

PROJECT CHECKLIST

MCKENZIE HIGHWAY/OR 242

OR PFH 22(14)

**LANE, LINN, AND DESCHUTES COUNTIES
MILE POST 61.9 TO 77.3**



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION



"Commitment to Excellence"

AUGUST 2006

LIST OF ABBREVIATIONS AND ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	average daily traffic
AINW	Archaeological Investigations Northwest, Inc.
CE	Categorical Exclusion
DEA	David Evans and Associates, Inc.
EA	Environmental Assessment
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FS	USDA Forest Service
MP	Mile Post
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
ODOT	Oregon Department of Transportation
OR	Oregon Route
RVD	recreation visitor day
SEE	Social, Economic, and Environmental
SHPO	State Historic Preservation Office
SOC	Species of Concern
SPIS	Safety Priority Index System
T&E	threatened and endangered
US	United States
USDA	US Department of Agriculture
USDOT	US Department of Transportation
USFWS	US Department of Interior, Fish and Wildlife Service
VQO	Visual Quality Objective
WFLHD	Western Federal Lands Highway Division

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1.0 INTRODUCTION

1.1 Project Name

The project is identified as the McKenzie Highway Project, OR PFH 22(14).

1.2 Lead Agency

Western Federal Lands Highway Division
Federal Highway Administration
US Department of Transportation
610 East Fifth Street
Vancouver, Washington 98661-3893

Contact: George Fekaris, Project Manager, (360) 619-7766

1.3 Partner Agencies

USDA Forest Service
Willamette National Forest
57600 McKenzie Highway
McKenzie Bridge, OR 97413

Oregon Department of Transportation
District 5
644 A Street
Springfield, OR 97477

Contact: Dawn Pozzani, (541) 822-3381

Contact: Michael Spaeth, (541) 744-8080

1.4 Purpose of Project Checklist

A Project Checklist is used by the Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA), US Department of Transportation (USDOT), as part of its data gathering process and early coordination for a proposed action. It provides an opportunity for public and governmental agencies that may be affected by the proposed action, or that may have regulatory or administrative interest, to become involved in the project development process at an early stage.

This document describes the project purpose and need, overall scope of the project, and alternatives being considered. The checklist also describes environmental resources in the area and includes a preliminary assessment of potential impacts. This aids in identifying issues that are important and/or have potentially negative or beneficial environmental consequences.

The document provides information to help determine the scope of the project and the type of the environmental document, e.g., Environmental Impact Statement (EIS), Environmental Assessment (EA), or Categorical Exclusion (CE), required for compliance with the National Environmental Policy Act (NEPA).

The checklist contains the results of the engineering investigations and environmental studies completed to date that are relevant to the proposed project. They include:

- Project Identification Report (WFLHD, 2002)
- Pavement design study (Terracon, 2005)
- Section 106 Bridge Determination of Eligibility Forms (Oregon Inventory of Historic Properties) for Bridge #03976 (Archaeological Investigations Northwest [AINW], 2005a)
- Section 106 Bridge Determination of Eligibility Forms (Oregon Inventory of Historic Properties) for Bridge #03977 (AINW, 2005b)
- Fish and Wildlife Biological Evaluation (David Evans and Associates, Inc. [DEA], 2006a)
- Botanical Biological Evaluation (DEA, 2006b)
- Wetland Reconnaissance technical memorandum (DEA, 2006c)
- Geotechnical Investigation draft technical memorandum (GRI, 2006)

1.5 Background Information

The McKenzie Highway is also known as Oregon Route 242 (OR 242) and Forest Highway (FH) 22. The highway travels through Lane, Linn, and Deschutes counties; beginning at the junction with OR 126 near the town of McKenzie Bridge and ending at the junction with US Highway 20 and OR 126 at the city of Sisters.

The McKenzie Highway is part of the McKenzie Pass - Santiam Pass National Scenic Byway. Through part of the project area, OR 242 travels between two federal wilderness areas, and there are many historic, recreational, and scenic features and sites along the route. The boundaries of the Mt. Washington Wilderness and Three Sisters Wilderness are 66 feet from the highway centerline.

The highway route was originally built with private funds in the 1870s as a wagon toll road. The section between the towns of Blue River in Lane County and Sisters in Deschutes County (which included the project area) became a Forest Road in 1919 (Oregon State Highway Commission, 1920). The road was relocated and widened in 1920, graded and surfaced between 1920 and 1924, and became a state highway in 1925.



*Photo circa 1916-1920
near McKenzie Pass
facing west;
Mt. Washington in the
background.*

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Location of the Proposed Action

The project area is entirely within the Willamette National Forest. The proposed project would occur along approximately 15.4 miles of the McKenzie Highway, OR 242. It would begin at White Branch snow gate in Lane County, Oregon, approximately six miles east of the junction of OR 126 and OR 242, Mile Post (MP) 61.9. It would pass through Linn County for approximately one-half mile (MP 76.65 to MP 77.14), and would end just east of McKenzie Pass and the Dee Wright Observatory in Deschutes County, at approximately MP 77.3. Figure 1 shows the project area and vicinity.

2.2 Scope and Nature of the Proposed Work

The scope and nature of the proposed work are to rehabilitate the pavement throughout the project area, to stabilize the roadway at the steep switchbacks (“Dead Horse Grade”) near MP 69, and to replace the two bridges at MP 66.70 (ODOT Bridge #09376) and MP 68.36 (ODOT Bridge #09377). The project is intended to maintain and preserve the historical and physical characteristics of the route (i.e., a narrow, winding roadway along a historic route in a natural, mountainous setting).



*Beginning point of project,
White Branch snow gate (MP 61.9)*

The major construction activities for this project would include: milling and overlaying highway pavement, repairing subgrade where needed, paving some gravel parking areas, repaving some paved parking areas, replacing missing or deteriorated historic posts (delineators), replacing traffic control signs and striping, stabilizing slopes near MP 69, and replacing two bridges. The roadway and parking areas would be resurfaced with asphalt concrete. Project activities would occur within an existing FS special use permit granted to ODOT for the roadway. The special use permit covers a corridor at least 66 feet wide on each side of the highway centerline, plus any additional needed for cuts and fills.

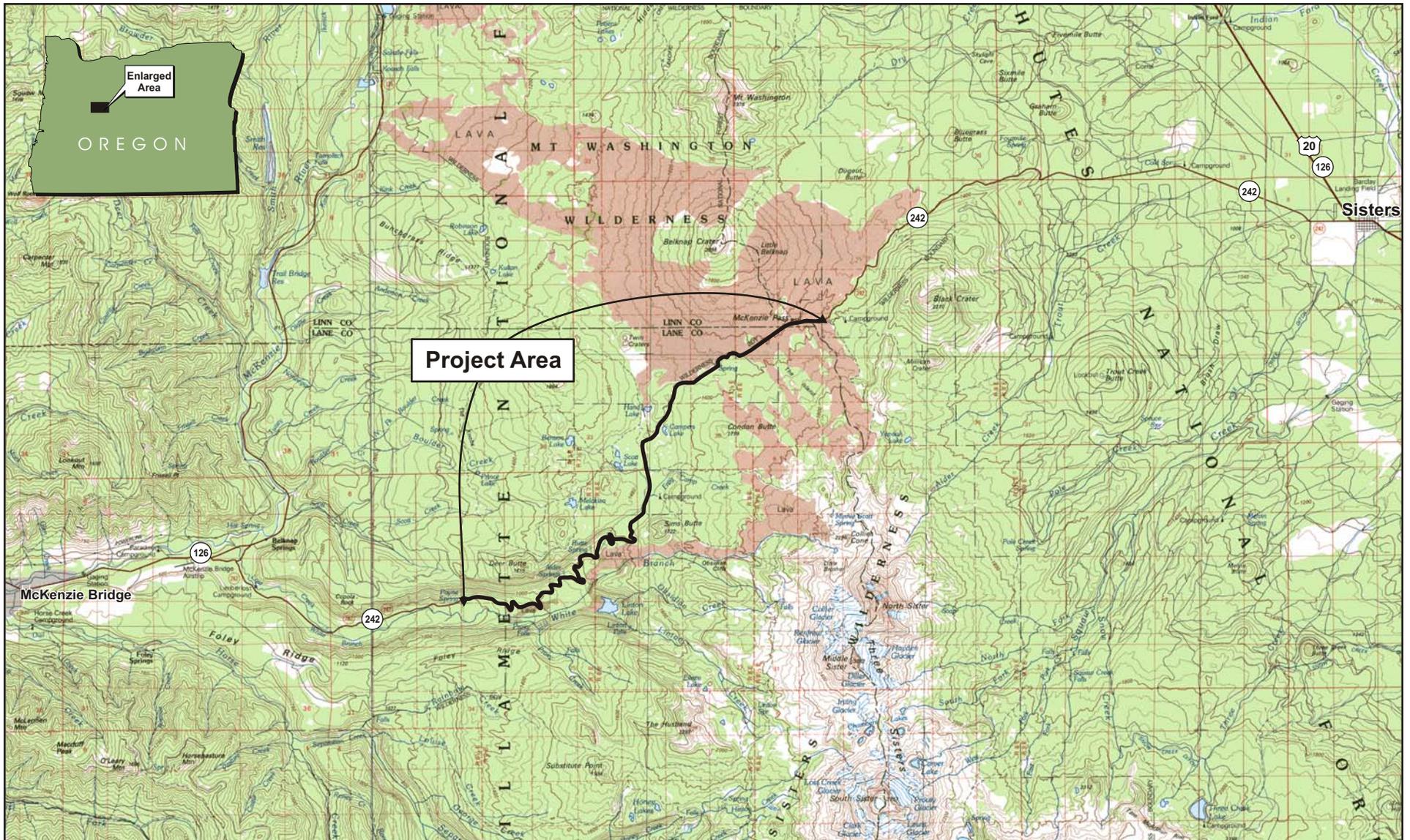
Construction is anticipated to be accomplished in three phases. Slope stabilization near MP 69 is planned to be done in 2007; the bridges would be replaced in 2008; and the pavement overlay and other activities are planned for 2010. Construction activities would occur between May and November.

2.3 Funding

The proposed project is identified for funding under the Forest Highways section of the Public Lands Highway Program, which is financed through the Federal Highway Trust Fund. A Forest Highway is a selected public road wholly or partly within or adjacent to, and serving, forest lands. The road is

necessary for the protection, administration, and utilization of the forest land and the use of its resources. In Oregon, the Forest Highway Program is administered by the FHWA, USDA Forest Service (FS), and the Oregon Department of Transportation (ODOT). At this time, approximately \$3.8 million of federal funding has been programmed for the project.

McKenzie Highway



USGS 30x60 minute series: Bend, Oregon 1980 (Photoinspected 1981), McKenzie River, OR 1983

Figure 1
Vicinity

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3.0 PURPOSE AND NEED

3.1 Purpose of the Proposed Action

The purposes of the project are to maintain access to National Forest lands and existing recreation opportunities in the project vicinity, and to provide a safe and durable roadway for current and projected traffic while maintaining the historic and scenic qualities of the highway.

OR 242 provides the only access to a number of popular recreation sites on National Forest lands, as well as access for fire protection and response to public emergencies, such as rescue and recovery. The project is needed because the pavement is failing throughout the project corridor, a section of steep slopes near MP 69 is failing, and two small bridges, at MP 66.70 and at MP 68.36, are in poor condition.

3.2 Existing Roadway Conditions

The McKenzie Highway has two travel lanes and narrow shoulders within a consistently narrow roadbed. The paved width is about 17 feet. Because of the narrow width and sharp curves throughout the route, many limited to 15 mph, vehicles longer than 35 feet are not permitted. The grade is generally moderate to steep (estimated between 1 and 6 percent), and the asphalt concrete surface is in fair to poor condition. Existing cutslopes are in volcanic rocks or in the thin layer of soil overlying the rocks and generally stable, except in the section of steep switchbacks near MP 69. The steepness of cutslopes and nearby tree cover result in a shaded roadway throughout most of the project length (WFLHD, 2002).



McKenzie Highway, MP 74



McKenzie Highway, MP 63

In general, the first two miles of the project corridor are relatively straight, the next five miles contain numerous switchbacks, and the last eight miles are relatively straight.

A road recycling project was completed in the early 1990s to extend the life of the pavement on OR 242. The project included level patching and cold recycling. Recent observations indicate that the existing pavement typically ranges from 3 to 6 inches thick (Terracon, 2005). Throughout most of the

project area, the top 2 inches of asphalt (placed in 1991 and 1992) lies on top of approximately 2 inches of cold recycled asphalt. The older asphalt underlying both layers shows significant deterioration, and subsurface borings show a lack of aggregate base under the pavement. Field observations and laboratory testing data indicate that the existing subgrade was not well compacted (Terracon, 2005). The pavement shows some cracking, and it has been patched in many locations. Because the pavement is narrow, motorists often travel near the outer edge of the road to provide a comfortable distance between them and oncoming traffic. Because the road shoulders are very narrow or non-existent, that practice has caused the edges of the road to ravel and break up.



Roadway alignment at MP 66.70

The bridges at MP 66.70 and 68.36 were originally built in 1921 and rebuilt in 1938 and 1941. Both bridges are supported by rock masonry abutments that are deteriorating. Interim repairs have been made to the bridges, but they will continue to deteriorate. The hydraulic capacity of both bridges is inadequate to pass the 50-year flood.

The bridge at MP 66.70 is a 25-foot-wide, 27-foot-long timber-beam structure (WFLHD, 2005) built in 1938 on the original 1921 rubble-masonry or rockwork abutments (AINW, 2005a). The bridge is at a 35-degree skew. The main structural system is composed of large timber girders or stringers, timber headwalls above the abutments made from 4-by-12-

inch milled redcedar, and a modern railing composed of metal guardrails and timber posts that are bolted to the outer girders. Originally, a standard two-rail, wooden railing was used. The deck consists of 4-by-12-inch wooden planks. Milled 2-by-4-inch cross-braces are placed between the girders, underneath the decking. Modern metal I-beams supported by steel columns in modern concrete footings have been placed under the bridge to provide additional support for the structure.



Bridge at MP 66.70



Bridge at MP 66.70 support structure

During a field visit in August 2005, debris and streambed material was present under the downstream end of the bridge and reduced the channel opening by at least 75 percent (WFLHD, 2005). The concrete footing under the steel columns on the upstream side was scoured out, and, in general, the

bridge structure and masonry abutments were in poor condition (WFLHD, 2005). Deterioration of the abutments was determined to have been caused by a chemical reaction between the volcanic rock masonry and cement grout. According to the ODOT bridge inspection report, the sufficiency rating for the bridge is 49.2.¹ The bridge rail, transitions, approach rail, and rail ends are all substandard, and the superstructure is in poor condition (ODOT, 2006a).

The bridge at MP 68.36 is a 24-foot-wide, 19-foot-long, timber-beam structure (WFLHD, 2005) that was built in 1942, probably on the original 1921 rubble-masonry or rockwork abutments (AINW, 2005b). The main structural system is composed of 19-foot-long timber girders or stringers that are supported by the vertical, mortared-stone abutments at the stream embankments. The rockwork endwalls are large, blocky structures consisting of local lava rock stacked in irregular courses. There are no piers beneath the bridge. Horizontal wooden poles, which may have been added later, provide bracing between the abutments (AINW, 2005b).



Bridge at MP 68.36



The bridge at MP 68.36 rock abutments

During the August 2005 field visit, WFLHD personnel observed that the bridge had settled and rock masonry had deteriorated, similar to the bridge at 66.70 (WFLHD, 2005). The ODOT bridge inspection report indicates a sufficiency rating of 45.0. The bridge rail, transitions, approach rail, and rail ends are all substandard, and the superstructure is in poor condition (ODOT, 2006b).

Near MP 69, where a switchback in the road traverses Dead Horse Grade, the roadbed for the upper section of the switchback curve is being undercut by a failing slope on the downhill side of the road. This has resulted in a partial loss of the outside shoulder of the road in the upper section of the switchback and deposition of debris and rockfall on the lower section. Concrete barriers have been installed to minimize debris deposition on the lower section, however, regular maintenance is needed to remove rocks and other material. Slope failure has accelerated, and there is potential for complete road failure (FS and ODOT, 2001).

¹ Sufficiency ratings are on a scale of 0 to 100. If a bridge has a rating of 50 or below, it is eligible for replacement under the federal Highway Bridge Rehabilitation and Replacement (HBRR) Program. With a rating above 50 but below 80, a bridge is eligible for rehabilitation. Ratings are based on a number of factors, such as condition of bridge elements (e.g. deck, beams, abutments), load carrying capacity, width, vertical clearances, and detour length if the bridge is closed.



MP 69 Switchback, Upper Section



MP 69 Switchback, Lower Section

3.3 Road Uses

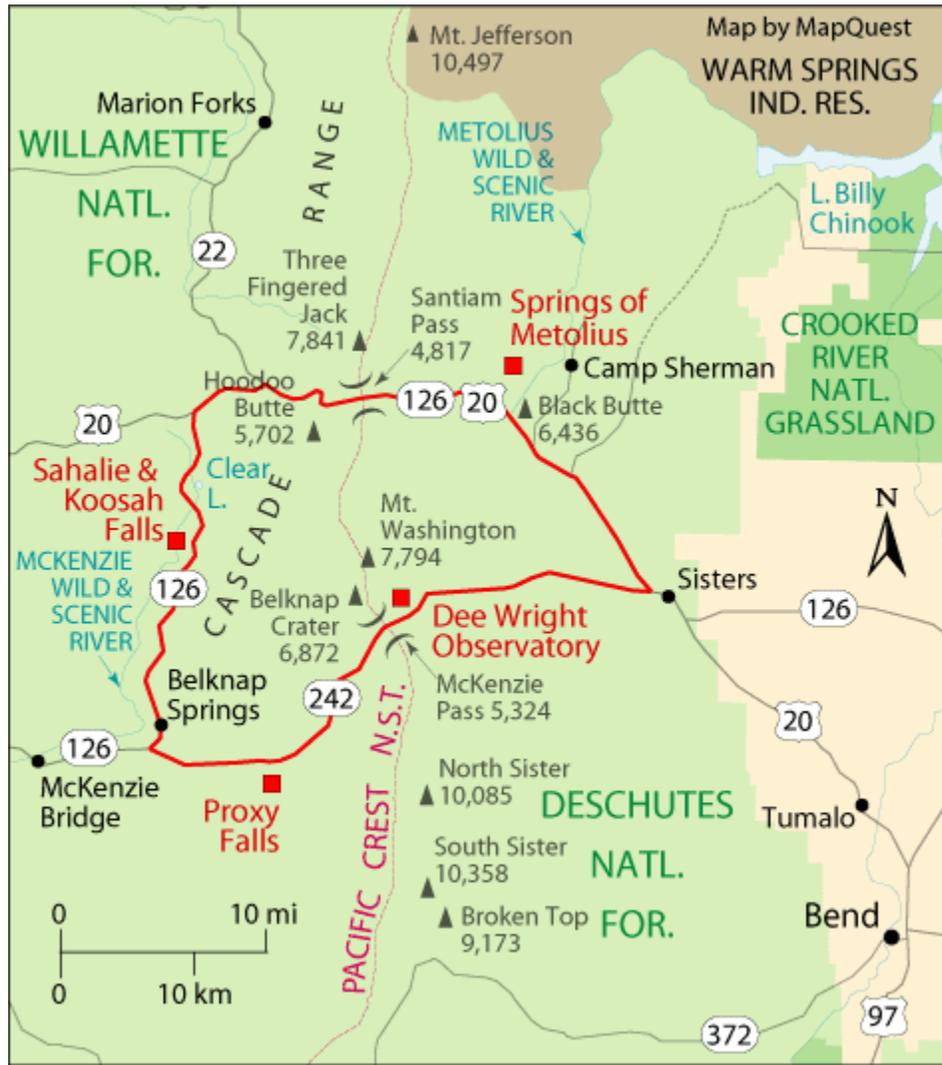
The highway is part of a National Scenic Byway and follows a historic route across the Cascades range. The narrow pavement, many curves, and rustic appearance (e.g., no fog line, general lack of guardrail) contribute to its scenic and historic character, which are important draws for tourists.

The McKenzie Highway (OR 242) has a functional classification of Rural Major Collector (ODOT, 2004). The project corridor is a portion of the McKenzie Pass-Santiam Pass National Scenic Byway and is used primarily to access scenic and recreation areas in the Willamette National Forest. Figure 2 shows a number of recreation and scenic attractions in the vicinity of the project. OR 242 provides primary access to more than 23,000 acres of National Forest lands. Annual use for the project corridor is approximately 150,000 recreation visitor days (RVDs).

Because of its high elevation in the Cascade Range, the project corridor usually receives heavy snowfall and is closed from mid-November through mid-June (National Scenic Byways Online, 2006). In some years, the road is not opened until early July.

Traffic on OR 242 consists mostly of cars, light trucks, smaller RVs, and vehicles with horse trailers. The highway is closed to vehicles over 35 feet long, and large trailers are discouraged. However, semi trucks and some large motor homes occasionally use the road, posing a safety hazard because the road width and alignment do not allow them to safely travel the highway. Large vehicles must cross the centerline to negotiate tight curves, and some vehicles inevitably get stuck and block traffic. Signs posted at each end of the highway indicate that vehicles over 35 feet long are prohibited; however, ODOT personnel are often called upon to remove over-length vehicles that have blocked the road. Automatic detection systems at both the east and west ends of OR 242 notify ODOT when over-length vehicles enter the road. The detection system at the west end also has flashing lights that activate when an over-length vehicle approaches, thereby alerting the driver. The flashing lights that had been installed at the east end were stolen and have not been replaced.

Bicyclists also use the highway. In addition to use by individual cyclists, the road is used for rides by organized cycling groups. Group rides typically occur numerous times each season (Launer, 2006).



Source: National Scenic Byways Online, 2005

Figure 2. McKenzie Pass-Santiam Pass Scenic Byway Map

3.4 Traffic Volumes

In 2005, average daily traffic (ADT) for the project area, recorded by ODOT, was 420. By 2025, at an estimated 2 percent annual growth, the projected ADT would be approximately 620.

An estimated 85 percent of the traffic on OR 242 uses the route to access recreation areas on the National Forest. The remaining 15 percent uses OR 242 as an alternate to the Santiam Pass as a route between the Willamette Valley and Central Oregon (FS and ODOT, 2002).

3.5 Safety Concerns and Accidents

ODOT accident information was reviewed for the portion of the McKenzie Highway between MP 54.97 and 77.14, which includes the project area. According to the ODOT data, eight crashes were reported between 2000 and 2004, the most recent five-year period for which data are available. Three of those crashes happened outside of the project area (i.e. between MP 54.97 and 61.9). All eight crashes were distributed throughout the entire 22.17-mile road segment reviewed. Six were crashes with fixed objects caused by the driver traveling too fast for the roadway conditions, and two were head-on crashes caused by drivers traveling on the wrong side of the roadway (DEA, 2005).

Because of the rural nature of the project area, minor accidents are often taken care of without formal emergency response and may not be reported. Accident reports may underestimate the actual number of accidents that occur within the project area.

The Safety Priority Index System (SPIS) is a method developed by ODOT for prioritizing locations where funding for safety improvements can be spent most efficiently and effectively. Based on crash data, the SPIS score is influenced by three components: crash frequency, crash rate, and crash severity. Three years of crash data are analyzed for the SPIS score. To be classified as a SPIS location, a site must meet one of two criteria during the previous three years: three or more crashes at the same location, or one or more fatal crashes at the same location. For 2004 (considering data from 2000 through 2003), the project area did not qualify as a SPIS location. From 2000 to 2004, the project area had a crash rate lower than the statewide average crash rate for comparable facilities (0.53 versus 0.96 crashes per million vehicle miles traveled) (DEA, 2005).

4.0 ALTERNATIVES CONSIDERED

4.1 Introduction

Two alternatives are under consideration, a no action alternative, and an action alternative. Project alternatives were developed by an interagency Social, Economic, and Environmental (SEE) Study Team, which was established during the scoping phase of the project. The SEE Team includes representatives of WFLHD, ODOT, and the FS. Section 8.1 provides more information about the SEE Team and its members.

4.2 Alternative 1: No Action

Under the No Action Alternative, the existing highway would continue to receive periodic maintenance by ODOT. The pavement would be patched as needed, but resurfacing and restoration of the road surface would be deferred or not done. Structural enhancements would not be made, slopes near MP 69 would not be stabilized, and the bridges at MP 66.70 and 68.36 would not be replaced.

Deficiencies in the road pavement, base, and subgrade would lead to continued deterioration of the pavement and raveling and breakup of the pavement. A road in poor condition with an uneven and broken surface may be considered a safety hazard with the potential to increase the frequency of accidents. In addition, the roadway would require more costly maintenance work each year and, at some time in the future, would require much more extensive repairs to keep the road open to the public. Eventually, ODOT would need to completely rebuild the pavement structure, resulting in higher project costs.

The bridge structural deficiencies cannot be corrected through further maintenance. If not replaced, the bridges would deteriorate further and would eventually fail, resulting in closure of the road until new bridges could be constructed.

Slope failure would continue near MP 69. It would eventually encroach far enough into the roadway to make the road impassable, and the highway would need to be closed.

The No Action Alternative would not satisfy the purpose of and need for the project. It would not improve the deteriorating road base and surface, the slope failure, or bridges in poor condition, and, therefore, could decrease safety or lead to road closure. Access to National Forest lands, recreation areas, and scenic areas would be reduced.

4.3 Alternative 2: Repave Roadway and Replace Two Bridges

Normally, FHWA develops projects to meet or exceed the minimum standards of the American Association of State Highway and Transportation Officials (AASHTO) or the standards established by the road-owning agency, which is ODOT for the proposed project. The standards are contained in the AASHTO publication, "A Policy on Geometric Design of Highways and Streets" (1994) and in the ODOT "Highway Design Manual" (2003). However, in order to maintain the historic and scenic qualities of the highway, the existing roadway alignment and width would be maintained with

Alternative 2 (the Action Alternative). Prior to implementing Alternative 2, design exceptions to ODOT standards (e.g., for width and curve radii) would be documented.

Alternative 2 would include rehabilitating and repaving the existing roadway, paving or repaving some parking areas adjacent to the roadway, stabilizing slopes at MP 69, and replacing the two bridges at MP 66.70 and 68.36. Figure 3 shows features of the project area. The estimated cost of Alternative 2 is between \$3.45 and \$3.8 million: roadway rehabilitation and repaving = \$2.5 to \$2.7 million; slope stabilization = \$400,000 to \$450,000; bridge replacement = \$550,000 to \$650,000.

Roadway rehabilitation would include resurfacing the roadway with asphalt overlay for approximately 15.4 miles of OR 242, placing shoulder rock, and replacing signing and centerline striping. In sections where the pavement edge is breaking up, the outer edges of the pavement (at least four feet from the centerline) would be milled before being overlaid. Figure 4 shows a typical section of the proposed resurfacing, along with details of the proposed ditch treatment and pavement milling. Milled asphalt would be hauled out of the project area and disposed of at an approved facility, in accordance with federal, state, and local regulations. Subgrade repairs—for which existing subgrade material would be removed, replaced with gravel, and compacted—would be made where needed. Excess subgrade material would be hauled off the project site; if deemed appropriate, it may be placed at the FS-owned Scott Lake Quarry, which is near the project area and accessed via OR 242. Ditches would be deepened slightly to improve drainage, but not in areas where there are wetlands or other sensitive natural resources. The road would not be widened, and no new cutslope excavation or fill widening would be done, except as needed for slope stabilization at MP 69. No new signs or fog line striping would be added. Some existing paved parking areas, including those at the Dee Wright Observatory, would be resurfaced with asphalt. Some other parking areas currently surfaced with gravel would be paved with asphalt. The Scott Lake Quarry may be a suitable source of crushed rock for project construction. Commercial sources for asphalt are available outside the project area.

Design and materials used would be appropriate for the historic and aesthetic aspects of the highway corridor. Historic wooden posts (delineators) along segments of the project corridor are deteriorating, and many have already fallen and have been removed. The project would include replacement of the delineators with replicas. The wooden, “break-away” posts would be painted white and placed at intervals matching those of the historic markers. Historic markers determined to be in good repair would not be replaced.

The road rehabilitation and repaving is planned for construction in 2010. Throughout the construction period, temporary traffic delays would occur. Pavement rehabilitation likely would require temporary (e.g., 30- to 40-minute) road closures with traffic control (e.g., flaggers).

Replacement of the bridges at MP 66.70 and 68.36 is planned for 2008. Preliminary designs for the replacement bridges include pre-cast concrete slabs for the bridge decks with timber beam bridge railings (see Figures 5 and 6). Transition rail (steel-backed timber rail) would be added to protect the bridge ends. The new abutments would be faced with stone or simulated stone masonry to mimic the historic abutments and blend with the scenic character of the project corridor. Hydraulic capacity of the replacement bridges would be similar to that of the existing bridges for similar reasons. Bridge replacement is estimated to cost between \$550,000 and \$650,000.

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BEGIN PROJECT
MP 61.9

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ALDER SPRINGS CAMPGROUND



BRIDGE AT MP 66.70



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BRIDGE REPLACEMENT
MP 68.36

MP 69 SLOPE STABILIZATION

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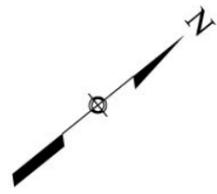
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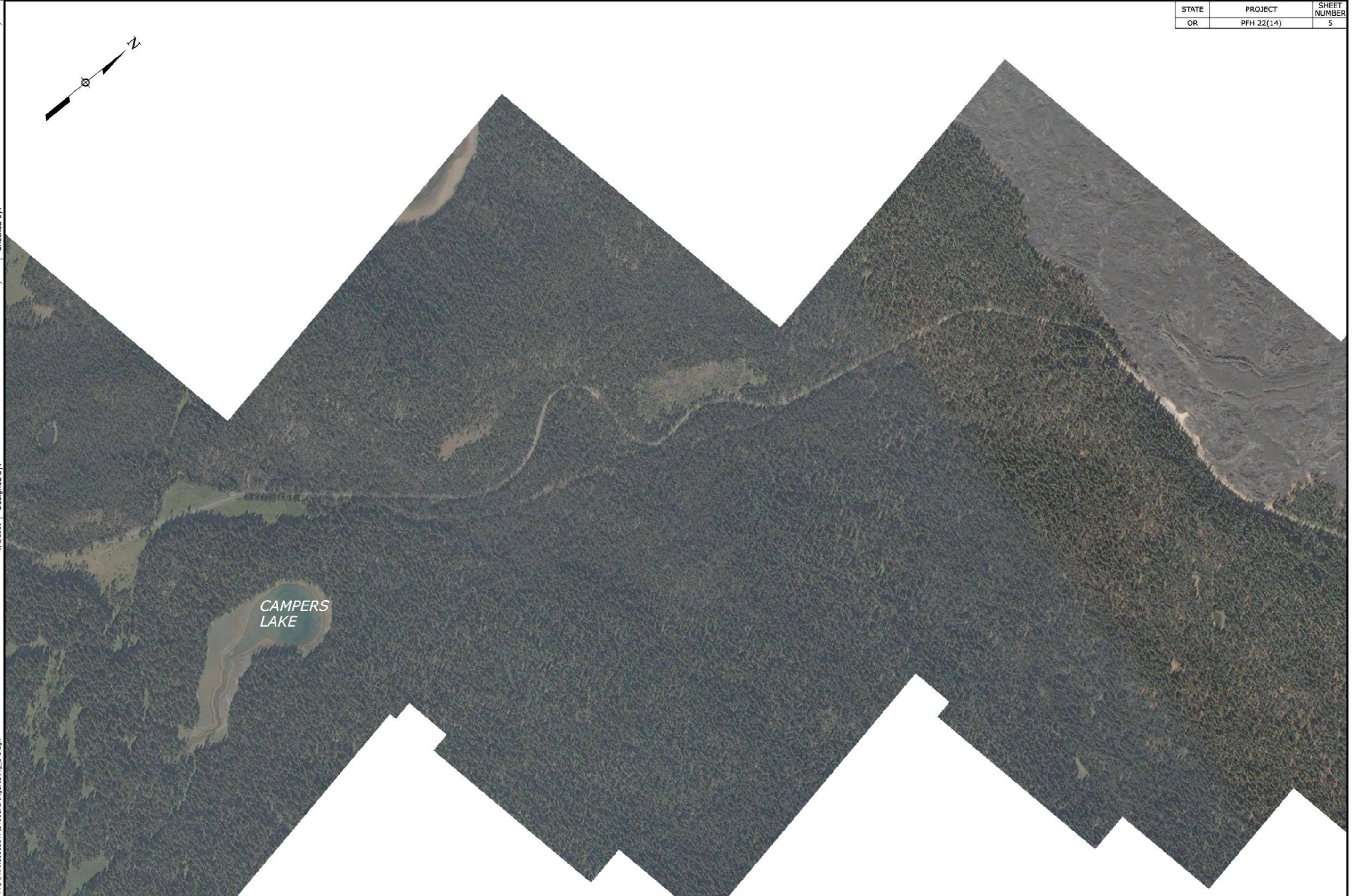
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CAMPERS
LAKE



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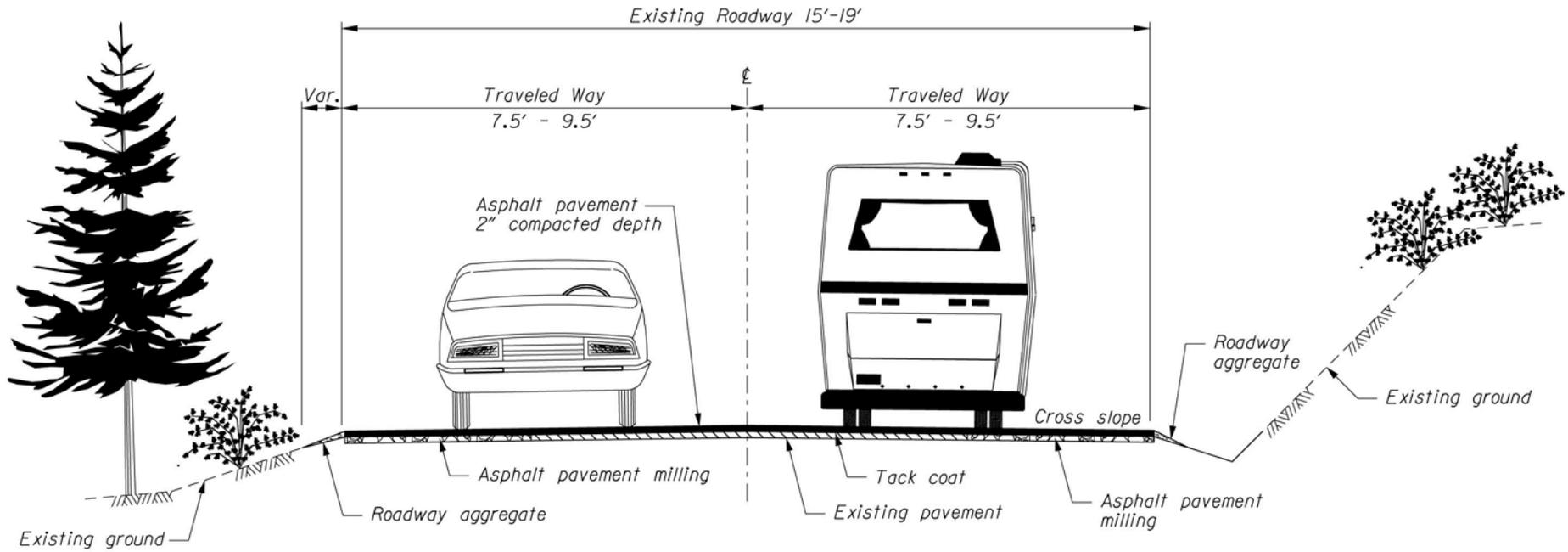


DEE WRIGHT
OBSERVATORY

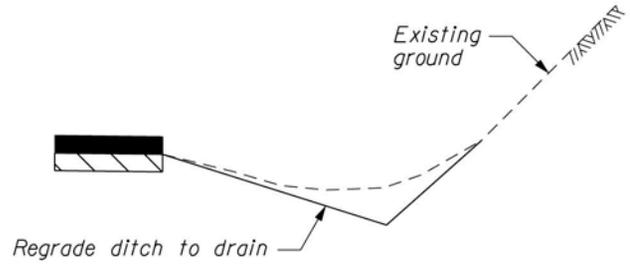
END PROJECT
MP 77.3

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PAVEMENT OVERLAY

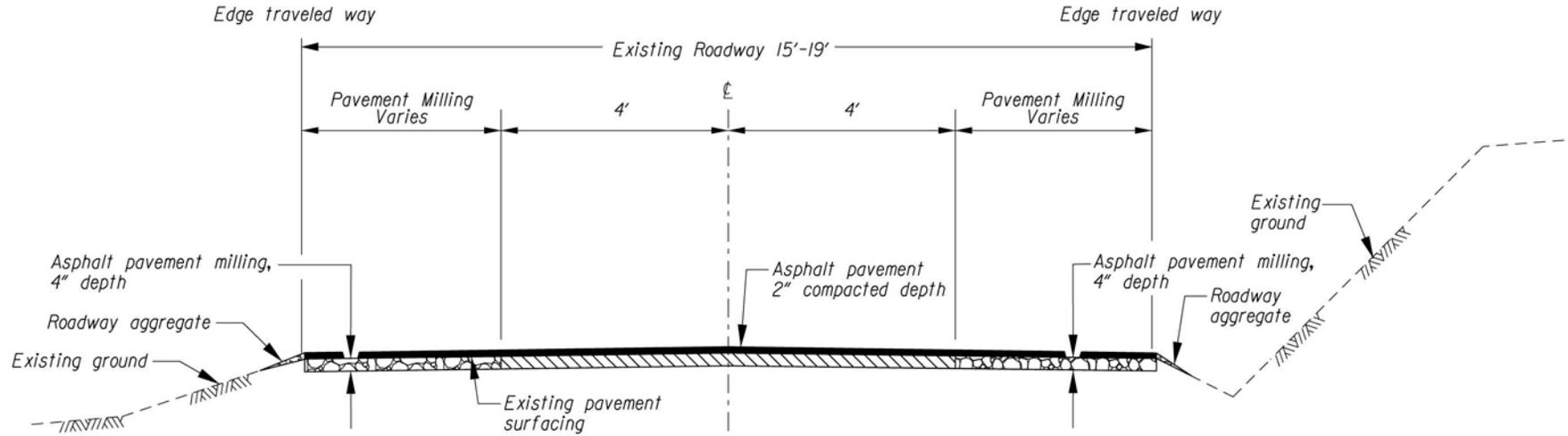


DITCH TREATMENT

Figure 4
Typical Section

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STATE	PROJECT	SHEET NUMBER
OR	PFH 22(14)	2



PAVEMENT MILLING AND
PATCHING DETAIL - PART WIDTH

Figure 4
Typical Section

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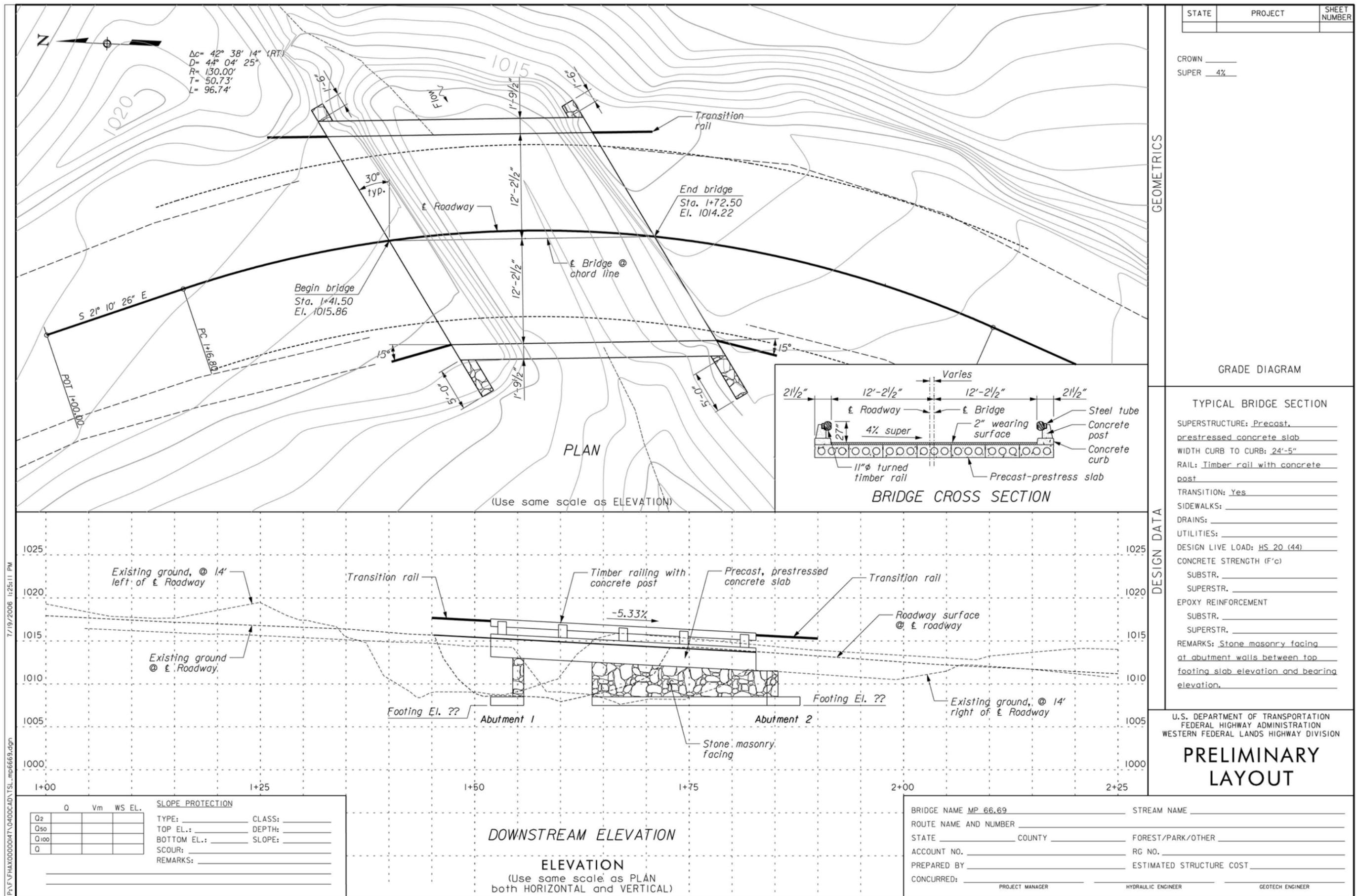


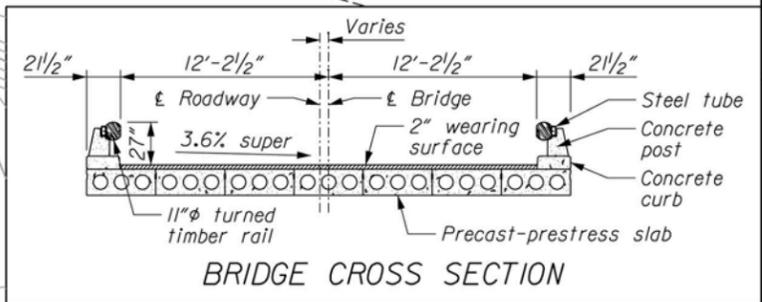
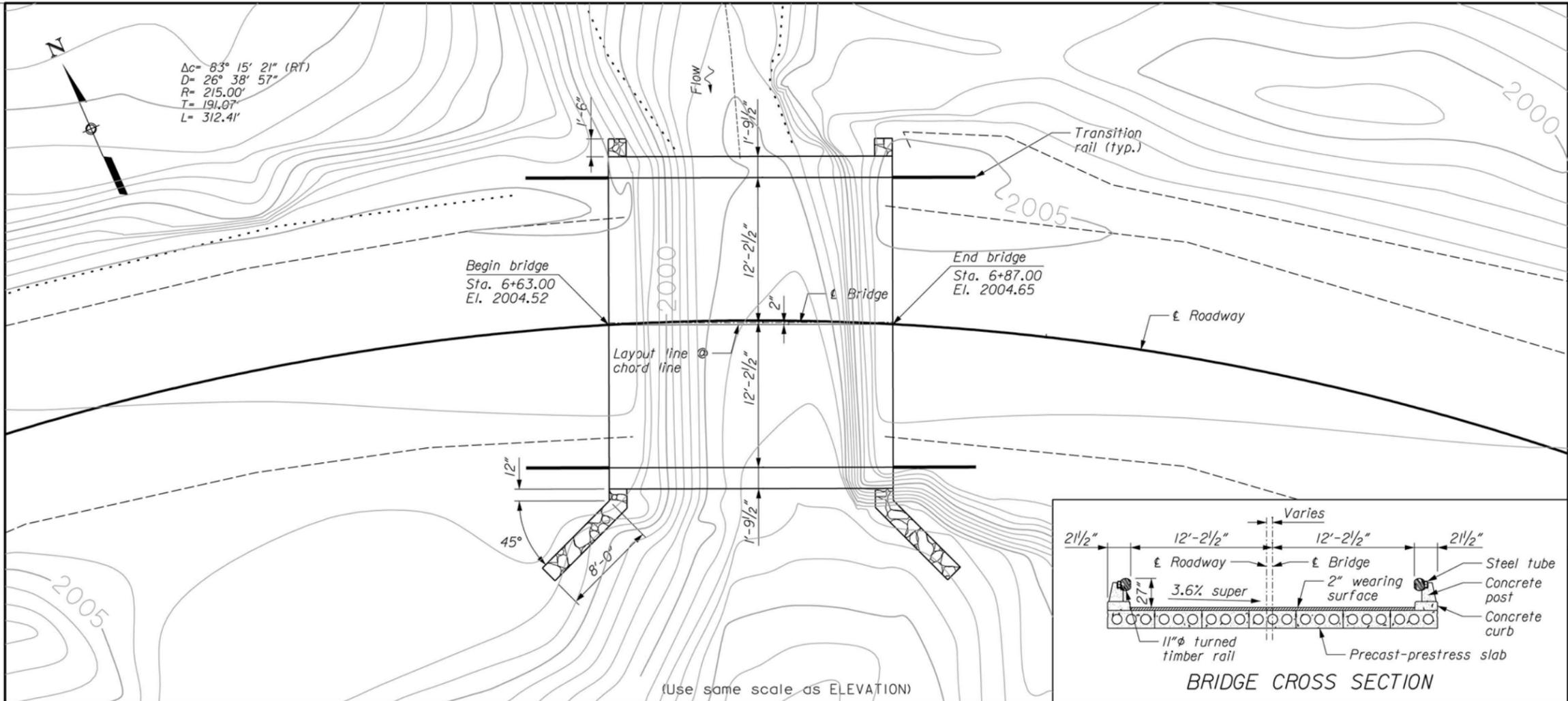
Figure 5
 Preliminary Layout, Bridge at MP 66.70

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CROWN _____
 SUPER 3.6%

GEOMETRICS

GRADE DIAGRAM



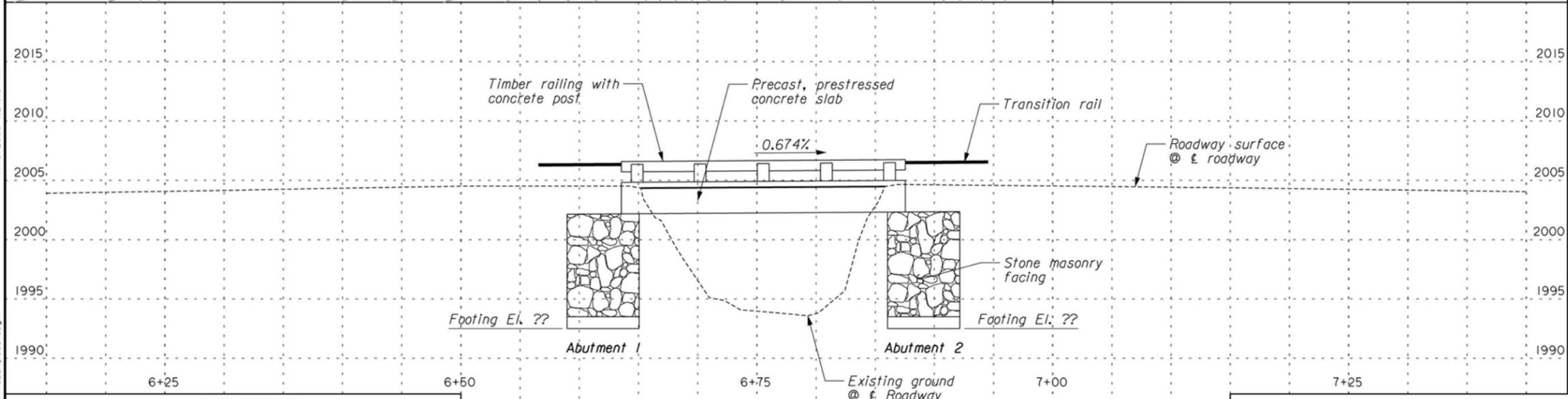
TYPICAL BRIDGE SECTION

SUPERSTRUCTURE: Precast, prestressed concrete slab
 WIDTH CURB TO CURB: 24'-5"
 RAIL: Timber rail with concrete post
 TRANSITION: Yes
 SIDEWALKS: _____
 DRAINS: _____
 UTILITIES: _____
 DESIGN LIVE LOAD: HS 20 (44)
 CONCRETE STRENGTH (F'c) _____
 SUBSTR. _____
 SUPERSTR. _____
 EPOXY REINFORCEMENT _____
 SUBSTR. _____
 SUPERSTR. _____
 REMARKS: Stone masonry facing at abutment walls between top footing slab elevation and bearing elevation.

DESIGN DATA

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 WESTERN FEDERAL LANDS HIGHWAY DIVISION

PRELIMINARY LAYOUT



ELEVATION
 (Use same scale as PLAN both HORIZONTAL and VERTICAL)

Q	Vm	WS EL.	SLOPE PROTECTION	
Q2			TYPE:	CLASS:
Q50			TOP EL.:	DEPTH:
Q100			BOTTOM EL.:	SLOPE:
Q			SCOUR:	
REMARKS:				

BRIDGE NAME MP 68.37 STREAM NAME _____
 ROUTE NAME AND NUMBER _____
 STATE _____ COUNTY _____ FOREST/PARK/OTHER _____
 ACCOUNT NO. _____ RG NO. _____
 PREPARED BY _____ ESTIMATED STRUCTURE COST _____
 CONCURRED: _____ PROJECT MANAGER _____ HYDRAULIC ENGINEER _____ GEOTECH ENGINEER _____

7/19/2006 1:24:18 PM P:\V\F\H\X0000047\0400CAD\TSL.mpb6837.dgn

Figure 6
 Preliminary Layout, Bridge at MP 68.36

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Two options for bridge construction are under consideration. The first option is to close the road to through traffic between the two bridges from mid-May through August 1. This option would allow the bridge construction to be completed without building temporary detours around the bridges, thereby minimizing ground disturbance outside of the existing road prism. Public access would still be available from both the east and west ends of OR 242 up to near the bridge sites, but travelers would not be able to travel past the bridge sites. The second option is to close the road to through traffic between the two bridges from mid-May to mid-July. This option would require temporary detours at the bridge sites to allow traffic to pass through the area after mid-July. While the second option would open the road to through traffic earlier in the season, it would require ground disturbance outside of the existing road prism. To assess potential impacts of the detours, cultural, biological, and botanical surveys would need to be conducted prior to selecting the second option.

Both options for bridge construction would close the highway in mid-May to mitigate impacts on public access and transportation. ODOT typically opens the highway to public through traffic in mid-June of each year. Depending on snow levels, public travel may begin as early as the end of May or as late as July 4. Historically, public use of the highway has been highest in July and August. Beginning construction in May would allow much of the work to be completed prior to the road being open to the public.

Alternative 2 would also stabilize slopes near MP 69, Dead Horse Grade. The project involves shifting the road alignment approximately 10 feet into the hillside to move the road away from an area of slope failure. Concrete barriers at the base of the slope would be removed. Figure 7 illustrates the proposed improvements. Construction activities at MP 69 are planned to begin in mid-May 2007 and last for approximately eight weeks. The highway would be closed to through traffic between the project site and the road to Scott Creek Quarry during construction. As described above for the bridge work, construction activities would begin in May to minimize impacts to public travel.

The proposed project would not include any improvements to allow travel by over-length vehicles, such as widening and curve realignment. Such improvements would conflict with the historic and aesthetic characteristics of the highway. No blasting would be done for any element of the project.

The Action Alternative would address the purposes of the project by improving the road surface, replacing deteriorating bridges, and stabilizing slopes near MP 69, thereby maintaining safe access to Forest lands and recreation opportunities along the highway. Maintaining the existing width and alignment, and replacing historic delineators with replicas will maintain the highway's historic and scenic qualities.

4.4 Alternatives Considered but Not Developed Further

4.4.1 Alternative 3: Meet ODOT Standards

The SEE Team considered an alternative that would meet ODOT 3R (resurfacing, rehabilitation, and restoration) standards. Under the 3R standards, the proposed roadway would consist of two 10-foot travel lanes with 2-foot paved shoulders on each side—resulting in a wider paved surface (24 feet) than currently exists (17 feet). Alternative 3 would require some curve widening and significant grading, cuts, and fills to make the road wider.

While FHWA usually develops projects that meet or exceed minimum design standards of the road-owning agency or AASHTO, Alternative 3 was eliminated because of the unique characteristics of OR 242. The historic and scenic qualities of the highway draw tourists to the area, which contribute to the local economy. One of the main objectives of the project is to preserve the historic character of the road. Also, the road widening associated with the 3R standards could involve construction outside of the special use permit area and impacts to designated wilderness areas.

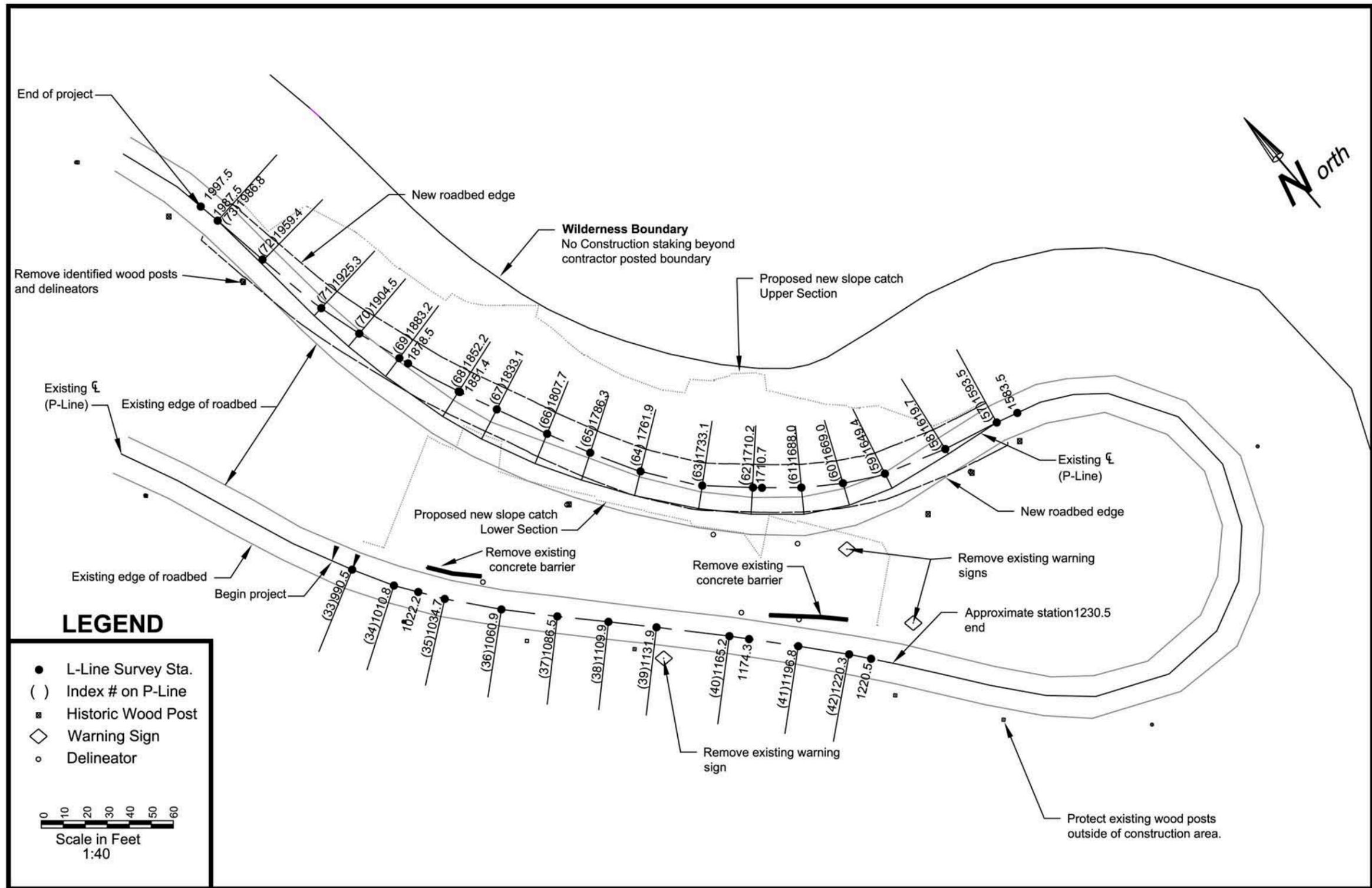


Figure 7
Proposed Improvements at MP 69

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5.0 AFFECTED ENVIRONMENT

5.1 Geology, Soils, and Subsurface Conditions

The McKenzie Highway traverses mountainous terrain throughout the project length. The project corridor is on the west slope of a north-south trending mountain ridge that slopes down toward the McKenzie River (Terracon, 2005). Elevation of the road ranges from approximately 2,450 to 5,325 feet.

Cut exposures reveal complex volcanic bedrock with shallow overburden. Cutslopes reveal several volcanic flow sequences of shallow and major thickness with soil interbeds. Volcanic flows are of geologic recent sequences and frequently have an orientation similar to the existing groundline. Therefore, road cuts often undercut flows and result in an adverse orientation, i.e. the flow contact dips into the road. Potentially, weaker surface contacts could dip to the road and yield local instabilities at those locations. Rock formations are highly to moderately jointed or fractured (WFLHD, 2002).

Slope failure is occurring in the project area at a steep switchback at MP 69. No other geologic hazards (i.e., landslides of significance, stream erosion, or other unusual features) are known to exist along the project corridor.

5.2 Climate

OR 242 is in a snow zone and is closed during the winter and spring (typically mid-November through mid-June). The highway begins in the cool, wet climate of the western Cascades and ends in the hot, dry climate of the eastern Cascades. During the summer months, the project area receives relatively little rainfall, and average temperatures range from approximately 65 to 85°F.

5.3 Vegetation

The west end of the project area lies within the Western Hemlock vegetation zone. The Western Hemlock zone features diverse, productive forests high in biomass, dominated by Douglas-fir (*Pseudotsuga menziesii*) in early successional stands and by Douglas-fir and western hemlock (*Tsuga heterophylla*) in late successional stands. This is a common plant association in the Cascades, occurring at mid-elevations in the Western Hemlock zone (Franklin and Dyrness, 1988). The overstory is dominated by Douglas-fir with a cohort of western hemlock, and also contains a component of western redcedar (*Thuja plicata*) and big-leaf maple (*Acer macrophyllum*). The shrub layer is moderately well developed. Dominant shrubs in the understory are dwarf Oregon grape (*Mahonia nervosa*), vine maple (*Acer circinatum*), and sword fern (*Polystichum munitum*). Proceeding east through the project area, the higher elevation sites are in the Pacific Silver Fir and Mountain Hemlock vegetation zones characterized by wet meadow complexes and high alpine lakes.

At the east end of the project area, at the crest of the Cascades range, the project corridor travels through a large lava field where vegetation is sparse and scattered.

There are no threatened or endangered (T&E) plant species with the potential to occur in the project area. Sensitive plant species have been identified adjacent to the project route, mostly in meadow areas, but there are no sensitive plant species or habitat within the project area. No surveys were conducted for survey and manage botanical species because the proposed project would not remove habitat for such species within the project area. However, surveys for sensitive and survey and manage botanical species have not been conducted in the temporary bridge detour areas. If the option of temporary detours during bridge construction is selected, botanical surveys of proposed impact areas would need to be done prior to implementation of that option.

5.4 Wildlife and Fish

5.4.1 Threatened, Endangered, Proposed and Candidate Species

The northern spotted owl is the only species listed under the federal Endangered Species Act (ESA) that may occur in the project area. The project area is not within or adjacent to identified critical habitat for the northern spotted owl.

The US Fish and Wildlife Service (USFWS) typically limits construction within one-quarter mile of known nest sites during the nesting season as well as in suitable habitat that has not been surveyed for nest sites. The limitation consists of seasonal work restrictions, i.e., construction activities could not occur until after July 15 of each year. USFWS also does not allow blasting within one mile of known nest sites. Four northern spotted owl nesting sites have been documented within two miles of the project corridor—all are more than one-quarter mile from the project area. However, suitable nesting habitat is adjacent to the project area and surveys have not been conducted, so seasonal work restrictions would apply unless a waiver is obtained. Under certain circumstances such as short construction seasons, USFWS may grant a waiver to allow work during the seasonal restriction.

There are no listed fish species within the project corridor. The two streams crossed at the bridge replacement sites are intermittent (carrying spring snowmelt only) and are not fish-bearing.

5.4.2 Sensitive Species

FS Sensitive species and their habitat that may occur within the Willamette National Forest are listed in Table 1. Of the species listed in the table, only one, the peregrine falcon, has the potential to occur in the project area.

Suitable habitat for the falcon is adjacent to the project area. The FS has identified two Peregrine Falcon Management Areas (PFMAs) that overlap the project corridor. Each PFMA has three management zones: primary, secondary, and tertiary. The project corridor is within the tertiary zone for both PFMAs. It is also adjacent to the secondary zone (between MP 63 and MP 66) and near the primary zone (near MP 65) for one of the PFMAs. Management guidelines restrict construction activities in the PFMAs until July 31 of each year. The only uses restricted in the tertiary zones are blasting and helicopter use. Because no blasting or helicopter use is proposed for the project, the seasonal restrictions would not apply.

Table 1. Forest Service Sensitive Wildlife Species

Species	Habitat Requirements	Suitable Habitat In Project Area?
Mammals:		
Baird's shrew (<i>Sorex bairdii permiliensis</i>)	Found in moist, cool areas within coniferous or deciduous forests especially damp meadows, mossy banks of small streams, marshes, and sphagnum bogs.	No.
California wolverine (<i>Gulo gulo</i>)	Remote high elevation mixed coniferous forest with shale or rockslide areas.	Potential for wolverine to pass through the project area, which lies between suitable habitats.
Pacific fisher (<i>Martes pennanti</i>)	Inhabits mature, closed canopy, dense coniferous and mixed coniferous/deciduous forests along riparian corridors.	No suitable habitat, but potential for fisher to pass through project area, which lies between suitable habitats.
Pacific fringe-tailed bat (<i>Myotis thysanodes vespertinus</i>)	Roosts and/or breeds in forest/riparian areas, caves, mines, and abandoned buildings. Forages along edges of open water, roads, and in forest openings.	Species has not been documented on the McKenzie River District.
Birds:		
Black swift (<i>Cypseloides niger</i>)	Found near cliffs in mountainous regions. Feeds on-the-wing eating flying insects. Nests in small colonies on ledges or mountain crevices, often behind a waterfall.	No.
Bufflehead (<i>Bucephala albeola</i>)	Inhabits and nests near mountain lakes surrounded by forests containing snags. Preferred nesting trees are aspen, also nest in ponderosa pine or Douglas-fir. After breeding season, found in open water, along major rivers, and along the coast.	No.
Harlequin duck (<i>Histrionicus histrionicus</i>)	Clear, clean, swiftly flowing second to fifth order streams.	No.
Least bittern (<i>Ixobrychus exilis</i>)	Freshwater or brackish marshes with tall vegetation. Stalks through the weeds to find prey. Eats small fish, frogs, insects, small mammals, and sometimes bird eggs and chicks. Nests is small platform of sticks and live or dead vegetation, placed in cattails, bulrushes, or bushes 8-14" above water.	No.
Peregrine falcon (<i>Falco peregrinus</i>)	Nest on cliffs near large concentrations of waterfowl or flocking birds.	Suitable nesting habitat adjacent to the project area.
Tri-colored blackbird (<i>Agelaius tricolor</i>)	Freshwater marshes with emergent vegetation.	No.
Yellow rail (<i>Coturnicops noveboracensis</i>)	Freshwater marshes and wet meadows.	No.
Amphibians:		
Cascade torrent salamander (<i>Rhyacotriton cascadae</i>)	Usually found on stones or objects in or near water or on overhanging vegetation. Forages on aquatic insects.	No.
Foothill yellow-legged frog (<i>Rana boylei</i>)	Live in sections of low-gradient streams with exposed bedrock or rock and gravel substrates. Attach eggs to the bottom of quiet scour-pools or riffles in gentle gradient streams, often where there is only slight flow from the main river. Hatchlings cling to egg masses initially and then to rocks.	No.

Species	Habitat Requirements	Suitable Habitat In Project Area?
Northwest pond turtle (<i>Emys marmorata marmorata</i>)	Marshes, sloughs, moderately deep ponds, and slow-moving portions of creeks and rivers.	No.
Oregon slender salamander (<i>Batrachoseps wrighti</i>)	Found under bark or moss in mature and second-growth Douglas-fir forests, under rocks or logs in stand of moist hardwood forests, and in moist talus that has abundant woody debris.	No.
Oregon spotted frog (<i>Rana pretiosa</i>)	Waters with vegetated shorelines; slow flowing streams with decaying vegetation on the bottom.	No.
Insects:		
Mardon skipper (<i>Polites mardon</i>)	Species occurs in the Puget Sound and southern Cascades area of Washington, Siskiyou Mountains of Oregon, and isolated remnants on serpentine grasslands in Del Norte County, California. Generally occurs in grassy openings in subalpine coniferous forests in mountain regions.	No.

Source: Corkran et al., 1996; Csuti et al., 1997; FS Regional Forester's Sensitive Species List, 2000.

5.4.3 Survey and Manage Species

There is no habitat for species categorized as Survey and Manage species under the Northwest Forest Plan in or adjacent to the project area. Surveys were not conducted due to lack of habitat.

5.4.4 Management Indicator Species

There is no habitat for species categorized as Management Indicator Species under the Land and Resource Management Plan for the Willamette National Forest (FS, 1990) in or adjacent to the project area. Surveys were not conducted due to lack of habitat.

5.5 Wetlands

Numerous wetlands are adjacent to the highway in the project corridor; they are listed in Table 2. Ditch re-grading would not be done near the wetlands listed in the table. Several other wetlands are near the highway in the project corridor but they are not present at the bridge sites (MP 66.70 and 68.36) or slope stabilization area (MP 69) and are more than five feet away from the existing edge of pavement or parking areas. Therefore, they would not be affected by project activities and are not listed in the table.

Table 2. Wetland Road Log, Project Corridor

Wetland Number	Milepost	Notes
1	67.30	Wetland seep (emergent wetland) to left for 130 feet adjacent to edge of pavement
2	71.34	Wetland meadow right for 170 feet adjacent to edge of pavement
3	71.98	Wetland right adjacent to turnout for 30 feet

Wetland Number	Milepost	Notes
4	72.01	Wetland meadow right for 100 feet at 3 feet from edge of pavement
5	72.01	Wetland meadow left for 60 feet at 5 feet from edge of pavement
6	72.55	Wetland meadow left for 1,000 feet adjacent to edge of pavement
7	72.60	Wetland meadow right for 1,000 feet at 3 feet from edge of pavement

5.6 Socioeconomics

The project corridor passes through parts of Deschutes, Lane, and Linn counties. As shown on Figure 1, OR 242 connects with OR 126 near the town of McKenzie Bridge (Lane County) on the west and with OR 126/US Highway 20 near the town of Sisters (Deschutes County) on the east end.

There are no towns or commercial centers along OR 242, but businesses in the small communities along OR 126 depend on tourism and travel as important revenue sources. The McKenzie River and Sisters chambers of commerce and the Convention and Visitors Bureau of Lane County anchor their marketing and tourism outreach on the historic “Old McKenzie Highway” (OR 242) and its adjacent recreation sites and scenic vistas. Business owners in the McKenzie River valley and the town of Sisters tend to support the preservation, enhancement, and protection of the highway (FS and ODOT, 2001).

Table 3 shows existing and projected population estimates for the state of Oregon, Deschutes County, Lane County, and Linn County. As shown, it is expected that the population of Oregon and the three counties will continue to increase in the future. With the increase of population and continued interest in recreation in the Oregon Cascades, the seasonal demand for recreational areas accessed by the McKenzie Highway will likely continue to increase as well.

Table 3. Existing and Projected Population – Lane, Linn, and Deschutes Counties

Jurisdiction	2004 Population	2020 Population (Est.)	2040 Population (Est.)
State of Oregon	3,582,600	4,359,258	5,425,408
Lane County	333,350	387,574	471,511
Linn County	106,350	120,465	146,260
Deschutes County	135,450	197,150	257,088

Sources: Portland State University Center for Population Research and Census, 2003; Oregon Office of Economic Analysis, 1997

5.7 Land Use

The project area is located entirely within the Willamette National Forest. At approximately MP 63.4, the highway begins to run adjacent to the Three Sisters Wilderness, which borders the south/east side of the highway through most of the project corridor. At approximately MP 72, the highway begins to run adjacent to the Mt. Washington Wilderness, as well. The Mt. Washington Wilderness borders the

highway's north side through to the end of the project corridor. No new development is allowed within the wilderness areas. Existing land uses along the project corridor are recreational and include a youth camp, two campgrounds, a picnic area, and the Dee Wright observatory—all outside of the wilderness boundaries—and several trailheads, both within and outside of the wilderness areas.

Most of the project area lies within Lane County. The Lane County land use designation for the area is F-1 – Non-Impacted Forest Lands (Lane County, no date). Approximately one-half mile of the project corridor, between MP 76.65 and MP 77.14, lies within Linn County; the Linn County land use designation is FCM – Forest Conservation and Management (Linn County, 2000). The last segment of the project extends into Deschutes County. Land along that segment is designated Open Space & Conservation, with a Landscape Management Road zoning overlay, by Deschutes County (Deschutes County, 2003).

The entire project corridor is within the Willamette National Forest. The Forest Land and Resource Management Plan designation for in the project corridor is Dispersed Recreation – Semiprimitive Motorized Use, No Timber Harvest (FS, 1990).

Information about the proposed project's compliance with applicable county and FS designations is presented in Section 6.2.

5.8 Recreation

Visitors access numerous developed recreation sites, hiking and equestrian trails, and interpretive sites from OR 242. The McKenzie Highway provides access to the Three Sisters and Mt. Washington Wilderness Areas, and thousands of visitors each summer season use the west end of OR 242 to access wilderness trailheads. Annually, recreation use is approximately 150,000 RVDs for the project corridor. The use of recreation sites along the route increased more than 20 percent over a recent five-year period (FS and ODOT, 2002).

OR 242 is the only access to the Dee Wright Observatory, which is the second most visited site in the Willamette National Forest and the most-visited site on OR 242. Two campgrounds (Alder Springs and Scott Lake), a picnic ground, several trailheads, and the White Branch youth camp are located along the project corridor. The youth camp is operated under a Forest

Service
special
use
permit.



Dee Wright Observatory



Proxy Falls Trailhead

The Alder Springs picnic area and Proxy Falls trailhead are immediately adjacent to the highway.

OR 242 is part of the McKenzie-Santiam Pass National Scenic Byway. Several enhancements have been implemented and are planned for the entire byway route that follow interpretive plan and design guidelines intended to create route continuity for byway travelers and forest visitors (WFLHD, 2001).

Bicyclists also use the highway. In addition to use by individual cyclists, the road is used for rides by organized cycling groups. The group rides, which are scheduled in advance with the FS, typically occur numerous times each season (Launer, 2006). The road remains open to motor vehicles during the group rides.

5.9 Traffic Circulation/Transportation

Most traffic on the McKenzie Highway consists of cars and light trucks. Trucks and recreational vehicles more than 35 feet long are prohibited on OR 242, so there is little freight movement on the route. An estimated 85 percent of the highway traffic is a result of visitors using the route to access recreation opportunities on National Forest lands. The remaining 15 percent represents travelers who choose Highway 242 as an alternate route (in lieu of Highways 126, 20/22) to travel between Sisters/Central Oregon and the Willamette Valley (WFLHD, 2001).

In 2005, average daily traffic (ADT) for the project area, recorded by ODOT, was 420. By 2025, at an estimated 2 percent annual growth, the projected ADT would be approximately 620.

OR 242 is closed during the winter due to heavy snow. The road is typically open from mid-June through mid-November.

Neither air nor rail transportation is available in the area. As noted previously, bicyclists use the highway.

5.10 Historic and Cultural

The McKenzie Highway is eligible for historic status (i.e., listing on the National Register of Historic Places). Concurrence on eligibility is being sought from the Oregon State Historic Preservation Office (SHPO). ODOT intends to nominate the highway for listing in the near future.

The route was originally built with private funds in the 1870s and operated as a wagon toll road. In 1920 the road was relocated and widened, and in 1925 it became a state highway. Pieces of the original wagon road are intact along the project route; however, the historic wagon road has largely been covered by OR 242.

*Historic photo of the
McKenzie Highway*

A historic cattle drive trail and short-lived wagon route also cross the highway, east to west, in the vicinity of Scott Lake. Prehistoric sites consisting of lithic scatters and obsidian collection sites have been recorded in the vicinity of the project. In pre-contact times, the area served as a travel corridor between lava flows, which natives visited primarily to obtain obsidian. Later, after EuroAmericans settled in the region, the route was used to cross the Cascade Range en route to the Idaho gold fields, grazing lands in central Oregon, and for commerce (WFLHD, 2002).

The section of the McKenzie Highway between the towns of Blue River in Lane County and Sisters in Deschutes County (including the project corridor) became a Forest Road in 1919. The Blue River-to-Sisters road segment was graded and surfaced between 1920 and 1924.



Cultural resource specialists researched the two bridges at MP 66.70 and MP 68.36 in January 2005 and assessed their eligibility for listing on the National Register of Historic Places. Based on the cultural assessment (AINW, 2005), FHWA determined that neither bridge is eligible for listing nor contributing to route eligibility. Following is a summary of the assessment.



MP 66.70 Bridge: Metal I-beams supported by modern blocky concrete end-piers were placed under the bridge for further support in 1938.



MP 68.36 Bridge: The bridge girders were built in 1942; the log bracing and concrete mortar repair was done more recently.

The two timber-beam bridges, originally built in 1921, belong to a broad category of beam and girder bridges, a common construction type used historically throughout Oregon. The bridge at MP 66.70 was rebuilt in 1938, and the one at MP 68.36 was rebuilt in 1942, most likely on the original 1921 rubble-masonry or rockwork abutments. The abutments on the MP 68.36 bridge are notable examples of early 1920s highway masonry construction that reflects the Rustic style of Forest Road work commonly used by the Bureau of Public Roads, a federal agency that coordinated federal and state cooperative programs for road construction and improvement. However, the rockwork is in poor condition and, overall, the bridge has lost integrity (AINW, 2005).

The Dee Wright Observatory is a stone memorial to the architect Dee Wright, located at the summit of McKenzie Pass on OR 242. The structure was built in the 1930s by the Civilian Conservation Corps. Through observatory windows visitors can view and identify several of the Cascade Mountain peaks. At the top of the observatory, a bronze “peak finder” points to geologic features in the landscape, which is dominated by lava fields.



Historic photo of the Dee Wright Observatory.

The Dee Wright Observatory is not listed on the National Register of Historic Places. However, it is considered eligible for listing and will likely be included in the listing nomination for OR 242.

5.11 Visual

OR 242 is part of the McKenzie-Santiam Pass National Scenic Byway. The FHWA National Scenic Byways Program is a community-based, collaborative effort that was established to help recognize, preserve, and enhance selected roads throughout the United States. Since 1992, the National Scenic Byways Program has provided funding for almost 1,500 state and nationally designated byway projects in 48 states. The US Secretary of Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational and scenic qualities (National Scenic Byways Online, 2005).



View of the Three Sisters from McKenzie Pass

Views of some outstanding natural features are available from the project area. The McKenzie Pass is near the eastern terminus of the project corridor and is part of the Pacific Crest Trail. About three miles northwest of McKenzie Pass is the Belknap Crater Complex, a broad shield five miles in diameter and about 1,700 feet thick, formed by fields of lava vents that erupted profusely about 1,500 years ago. The Belknap Crater Complex is visible from the highway, as are several Cascade peaks such as Mt. Washington and the Three Sisters.

According to the Land and Resource Management Plan for the Willamette National Forest, the setting of the management area is to be “characterized by an environment where the natural landscape may have been subtly modified but where alterations will not draw the attention of most users” (FS, 1990). Motorized and nonmotorized activities are allowed, and access is to be limited to trails and roads to existing, developed sites. Site modification is to be minimal. Under the standards and guidelines for Management Area 10c, projects must meet the Visual Quality Objective (VQO) of Retention (management activities should not be evident to the casual Forest visitor). The standards and guidelines also call for existing roads serving developed sites to remain open. In addition, “improvements shall be provided to facilitate use, protect resource values, and aid administration (FS, 1990).

5.12 Air and Noise

The project area is located in an attainment area for air quality.

The project area is rural in nature. The McKenzie Highway generates noise above ambient levels.

5.13 Public Utilities and Services

There are no overhead or underground utility lines adjacent to or within the project corridor.

Fire protection in the project area and vicinity is provided by the FS.

Law enforcement services are provided in the area by the Oregon State Police, Lane County Sheriff, and Deschutes County Sheriff. The State Police respond to motor vehicle-related incidents in the project area. Both county sheriff's offices indicated that they have received very few calls related to incidents near OR 242. The Lane County Sheriff's Office is responsible for crime-related and search and rescue incidents in Lane and Linn Counties along OR 242 (Lane County Sheriff's Office, 2006). The Deschutes County Sheriff's Office is responsible for crime-related incidents in Deschutes County. The county search and rescue team (not part of the sheriff's department) is responsible for search and rescue calls in the Deschutes County portion of the project vicinity (Flory, 2006).

EASE (Emergency Action Services), based in McKenzie Bridge, provides emergency medical response in the project area. EASE is staffed by volunteers. The Sisters Fire Department provides ambulance service in the eastern portion of the project area, from about one-half mile east of the road to Scott Lake (Forest Road 620) to the end of the project.

6.0 INTERRELATIONSHIP WITH OTHER USES AND JURISDICTIONS

6.1 Land Ownership

The project area is entirely within the Willamette National Forest. The road corridor is under a FS special use permit to ODOT. The roadway special use permit area extends to at least 66 feet on each side of the highway centerline. Road work is not expected to occur outside of the special use permit area.

6.2 Planning by Others

6.2.1 US Forest Service

6.2.1.1 Land and Resource Management Plan for the Willamette National Forest, Northwest Forest Plan

The project would occur on FS land in the Willamette National Forest. Therefore, consistency with the applicable Forest management plan is required. The Forest Land and Resource Management Plan designation for the land adjacent to the highway is Dispersed Recreation – Semiprimitive Motorized Use, No Timber Harvest. The project area is in Management Area 10c. The goals of the management area are to:

- “Provide a full spectrum of recreation opportunities meeting the criteria for a Semiprimitive Motorized experience through the management of use activities and natural resource settings.
- Provide users the opportunity to experience a sense of solitude, tranquility, self-reliance and closeness to nature. These experiences are provided through activities involving the application of outdoor skills in an environment that offers some challenge and risk.
- Provide for the conservation of unique geographic, topographic, biological, and ecological processes, as well as significant scenic, wildlife, recreation, and watershed values.”

The proposed project is consistent with the Forest Land and Resource Management Plan, as amended by the Northwest Forest Plan (FS and Bureau of Land Management, 1994), because the pavement overlay, bridge replacement, and other improvements would keep OR 242 open and in good traveling condition for the public as well as FS employees. The proposed project would not change the visual character of the road or adjacent landscape, thereby meeting the VQO of Retention (see Section 5.11).

6.2.2 Oregon Department of Transportation

6.2.2.1 Oregon Highway Plan

Policy 1D of the Oregon Highway Plan (ODOT, 1999) applies to scenic byways: “It is the policy of the State of Oregon to preserve and enhance designated Scenic Byways, and to consider aesthetic and design elements along with safety and performance considerations on designated Byways.” The

proposed project would improve the condition and safety of the highway but would not impact views of or from the highway.

6.2.2.2 Other Planned Road Projects

ODOT has no other improvement projects planned in the near future on OR 242. However, three ODOT projects are planned on the McKenzie-Santiam Pass Scenic Loop in the Willamette National Forest within the next few years. The first is a pavement overlay/preservation project on Highway 126 and US 20. The project would begin on Highway 126 at the Lane/Linn County line (north of the junction of Highway 126 and OR 242), continue north to US 20, then follow US 20 east to its junction with Highway 22—a distance of approximately 20 miles. Project construction is planned for 2006/2007. The second planned project is construction of a retaining wall to add width on US 20 west of Santiam Pass, near MP 78. The additional width is desired to move traffic away from rockfall areas on the cutslopes. Project construction is planned to begin between 2008 and 2010. The third project would add a passing lane on US 20 between the National Forest boundary just west of Sisters and the Cold Springs cutoff (Forest Road 1012). The project was planned for construction this year, but environmental concerns have delayed the project. Project construction would occur within the next year or two, assuming environmental clearance is obtained (Neys, 2006).

6.2.3 Local Governments

The project would occur on federally owned land and, therefore, is not subject to local and state land use plans and regulations. However, federal agencies typically consider local and state regulations when planning projects, and disclose project consistency with local and state plans. The following discussion is included to demonstrate project consistency with local land use planning.

6.2.3.1 Lane County

Within Lane County, the project area lies within land designated as F-1 – Non-Impacted Forest Zone. zoning. Section 16.210(2)(k) of the Lane County Code (Lane County, 2004) lists permitted uses related to public transportation facilities within the F-1 zone. They include:

- Widening within existing rights-of-way;
- Reconstruction or modification of public highways, including channelization and utility placement, but not including additional travel lanes, where no buildings would be removed or displaced and no new land parcels would result;
- Temporary road detours that will be abandoned and restored to pre-project conditions;
- Minor betterment of existing public highway-related facilities, such as maintenance yards, weigh stations, and rest areas, within right-of-way existing as of July 1, 1987.

The project would include modification of a public highway and is a permitted use under the Lane Code.

6.2.3.2 Linn County

The Linn County land use designation for the project area is Forest Conservation and Management (FCM). Permitted uses related to public transportation facilities within the FCM zone are essentially

the same as those listed above for Lane County. The project would be a permitted use under the Linn County Rural Resource Zone Code (Linn County, 2003).

6.2.3.3 Deschutes County

In Deschutes County, the project area is designated Open Space and Conservation (OS&C). Permitted uses in the OS&C zone (Section 18.48.020 of the County Code) include “modernization, traffic safety improvement, maintenance, repair or preservation of a road or street” (i.e., a “Class III” road or street project as defined in Chapter 18.04 of the County Code) (Deschutes County, 2005). Therefore, the project would be a permitted use in Deschutes County.

Deschutes County has also designated a corridor along OR 242, extending one-quarter mile on both sides of the highway centerline, with a Landscape Management (LM) combining zone (overlay). The LM overlay limits development of new structures or substantial alteration of existing structures that are visible from the road. The LM use limitations would not apply to the proposed project.

6.3 Environmental Legislation and Requirements

1. Will Any of the Following Environmental Legislation and Requirements Be Affected by the Proposal?

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
a. Coastal Zone Management Act			X
b. Executive Order 11988 (Floodplains)			X
c. Executive Order 11990 (Wetlands)			X
d. National Historic Preservation Act, Section 106	X		
e. Farmland Protection Policy Act (Prime and Unique Farmlands)			X
f. Land Use Requirements			X
g. Section 4(f), US Department of Transportation Act			X
h. Endangered Species Act	X		
i. Highway Improvements in the Vicinity of Airports			X
j. Clean Water Act/Safe Drinking Water Act	X		
k. Wild & Scenic Rivers Act			X
l. Clean Air Act			X
m. Hazardous Waste Act			X
n. Noise Requirements			X
o. National Forest Management Act	X		
p. Northwest Forest Plan	X		

Comment:

- d. The proposed project would occur on the Old McKenzie Highway, which is eligible for listing on the National Register of Historic Places. Compliance with Section 106 must be demonstrated.
- g. Although OR 242 is eligible for listing on the National Register, Section 4(f) requirements would not apply as long as the project would not adversely affect the historic qualities that make the highway eligible for listing and the SHPO concurs with that determination. The SHPO has concurred that the pavement rehabilitation and bridge replacements would have no adverse effect

(SHPO, 2006). The SHPO has also agreed that the MP 69 slope stabilization would not adversely affect historic properties, but formal has not yet been received. The project would not adversely affect any public recreation facilities.

- h. The project area is within 0.5 mile of two known northern spotted owl nest sites. Consultation with the USFWS will be initiated prior to project implementation.
- j. Replacing the bridge abutments would require a Clean Water Act Section 404 permit.
- o. The project would occur within a National Forest. See Section 6.2.1 for a description of consistency with the Land and Resource Management Plan for the Willamette National Forest.
- p. The project is consistent with the Northwest Forest Plan.

2. Federal Permits Required?

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
a. Section 404 Permit, Clean Water Act of 1977 (US Army Corps of Engineers)	X		
b. US Coast Guard Permit, Rivers & Harbors Act and the Surface Transportation Assistance Act			X
c. Special Use Permit (USDA Forest Service)			X
d. National Pollutant Discharge Elimination System Permit	X		
e. Other: Forest Service Road Use, Mineral Use, Staging/Camping, and Fire Permits/Waivers	X		

Comment:

- a. A Section 404 permit would be needed for replacing the bridge abutments (i.e., placing fill below ordinary high water).
- d. The project would disturb more than one acre of ground; therefore, a NPDES permit would be required.
- e. A Staging/Camping permit may be required for the contractor for project construction.

3. State or County Permits Required?

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
a. Removal/Fill Permit (Oregon Department of State Lands)	X		
b. Surface Mining Permit (Department of Geology and Mineral Industries)			X
c. Oregon Shoreline Development Permit (Oregon Land Conservation and Development Commission)			X
d. Permit to Operate Power Equipment (Oregon Department of Forestry)			X
e. Air Containment Discharge Permit (Oregon Department of Environmental Quality)			X
f. Notification of Operations (Oregon Department of Forestry)			X
g. Burn Permit (Oregon Department of Forestry)			X
h. Other: State Scenic Waterways, NPDES, Section 401 Water Quality Certification	X		
i. Oregon Coastal Management Program Consistency (Land Conservation and Development Commission)			X
j. Land Use Permit			X

Comment:

- a. A Removal/Fill Permit would be needed for replacing the bridge abutments.
- h. Section 401 Water Quality Certification would be needed for the bridge replacements. NPDES permit would be needed because ground disturbance would exceed one acre.

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7.0 ENVIRONMENTAL IMPACTS

For each question, the impact is shown as high, medium (Med), low, or none. If the question addresses a resource that is not present in or adjacent to the project area, it is shown as not applicable (N/A). If the impact is high or medium, the comment section contains a discussion of the impact, mitigation being considered, and differences that may exist among alternatives. In some cases, where needed for clarification, comments have also been provided for low impacts.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
A. Earth. Would this proposal cause:					
1. Unstable earth conditions or changes in geologic substructures?			X		
2. Disruptions, displacement, compaction, or overcovering of the soil?			X		
3. Change in topography or ground surface relief features?			X		
4. The destruction, covering, or modification of any unique geologic or physical features?				X	
5. Any increase in wind or water erosion of soils either on or off the site?			X		
6. Changes in deposition or erosion of beach sands which may modify the bed of the ocean, bay, or inlet?					X
7. Changes in siltation, deposition, or erosion which may modify the channel of a river or stream or the bed of a lake?				X	

Comment:

The proposed slope repair near MP 69 would stabilize slopes in that area, having a beneficial effect. During construction, soil would be displaced for the MP 69 work as well as for temporary bridge detours (if that construction option is implemented).

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
B. Air. Would this proposal cause:					
1. Air emissions or deterioration of ambient air quality?			X		
2. The creation of objectionable odors?			X		
3. An inconsistency with regional air quality requirements?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
C. Water. Would this proposal cause:					
1. Changes in currents, or the course or direction of water movements, in either marine or fresh waters?				X	
2. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?				X	
3. Change in the amount of surface water in any water body?				X	
4. Discharge into surface waters or any alteration of surface water quality including but not limited to temperature, dissolved oxygen, or turbidity?			X		
5. Alteration of the direction or rate of flow of ground waters?				X	
6. Change in the quantity of ground waters either through direct additions or withdrawals or through interception of an aquifer by cuts or excavations?				X	
7. Deterioration in ground water quality either through direct injection or through the seepage of leachate, phosphates, detergents, waterborne virus or bacteria, or other substances into the ground waters?				X	
8. Alterations to the course or flow of flood waters?				X	
9. Fill placement below the ordinary high water mark of rivers and streams?				X	
10. Encroachment into a 100-year floodplain or regulated floodway?					X

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
D. Wetlands. Would this proposal cause:					
1. Removal of hydrophytic vegetation?				X	
2. Covering or replacing of any hydric soil?				X	
3. Alteration of the hydrology?				X	
4. A change in function or value?				X	

Comment:

A wetland reconnaissance was completed for the proposed project. Several wetlands were identified adjacent to or near the highway. Except for minor ditch re-grading, MP 69 repair, and temporary bridge detours (if implemented), project activities would be limited to existing paved (or graveled) surfaces. Ditches would not be re-graded in wetland areas; and the MP 69 repair and bridges to be replaced are not within wetland areas. Therefore, the proposed project would not affect any wetlands.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
E. Plants. Would this proposal cause:					
1. Change in the diversity of species or numbers of any species of flora (including trees, shrubs, grass, crops, microflora, and aquatic plants)?				X	
2. An effect on any unique, rare, or endangered species of flora?				X	
3. Introduction of new species of flora into an area or a barrier to the normal replenishment of existing species?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
F. Fish and Wildlife. Would this proposal cause:					
1. Changes in the diversity of species or numbers of any species of fauna [birds, land animals including reptiles, fish and shellfish, benthic organisms, insects, or microfauna]?				X	
2. An effect on any threatened or endangered species of fauna?			X		
3. Introduction of new species of fauna into an area or result in a barrier to the migration or movement of fauna?				X	
4. Deterioration of, or interference with, fish or wildlife critical habitat?				X	

Comment:

A biological assessment will be prepared and most likely will result in informal consultation with USFWS based on a determination of “may affect, not likely to adversely affect” for the northern spotted owl. The presence of suitable nesting habitat for the northern spotted owl near the project area likely would result in seasonal work restrictions (no construction prior to July 15 for spotted owl) to minimize disturbance to nesting owls. Due to the short construction season in the project area (because the road is closed for months due to snowpack), FHWA will request a waiver of the seasonal restriction to begin construction in May. The project area is within PFMA tertiary zones but, since no blasting or helicopter use is proposed, seasonal restrictions related to the peregrine falcon would not apply. See Section 5.4 for more information.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
G. Land Use. Would this proposal cause:					
1. The alteration of the present or planned land use of an area?				X	
2. Reduction in acreage of any agricultural products?					X
3. Reduction in acreage of any prime and unique farm land?					X

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
H. Natural Resources. Would this proposal cause:					
1. Increase in the use of any natural resources?			X		
2. Reduction of any nonrenewable natural resources?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
I. Energy. Would this proposal cause:					
1. Use of substantial amounts of fuel or energy?			X		
2. Savings of substantial amounts of fuel or energy?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
J. Aesthetics. Would this proposal cause:					
1. A change in a scenic vista or view as seen from the road?			X		
2. A change in a scenic vista or view for viewers of the road?			X		
3. A conflict with the scenic management plans of other agencies?			X		
4. New light or glare?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
K. Recreation. Would this proposal cause an impact upon the quality or quantity of existing recreational opportunities?		X			

Comment:

Construction would take place during the summer, which is the peak use period for OR 242 and recreation areas accessed by the highway. The road would be closed to through traffic for approximately eight weeks beginning in mid-May 2007 during the slide stabilization work at MP 69. The road would also be closed to through traffic for the bridge replacement work. For bridge construction, the closure would begin in mid-May of 2008 and last for two or two-and-a-half months, depending on the construction option selected (see Section 4.3). However, because the highway typically is not open public through traffic until in mid-June of each year, starting construction in May would allow much of the work to be completed prior to the road being open to the public, thereby mitigating impacts on public recreation. The actual time period for public road closures would be approximately four weeks for the MP 69 repairs and approximately four to six weeks for the bridge replacements.

During the road closures for both the slide stabilization and bridge replacement, the public would still be able to access recreation areas west of the closure from the west, but not from the east. Similarly, recreation areas east of the closure would still be accessible from the east. Throughout the construction period for each phase of the project, temporary traffic delays would occur, and pavement rehabilitation likely would require temporary (e.g., 30- to 40-minute) road closures with traffic control (e.g.,

flaggers). To minimize impact to the public, construction is planned to begin in May, before the road is open for public travel.

In the long term, the project would likely have a positive effect on recreation because the proposed improvements would maintain safe access to National Forest lands and recreation areas.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
L. Archaeological/Historical. Would this proposal result in an alteration of an important archaeological, historical, or traditional use site, structure, object, or building?			X		

Comment:

OR 242 is eligible for listing on the National Register of Historic Places. The bridges that would be replaced as part of the project are not eligible for listing and do not contribute to the highway’s eligibility for listing. The SHPO has concurred with the determination of “No Historic Properties Adversely Affected” by the bridge replacement and pavement rehabilitation phases of the project (SHPO, 2006). The FS has coordinated with the SHPO regarding the proposed MP 69 slope stabilization and has also reached agreement that that phase of the project would not adversely affect historic resources. The FS will document the effect determination and send the document to the SHPO for formal review and concurrence.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
M. Hazardous Waste. Would this proposal:					
1. Affect a known hazardous waste site on the US Environmental Protection Agencies (EPA’s) National Priority List (NPL) or a statewide inventory?					X
2. Affect a site with the potential for hazardous waste (e.g., sanitary landfills, gasoline stations, industrial sites)?					X
3. Affect human health by creating a health hazard or a potentially unhealthy situation?				X	
4. Increase the likelihood of an explosion or release of hazardous substances [including but not limited to oil, pesticides, chemicals, or radiation] in the event of an accident?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
N. Socioeconomics. Would this proposal:					
1. Alter the location, distribution, density, or growth rate of the human population of an area?				X	
2. Affect racial, ethnic, religious, minority, elderly, or low income groups?				X	
3. Affect existing housing [including but not limited to rural or urban residences and business or commercial buildings]?					X
4. Create a demand for additional housing?				X	
5. Affect local employment, taxes, property values, etc.?			X		

Comment:

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
O. Public Services. Would this proposal have an effect upon or result in a need for new or altered services in any of the following areas:					
1. Fire protection/EMS?		X			
2. Police protection?		X			
3. Schools?					X
4. Maintenance of public facilities including roads?		X			
5. Airports?					X
6. Religious institutions or facilities?					X
7. Health services?					X
8. Mail delivery?					X
9. Parks and recreational facilities?		X			
10. Other services? (e.g., garbage collection)					X

Comment:

The road would be closed to through traffic for approximately eight weeks beginning in mid-May 2007 during the slide stabilization work at MP 69. The road would also be closed to through traffic for the bridge replacement work. For bridge construction, the closure would begin in mid-May of 2008 and last for two or two-and-a-half months, depending on the construction option selected (see Section 4.3). However, because the highway typically is not open public through traffic until in mid-June of each year, starting construction in May would allow much of the work to be completed prior to the road being open to the public, thereby mitigating impacts on access to recreational facilities and other public services. The actual time period for public road closures would be approximately four weeks for the MP 69 repairs and approximately four to six weeks for the bridge replacements. Also, during the road closures for both the slide stabilization and bridge replacement, the public would still be able to access recreation areas west of the closure from the west, but not from the east. Similarly, recreation areas east of the closure would still be accessible from the east. Throughout the construction period for each phase of the project, temporary traffic delays would occur, and pavement rehabilitation likely would require temporary (e.g., 30- to 40-minute) road closures with traffic control (e.g., flaggers). The short-term closures and delays would affect fire, emergency, and law enforcement services and response times during construction.

The project would not adversely affect recreation facilities or other public services in the long term. The proposed project would have a beneficial long-term effect on maintenance of OR 242 by reducing pavement maintenance needs.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
P. Transportation/Circulation. Would this proposal cause:					
1. An increase in motor vehicle movement?				X	
2. An increase in the movement of bicycles, pedestrians, or equestrians?				X	
3. Increased traffic hazards to cyclists, pedestrians, or equestrians?				X	
4. Existing parking facilities to be affected or create a demand for new parking?			X		
5. Changes in access?				X	
6. An impact upon existing transportation systems?				X	
7. An impact upon waterborne, rail, or air traffic?					X
8. Impacts associated with construction activities (e.g., detours, temporary delays)?		X			

Comment:

Beginning construction work in May, before the road is open to public through traffic, would partially mitigate public transportation and access impacts. The road would be closed to public through traffic for approximately four weeks in 2007 for the MP 69 slope repair work and for four to six weeks in 2008 for the bridge replacement work. During construction of all project phases, temporary traffic delays would occur, and pavement rehabilitation likely would require temporary (e.g., 30- to 40-minute) road closures with traffic control (e.g., flaggers). Construction equipment would generate noise above typical levels during the daytime. Construction activities would generate dust, which the contractor would control using dust abatement techniques approved by the FS. Noise and air impacts would be limited to the hours of construction and to the immediate vicinity of the construction site.

	<u>High</u>	<u>Med</u>	<u>Low</u>	<u>None</u>	<u>N/A</u>
Q. Utilities. Would this proposal cause a need for new systems or alterations of the following utilities:					
1. Power or natural gas?					X
2. Communications systems?					X
3. Water?					X
4. Sanitary systems or septic tanks?					X
5. Storm water drainage?					X
6. Irrigation system?					X
7. Solid waste disposal?					X
8. Pipelines?					X
9. Cable TV?					X

Comment:

8.0 COORDINATION AND CONSULTATION

8.1 Engineering and Environmental Studies

A Social, Economic, and Environmental (SEE) Study Team was established during the scoping phase of the project to identify and assess the environmental effects of the proposal and recommend alternatives for evaluation. The SEE Team acts as a steering committee for project development activities during the conceptual and design phases, and is also charged with the formulation and implementation of a comprehensive public involvement process. Team members, including representatives from the principal land management agencies (FS, ODOT, and FHWA) can call on available disciplines within their agencies for technical assistance as needed.

The SEE Team members for this project are listed below:

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8.2 Coordinating Agencies and Interested Parties

FHWA has coordinated with federal and state agencies identify potential concerns about the proposed project. This included several meetings with the FS and ODOT. Coordination with SHPO and USFWS has also occurred.

8.3 Public Involvement

A public open house will be held in Sisters, Oregon, in August of 2006 to present the project and project checklist. At least two weeks prior to the open house, the public will be notified of the open house and that this project checklist is available for review. Agencies and individuals will be notified by mail as well as through notice published in local newspapers, including “The Register-Guard” in Eugene, “The Bulletin” in Bend, “The Nugget” in Sisters, and “River Reflections” in McKenzie Bridge. Copies of this checklist will be mailed to numerous agencies and other interested parties.

Verbal and written comments will be accepted at the open house and for 30 days after the notice of availability is published. A summary of the comments received and responses to those comments will be prepared and mailed to those who provided comments.

9.0 LIST OF PREPARERS

This project checklist was prepared for WFLHD by
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People who made significant contributions include:

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John L. Fagan, Senior Archaeologist, AINW (subconsultant to DEA)

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