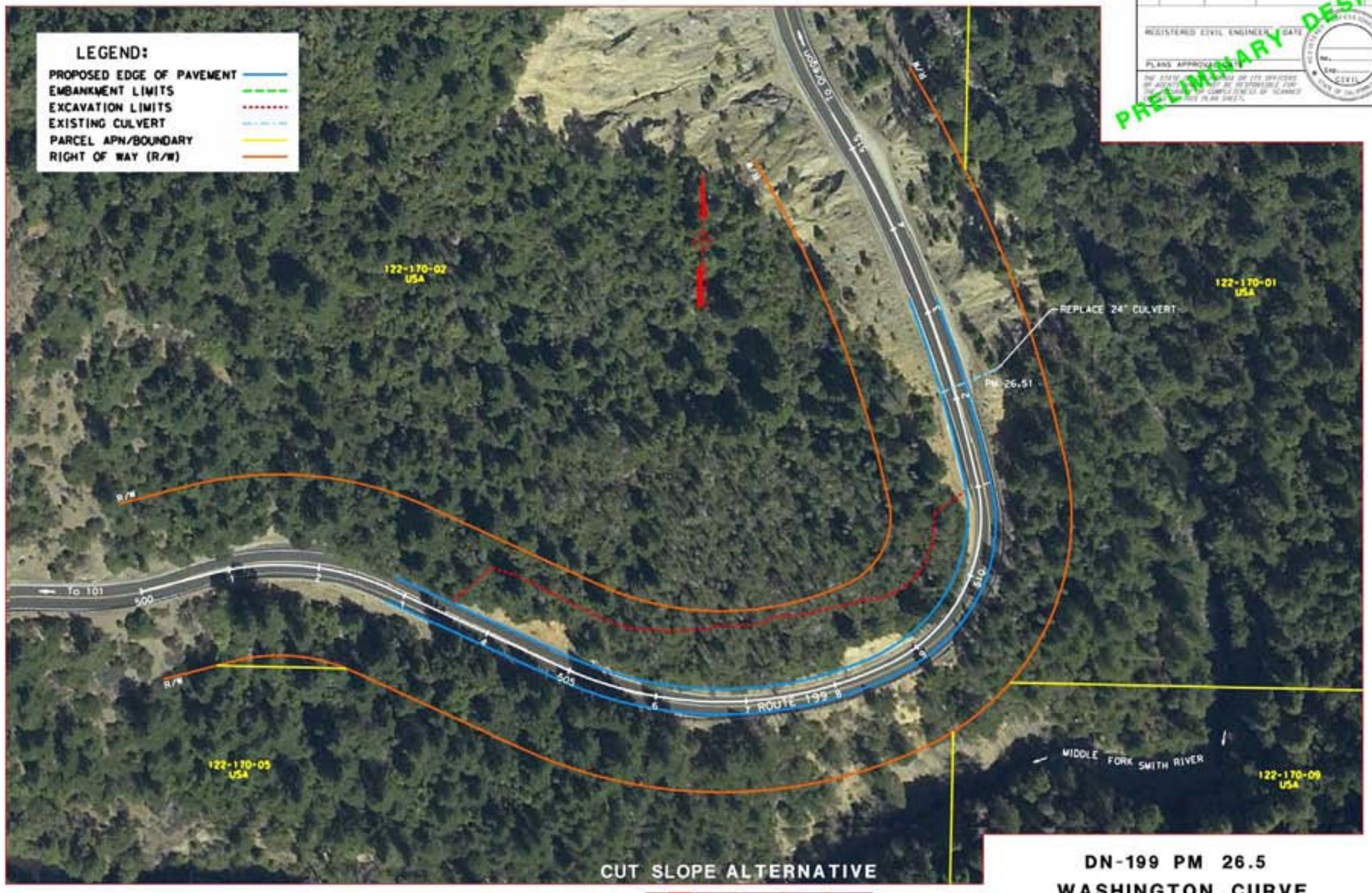

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Figure 1-13
Washington Curve, Cut Slope

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Figure 1-14
Washington Curve, Retaining Wall

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Figure 1-15
Potential Staging Area Locations

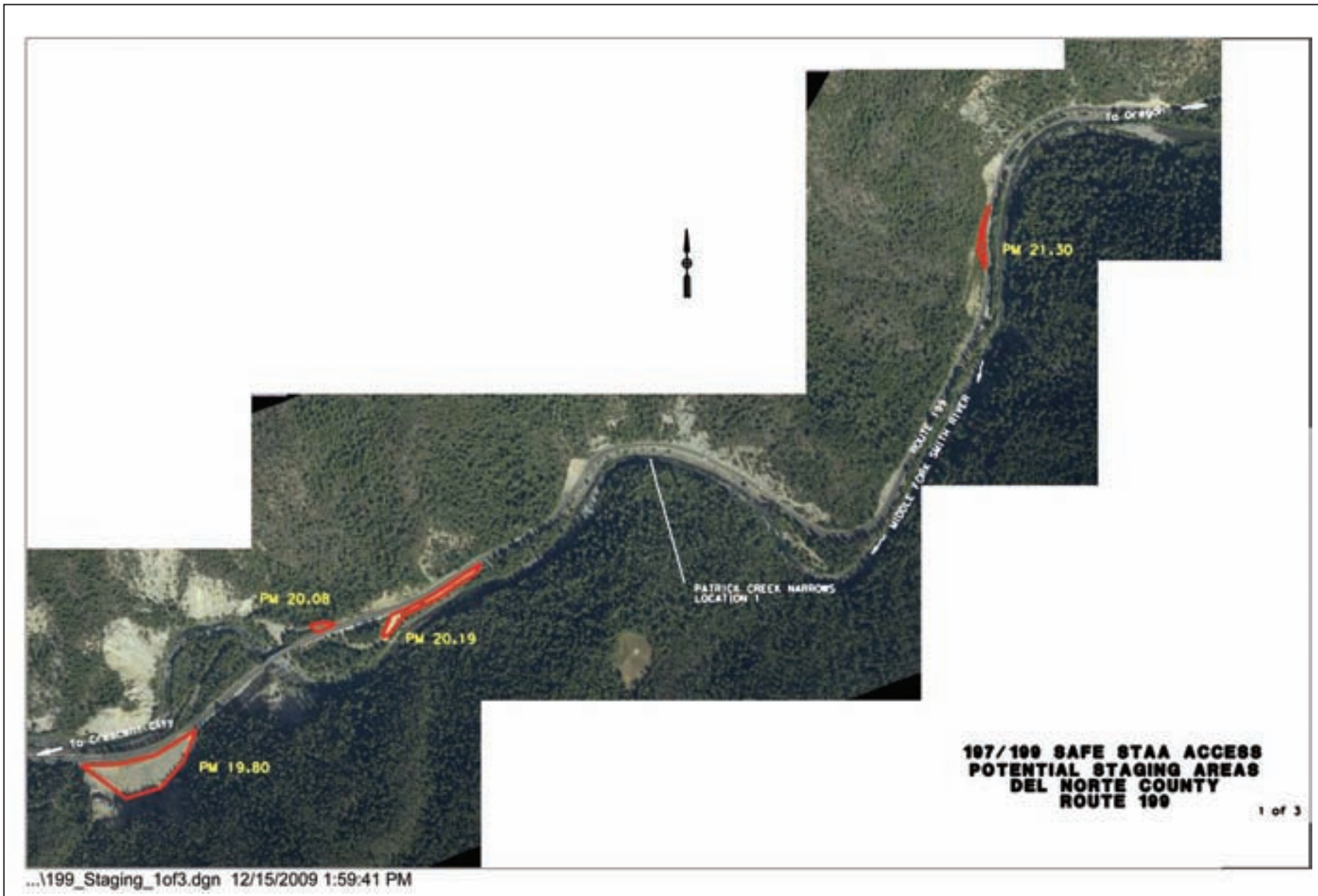

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Figure 1-16
Potential Staging Area Locations

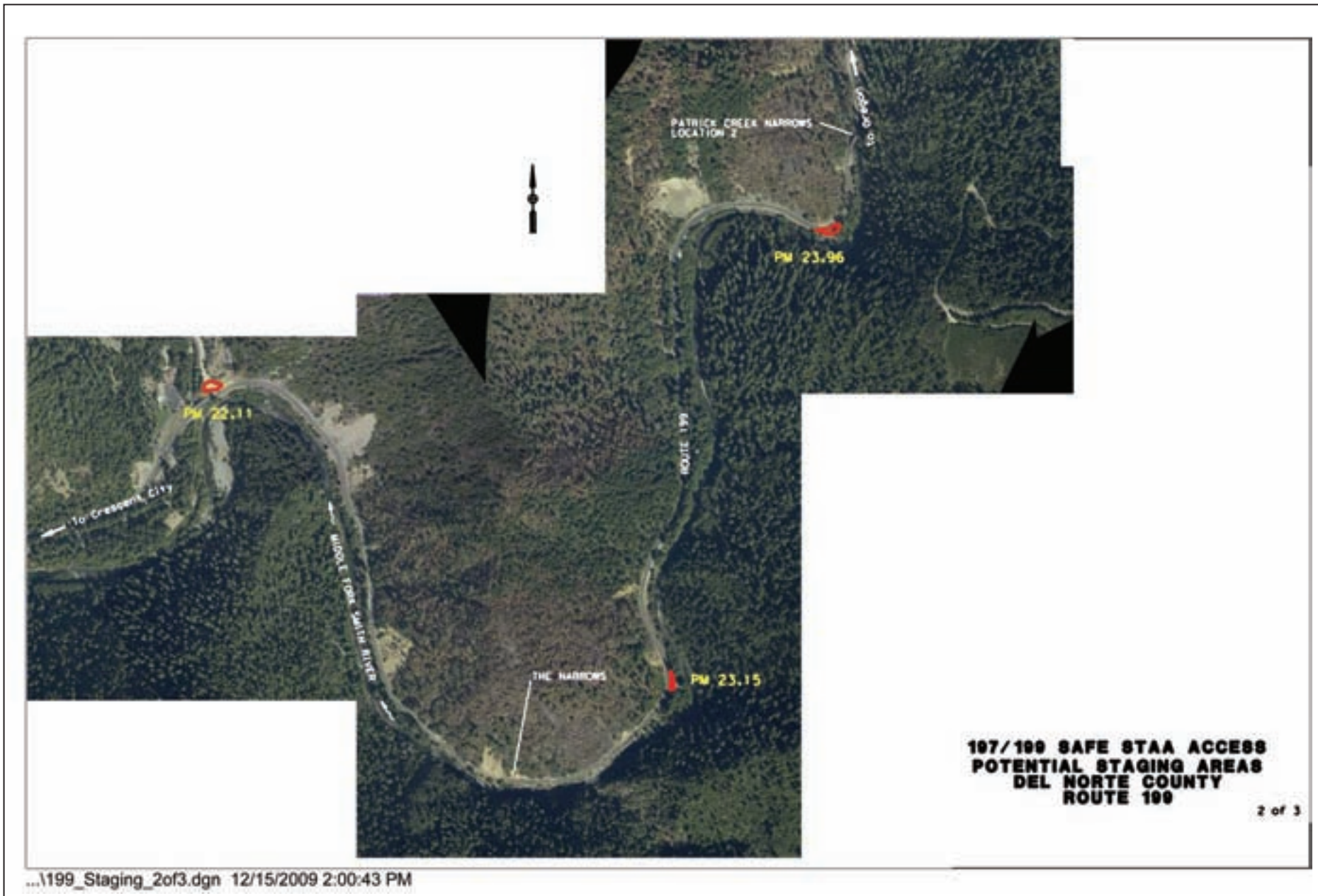

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Figure 1-17
Potential Staging Area Locations

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Figure 1-18
Potential Staging Area Locations

Table 1-2. Preliminary Construction Schedule and Traffic Management

Project Location and Alterative	Construction Season/Year Target	Approx. Construction Duration (Working Days)	Anticipated Traffic Control
Ruby 1	One season in summer/fall 2012	50	One-way reversible traffic control with 15-minute maximum delay
Ruby 2			
Four-Foot Shoulders	One season in summer/fall 2013 or 2014	80	One-way reversible traffic control with 15-minute maximum delay
Two-Foot Shoulders	One season in summer/fall 2013 or 2014	65	One-way reversible traffic control with 15-minute maximum delay
Two-Foot Widening In Spot Locations	One season in summer/fall 2013 or 2014	60	One-way reversible traffic control with 15-minute maximum delay
Patrick Creek Narrows Location 1	One season in spring 2013	90-100	One-way reversible traffic control with temporary traffic signal and 15-minute maximum delay, full closure without detour with 1-hour maximum delay for approximately 80-100 days, and shoulder closure
Patrick Creek Narrows Location 2			
Upstream Bridge Replacement	Three seasons starting in late summer/fall 2013 and ending in late fall/winter 2015	300	One-way reversible traffic control with temporary traffic signal and 15-minute maximum delay, full closure without detour with 1-hour maximum delay for approximately 225-300 days, and shoulder closure
Downstream Bridge Replacement	Three seasons starting in late summer/fall 2013 and ending in late fall/winter 2015	300	One-way reversible traffic control with temporary traffic signal and 15-minute maximum delay, full closure without detour with 1-hour maximum delay with full closure for approximately 225-300 days, and shoulder closure
Bridge Preservation with Upslope Retaining Wall	Three seasons starting in late summer/fall 2013 and ending in late fall/winter 2015	250	One-way reversible traffic control with temporary traffic signal and 15-minute maximum delay, full closure without detour with 1-hour maximum delay for approximately 185-250 days, and shoulder closure
Patrick Creek Narrows Location 3	One season starting in spring 2013	50-70	One-way reversible traffic control with temporary traffic signal and 15-minute maximum delay, full closure without detour with 1-hour maximum delay for approximately 25 days, and shoulder closure
The Narrows	Two seasons starting in summer/fall 2012 and 2013	100	One-way reversible traffic control with 30-minute maximum delay for approximately 80 days.
Washington Curve			
Cut Slope	Two seasons during 2014 and 2015	150	One-way reversible traffic control with temporary traffic signal and 30-minute maximum delay, and nighttime highway closures expected for 50 to 150 days
Retaining Wall	Three seasons during 2014, 2015 and 2016	250-300	One-way reversible traffic control with temporary traffic signal and 30-minute maximum delay, and nighttime highway closures expected for 175 to 300 days

Table 1-3. Preliminary Construction Schedule Timetable with Number of Work Days by Location

Project Location (All Alternatives)	Construction Season[a]				
	1 2012	2 2013	3 2014	4 2015	5 2016
Ruby 1	50 working days[b] with15-minute delays				
Ruby 2[c]		60-80 working days with15-minute delays	60-80 working days with15-minute delays[c]		
Patrick Creek Narrows Location 1		90-100 working days with 15-minute delays and 1-hour delays for 80-100 working days in this season, and shoulder closure			
Patrick Creek Narrows Location 2		100 working days with 15-minute delays, and full highway closure with 1-hour delays for 75-100 working days in this season, and shoulder closure	100 working days with 15-minute delays, and full highway closure with 1-hour delays for 75-100 working days in this season, and shoulder closure	50-100 working days with 15-minute delays, and full highway closure with 1-hour delays for 75-100 working days in this season, and shoulder closure	
Patrick Creek Narrows Location 3		50-70 working days with 15-minute delays and full highway closure with 1-hour delays for 25 working days			
The Narrows	50 working days with 30-minute delays for 40 days	50 working days with 30-minute delays for 40 days			
Washington Curve			50-100 working days with 30-minute delays, night closures 50–100 days	50-100 working days with 30-minute delays, night closures 50-100 days	50-100 working days with 30-minute delays, night closures 50-100 days

[a] A construction season typically extends from summer through fall. For the Patrick Creek Narrows locations, the season may extend into winter.
[b] Number of working days is approximate.
[c] Darker shading represents alternate construction year.

1.3.4.1 General Traffic Management Plan Elements

Preliminary location-specific traffic management plans (TMPs) have been prepared by the Department's District Traffic Operations staff. TMPs are revised at each phase of a project, when new information regarding physical conditions and/or restraints or construction procedures become known, and may be updated up to and during construction. Final TMPs are approved by the Department's District Transportation Management Plan Manager. Each plan will contain

specific requirements for public noticing, traffic control implementation, property and business access, and safety during project construction. Traffic management plans typically include the following elements:

- a public awareness campaign,
- highway advisory radio broadcasts**,**
- portable changeable message signs,
- flagging as appropriate,
- a temporary loop sensor and signals, and
- consistent with the Construction Zone Enhanced Enforcement Program, a California Highway Patrol officer posted at the construction site to enforce the speed limit in the construction zone.

1.3.5 Comparison of Build Alternatives

Table 1-4 provides a summary of key project features at each of the seven project locations to provide a comparison of the build alternatives. The evaluation of alternatives will be primarily based on total project cost and level of impact on sensitive environmental resources. Where improvements are proposed at a project location, the impacts related to biological habitats (including wetlands), noise caused by blasting, and recreation areas will be considered. The possibility of a bridge replacement underscores the need to consider impacts on water quality and geologic stability. Potential impacts related to safety, geologic stability, sensitive animal and plant species and plant communities, drainage patterns, and aesthetics will also be considered in the selection of alternatives. These criteria were developed to provide a range of alternatives, when feasible, that meet the project purpose and need while avoiding or minimizing potential impacts.

1.3.5.1 Areas of Controversy

No significant public controversy has been raised for a particular project location or alternative. However, there is public concern, both support and opposition, regarding the possible outcomes of allowing STAA truck access within the SR 197–US 199 corridor. Public concern also exists for another project intended to provide STAA truck access in southern Humboldt County on US 101, the Richardson Grove Operational Improvement Project, for which the final environmental document was released in May 2010. The Summary of the Final EIR/EA and Programmatic Section 4(f) Evaluation for the Richardson Grove project states, “There is both strong support and opposition for [the] project. Approximately 800 comment letters and emails were received during the public circulation of [the] DEIR/EA.”

After the public circulation period, all comments on the document will be considered, and the Department will select a preferred alternative and make a final determination of the project’s effect on the environment. In accordance with the California Environmental Quality Act (CEQA), if the Department finds that the project complies with CEQA, it will certify the EIR, prepare findings for all significant impacts identified, prepare a statement of overriding

considerations for impacts that will not be mitigated below a level of significance, and certify that the findings and statement of overriding considerations have been considered prior to project approval. If certification of the EIR occurs, the Department will then file a notice of determination with the State Clearinghouse that will identify whether the project will have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that a statement of overriding considerations was adopted. Similarly, if the Department, as assigned by the Federal Highway Administration (FHWA), determines that the National Environmental Policy Act (NEPA) action does not significantly affect the environment, the Department will issue a finding of no significant impact (FONSI) in accordance with NEPA.

Table 1-4. Comparison of Project Features by Location and Alternative

Project Location and Alternative	Increased Shoulder Width	Cut Slopes	Retaining Wall	In-River Work	Blasting		Utility Relocation	Est. Cost (Millions)
No Build (No Action)	No	No	No	No	No		No	Not applicable
Ruby 1	Yes, 0–7 feet	Yes	No	No	No		One utility pole	$0.581
Ruby 2								
Four-Foot Shoulders	Yes, 4 feet	Yes	No	No	No		Two utility poles	$1.85
Two-Foot Shoulders	Yes, 2 feet	Yes	No	No	No		One utility pole	$1.6
Two-Foot Widening in Spot Locations	Yes, 2 feet	Yes	No	No	No		No	$0.91
Patrick Creek Narrows Location 1	Yes, 4 feet	No	Yes, on river side	No	No		No	$1.72
Patrick Creek Narrows Location 2								
Upstream Bridge Replacement	Yes, 4–8 feet	Yes	Yes, on hill side	Yes	May be required		No	$9.3
Downstream Bridge Replacement	Yes, 4–8 feet	Yes	Yes, on river side	Yes	May be required		No	$9.7
Bridge Preservation with Upslope Retaining Wall	Yes, 4–8 feet	Yes	Yes, on hill side	No	May be required		No	$6.2
Patrick Creek Narrows Location 3	Yes, 4 feet	No	Yes, on river side	No	No		No	$1.64
The Narrows	Yes, 2 feet	Yes	No	No	Yes		No	$2.568
Washington Curve								
Cut Slope	Yes, 2–6 feet	Yes	No	No	No		No	$1.68
Retaining Wall	Yes, 2–6 feet	No	Yes, on hill side	No	No		No	$4.5

1.3.6 Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives

TSM strategies increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Examples of TSM strategies include: ramp metering, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. TSM also encourages automobile, public and private transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. Modal alternatives integrate multiple forms of transportation modes, such as pedestrian, bicycle, automobile, rail, and mass transit.

Although TSM measures alone could not satisfy the purpose and need of the project, the proposed widening of road widths to allow new shoulder width and increased sight distance will improve safety for bicyclists and pedestrians in those locations and therefore constitute TSM measures for this project.

TDM focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation options in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. Typical activity within this component is providing contract funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases and providing limited rideshare services to employers and individuals. The proposed construction activities and re-designating the SR 197–US 199 corridor to allow STAA truck access addresses TDM by expanding STAA and other truck drivers' transportation options and provides a shorter route for STAA truck drivers that may wish to transport goods between Grants Pass, Oregon and Crescent City, California and other coastal northern California and southern Oregon destinations.

1.3.7 Alternatives Considered but Eliminated from Further Discussion

The alternatives listed below were considered but eliminated from further discussion in this document. The reasons each alternative was eliminated are described.

1.3.7.1 US 199 between US 101 and US 199/SR 197 Intersection Alternative

Improvements were considered on the segment of US 199 between US 101 and the SR 197/US 199 intersection. This segment is classified as a California Legal Advisory Route, the same classification as the remainder of US 199 in California, and it passes through Jedediah Smith Redwoods State Park. Improving this segment to allow for STAA truck access is not practicable, however, because of the potential impacts on state park property, a resource protected under Section 4(f) of the Department of Transportation Act, and the large number of trees located immediately adjacent to the roadway that would have to be removed to improve this segment to STAA standards. Therefore, this alternative was eliminated from further consideration. Further, SR 197 is the designated route for the movement of extralegal loads between US 101 and US 199 (California Department of Transportation 1999a). The purpose and need for the proposed project would be met without improvements to this section of US 199.

1.3.7.2 Ruby 1: Two- and Four-Foot Shoulders Alternatives

At the Ruby 1 site, 2- and 4-foot shoulder alternatives were considered. Providing a 2-foot shoulder would have required widening to an additional 7-foot outside shoulder (northbound) at the apex of the curve with a transition to a 2-foot shoulder width. Providing 4-foot shoulders would have required widening to an additional 7-foot outside shoulder (northbound) at the apex of the curve with a transition to a 4-foot shoulder width. Both alternatives were eliminated from further consideration because of the higher number of redwood trees (northern spotted owl habitat) that would need to be removed compared to the alternative being considered at this location, as well as the potential impacts on Ruby Van Deventer County Park.

1.3.7.3 Patrick Creek Narrows Location 1: Upslope Cut Alternative

Construction of a new cut slope on the uphill (west) side of the highway at Patrick Creek Narrows Location 1 was considered and proposed in the project's scoping document. However, the embankment on the cut slope side consists of cobbles and boulders extending 80 feet above the highway. Excavation of the toe of this slope could result in perennial rock fall, a substantial safety hazard. Therefore, because of geologic instability and safety considerations, this alternative was eliminated from further consideration.

1.3.7.4 Patrick Creek Narrows Location 3: Upslope Cut Alternative

Construction of a new cut slope on the hill (west) side of the highway at Patrick Creek Narrows Location 3 was considered. However, there would have been constructability concerns because of the height of the needed cut (approximately 100 feet). This alternative also would have required approximately 1,800 cubic yards of roadway excavation. In addition, evidence of past slope failures exists on both sides of the required cut, indicating that there is high potential for rocks to fall onto the road or for the slope to fail. Each of these events would represent a substantial safety concern. Therefore, because of geologic instability and safety considerations, this alternative was eliminated from further consideration.

1.3.7.5 The Narrows: Alternate Construction Method Alternative

An alternate construction method was considered for the Narrows site. It would have been identical to the proposed method except that the Contractor would be required to maintain a traffic lane only wide enough for a motor home with boat trailer or smaller vehicle. Larger vehicles, such as full-sized buses and tractor-trailer combinations, would have been required to wait. Storage room for these trucks and buses would have been created inside the lane closure by extending it by 0.25 mile on each side of the work zone, while other traffic would have passed through unimpeded. With this method, the amount of hand drilling would have been considerably reduced. However, the likelihood of extensive delays for trucks and buses, compared to the proposed method, was cause for eliminating this method from further consideration.

1.3.7.6 The Narrows: Side-Hill Viaduct Alternative

Widening a short section of road toward the Middle Fork Smith River was considered at the Narrows site to avoid the highest rock cut. This widening would have been accomplished by

construction of a side-hill viaduct. Structural support for the viaduct would have required permanent placement of two retaining walls and a concrete pile within the ordinary high water mark of the river. There also would have been minor changes to hydrology and temporary construction-related impacts, including possible sedimentation, that could affect fish. Because widening toward the river could cause greater environmental impacts than widening toward the cut slope, and because the total cost would exceed $4.3 million, this alternative was eliminated from further consideration.

1.3.7.7 Washington Curve: Side-Hill Viaduct Alternative

A viaduct on the river side of the highway at the Washington Curve site was considered but eliminated from further consideration because of excessive environmental impacts (e.g., placement of structures and fill on steep slopes above the river channel; sediment disturbances; and potential impacts on aquatic species, including fish) within the Middle Fork Smith River canyon and because it would have cost more than $6 million.

1.4 Permits and Approvals Needed

The permits, reviews, and approvals listed in Table 1-5 are needed for the proposed project.

Table 1-5. Permits and Approvals Required

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act (ESA) Section 7 consultation for threatened and endangered species	Ongoing
National Marine Fisheries Service (NMFS)	ESA Section 7 consultation for threatened and endangered species	Ongoing
U.S. Army Corps of Engineers	Clean Water Act (CWA) Section 404 authorization for fill of waters of the United States	Ongoing
U.S. Department of Agriculture Forest Service	Coordination based on Forest Service sensitive and Northwest Forest Plan species, tree removal permit**,** scenic byway (US 199) and Wild and Scenic River concurrence for the Middle Fork Smith River, Section 4(f) coordination and concurrence, and coordination for conducting work within the Department of Transportation right-of-way easement held by the Forest Service	Ongoing
Del Norte County Parks Department	Temporary easement in Ruby Van Deventer County Park for driveway improvements	Ongoing
California Department of Fish and Game	California Fish and Game Code Section 1602 streambed alteration agreement, Section 2080.1 agreement, and consistency determination with biological opinions prepared by the USFWS and NMFS	Ongoing
National Park Service	Wild and Scenic River concurrence for the Smith River	Completed
North Coast Regional Water Quality Control Board	CWA Section 401 water quality certification and coverage under the Department's National Pollutant Discharge Elimination System permit (Order 00-06-DWQ)	Ongoing
North Coast Unified Air Quality Management District	Formal notification submitted a minimum of 14 days before construction, permit for compliance with national emission standards for hazardous air pollutants, acceptance of dust control plan, and acceptance of lead compliance plan	Not yet initiated
State Lands Commission	Potential permit for river bank/channel work at Patrick Creek Narrows Location 2	Not yet initiated