



## Final Environmental Assessment

# Eddings Road Relocation Project

Columbia County Road Department  
FEMA-1733-DR-OR

February 14, 2012



# FEMA

U.S. Department of Homeland Security  
FEMA Region X  
130 228<sup>th</sup> Street SW  
Bothell, WA 98021-9796

# Final Environmental Assessment

## Eddings Road Relocation Project

Columbia County Road Department

Columbia County, Oregon

FEMA Public Assistance Program

FEMA-1733-DR-OR

Project Worksheet No. 617

*Prepared for:*

**U.S. Department of Homeland Security**

FEMA Region X

130 228<sup>th</sup> Street SW

Bothell, WA 98021-9796

Contact: Mark Eberlein, Regional Environmental Officer, (425) 487-4735,

mark.eberlein@fema.dhs.gov

*Prepared by:*

Barbara Gimlin, Environmental Specialist, FEMA Region X

*February 14, 2012*

## Table of Contents

<b>1.0 INTRODUCTION .....</b>	<b>6</b>
1.1 AUTHORITY AND JURISDICTION.....	6
<b>2.0 PURPOSE AND NEED .....</b>	<b>6</b>
<b>3.0 LOCATION AND BACKGROUND .....</b>	<b>7</b>
3.1 LOCATION.....	7
3.2 BACKGROUND .....	7
<b>4.0 ALTERNATIVES .....</b>	<b>8</b>
4.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE .....	8
4.2 ALTERNATIVE 2 – REPAIR EDDINGS ROAD AT EXISTING LOCATION.....	9
4.3 ALTERNATIVE 3 – EDDINGS ROAD RELOCATION (PROPOSED ACTION).....	9
<b>5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS.....</b>	<b>10</b>
5.1 PHYSICAL RESOURCES.....	11
5.1.1 <i>Climate and Climate Change</i> .....	11
5.1.2 <i>Geology and Soils</i> .....	12
5.1.3 <i>Consequences of Alternatives</i> .....	13
5.2 WATER RESOURCES .....	14
5.2.1 <i>Surface, Ground, and Water Quality</i> .....	14
5.2.2 <i>Wetlands</i> .....	16
5.2.3 <i>Floodplains</i> .....	16
5.2.4 <i>Coastal Zone</i> .....	16
5.2.5 <i>Consequences of Alternatives</i> .....	16
5.3 BIOLOGICAL RESOURCES .....	17
5.3.1 <i>Vegetation</i> .....	17
5.3.2 <i>Fish (including Essential Fish Habitat)</i> .....	18
5.3.3 <i>Wildlife</i> .....	18
5.3.4 <i>Migratory Birds</i> .....	19
5.3.5 <i>Threatened and Endangered Species and Critical Habitat</i> .....	19
5.3.6 <i>Consequences of Alternatives</i> .....	20
5.4 CULTURAL RESOURCES .....	22
5.4.1 <i>Prehistoric Context (American Indian/Religious Sites/Tribal Interests)</i> .....	22
5.4.2 <i>Historic Context</i> .....	22
5.4.3 <i>Historic Properties</i> .....	23
5.4.4 <i>Consequences of Alternatives</i> .....	23
5.5 SOCIOECONOMIC RESOURCES .....	24
5.5.1 <i>Socioeconomics and Environmental Justice</i> .....	24
5.5.2 <i>Traffic</i> .....	25
5.5.3 <i>Public Health and Safety</i> .....	25
5.5.4 <i>Consequences of Alternatives</i> .....	25
5.6 HAZARDOUS MATERIALS.....	26
5.6.1 <i>Consequences of Alternatives</i> .....	27
<b>6.0 CUMULATIVE EFFECTS .....</b>	<b>27</b>
<b>7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT .....</b>	<b>28</b>
<b>8.0 PERMITTING, PROJECT CONDITIONS, AND MITIGATION MEASURES.....</b>	<b>29</b>
<b>9.0 CONCLUSION .....</b>	<b>30</b>

**10.0 REFERENCES ..... 30**

**Figures**

Figure 1. Site Location Map ..... 7

**Appendices**

- Appendix A – Public Notice
- Appendix B – SHPO Concurrence Letter
- Appendix C – Public Comments Received

## LIST OF ACRONYMS

APE	Area of Potential Effects
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMP	Corrugated Metal Pipe
cy	cubic yards
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
SHPO	State Historic Preservation Office/Officer
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

## **1.0 INTRODUCTION**

The Columbia County Road Department (County) has applied through Oregon Office of Emergency Management to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding to relocate Eddings Road in Woodson, Oregon. The project would provide a new connection to Highway 30 and abandon a section of Eddings Road that was damaged during severe storms, flooding, landslides, and mudslides that occurred from December 1-17, 2007. The event was declared a Presidential disaster on December 8, 2007 (FEMA-1733-DR-OR). FEMA is proposing to fund 75 percent of the cost for this project through its Public Assistance Program. Following a public involvement period that ended on December 8, 2011, and subsequent efforts to address public concerns identified, FEMA does not anticipate the need to prepare an Environmental Impact Statement for this project. A Finding of No Significant Impact (FONSI) has been prepared for the draft EA and this document serves as the final EA.

### **1.1 Authority and Jurisdiction**

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, provides federal assistance programs for both public and private losses sustained in disasters. In accordance with the National Environmental Policy Act (NEPA) of 1969, FEMA must evaluate the environmental consequences of proposed actions on the natural and human environment before deciding to fund an action, including evaluating alternative means of addressing the purpose and need for a federal action. The President's Council on Environmental Quality (CEQ) has developed a series of regulations for implementing NEPA. These regulations are included in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508. This final Environmental Assessment (EA) is prepared in accordance with both CEQ and FEMA regulations for NEPA (44 CFR Part 10) and compares two alternatives: a No Action Alternative and the Proposed Action to relocate Eddings Road.

## **2.0 PURPOSE AND NEED**

The purpose of the Stafford Act is to provide a wide range of federal assistance for states and local governments significantly impacted by disasters or emergencies or both. The purpose of FEMA's Public Assistance grant program is to provide assistance to state, tribal, and local governments, and certain types of private nonprofit organizations, so that communities can quickly respond to and recover from major disasters or emergencies declared by the President.

FEMA has determined there is a need to relocate the section of Eddings Road that crosses Eilertsen Creek to avoid continued problems at the site during the wet season from flooding and the large volume of debris and silt that are carried through the creek's channel and associated drainage area. The County has determined there is a need to relocate the road due to the same reasons and to provide safe and reliable access to four privately-owned properties used by the road. The Proposed Action Alternative is the applicant's request to meet their needs.

## 3.0 LOCATION AND BACKGROUND

### 3.1 Location

Eddings Road is located just south of U.S. Highway 30 in the unincorporated community of Woodson, Oregon, in Columbia County and extends east of Walach Drive. Woodson is seven miles west of Clatskanie and three miles east of Westport. The site is located in Township 7 North, Range 5 West, Section 5 of the Willamette Meridian at Latitude 46.11469° North, Longitude -123.32631° West. Figure 1 below shows the location of the project area.

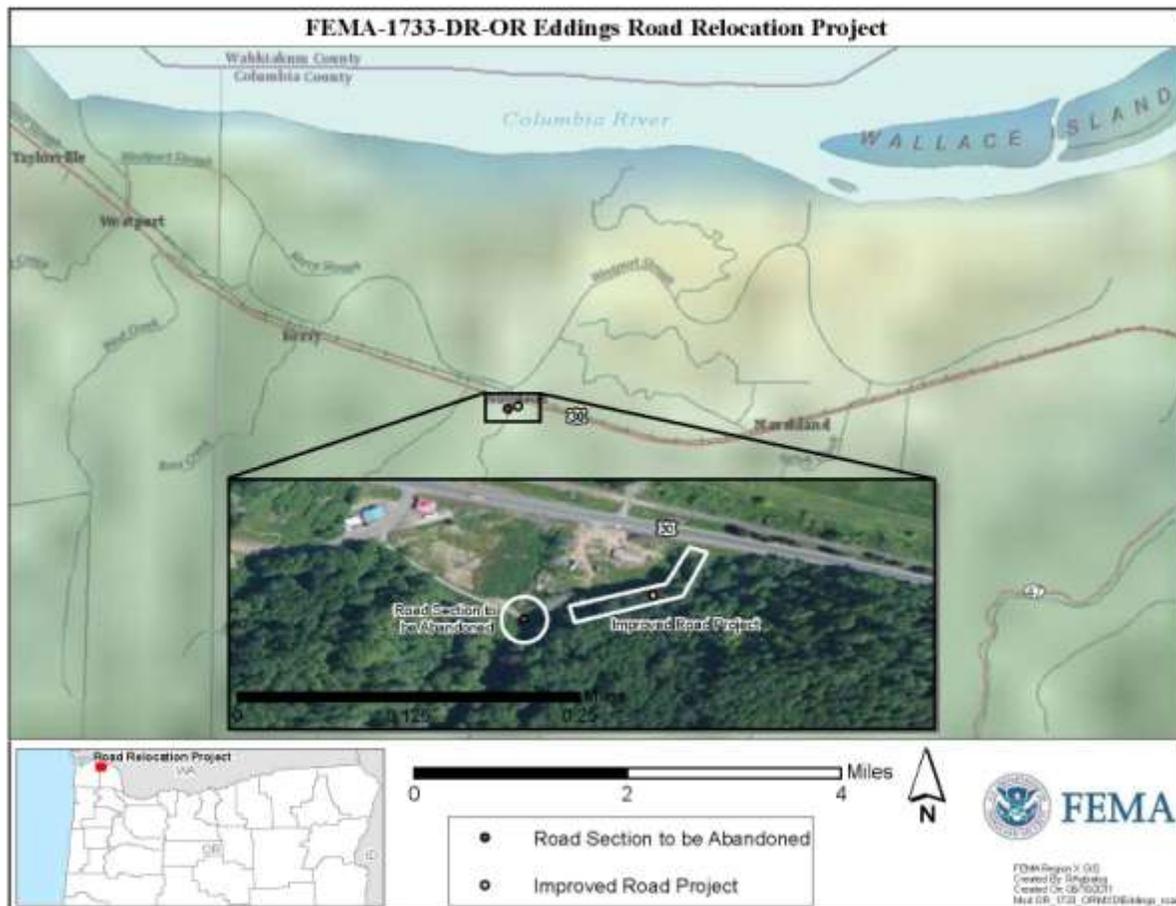


Figure 1. Site Location Map

### 3.2 Background

Heavy rain and flood waters caused numerous mudslides in Columbia County during the disaster incident period. One slide originated in the canyon of Eilertsen Creek and sent a torrential mix of sediment, water, and wood downstream on December 11, 2007. This debris torrent raced approximately 1.75 miles (2.5 stream miles) down the canyon in less than three minutes at approximately 50 miles per hour. In the process, it ran over Eddings Road, a gravel surface road

south of Highway 30, and took out a 48" diameter x 30' long corrugated metal pipe (CMP) culvert. Rapidly flowing muddy water and debris inundated the small community of Woodson at the mouth of the canyon and covered Highway 30 and the Burlington Northern railroad tracks in a sea of mud and logs. Structures located in the debris fan were inundated in five to six feet of mud and several houses were submerged to their eaves. The debris flood lasted about ten minutes and flowed into the Westport Slough on the Columbia River floodplain. The community had been evacuated earlier in the day and Highway 30 was closed prior to the incident. Fortunately, no one was injured.

The debris torrent damaged considerable property in Woodson, resulted in lengthy highway closures and delays during the cleanup operation, received global media attention, and prompted several technical assessments of the fill failure and flooding that occurred. Initial reviews of the event identified a number of complicating factors, including the presence of two landslides upstream of the fill in the headwaters of Eilertsen Creek and impoundment of approximately 35,000 cubic yards of water (about seven million gallons) on the upstream side of an old railroad trestle prior to its collapse. Additional failures also delivered materials to the channel and the remnants of the railroad trestle were buried in the fill.

Following the disaster event, a temporary crossing was established under emergency repairs for Eddings Road to provide access to four properties, including one residence. In addition, four residences located in the debris fan have since been acquired and will be demolished through FEMA's Hazard Mitigation Grant Program, allowing the property to return to its natural state.

## **4.0 ALTERNATIVES**

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives and a discussion of the potential environmental consequences. This final EA includes the analysis of three alternatives. Alternative 1 is the No Action Alternative, which would entail no repairs or improvements to Eddings Road. Alternative 2 would repair Eddings Road and its culvert crossing at Eilertsen Creek. Alternative 3 would abandon the section of Eddings Road that was damaged by the disaster event and relocate it utilizing an abandoned county road to avoid crossing Eilertsen Creek. Alternative 3 is the Proposed Action Alternative.

No other alternatives were considered for the relocation of Eddings Road as the topography in the area rises sharply and is heavily wooded beyond the proposed relocation site and there are not any other feasible locations.

### **4.1 Alternative 1 – No Action Alternative**

Inclusion of a No Action Alternative in the environmental analysis and documentation is required under NEPA. The alternative evaluates the effects of not providing eligible assistance for a specific action and provides a benchmark against which other alternatives may be evaluated.

Under the No Action Alternative, FEMA would not provide funding for permanent repairs to Eddings Road and no construction would occur. Existing conditions would continue to deteriorate, particularly during seasonal flood events. This alternative would not meet the project's purpose and need, nor the County's goals and objectives identified.

#### 4.2 Alternative 2 – Repair Eddings Road at Existing Location



**Photo 1. Temporary repair of Eddings Road at Eilertsen Creek.**

$\frac{3}{4}$ " minus rock spread over the damaged area at the culvert crossing.

Under Alternative 2, the County would repair Eddings Road at its existing location and provide a permanent repair to the road crossing at Eilertsen Creek. The previous 48" diameter x 30' long CMP culvert at Eilertsen Creek was taken out by the disaster event. A temporary crossing was installed over the creek using concrete pads and steel plates to allow property owners entrance and egress. The Oregon Department of Fish and Wildlife (ODFW) requires that the previous culvert be replaced with an 88" wide x 40' long culvert for fish passage. Damage to the road base would be graded and reinforced with 4" clean quarry rock with a top layer of

#### 4.3 Alternative 3 – Eddings Road Relocation (Proposed Action)

The Proposed Action would relocate Eddings Road northeast of Eilertsen Creek, connecting the existing road to an old county road that has not been used in decades and is largely overgrown. The existing road section that crosses Eilertsen Creek would be closed and abandoned, and the creek crossing would be removed with a straight upward lift with minimum disturbance to the creek. No material would be added to the creek.



**Photo 2. Where old county road connects to Eddings Road.**



**Photo 3. Where old county road joins Hwy. 30.**

To re-establish the previous county road, vegetation that has since grown at the site would need to be removed, including underbrush, small saplings, weeds, and grass. In addition, four alders and one cedar tree would need to be removed. The trees removed would be retained in the riparian area or deposited in the closed section of the road to be abandoned.

The re-established road would be 570' long x 12' wide, with 4' wide clear zones on each side of the road. One CMP culvert would be installed under the road for drainage where Eddings Road meets the old county road, at the location shown in Photo 2. In addition, one or two additional CMP culverts would be installed under the improved old county road bed to provide drainage from the hillside to the east at locations where water would likely pool between the road and the hillside. The exact location would be determined during construction. The road would be graded and reinforced with a 4" gravel base using clean quarry rock, with a top layer of ¾" minus rock spread the length of the road. A 30' wide x 20' deep x 3" thick paved access apron would be established to connect the road to Highway 30 at the location depicted in Photo 3.

The County Road Department follows Oregon Department of Transportation's (ODOT) Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices (BMPs) for sediment and erosion control. No re-seeding is planned, as the majority of the disturbed area will be the road way. The closed off portion of Eddings Road will be decommissioned and left to return to a natural state on its own or to be maintained by private landowners.

## 5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The NEPA compliance process requires federal agencies to consider direct and indirect impacts to the environment. For each resource category, the impact analysis follows the same general approach in terms of impact findings. When possible, quantitative information is provided to establish impacts. Qualitatively, these impacts will be measured as outlined below.

Impact Scale	Criteria
<b>None/Negligible</b>	The resource area would not be affected, or changes would be either non-detectable or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
<b>Minor</b>	Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
<b>Moderate</b>	Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions are being altered on a short-term basis. Mitigation measures would be necessary and the measures would reduce any potential adverse effects.
<b>Major</b>	Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

Impacts are disclosed based on the amount of change or loss to the resource from the baseline conditions and may be direct or indirect. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by an action and occur later in time or are farther removed from the area, but are reasonably foreseeable. Cumulative impacts are discussed in Section 6.0.

Resources that were not analyzed further in this document include air quality and noise. No effect to air quality is expected beyond small amounts of dust and exhaust from short-term construction operations. No impacts are anticipated from noise beyond short-term increased noise during construction, and the site is located in a rural area with few residences in the project vicinity.

The following subsections discuss the regulatory settings and the environment and existing conditions for each alternative. The discussion is broad and regional in nature. It does not include a complete inventory of each resource, but does provide information to characterize those resources. This section also identifies the potential effects and environmental consequences of the three alternatives considered.

## **5.1 Physical Resources**

Historical accounts and recent evidence of landslides and flooding in Columbia River tributaries between Clatskanie and Westport demonstrate that hillsides in this area are inherently unstable, particularly during the annual heavy rains that fall between November and May, when high-intensity storms blow in from the Pacific Ocean less than 30 miles to the west. In recent history, Eilertsen Creek and its neighboring drainages have experienced, alternately or concurrently, debris flows or flooding during nearly every wet season, at least since the mid 1990s. In addition, numerous embankment failures have occurred, some with extensive property damage, throughout the last two centuries, with the earliest recorded failures in the 1880s.

The high frequency of landslides in the drainages is also attributed to the presence of loose sandy soils overlying more consolidated layers that control patterns of groundwater flow. This results in abundant slope seepage, making the bedrock and hillside hydrologic conditions conducive to instability. These factors are compounded in Eilertsen Creek and several drainages to the east by the historic Kerry Railroad grade which was built as a temporary route for hauling old growth timber from the forest in the early 1900s. In addition to the collapse of the Eilertsen Creek railroad embankment on December 11, 2007, a catastrophic failure of the embankment and trestles on the Kerry line occurred over OK Creek in 1933, which resulted in fatalities. The two events are the largest debris flows or floods in the historic record for the area.

### **5.1.1 Climate and Climate Change**

Woodson is located within a mild climatic region that experiences average temperatures from 38-63° Fahrenheit. July and August are the warmest months with temperatures averaging in the low 60s. December and January are the coldest months with temperatures averaging in the high 30s. Annual precipitation averages 55 inches. The wettest months occur from November through January, with eight to nine inches of average rainfall. July and August are the driest

months with an average of less than one inch of rain per month. Approximately ten days a year have one inch or more of rain, and 180 days have .01 inches or more. Between November and March the area receives an average of between five to seven inches of snow.

During the disaster incident the storm was comprised of three surges of rainfall. The most significant arrived on December 3 with near record high temperatures and moist tropical air. The moisture plume reached from Hawaii to northern Oregon during the height of the storm and was dubbed the “pineapple express”. The highest intensity rains fell at higher elevations in the coast range, including the Nicolai and Tunnel mountains west of Eilertsen Creek. Although the storm was relatively short-lived with most of the rain falling within a 48-hour period, the rainfall intensity was substantial. Rain gages in Clatskanie recorded 6.68 inches of rain in the 24-hour period ending December 3, with over ten inches of rain in three days. In comparison, the average precipitation for the month of December in Clatskanie is about 9.6 inches (averaged over water years 1935-1999). Eilertsen and adjacent watersheds had little to no accumulated snow at this time. A Washington State Department of Transportation analysis estimated that rainfall intensities were up to 140% of the estimated 100-year, 24-hour storm level in northwestern Oregon and southwestern Washington.

The CEQ has released guidance on how federal agencies should consider climate change in their decision making process for actions. The suggested threshold for when quantitative analysis should be done in NEPA documents is for an action to release over 25,000 metric tons of greenhouse gases per year (CEQ 2010). Given the nature and small scale of the two action alternatives considered and the lack of greenhouse gas releases, no further analysis was completed on climate change because it would not meet the established threshold warranting further consideration.

### **5.1.2 Geology and Soils**

The geology of the area is complex. It has been mapped several times (Niem and Niem, 1985; Ketrenos, 1985; Eriksson, 2002), and the model for the area will likely be refined by future mapping efforts. The Eilertsen Creek watershed is composed of weak marine sediments and volcanic deposits, overlain by more competent basalt flows of the Columbia River basalt group. The marine sediments are likely basalt conglomerates and tuffaceous silty sandstones of the Scappoose Formation, and tuffaceous, micaceous sandstones and siltstones of the Pittsburg Bluff Formation. Subaerial basalt flows of the Gray River volcanics might be located low in the watershed. Mapping to the east and west of Eilertsen Creek indicate that rock bedding dips southward into the hill up to 40 degrees. However, measurements vary considerably to the south.

Much of the area making up the highlands around Eilertsen Creek is likely formed by large ancient landslide deposits. Historical accounts of debris flows in the area suggest that many have been large-magnitude, highly erosive events, similar to the one occurring in Eilertsen Creek in December 2007. The bedrock in the slopes above Woodson is relatively loose sandstone, which weathers to sand. There are no igneous rocks, which tend to weather to boulders. For this reason, the debris flow at Woodson did not have big boulders like some debris flows that have

occurred in other Oregon locations such as in the Mt. Hood area. The Woodson debris flow was composed of mostly water, sand, mud, and woody debris.

The main debris flow hit Woodson around noon on December 11, 2007. It is estimated that during the heavy rains that occurred on December 2 or 3, one or two landslides roughly 1.5 miles up the hill to the south of Woodson initiated the flow into the Eilertsen Creek channel and grew into a debris flow on the way down the channel. The initial location was roughly 1/4 mile up slope of the old Kerry line railroad trestle and the debris flow traveled down to the trestle's fill embankment. Here the debris flow likely blocked the drainage under the railroad crossing. A temporary lake roughly 30 to 40 feet deep and 200 feet long was created behind the embankment. A local landowner noticed the lake and called the Oregon Department of Forestry, who in turn notified the residents in Woodson and ODOT that a debris flow was eminent. The residents in Woodson were evacuated and Highway 30 was closed during the morning of December 11. When the trestle-fill embankment failed catastrophically around noon, a debris flow engulfed the community of Woodson and Highway 30.

The current Eddings Road embankment acts as a check dam for the deposition of coarse materials (gravel, cobbles, boulders) near the mouth of Eilertsen Creek drainage. The mouth is a generally unstable location in any stream system, as coarse material is periodically deposited and re-eroded. Coarse materials typically represent 10-20% of the material in transport, while finer material that can be suspended in the water column during flood events makes up the rest of the material. Fine material can be flushed through culverts unless it is co-deposited with coarse material, in which case it becomes a more permanent feature. Coarse materials moving past the Eddings Road crossing are confined to that which can move in the channel. The potential for debris or sediment blocking or overtopping any Eilertsen Creek crossing for Eddings Road during future events would be high.

### **5.1.3 Consequences of Alternatives**

#### **Alternative 1 – No Action**

Under this alternative, FEMA would not provide funding to repair the road crossing at Eilertsen Creek beyond the emergency repairs that were implemented after the disaster event. No construction activities would occur that would potentially impact physical resources and the impact intensity would be negligible. Use of the site would continue to be vulnerable to future debris flows and flooding during the wet season. Continued maintenance of the crossing is very likely because of its location at the mouth of a canyon and head of a debris fan. The current opening would not be large enough to span the multi-thread channel upstream and would therefore put more erosional energy against the upstream face of the approach embankment. Maintenance activities to remove material deposited under the crossing or behind the approaches would be expected to occur several times a year and would need to be supported by frequent inspections.

The level of impact intensity to physical resources at the site from damages during future high precipitation events would have the potential to be minor or moderate. The site would also likely

require mitigation to provide scour protection of the upper and lower corners of the crossing to allow continued use of the road crossing.

### **Alternative 2 – Repair Eddings Road at Existing Location**

All repair vehicles used to install a new culvert and road at the Eilertsen Creek crossing would use the existing road infrastructure to access the site. The impact intensity from the ground disturbing activities during construction would be minor and the changes would be small and localized. BMPs would be required for sediment and erosion control and would reduce any potential adverse effects.

Direct and indirect effects to physical resources would be negligible to minor at the site from the repairs. However, the existing topography and soil conditions would continue to be vulnerable to debris flows or flooding during the wet season. As with the No Action Alternative, continued use of the existing crossing would likely require continued and frequent maintenance. The impact intensity from future events would be determined by the level of destruction that occurs during such events and mitigation would likely be required to preserve the topography of the site.

### **Alternative 3 – Eddings Road Relocation (Proposed Action)**

Construction would involve the refurbishment and improvements to the old county road upland and northeast of the existing stream crossing. Adjacent to the proposed road relocation the topography slopes moderately upward to heavily wooded forest land. The project would re-establish road access that avoids the creek drainage and the changes to current conditions would be measurable with minor localized impacts. BMPs required in Section 8.0 for construction would ensure adequate measures are applied before, during, and after construction to stabilize soils and control stormwater runoff. While not in the direct path of debris flows and flooding that could occur during future events, the site could be impacted by large-scale events, with the level of intensity determined by the size of the event.

Decommissioning one section of Eddings Road and removing the existing creek crossing would allow the site to return to a natural environment. The abandoned road would gradually lose its ability to serve as a check dam that promotes the deposition of coarse materials. This would result in increased short-term transport of sediments downstream during high precipitation events to the crossings established for Highway 30 and the adjacent railroad tracks.

## **5.2 Water Resources**

### **5.2.1 Surface, Ground, and Water Quality**

Eilertsen Creek is a tributary to the Columbia River. From its origin in the Canadian Rockies, the Columbia River flows 1,200 miles through forests, fields, and mountains until meeting the Pacific Ocean near Astoria, Oregon. The Eilertsen Creek watershed encompasses 594 acres and is slightly less than one square mile. Elevation in the watershed ranges from 10 feet where it empties into the Westport Slough to 1,424 feet on Tunnel Mountain to the west. The drainage is comprised of mostly gentle to moderate slopes. Steep slopes exceeding a 60% gradient are

generally found in distinctive escarpments at the uppermost part (head scarps) of deep-seated landslides and along incised stream channels. Tidal fluctuations from the Columbia River have been determined to be about nine feet in elevation, stopping just north of the Highway 30 crossing.

The Eilertsen Creek channel downstream of the failed railroad embankment that triggered the debris torrent for the community of Woodson can be described as a transport channel. Materials carried by the stream flow primarily are moved through the channel network rather than deposited and stored long-term as channel bed, bar, or bank materials. Transport channels generally have a channel gradient between 3% and 20%. The Eilertsen channel sustains channel gradients exceeding 3% over its entire length, with the exception of several lower-gradient reaches that store sediment. Consequently, Eilertsen Creek primarily funnels debris flows and floods downstream without substantial long-term accumulation of debris in the channel, although there is temporary deposition of debris in side-channel terraces. The primary deposition site for these materials is land on which Woodson has been built along Highway 30. There is substantial evidence that debris flows have scoured the Eilertsen Creek channel multiple times.

An ODOT assessment of the Eilertsen Creek waterway published on March 16, 2009, determined there has been a high sediment load in Eilertsen Creek since the December 11, 2007, debris flow (see *Eilertsen Creek Waterway Enhancement—Alternatives Analysis* in Section 10.0 References). The increased sediment load is expected to last for approximately five years after the event, or until riparian vegetation can become re-established along the length of the channel. During the event streambed and streambank sediment was removed to bedrock or nearly to bedrock throughout much of the length of the channel. Sediment movement in the channel changes from being transport-dominated to a depositional mode once the sediment reaches the mouth of the watershed, as the channel gradient drops rapidly as the channel becomes less confined. Therefore, much of the coarse material transported through the channel will likely be deposited at the mouth.

A proportion of the sediment delivered to the mouth of Eilertsen Creek is also related to land management in the watershed. The watershed has been logged, in parts relatively recently, with attendant road construction. Areas logged and their associated roads are a source of sediment that can be delivered to the creek channel caused by erosion. When road crossings over the creek become blocked, they can fail and release water and sediment. This occurred at multiple sites within the watershed during the December 2007 event. In the upper watershed there are at least six crossings that could fail if they are not sufficiently maintained or if they become blocked as a result of upstream landslides. A single road failure could potentially contribute several thousand cubic yards of sediment to the Eilertsen Creek channel network.

One other possible future condition, a forest fire, could result in substantial short term increases in sediment delivery to the mouth of Eilertsen Creek. Loss of vegetation after a large forest fire typically results in several years of elevated sediment yield. If a fire were to occur over a large portion of the watershed (e.g., approximately 200 acres, not a particularly large fire), several thousand cubic yards of additional sediment could be eroded from the watershed. The extent to which the sediment would be delivered to the mouth of the creek would be a function of where in

the watershed the conditions occur and how much recovery of streamside vegetation had occurred within the main stem of the creek to allow for sediment storage in the drainage.

### **5.2.2 Wetlands**

Executive Order (EO) 11990 for the Protection of Wetlands requires federal agencies to follow avoidance, mitigation, and preservation procedures with public input before implementing construction that has the potential to affect wetlands.

Beginning approximately 200 feet northwest of the Eilertsen Creek crossing on Eddings Road is a 5.6 acre patch of forested shrub wetlands. As is the case with shrub wetlands occurring on river gravel bars, forested communities in these situations are seasonally or temporarily flooded. In addition, common palustrine emergent wetlands are located within the tidal freshwater reach of the Columbia River in Westport Slough to the north. These wetlands do not extend to the site and are separated completely by Highway 30. A site visit conducted by FEMA Environmental and Historic Preservation staff on June 23, 2011, confirmed wetlands would not be impacted by either action alternative. Although not listed in the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory mapping for the area, there were wetlands species located downstream of the Eilertsen Creek crossing adjacent to the creek. These potential wetlands would not be impacted by construction at the crossing and are adequately buffered from the proposed relocation site.

### **5.2.3 Floodplains**

EO 11988 for Floodplain Management requires federal agencies to take action to minimize the occupancy and modification of floodplains and to avoid adverse effects and incompatible development in the floodplain. The community of Woodson is mapped by the National Flood Insurance Program. All three alternatives are located in Zone X, in an area of minimal flood hazard and outside of both a 100-year or 500-year floodplain (Community Panel No. 41009C0105C, dated August 16, 1988). FEMA has concluded the alternatives would not have an impact on floodplains and no further documentation is required.

### **5.2.4 Coastal Zone**

Projects in Oregon must be consistent with the Oregon Coastal Zone Management Program, administered by the Oregon Department of Land Conservation and Development. The project is located outside of the coastal zone boundary for Oregon and no further review is required.

### **5.2.5 Consequences of Alternatives**

#### **Alternative 1 – No Action**

The No Action alternative does not include any FEMA action and no construction activities would occur that would disturb the earth surface and potentially impact water resources.

## **Alternative 2 – Repair Eddings Road at Existing Location**

Repair of Eddings Road at the Eilertsen Creek crossing would result in ground disturbance which may result in surface water runoff during construction that could affect the water quality of the creek. BMPs required during construction would reduce any potential adverse effects and ensure that any release into the creek would be minimal. The effects would be minor and localized and impacts would be within or below regulatory standards. However, the creek crossing and associated embankment are vulnerable to burial by sediments carried from upstream and undermining from downstream erosion moving upstream. In addition, the roadway sag several hundred feet west of the crossing is prone to overtopping during high precipitation events.

Projects requiring in-water work must comply with permits required by the U.S. Army Corps of Engineers (USACE under the Clean Water Act of 1972. However, this alternative would be exempt from permitting required by the U.S. Army Corps of Engineers, per 33 Code of Federal Regulations (CFR) Part 323.4(a)(2) for discharges not requiring a permit. The installation of the culvert, even although it would be larger to meet fish passage criteria, would be considered maintenance of a transportation structure that does not include any modification that changes the character, scope, or size of the original fill design.

## **Alternative 3 – Eddings Road Relocation (Proposed Action)**

The Proposed Action was designed to relocate Eddings Road to avoid Eilertsen Creek and its associated water resources. Removal of the existing crossing would have a very minimal direct impact on the creek as the steel plates holding the temporary crossing located at the creek's edge would be vertically lifted out of the embankment with little disturbance. Steve Gagnon, USACE Project Manager for Columbia County, confirmed that no permit would be required by the USACE for the work proposed, as it does not involve fill into the creek. Decommissioning one section of Eddings Road and removing the existing crossing would improve long-term flow characteristics of the channel. However, as the existing site returns to a natural environment, the abandoned road would gradually lose its ability to serve as a check dam and would result in increased short-term transport of sediments downstream during high precipitation events.

Construction activities associated with the new road would take place upland of the creek and there is an adequate buffer zone to ensure the project does not affect water quality due to the release of sediments at the site. The project design and BMPs required for construction would ensure the project would not impact water resources, directly or indirectly.

## **5.3 Biological Resources**

### **5.3.1 Vegetation**

The project is located at the base and to the east of the Coast Range mountains west of the Willamette River. The area above Woodson is made up of rugged, steep mountains fronted by a narrow coastal plain along the Pacific Ocean. The common forest tree species are Douglas-fir, western red cedar, western hemlock, black cottonwood, grand fir, Sitka spruce, red alder, and silver fir. Many species of shrubs grow exceptionally well in and around the forests, making

them practically impenetrable in many places. At the immediate project vicinity, the underbrush includes blackberries, salmonberries, huckleberries, ferns, shamrocks, nettles, and grasses. Adjacent to Eilertsen Creek downstream of the crossing there are also small patches of Western buttercups.

EO 13112, Invasive Species, was created to prevent the introduction of invasive species and to provide for their control.

### **5.3.2 Fish (including Essential Fish Habitat)**

In addition to resident trout, Eilertsen Creek is known to have coho salmon (*Onchorhynchus kisutch*). The creek is a tributary to the Columbia River, located greater than 300 feet north of the project location. In addition to coho salmon, the Columbia River has Chinook salmon (*O. tshawytscha*) and steelhead (*O. mykiss*). Both Chinook and coho salmon are designated as Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act of 1996 (as amended). The Act requires all federal agencies to protect fisheries habitat from being lost due to disturbance and degradation and to consult with the National Marine Fisheries Service (NMFS) when an action has the potential to adversely affect EFH.

### **5.3.3 Wildlife**

The project is located in the North Willamette Watershed District of the ODFW. Wallace Island located approximately three miles to the northeast and a Westport Unit located approximately one mile to the west are included as part of the Julia Butler Hansen Refuge for the Columbian White-tailed Deer. The refuge was established in 1971 by the USFWS under the Fish and Wildlife Coordination Act to protect and manage the endangered Columbian white-tailed deer (*Odocoileus virginianus leucurus*). The refuge is located along the Columbia River from river mile 33 to river mile 56 and contains over 6,000 acres of pastures, forested tidal swamps, brushy woodlots, marshes, and sloughs in both Washington and Oregon. The purpose of the refuge is to preserve and enhance a portion of the Columbia River's islands, estuaries, and tidelands to support fish and wildlife in natural habitat for the benefit of the public.

Wildlife in the area may include mammals such as mink, beaver, bats, muskrats, nutria, river otter, coyotes, raccoons, and red fox. Birds ranging from grebes to numerous hawks, owls, perching species, bald eagles, and red-tailed hawks may also occur in the area. In addition, Elizabeth Ruther, ODFW District Habitat Biologist, noted that state sensitive red-legged frogs would likely be in the vicinity, as well as some state-sensitive forest species of bats and salamanders. The ODFW does not have surveys or more detailed information for these animals. The bats will likely flush during construction activities if they are roosting in the trees. The ODFW recommends the area be checked for frogs and salamanders each morning before construction begins to assist in preserving population numbers for these less mobile species, and if any are found they be moved toward the stream and shade before the area is grubbed and work begins.

### 5.3.4 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, provides federal protection for migratory birds, their nests, eggs, and body parts from harm, sale, or other injurious actions. The MBTA includes a “no take” provision. Consultation with the USFWS is required if an action is determined to cause a potential take of migratory birds and determines measures to minimize or avoid these impacts. Habitat is protected when there is an active nest (a nest with chicks or eggs being tended by an adult). Empty and abandoned nests and nonviable eggs are not protected, but cannot be taken into possession without a permit from the USFWS. Permits are not required to remove an empty or abandoned nest, or to remove or alter the structure the nest is built in or on. This policy excludes eagle nests or nest trees and threatened or endangered species.

The project is located in the statewide Pacific Flyway path for migratory birds. Virtually all birds you see are considered migratory birds, with the exception of a few introduced species. A complete list of migratory birds can be found at 50 CFR Part 10.13. The Julia Butler Hansen Refuge for the Columbian White-tailed Deer on Wallace Island to the northeast provides important wintering and foraging habitat for migratory waterfowl. The refuge also provides habitat for other water and shore birds, including band tailed pigeons and bald eagles.

Consultation with Tami Tate-Hall, USFWS migratory bird permit specialist, was conducted. She stated large clearing projects should be conducted prior to March 1st or after August 31 to be sure most nesting birds have fledged. If an active nest is destroyed, it is an unlawful take. She recommended the county keep an eye out for active nests and proceed with caution if one is found, or stop activities near it, as the best advice. A condition is included in Section 8.0 to ensure compliance with the MBTA.

### 5.3.5 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) of 1973 directs federal agencies to consult with the USFWS and NMFS when an action has the potential to affect any federally-listed threatened, endangered, or proposed species, or would result in the destruction or adverse modification of designated or proposed critical habitat.

Eilertsen Creek is listed as having coho salmon of the Lower Columbia River evolutionary significant unit (ESU), which are listed as threatened under the ESA. To the north, the Columbia River has Lower Columbia River ESU Chinook salmon and steelhead, which are both listed as threatened, in addition to coho salmon. Each ESU is treated as a separate species under the ESA. The ESU for each species includes all naturally spawned populations of salmon and steelhead in the Columbia River and its tributaries in Washington and Oregon.

In addition to salmon, the Columbian white-tailed deer was federally listed as endangered in 1968, at which time only a small population was known to survive on islands and a small area of the mainland in Washington along the lower Columbia River. A varied pattern of timber, brush, and cropland seems to provide optimum habitat for the deer. While not listed as occurring in the immediate project vicinity, the deer are known to occur in the Julia Butler Hansen Refuge for the Columbian White-tailed Deer on Wallace Island approximately three miles to the northeast and it

is feasible the deer may wander through the area. There are no other threatened and endangered species listed in the project vicinity. The bald eagle was de-listed in 2006.

Through consultation with Cat Brown, USFWS Wildlife Biologist, it was determined that Highway 30 represents a distinct boundary for white-tailed deer habitat in that area and the project is located on the south side of that line. While there may be a few white-tailed deer that use the area or venture back and forth across the road, it's not considered very good white-tailed habitat. White-tails do seek out heavy cover during fawning season in June and July. As long as project construction occurs outside of the fawning season (June-July), the project would have "no effect" on white-tailed deer and no further ESA consultation with the USFWS is required.

### **5.3.6 Consequences of Alternatives**

#### **Alternative 1 – No Action**

Under this alternative, no construction would occur and biological resources wouldn't be impacted from associated ground disturbing activities. However, the emergency repair of the Eilertsen Creek crossing was considered temporary until permanent repairs could be done. The emergency repair in place at the site does not meet ODFW fish passage regulatory standards and therefore has the potential to adversely affect coho salmon that occur in the creek.

#### **Alternative 2 – Repair Eddings Road at Existing Location**

The streambank at the existing crossing site is stable, well vegetated, and protected at margins by roots that extend below baseflow elevation. There would not be any substantial vegetation loss from this alternative as the road crossing location has been previously disturbed and only minor brush that has grown since the disaster event would need to be removed for the culvert installation. Any replanting would be seeded with native vegetation and the alternative is in compliance with EO 13112 for invasive species. The implementation of BMPs and compliance with permitting requirements would ensure the vegetation would not be adversely affected by construction activities.

The project would involve in-water work and would be required to be conducted during the ODFW in-water work window from July 15 to September 15 to protect fish species. Construction would be required to meet ODFW's culvert installation and fish passage requirements. Consultation with NMFS would be required to determine effects to ESA-listed species and EFH, both in the creek and downstream where the creek flows into the Columbia River. Terms and conditions might also require additional mitigation such as enhancement of the channel between Eddings Road and Highway 30. However, even with meeting fish passage rules and NMFS requirements, it would be difficult to design the crossing to handle both upstream and downstream channel instability at the site.

There is limited nesting habitat for migratory birds in the immediate vicinity of this alternative. The project will not involve removal of any trees or significant brush. The alternative would not alter or disturb breeding or non-breeding habitat for migratory birds, affect food fish populations, or contribute to pollution levels or contamination of marine waters.

### **Alternative 3 – Eddings Road Relocation (Proposed Action)**

Changes to vegetation by relocating the road utilizing a former county road that has since overgrown would be relatively small and localized and would affect a relatively minor proportion of the native plant species and trees in the area. Of the five trees scheduled for removal, three of the trees (alders) are located on the upland side of the proposed road and their roots would be left in place. The remaining two trees (one alder, one cedar) are located on the flat area where the road is proposed and their roots are planned for removal. The trees removed to construct the road would be retained in the project vicinity to provide downed wood for riparian terrestrial animals and would supply decaying wood and nutrients for insects, fungi, and the forest ecosystem.

The existing road section that crosses Eilertsen Creek would be closed and abandoned, and the creek crossing would be removed, thereby maintaining the creek with a clear, unobstructed opening free of any fill or structural material that would have the potential to affect fish species, including coho salmon. Tom Murtagh, ODFW District Fish Biologist, reviewed the Proposed Action and stated the ODFW is supportive of the project and sees no impact to aquatic resources at the location if the current crossing is lifted straight up and out of the stream as proposed. The ODFW is also supportive of the County removing surplus rock from the road and ripping the surface to allow either manual re-seeding or natural re-seeding of the road surface. This action would allow the area upstream of Highway 30 that was heavily impacted by the debris torrent in 2007 to heal and improve.

Removal activities that would disturb soil, vegetation, or the channel substrate would be minimal. By closing road access to the creek, localized degradation from possible erosion issues would be decreased and the Proposed Action would improve long-term habitat. The project would have no effect on ESA-listed species and no adverse effect on EFH, provided the County complies with ODFW work window requirements.

To ensure compliance with the MBTA, clearing of project area and any activity that involves habitat destruction is required to be conducted prior to March 1st or after August 31 to ensure most nesting birds have fledged. Project implementation should proceed with caution and keep an eye out for active bird nests. If an active nest is discovered in a tree or in shrubs or grasses, construction in the immediate vicinity shall be halted until the bird has evacuated. Empty or abandoned nests cannot be taken into possession without a permit. During the construction window, permits are not required to remove an empty or abandoned nest, or to remove or alter the structure the nest is built in or on.

There is substantial wildlife habitat available in the surrounding area and the effect on wildlife would be negligible to short or long-term natural processes sustaining these populations. Mitigation measures required in Section 8.0 would ensure that construction activities would not adversely affect the biological resources beyond short-term impacts. Long-term impacts to biological resources are expected to be negligible.

## 5.4 Cultural Resources

The National Historic Preservation Act (NHPA) requires that federally-funded actions take into account cultural resources in and around a project site, in cooperation with the state, tribes, and local governments. Section 106 of the NHPA and its implementing regulations (36 CFR Part 800) outline the procedures to be followed in the documentation, evaluation, and mitigation of impacts to cultural resources. The State Historic Preservation Officer (SHPO) is responsible for administering state-level programs. Cultural resources include resources of historical and/or archaeological significance. For purposes of this analysis, the term “archaeological resources” is used to refer to prehistoric or historic subsurface sites or objects, and the term “historic resources” is used to refer to above-ground historic structures and sites.

### 5.4.1 Prehistoric Context (American Indian/Religious Sites/Tribal Interests)

Archaeological evidence collected in the Lower Columbia Valley indicates that aboriginal peoples established large semi-permanent villages as early as 10,000 years ago, drawn by the anadromous fish runs and abundance of other subsistence resources in the area. The general area where the project is located has been the historical home to the Chinook and Tlatskanai (Clatskanie) Indians. Tribal history in the area started with the Chinook Indians, who were a large Indian tribe living along the Oregon Coast that included the hills south of the Clatskanie River. Tlatskanai Indians, an Athabascan language tribe, moved into the area after game became scarce and their food supply diminished in the flat lands bordering the Chehalis River in Washington. After driving away the more peaceful Chinook Indians, the Tlatskanai established themselves within the Clatskanie-Westport area and extended their numbers into the head of the Nehalem River in western Columbia County.

The Tlatskanai Indians became known as the Clatskanie Indians. Disease and hostile encounters with Euroamerican fur traders appear to have reduced their population to only about 125 by 1825, and they largely disappear from the historical record after the 1850s. Their descendents, however, are likely to be found on the Grand Ronde, Siletz, and Chehalis reservations, as well as among the Chinook Indian Nation. Per the Oregon Commission on Indian Services, it was recommended the Confederated Tribes of the Siletz Indians and Confederated Tribes of the Grand Ronde Community be consulted regarding historic properties of religious or cultural importance in the area.

### 5.4.2 Historic Context

Captain Robert Gray, commanding the *Columbia Rediviva*, landed on Columbia County's timbered shoreline in 1792. In 1805, the Lewis and Clark expedition traveled and camped along the Columbia River shore in the area later known as Columbia County while seeking a route to the Pacific Ocean. The expedition named some of the features along the river and camped at the mouth of the Clatskanie River to the east. This exploration opened the vast, uncharted territory of the Columbia River Basin to a westward migration that continues even today, as the rural lifestyle and scenic beauty of Columbia County draws new residents to the area.

Following the Lewis and Clark expedition, riverboats began to service the area with passengers and freight. Logging and fishing were prominent in the early days with dairying and mink farming added later. Columbia County was formed in 1854 and Clatskanie was incorporated as a city in 1891. The Astoria-Portland Railroad arrived in 1898 and in 1918 the Columbia River Highway was completed, linking Clatskanie to Portland and Astoria.

The heritage of the Clatskanie area is largely Scandinavian. Woodson was named for Woods Landing on Westport Slough, which in turn was named after a man whose surname was Wood. He would haul logs to the area and dump them into the slough, where they were made into rafts for transportation to sawmills downriver. Although there is a highway sign that marks the location of the community of Woodson, the present day community consists of approximately ten residences in the vicinity and no businesses are located there any longer.

### **5.4.3 Historic Properties**

Dennis Griffin, State Archaeologist for the SHPO, conducted a check of the statewide cultural resource database and did not find any recorded historic resources or cultural resource surveys completed in the project vicinity. However, the project area lies within an area that is generally perceived by the SHPO to have a high probability for possessing archaeological sites and/or buried human remains.

### **5.4.4 Consequences of Alternatives**

#### **Alternative 1 – No Action**

Under the No Action Alternative, FEMA would not provide funding to repair or relocate Eddings Road. No construction activities would occur that would potentially affect cultural resources.

#### **Alternative 2 – Repair Eddings Road at Existing Location**

FEMA has concluded that the likelihood of the presence of any intact archaeological resources is very low at the existing location where the road crosses Eilertsen Creek. The site has incurred past ground disturbance from the previous culvert installation, in addition to debris flows and flooding that have washed through the area and disturbed additional ground. Only previously disturbed ground will be affected by Alternative 2 and thus the project would have little potential to encounter cultural resources. An inadvertent discovery clause would be required as a condition of project approval to further mitigate the potential for adverse effects to cultural resources. Further consultation with the SHPO may be required prior to project implementation due to the increase in the culvert size. Based on available information, no impacts to cultural resources would be expected.

#### **Alternative 3 – Eddings Road Relocation (Proposed Action)**

The Proposed Action was reviewed by Chuck Diters, FEMA archaeologist and historic preservation specialist. Because the project involves refurbishment of an existing county road

that had been abandoned and the proposed installation of two to three culverts would occur within the existing road prism, no intensive archeological survey was initiated. Ground disturbances during construction are expected to encounter primarily disturbed soils and the project would have little potential to encounter intact archaeological resources. An inadvertent discovery clause will be required as a condition of project approval and FEMA believes this further mitigates the potential for adverse effects to historic properties. Accordingly, and subject to any later unanticipated discoveries, FEMA has made a determination of “no historic properties affected” for this undertaking, as outlined in 36 CFR § 800.4(d)(1).

FEMA sent a letter to the SHPO requesting concurrence that no historic properties would be affected by the undertaking on July 6, 2011. The Oregon SHPO responded with a letter on July 21, 2011, assigning the project SHPO Case No. 11-1191 (Appendix B). Dennis Griffin, State Archaeologist, stated there have been no previous cultural resource surveys completed near the proposed project area and the project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains. The SHPO recommended extreme caution during ground disturbing activities to protect cultural resources. The letter specified if any cultural material is discovered during construction activities, all work should cease immediately until a professional archaeologist can assess the discovery.

FEMA also sent a letter dated July 6, 2011, to the Confederated Tribes of the Siletz Indians (Siletz Tribe) and Confederated Tribes of the Grand Ronde Community (Grand Ronde Tribe) requesting review of this project to identify any sites of traditional cultural and religious importance. Eirik Thorsgard, Cultural Protection Coordinator for the Grande Ronde Tribe, confirmed by telephone on August 4, 2011, that the tribe did not have any comments or concerns regarding the Proposed Action. No response was received from the Siletz Tribe.

Accordingly, Alternative 2 is not expected to impact cultural resources. In the event an unanticipated discovery of a potential cultural resource occurs during construction, all construction would be halted until FEMA has completed consultation with the SHPO and determines appropriate measures have been taken to ensure the discovery is evaluated.

## **5.5 Socioeconomic Resources**

### **5.5.1 Socioeconomics and Environmental Justice**

Columbia County has 62 miles of Columbia River frontage and contains deep water ports and industrial property. Millions of people depend on the river for employment in water-related industries for commerce and transportation. The river is a major route for ocean-going vessels and is a popular playground for fishing, boating, camping, and windsurfing. Columbia County has a strong economic and cultural heritage centered around industries such as forest products, shipbuilding, mining, and agriculture. The rural lifestyle and scenic beauty of Columbia County have drawn many new residents to the area and made this the fastest growing county in Oregon in 1997.

In 2009, the U.S. Census listed the population of the county at 49,592, which was up from 43,560 in 2000. In U.S. Census data for 2005-2009, 8.9% of the county was below the poverty

level, 94% were white, .4% black, 1.1% American Indian or Alaska Native, 1.1 Asian, .8% some other race, and 2.7% two or more races. No specific data was available for Woodson, as it is an unincorporated community with approximately ten residences.

EO 12898, Environmental Justice, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations in the United States resulting from federal programs, policies, and activities. Although specific data was not available for Woodson, socioeconomic and demographic data for residents in Columbia County was reviewed to determine if a disproportionate number (defined as greater than 50 percent) of minority or low-income persons have the potential to be affected by the alternatives considered.

### **5.5.2 Traffic**

While Eddings Road is small and rural with very little traffic, U.S. Highway (Route) 30 immediately north of the project area is a major U.S. Highway that runs from its western terminus in Astoria to the Idaho border east of Ontario. West of Portland, the highway generally follows the southern shore of the Columbia River. Between Astoria and Portland, the highway passes through (or by) numerous Columbia River towns, including the residential community of Woodson.

In addition to serving automobile traffic for commuting and recreational purposes, Highway 30 is a major truck freight route of statewide significance. Traffic volumes vary from approximately 6,000 vehicles per day to over 30,000. Trucks represent 14.4 percent of the total traffic volume, equating to over 1,500 trucks per day. For all roads constructed, the County goes through an ODOT permitting process that follows federal American Association of State Highway and Transportation Officials (AASHTO) standards.

### **5.5.3 Public Health and Safety**

The general public health and safety for the community in Woodson relates largely to its vulnerability to debris flows and flooding in the Eilertsen Creek channel that is centered in the community. The bedrock and hillside hydrologic conditions in the drainage are conducive to instability and have a historic high frequency of landslides. Access for emergency vehicles via Eddings Road to the four properties, including one residence, is also a consideration.

### **5.5.4 Consequences of Alternatives**

#### **Alternative 1 – No Action**

Under the No Action Alternative, FEMA would not provide funding to permanently repair or relocate Eddings Road and no construction activities would take place. Leaving the road in its current state with emergency repairs only to provide road access for landowners would continue to affect residents of the community if the road washes out during future debris flows and flooding events. The direct and indirect impacts to socioeconomic resources would be minimal, as the road provides access to only four properties. However, for the one residence the impact

from not having road access would be substantial, particularly if there was a fire or medical emergency.

### **Alternative 2 – Repair Eddings Road at Existing Location**

Alternative 2 would provide a permanent fix to Eddings Road at its current location, although the site would continue to be vulnerable to debris flows and flooding in the Eilertsen Creek channel during the wet season. During construction, landowners who use the road for access to their property would be cut off from access during the duration of installing a new culvert and re-establishing the road. The effects would be temporary and short-term in nature. Alternative 2 would not cause indirect impacts related to long-term use of the site, unless the road is damaged during events related to the wet season. No minority or low-income populations are anticipated to be impacted by the project.

### **Alternative 3 – Eddings Road Relocation (Proposed Action)**

The construction of the Proposed Action would impact traffic on U.S. Highway 30 during construction of the apron adjacent to the highway. The County would need to coordinate with ODOT regarding road restrictions and traffic revisions during this phase to ensure public health and safety is protected. The impact would be temporary and short-term in nature. Eddings Road would be left open for access to properties until the new road provides alternative access, at which point the road would be decommissioned.

The new access road would be required to meet AASHTO standards through the county and state permitting process. The line of site distance for access at the intersection with Highway 30 exceeds these standards, which require providing a minimum of 775 feet visibility in each direction for a 55 mile per hour road. The new road intersection has an estimated 1,400 to 1,700 line of site visibility to the east and 1.3 miles visibility to the west. ODOT representatives visited the site on February 10, 2012, and confirmed the new access point did not have any safety issues.

Having road access that avoids the Eilertsen Creek drainage would have a direct beneficial effect to landowners who use the road to access their property. The project would provide a long-term social and economic beneficial impact to the landowners and their service providers. No minority or low-income persons are anticipated to be impacted by the project.

## **5.6 Hazardous Materials**

Potential hazardous materials were addressed in a Phase I Environmental Site Assessment (ESA) conducted for four properties located in the project vicinity for a separate FEMA Hazard Mitigation Grant Program acquisition project that included the project area. The Phase I ESA investigations did not reveal the presence of any hazardous waste sites or contamination, with the exception of one property, 11946 Highway 30, that was littered with used automobiles, automobile parts, and other debris, in addition to a concrete structure that appeared to be a fuel dispenser island.

An additional Phase II ESA was conducted for 11946 Highway 30 to identify any spills of petroleum products or other hazardous substances that may have impacted the soil in this area. The investigations did not reveal the presence of any hazardous waste sites or contamination with the exception of a very low concentration of naphthalene in one groundwater sample thought to originate from fuels (gasoline, diesel) leaking from stored vehicles and motor vehicle parts scattered in the area. The concentration of naphthalene in the groundwater sample did not appear to be significant given the lack of users of groundwater on the subject property or adjoining properties. It was recommended that no water wells be constructed on the property which could provide potential human exposure to the impacted groundwater.

### **5.6.1 Consequences of Alternatives**

#### **Alternative 1 – No Action**

Under the No Action Alternative, FEMA would not provide funding to permanently repair or relocate Eddings Road and no construction activities would take place. There would not be an impact related to hazardous materials.

#### **Alternative 2 – Repair Eddings Road at Existing Location**

No hazardous materials were identified in the immediate project vicinity and no impact is anticipated from the repair of Eddings Road at its existing location.

#### **Alternative 3 – Eddings Road Relocation (Proposed Action)**

No hazardous materials were identified in the project vicinity other than a very low concentration of naphthalene in one groundwater sample on a property west of the site. No impact related to potential hazardous materials in adjacent groundwater is anticipated from the relocation of Eddings Road, as the ground disturbance would be minimal and the project would not be affected by or affect groundwater.

## **6.0 CUMULATIVE EFFECTS**

Cumulative effects are those that result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes an action. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Lonny Welter, Transportation Planner for Columbia County Road Department, confirmed the County does not have any other projects planned in the vicinity of the project area at this time. Other actions in the project vicinity that have occurred since December 2007 debris flow include 1) the buy-out of four homes and their associated property that were impacted by the event under FEMA's Hazard Mitigation Grant Program, and 2) design improvements recently implemented to the ODOT Highway 30 bridge crossing and associated railroad tracks at Eilertsen Creek.

The property acquisition was carried out to eliminate the life-safety issue of living within an “active” debris fan. The properties will be cleaned up by removing building improvements and the sites will be allowed to revert back to natural conditions. The properties will have deed restrictions to ensure the property will be kept as open space in perpetuity and that no structures are placed on the land in the future. The ODOT bridge improvements were designed to improve the flow conveyance and openings of the existing channel crossing at U.S. Highway 30 north of Eddings Road. The project included increasing the width of the Eilertsen Creek opening to accommodate a 50-year flood event under mean high water tidal conditions to provide for the full range of sediment, water, and debris conveyance under the bridge over a wide range of events. It is anticipated that these openings will allow much of the sediment from any future channel adjustments and smaller debris flow events to move under the highway to Westport Slough and reduce maintenance needs at the site.

Decommissioning of Eddings Road at the Eilertsen Creek crossing and allowing the site to return to its natural state would reduce the site’s ability for the road embankment to act as a check dam during high precipitation events. Sediment transport through the channel at this site would likely increase. However, improvements downstream to the Highway 30 bridge crossing and associated railroad tracks have increased their ability to withstand a fuller range of short-term transport of sediment, water, and debris.

The proposed relocation of Eddings Road combined with the acquisition of four properties in the project vicinity and U.S. Highway 30 improvements to the north cumulatively benefit the watershed and associated fish and wildlife by increasing the natural drainage and transport functions of the creek, in addition to improving public health and safety in Woodson.

## **7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT**

Several state and federal agencies, in addition to two tribes, were consulted throughout the EA process to gather valuable input and to meet regulatory requirements. These agencies include the SHPO, USACE, USFWS, USGS, ODFW, ODOT, Oregon Department of Land Conservation and Development, Oregon Department of Geology and Mineral Industries, the Confederated Tribes of the Siletz Indians, and the Confederated Tribes of the Grand Ronde Community.

FEMA’s draft EA and a public notice were posted in Columbia County and on FEMA’s website at [www.fema.gov/plan/eHP/envdocuments/index.shtm](http://www.fema.gov/plan/eHP/envdocuments/index.shtm) on November 9, 2010, for a 30-day public review and comment period. A copy of the public notice is included in Appendix A. One letter dated December 2, 2011, was received from David and Reta Thompson, Sr., regarding safety and access concerns. Representatives from the County, FEMA, and ODOT met with Mr. Thompson and his son on February 10, 2012, to address these concerns. ODOT verified the access to Highway 30 exceeded AASHTO safety standards. Access concerns, including the radius where the new road meets the old road to the east, were addressed and will not involve a change to the scope of work or construction footprint.

The initial public notice will also serve as the final public notice and this EA will serve as the final EA. FEMA does not anticipate the need to prepare an Environmental Impact Statement.

The final EA and a Finding of No Significant Impact (FONSI) will be available for viewing at: [http://www.fema.gov/plan/ehp/envdocuments/archives\\_index.shtm](http://www.fema.gov/plan/ehp/envdocuments/archives_index.shtm).

## **8.0 PERMITTING, PROJECT CONDITIONS, AND MITIGATION MEASURES**

Implementation of the Proposed Action shall comply with the scope of work in the FEMA Project Worksheet. The following mitigation measures are required as project conditions for FEMA funding:

1. Failure to comply with all local, state, and federal requirements, including any required permits and authorizations, may jeopardize federal funding.
2. The County is responsible for selecting, implementing, monitoring, and maintaining appropriate BMPs to control erosion and sediment, reduce spills and pollution, and provide habitat protection. Erosion controls must be in place before any significant alteration of an area takes place. If fill is stored on site, the contractor is required to cover and contain it appropriately. Areas of disturbed soil need to be properly compacted to eliminate settling and erosion issues. Access roads and work areas must use existing access ways whenever possible and minimize soil disturbance and compaction within 200 feet of any stream, water body, or wetland. BMPs such as silt fencing and reseeding using native species are required, as needed, to eliminate the potential for runoff and erosion to adjacent areas.
3. No construction material or debris shall be staged or disposed of in a wetland, even temporarily. Excess and unsuitable excavated material shall not be sidecast into or placed upslope of wetlands environments and shall be disposed of at an authorized disposal location.
4. Removal of the existing crossing at Eddings Road is required to be conducted during the ODFW in-water work window from July 15 to September 15 to protect fish species.
5. To ensure compliance with the Migratory Bird Treaty Act, clearing of project area and any activity that involves habitat destruction shall be conducted prior to March 1st or after August 31 to ensure most nesting birds have fledged. Project implementation needs to proceed with caution and keep an eye out for active bird nests. If an occupied nest is discovered in a tree or in shrubs or grasses, construction in the immediate vicinity shall be halted until the bird has evacuated or a permit has been obtained from USFWS. Empty or abandoned nests cannot be taken into possession without a permit. During the construction window, permits are not required to remove an empty or abandoned nest, or to remove or alter the structure the nest is built in or on.
6. To ensure the project would have "no effect" on white-tailed deer, a federally-listed threatened species, project construction is limited to outside of the fawning season in June and July.

7. Trees removed during project construction should be left as downed wood in the project vicinity. It is not necessary to chop them up or clean up the forest floor.
8. If hazardous materials or contamination is found during site work, the County shall handle, transport, and dispose of hazardous materials and/or toxic waste in accordance to the requirements and to the satisfaction of the governing local, state, and federal agencies.
9. In the event historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project or should any cultural material (e.g., prehistoric stone tools or flaking, human remains, historic material caches) be encountered during construction, the project shall be halted in the immediate area where materials are found and all reasonable measures taken to avoid or minimize harm to property until such time as the applicant and FEMA, in consultation with the SHPO and Oregon Emergency Management, determines appropriate measures have been taken to ensure that the project is in compliance with the National Historic Preservation Act. Under Oregon state law (ORS 358.905-995) it is a class B misdemeanor to impact an archeological site on public or private land, and under state law (ORS 97.740-760) impacts to Native American graves and cultural items are a Class C felony.
10. Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other laws and Executive Orders.

## 9.0 CONCLUSION

The draft EA evaluated environmental and historic resources that could be affected by the Proposed Action. The evaluation did not identify any significant adverse impacts associated with the resources of geology, soils, and climate; water resources, wetlands, and floodplains; wildlife, fish, and vegetation (including ESA-listed species and critical habitat); historic, archaeological, and cultural resources; and socioeconomic and environmental justice. Implementing the Proposed Action, along with any conditions associated with permits or approvals, is expected to avoid or minimize adverse effects associated with the action. A FONSI for the Proposed Action has been issued.

## 10.0 REFERENCES

Brown, Cat. Wildlife Biologist, USFWS Portland Office, Oregon, personal communication. July 14, 2011.

Burns, Bill. *Woodson Debris Flow December 2007*, Oregon Department of Geology and Mineral Industries. December 2007.

Cole, Larry. President, Clatskanie Historical Museum, personal communication. July 9, 2011.

*Eilertsen Creek Waterway Enhancement—Alternatives Analysis*. Draft Technical Memorandum for U.S. Highway 30, Milepost 67, Columbia River Highway, prepared by URS for the Oregon Department of Transportation. March 16, 2009.

- Ellis, David V. and Ogle, Todd B. Cultural Resources Survey for the Proposed Vernonia School District New K-12 School, Vernonia, Oregon, Final Report. December 22, 2009.
- Federal Emergency Management Agency (FEMA) Region X Geographic Information Systems (GIS) environmental mapping database, file number JE\_ENVAS-OR20110610. June 10, 2011.
- Forest and Debris Recovery Final Report, Winter Storm December 2007.* Prepared by the Forest and Debris Recovery Team; Clatsop, Columbia, and Tillamook Counties and the Oregon Department of Forestry. January 11, 2008.
- Geotechnical Assessment of the December 2007 Debris Flow Complex.* Eilertsen Creek, Woodson, Oregon, Oregon Department of Forestry. April 7, 2008.
- Gagnon, Steve. USACE Project Manager for Columbia County, personal communication. August 3, 2011.
- Julia Butler Hansen Refuge for the Columbian White-tailed Deer Comprehensive Conservation Plan and Environmental Impact Statement.* USFWS Willapa National Wildlife Refuge Complex, Ilwaco, Washington. August 2010.
- Murtough, Tom. District Fish Biologist, North Willamette Watershed District, Oregon Department of Fish and Wildlife, Clackamas Office, personal communication. July and August 2011.
- Neys, David J. District Manager, ODOT, 350 West Marine Drive, Astoria, Oregon, personal communication. February 10, 2012.
- Oregon Coastal Zone Management Program website, Oregon Department of Land Conservation and Development, [www.oregon.gov/LCD/OCMP/FedCon\\_Intro.shtml](http://www.oregon.gov/LCD/OCMP/FedCon_Intro.shtml). Accessed July 6, 2011.
- Oregon Department of Transportation. Joint Permit Application No. APP0045848 for U.S. Highway 30 bridge repairs in Woodson, permitting for the Oregon Department of State Lands and U.S. Army Corps of Engineers. September 20, 2010.
- Pettigrew, Richard M. *A Prehistoric Cultural Sequence in the Portland Basin of the Lower Columbia Valley*, University of Oregon anthropological papers, No. 22. 1981.
- Phase One Environmental Site Assessment, 11926 Highway 30, 11944 Highway 30, 11946 Highway 30 and 11877 Eddings Road, Woodson, Oregon*, prepared by Anderson Geological, Inc., Wilsonville, Oregon, Project No. 1308.00. January 12, 2011.
- Phase Two Environmental Site Assessment, 11946 Highway 30, Woodson, Oregon*, prepared by Anderson Geological, Inc., Wilsonville, Oregon, Project No. 1308.01. January 18, 2011.

- Quigley, Karen. Oregon Commission on Indian Services, Salem, Oregon, personal communication. July 5, 2011.
- Ruther, Elizabeth. District Habitat Biologist, ODFW North Willamette Watershed District, Portland, personal communication. July 14, 2011.
- Tate-Hall, Tami. Migratory Bird Permit Specialist, USFWS Portland Office, Oregon, personal communication. July 8, 2011.
- Taylor, George. State Climatologist, *Climate of Columbia County*, Oregon Climate Service, [www.ocs.oregonstate.edu/county\\_climate/Columbia\\_files/Columbia.html](http://www.ocs.oregonstate.edu/county_climate/Columbia_files/Columbia.html). June 13, 2011.
- Thompson, David Sr., and Thompson, David Jr. Clatskanie, Oregon, personal communication. February 10, 2012.
- Topinka, Lyn. *The Columbia River, A Photographic Journey*, website covering places and history of the Columbia River, <http://columbiariverimages.com/index.html>. Accessed August 2011.
- U.S. Census Bureau American Community Survey 5-Year Estimates for the Clatskanie and Columbia County, 2005-2009, <http://factfinder.census.gov>. Accessed July 2011.
- U.S. Department of Agriculture, Natural Resources Conservation Service, plants database, <http://plants.usda.gov>. Accessed June 2011.
- U.S. Department of Interior, Fish and Wildlife Service (USFWS). Classification of Wetlands and Deepwater Habitats of the United States, December 1979. Reprinted 1992.
- USFWS National Wetlands Inventory. Mapping, <http://137.227.242.85/wetland/wetland.html>. Accessed May 3, 2011.
- USFWS species list. Federally listed, proposed, candidate species and species of concern. Last updated July 2, 2011.
- U.S. Geological Services. Online spatial data for geology in Oregon, <http://mrddata.usgs.gov/sgmc/or.html>. Accessed June 2011.
- Welter, Lonny. Transportation Planner, Columbia County Road Department, personal communication. July 2011.

## **APPENDIX A**

### **Public Notice**

**PUBLIC NOTICE**

**The U.S. Department of Homeland Security's  
Federal Emergency Management Agency (FEMA)  
Draft Environmental Assessment  
FEMA-1733-DR-OR  
Columbia County Road Department  
Columbia County, Oregon**

**Eddings Road Relocation Project**

Notice is hereby given that FEMA plans to assist the Columbia County Road Department by providing partial funding to for funding to relocate Eddings Road in Woodson, Oregon. The project would provide a new connection to Highway 30 and abandon a section of Eddings Road that was damaged during severe storms, flooding, landslides, and mudslides that occurred from December 1-17, 2007. The event was declared a Presidential disaster on December 8, 2007 (FEMA-1733-DR-OR). Federal financial assistance would be provided pursuant to the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended (The Stafford Act).

FEMA has prepared a draft Environmental Assessment (EA) for the proposed project pursuant to the National Environmental Policy Act (NEPA) of 1969 and FEMA's implementing regulations. The draft EA will be finalized after agency and public review and input. The EA evaluates alternatives for compliance with applicable environmental laws, including: Executive Orders No. 11988 (Floodplain Management), No. 11990 (Protection of Wetlands), and No. 12898 (Environmental Justice). Alternative 1 is the No Action Alternative, which would entail no repairs or improvements to Eddings Road. Alternative 2 would repair Eddings Road and its culvert crossing at Eilertsen Creek. Alternative 3 would abandon the section of Eddings Road that was damaged by the disaster event and relocate it utilizing an abandoned county road to avoid crossing Eilertsen Creek. Alternative 3 is the Proposed Action Alternative.

This notice will constitute as the final notice as required by Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. If no significant issues are identified during the comment period, FEMA will finalize the EA, issue a Finding of No Significant Impact (FONSI), and fund the project.

The draft EA is available for viewing for a 30-day public review and comment period at the Clatskanie City Hall, Clatskanie Library District, and Columbia County Court House in St. Helens, and at [www.fema.gov/plan/ehp/envdocuments/index.shtm](http://www.fema.gov/plan/ehp/envdocuments/index.shtm). Please submit your written comments to Mark Eberlein, FEMA Region X Environmental Officer. Comments can be submitted by:

1. By mail to: U.S. Department of Homeland Security  
FEMA Region X  
130 228<sup>th</sup> Street SW  
Bothell, WA 98021-9796
2. Fax at: (425) 487-4613
3. E-mail at: [mark.eberlein@dhs.gov](mailto:mark.eberlein@dhs.gov)

After the public comment period ends, the final EA and the FONSI will be available for viewing at: [http://www.fema.gov/plan/ehp/envdocuments/archives\\_index.shtm](http://www.fema.gov/plan/ehp/envdocuments/archives_index.shtm).

**APPENDIX B**

**SHPO Concurrence Letter**



# Oregon

John A. Kitzhaber, MD, Governor

July 21, 2011

Mr. Mark Eberlein  
FEMA Region X  
130 228th SW  
Bothell, WA 98021-9796

RE: SHPO Case No. 11-1191  
Eddings Road Relocation Proj FEMA-1733-DR-OR  
FOE/road relocation  
Columbia Co Road Dept/FEMA  
7N 5W 5, Woodson, Columbia County

Dear Mr. Eberlein:

Our office recently received a request to review the proposal for the project referenced above. In checking our statewide cultural resource database, I find that there have been no previous cultural resource surveys completed near the proposed project area. However, the project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains.

While not having sufficient knowledge to predict the likelihood of cultural resources being within your project area, extreme caution is recommended during future ground disturbing activities. ORS 358.905 and ORS 97.740 protect archaeological sites and objects and human remains on state public and private lands in Oregon. If any cultural material is discovered during construction activities, all work should cease immediately until a professional archaeologist can assess the discovery. If your project has a federal nexus (i.e., federal funding, permitting, or oversight) please coordinate with your federal agency representative to ensure that you are in compliance with Section 106 of the NHPA.

If you have any questions about my comments or would like additional information, please feel free to contact our office at your convenience. In order to help us track your project accurately, please be sure to reference the SHPO case number above in all correspondence.

Sincerely,

Dennis Griffin, Ph.D., RPA  
State Archaeologist  
(503) 986-0674  
dennis.griffin@state.or.us

## Parks and Recreation Department

State Historic Preservation Office

725 Summer St NE, Ste C

Salem, OR 97301-1266

(503) 986-0671

Fax (503) 986-0793

www.oregonheritage.org



RECEIVED

JUL 26 2011

FEMA REGION X



**APPENDIX C**

**Public Comments Received**

David & Reta Thompson SR  
22106 Lindberg Rd.  
Clatskanie, OR 97016  
P.O. Box 1582  
Rainier, OR 97048  
Phone: 503-703-2547

December 2, 2011

US Dept of Homeland Security  
FEMA Region X  
130 228<sup>th</sup> St SW  
Bothell, WA 98021-9796

Attention Mark Eberlein:

Attached is a copy of the Public Notice FEMA-1733-DR-OR that was published in our local paper of Columbia County. I disapprove of the proposed changes of road accesses. This will create a dangerous assess for merging on hiway 30, limit access to houses in this area by closing the existing road and creating a financial burden to a county that is in severe straits.

I appreciate a face to face on site inspection of the proposal and a written follow-up for this proposed change. I have logged and maintained roads in this county for over 40 years and feel this knowledge could be of assistance to a more cost effective solution and better servicing the rest of the citizens in this area.

Thank you in advance for registering my concerns. I am looking forward to hearing from someone of authority concerning this matter before any work approval is issued.

Sincerely,

*David A. Thompson SR.*

David A Thompson Sr.

RECEIVED

DEC 7 2011

FEMA REGION X