



Final Environmental Assessment

Dowans Creek Road Relocation

Jefferson County, Washington

FEMA-1734-DR-WA (Public Assistance)

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FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency – Region X
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Photo: Dowans Creek Road and Bogachiel River

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TERMS USED IN THIS DOCUMENT

Aggradation – the process in which the rate of sediment deposition exceeds that of erosion and creates a persistent, long-term rise in the elevation of a streambed.

Area of Potential Effect (APE) – the geographic area within which an undertaking may cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking.

Avulsion – an abrupt switching of a river to another channel.

Best Management Practices (BMPs) – environmental protection practices applied to help ensure that projects are conducted in an environmentally responsible manner.

Channel Migration Zone (CMZ) – the area where a stream or river has been and will be susceptible to channel erosion and/or channel occupation. Because alluvial channels are rarely static through time, rivers and streams naturally migrate within their valleys. Channels respond with horizontal movement (lateral migration, avulsions, channel widening, channel narrowing) and vertical movement (incision and aggradation) depending on site-specific circumstances and watershed conditions. Human landscape disturbance can exaggerate or constrain channel migration by affecting local and watershed processes of flooding, erosion, and deposition.

FEMA Floodway – that portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest, i.e., where water depths and velocities are the greatest. It is that area which provides for the discharge of the base flood so the cumulative increase in water surface elevation is no more than one foot.

Floodplain – the lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Nonattainment Area – the geographic area designated by EPA at 40 CFR Part 81 as exceeding a National Ambient Air Quality Standard for a given criteria pollutant. An area is nonattainment only for the pollutants for which the area has been designated nonattainment.

Rotational Slump – a type of landslide that moves along a surface of rupture that is curved and concave, and involves the downward movement and backward rotation of the landslide mass.

ACRONYMS USED IN THIS DOCUMENT

APE	Area of Potential Effect
BiOP	Biological Opinion
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DAHP	(Washington State) Department of Archaeology and Historic Preservation
DBH	diameter at breast height
DNR	(Washington State) Department of Natural Resources
EA	environmental assessment
Ecology	(Washington State) Department of Ecology
EFH	essential fish habitat
EIS	environmental impact statement
EO	(Presidential) Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
MBTA	Migratory Bird Treaty Act
MP	milepost
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
REO	(FEMA) Regional Environmental Officer
ROW	right of way
SHPO	State Historic Preservation Officer
USFWS	U.S. Fish and Wildlife Service
WNHP	Washington Natural Heritage Program
WRIA	Water Resource Inventory Area

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. FEMA provides assistance to private citizens, public entities, and non-profit groups following declared disasters. Jefferson County applied, through the Washington State Emergency Management Division (EMD), to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding to relocate a portion of Dowans Creek Road. The project is located east of U.S. Highway 101 and south of the Bogachiel River on the Olympic Peninsula in western Washington (Section 1, Township 27 North, Range 13 West, Willamette Meridian) (see Appendix A, Figure 1, Site Location Map). Dowans Creek Road is referred to as S. Bogachiel Road on some maps.

The National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508) direct FEMA and other federal agencies to take into consideration the environmental consequences of proposed federal actions, including federally funding. In compliance with NEPA and its implementing regulations, FEMA prepared this environmental assessment (EA) to analyze potential environmental impacts of the Proposed Action and other reasonable alternatives that would meet the purpose, need, and objectives of the project as well as a No Action Alternative. The No Action Alternative also serves as an environmental baseline against which the other alternatives can be compared.

The CEQ and FEMA regulations (44 CFR Section 10) that implement NEPA require NEPA documents to be concise, focus on the issues relevant to the project, and exclude extraneous background data and discussion of subjects that are not relevant or would not be affected by the project alternatives. Subject areas required to be addressed by the State Environmental Policy Act (SEPA) have also been included. Accordingly, the following subjects are not evaluated in detail for the following reasons:

Subject	Analysis
Air Quality	The proposed project is not in a nonattainment area, is located in an area that is remote, undeveloped, and receives little traffic. Construction would create dust and vehicle emissions; however, the impacts would be minor and temporary. Air quality impact associated with traffic is not expected to increase above current levels.
Energy and Natural Resources	The proposed project, to relocate a segment of a road, would not have an adverse effect on energy and natural resources. No energy conservation measures are necessary.
Environmental Health	The proposed project would not have an adverse effect on environmental health. The project would ensure that emergency services will continue to be provided to properties accessed by Dowans Creek Road.

Land and Shoreline Use	The proposed project location is designated as Commercial Forest in the Jefferson County Comprehensive Plan. The proposed project location is not within the jurisdiction of the State Shoreline Management Act. Adjacent lands are designated as Commercial Forest and Rural Residential. The project is compatible with existing land uses and would ensure that they can be continued.
Socioeconomics	Socioeconomic impacts are not expected to result from relocating a segment of Dowans Creek Road farther south.
Housing	The proposed project would not eliminate any residences and would ensure continued access to existing residences.
Noise	The project area is remote and undeveloped with no sensitive noise receptors other than marbled murrelet, a protected bird species. (Conservation measures for the murrelet are discussed under Mitigation in Section 3.2, and under Section 4.4 (Fish & Wildlife) of this EA). Construction activities would result in noise, which would be temporary. Noise associated with traffic is not expected to increase above current levels.
Public Services	The proposed project would not increase the need for public services. It would ensure that emergency services can be provided to properties accessed by Dowans Creek Road.
Recreation	The project would ensure access to DNR recreational property adjacent to the Bogachiel River. It would not have an adverse effect on recreation.
Traffic	Traffic is not expected to increase above current levels as a result of relocating a portion of Dowans Creek Road farther south.
Utilities	The only utility currently located in the Dowans Creek Road right-of-way is telephone. Relocation of a segment of the road would not have an adverse effect on utilities.
Visual Quality	With any of the action alternatives, relocation of a segment of Dowans Creek Road includes various combinations of use of existing logging roads and clearing of vegetation to extend the road. The visual impacts would be minimal in scope and there are no designated visual resource areas.

2.1 PURPOSE AND NEED

The purpose of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, 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 the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Grant Program is to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit (PNP) organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President. Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, restoration, reconstruction, or replacement of disaster-damaged or destroyed publicly owned facilities and the facilities of certain PNP organizations. The need for the FEMA action is to provide funds to Jefferson County to restore permanent access to current users of Dowans Creek Road, which was damaged by a landslide during a December 2007 winter storm. The President declared a federal disaster for the region, making funds available to public entities for damage repairs. In this instance, flooding did not directly cause damage to the road. The section of road (approximately 360 feet in length) that was damaged is approximately 120 feet above the Bogachiel River at its nearest location.

According to the *Geotechnical Report for the Dowans Creek Road Realignment* (Toth 2008), the road was damaged by several rotational slumps in an area of a dormant, deep-seated landslide complex. The event took place during the severe storm of December 2007. The report states that the landslide was most likely reactivated as a result of the Bogachiel River undercutting the toe of the slope and an increase in soil pore water pressure from storm precipitation (see the Geology section of this EA for additional discussion).

Dowans Creek Road provides access to 53 parcels, including nine full- or part-time residences. Other parcels have assessable improvements or are used for commercial timber production. The road is also used for recreational access to a boat launch. The geotechnical report predicts that slope erosion, and undercutting of the toe of slope and associated slope instability will continue. Thus, Jefferson County Public Works Department determined that the affected section of Dowans Creek Road will be unusable in the near future due to continued slope failure, and results in the need to relocate the road to provide access to residents and others.

2.2 PROJECT OBJECTIVES

The CEQ regulations require reasonable alternatives be identified, evaluated, and compared. Reasonable alternatives are alternative ways of meeting project objectives, but with varying degrees of environmental impact. Alternatives that would clearly result in substantially greater environmental impact than the Preferred Alternative do not require detailed analysis. The following project objectives are identified by the county:

1. Provide safe, secure, and permanent access to residences and properties,
2. Avoid landslide areas, very steep slopes, and steep road grades (grades over 15%),
3. Minimize length of road (thus, minimizing construction-related environmental impacts),
4. Minimize annual maintenance construction-related impacts and cost,
5. Minimize impacts to marbled murrelet,
6. Minimize public safety issues/emergency response time, and
7. Minimize number of right-of-way acquisitions.

This section discusses the alternatives considered in this EA: (1) the No Action Alternative, (2) the Proposed Action (or Preferred Alternative) toward which FEMA would contribute funding, and (3) Other Alternatives Considered and Not Carried Forward in the analysis. A table at the end of Section 3 summarizes and compares the impacts of each alternative and the extent to which the alternatives meet the project objectives.

Topography and underlying geology (e.g. steep grades and unstable slopes) in the project area constrain the identification of possible alternative routes and are factors in selection of a preferred route. Because of obstacles presented by rugged topography, some alternative routes are longer than others and longer routes result in greater environmental impact from construction and maintenance activities, as well as greater cost.

All action alternatives would abandon the existing Dowans Creek Road for approximately 1,000 lineal feet between approximately MP 1.32 at the west end and MP 1.51 at the east end of the road. The portion of the existing Dowans Creek Road to be abandoned is in an area where, based on the county's observation, natural revegetation would occur, particularly by hemlock seedlings, within approximately one year. Out-sloping of the roadbed, and installation of water bars or rolling dips, would be employed as necessary in order to make the abandoned road segment free draining.

See Appendix A, Figure 2, Road Relocation Alternatives for an aerial map of alternative routes and road segments that are described in this EA.

3.1 ALTERNATIVE 1 – NO ACTION

The No Action Alternative is required by the CEQ regulations to be included in the analysis, serves to provide a baseline of existing conditions and current impacts to resources in the project area, and is used to compare and contrast the impacts to resources of the other (action) alternatives.

Under the No Action alternative, FEMA would not provide funding to relocate Dowans Creek Road. The hillside would continue to slump, exacerbated by undercutting of the toe of slope by the Bogachiel River and storm events, and cause further road damage and closures. The county would conduct temporary repairs to the extent possible until the road became no longer usable. Road damage and construction during repairs would cause ground disturbance and associated impacts such as soil erosion and sedimentation in the Bogachiel River. This alternative does not meet the project objectives that are described in Section 2 of this EA.

3.2 ALTERNATIVE 2 – PROPOSED ACTION (THE PREFERRED ALTERNATIVE)

The Proposed Action would relocate a portion of Dowans Creek Road south of the existing road between approximately milepost (MP) 0.83 and MP 1.51. The relocated route would be approximately 400 feet upslope and south of the existing road, and farther from the Bogachiel

River. The new route would begin at approximately MP 0.83 on Dowans Creek Road at an intersection with an existing Rayonier logging road. The route would follow the existing Rayonier logging road, on which there are existing ditches and cross culverts. Stormwater infiltrates adjacent to the roadway or is conveyed a short distance by minor shallow drainages until the stormwater infiltrates. The logging road would require resurfacing by applying a 0.33 foot compacted depth crushed surfacing top course.

At approximately 2,270 feet from the intersection with Dowans Creek Road, the proposed route leaves the Rayonier logging road and traverses through Washington State Department of Natural Resources (DNR) land for approximately 1,690 feet until it reconnects with Dowans Creek Road at approximately MP 1.51. This portion of the route would consist of new construction of 16-foot-wide single lane, gravel surfaced road with four pullouts. A 60-foot wide easement, with widths of 75 to 8- feet in limited areas, would need to be cleared to accommodate the roadway and side slopes. Road construction is expected to be balanced cut and fill, and would require approximately 3,200 cubic yards of excavation and 3,000 cubic yards of embankment, to be performed with a tracked excavator and/or bulldozer, and dump trucks. The subgrade would be compacted and a 0.67 foot compacted depth gravel base would be applied and compacted. A 0.33 foot compacted depth crushed surfacing top course would then be applied. There are no stream crossings on this route. Roadside ditches would be constructed, and five cross culverts would be installed. Stormwater would infiltrate adjacent to the roadway or infiltrate after a short distance as the surrounding area is heavily vegetated and permeable.

CONSTRUCTION

If staging is required for vehicles or equipment, the road pullouts would be used. The project is not anticipated to require stockpiling of materials or soil as a balanced cut and fill design will be used. Should there be any excess material from excavation, the county may provide a disposal site or may choose to use a contractor-provided disposal site. Regardless, the county will ensure that all permits and approvals required for use of the disposal site are acquired before any waste is hauled off the project site. Disposal of material within a wetland area will not be allowed without prior approval by the U.S. Army Corps of Engineers and by the local agency with jurisdiction.

Construction is anticipated to take approximately 5 weeks. Following is a breakdown of the general tasks and durations:

Task	Estimated duration (working days)
Mobilization	1 day
Initial set up of temporary traffic control	1 day

Initial set up of temporary erosion control	2 days
Clear and grub DNR portion	5 days
Excavation and embankment on DNR portion	7 days
Install cross culverts	3 days
Place Gravel Base on DNR portion	3 days
Re-grade Rayonier portion and construct pullouts	4 days
Place Crushed Rock Surfacing on DNR and Rayonier portions	3 days
Final Grading and clean-up	2 days
De-mobilization	1 day
TOTAL	32 days

MITIGATION

The proposed route has two sections of moderately steep slopes. In addition, marbled murrelet habitat has been identified in the DNR parcel. To address these issues, the following mitigation measures will be employed and are included as part of the Proposed Action (additional mitigation measures may be identified as conditions of permits and approvals by agencies with jurisdiction):

Resource Area	Mitigation
General Considerations	<p>The construction zones and clearing limits would be clearly identified.</p> <p>No machinery or equipment would access areas outside the construction limits.</p> <p>All mitigation measures would be clearly stated in the construction specifications.</p>
Vegetation	Trees beyond the clearing zone would not be removed or damaged.
Water Quality and Soils	<p>All disturbed ground would be reclaimed using appropriate best management practices (BMPs).</p> <p>Best management erosion control practices for drainage and sediment control would be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. These practices may include, but are not limited to, silt fencing, filter fabric, check dams and seeding/mulching of exposed areas.</p>

	<p>A stormwater pollution prevention plan would be developed and implemented.</p> <p>Regular site inspections would be conducted to ensure that erosion-control measures are properly installed and functioning effectively.</p> <p>A spill prevention control and countermeasures plan would be developed and implemented. Hazardous spill clean-up materials would be on-site at all times.</p> <p>A Stormwater Management Permit from Jefferson County would be required.</p>
<p>Special Status Species</p>	<p>Off-site compensatory mitigation for impacts to marbled murrelet habitat will be provided, as agreed upon by agencies with jurisdiction (see Section 4.4 of this EA).</p> <p>During construction, strict garbage control would be maintained to prevent scavengers (e.g., jays and crows), which are predators on murrelet nests, from being attracted to the project area. No food scraps would be discarded or fed to wildlife.</p>

3.3 OTHER ALTERNATIVES CONSIDERED AND NOT CARRIED FORWARD

Jefferson County Public Works Department personnel reviewed the construction, maintenance, and environmental issues associated with Dowans Creek Road. The team considered other alternatives that were dropped from further review because the alternatives did not meet the project objectives and resulted in greater environmental impacts than the Preferred Alternative.

3.3.1 ALTERNATIVE 3 - REBUILD DOWANS CREEK ROAD

This alternative would require construction of a strong erosion resistant toe where the slope failures occurred, including a line of steel sheet piling driven deeply into the ground above the normal high water level of the Bogachiel River. The repair would require that earthen debris and loose material be removed from the face of the slope. A base of large stone 20 feet wide at the bottom of the slope and 10 feet wide at the top would be installed. Construction activities (to prepare the site for construction, repair damaged portions, and install sheet piling and stone) would have a greater likelihood than other alternatives of affecting the Bogachiel River, fish habitat and fish species.

Based on the information provided in the geotechnical report, as well as ongoing observations, Jefferson County Public Works staff concludes there is no reasonable engineering solution for securing the existing roadway at this location as any slope stabilization structures would succumb to future slope failure. It is also anticipated that slope stabilization structures would

eventually have to span the full length (750 feet) of the landslide feature. These factors make the probable environmental impacts and costs far greater than other action alternatives. This alternative does not meet the project objectives discussed in Section 2 of this EA (see Table 1).

3.3.2 ALTERNATIVE 4 - COMBINATION OF ACTIVE AND ABANDONED LOGGING ROADS

This route would begin at a Rayonier logging road that intersects Highway 101 at MP 180.85 and extends northerly toward the Bogachiel River. This route contains sections of decommissioned road that would require full reconstruction of the roadway. The route would require two new 16-foot wide by 50-foot long bridges at crossings over Hemphill Creek, and 10 new culverts ranging from 18 to 36 inches in diameter, in addition to replacement, with 50-foot long bridges, of two existing log stringer bridges in the future.

The environmental impacts associated with construction-related impacts on three times the length of the Preferred Alternative and numerous stream crossings, an increase of double the travel time for emergency response, greater difficulty in obtaining ROWs, and significantly greater costs for construction and maintenance on this route, result in the conclusion that this alternative does not meet the project objectives (see Table 1).

3.3.3 ALTERNATIVE 5 - RELOCATE THE ROAD ALONG THE RIDGE TO THE SOUTH VIA A COMBINATION OF EXISTING LOGGING ROADS AND OLD ROAD GRADES

This alternative would relocate the road along a ridge that is south of the Bogachiel River, using a combination of existing Rayonier logging roads and old road grades.

This route intersects an old road grade that switchbacks down the slope, and connects with Alternative Route 4 near Point E (see Figure 2), on the west side of Hemphill Creek. One unavoidable section, approximately 700 feet in length, has a 20-25% grade, making this route unacceptable, even by primitive road standards. Field observations and review of aerial and topographic mapping indicates that there are no acceptable alternative routes to traverse from this road down to Dowans Creek Road, given the topography, and ancient landslide features. This alternative, therefore, is not a feasible alternative and does not meet the project objectives discussed in Section 2 of this EA (see Table 1).

SECTION 3

Alternatives Analysis

TABLE 1: SUMMARY OF ALTERNATIVES, IMPACTS, AND PROJECT OBJECTIVES

Alternative	Access to all Parcels	Unstable Areas or Steep Grades	Creek, River, Fish Impacts	Construction, Maintenance Impacts	Marbled Murrelet Habitat	Emergency Response	Right-of-way Acquisition	Cost-not including maintenance
1 - No Action	Temporary, as failure is likely	750' of landslide area	Bogachiel and EFH* from construction and maintenance	.68 mile	None	Road failure/closure would prevent access.	N/A	N/A
2 – Proposed Action. Combination of existing logging road and new road	Permanent	Improve 765' of moderately steep grade (10-15%) grade; new construction of 1,690' on moderately steep (10-15%) grade; no unstable areas.	None	.76 mile	Remove 1.25 acres “occupied habitat”	Response time would be about the same as it is currently.	Rayonier and DNR	\$843,366
3 – Rebuild Road	Temporary, as failure is likely	750' of landslide area, install sheet piling, rock wall, etc. in highly unstable area.	Bogachiel and EFH* from construction and maintenance	.07 mile	None	Response time would be the same until road failure.	None	\$1,663,730
4 - Combination of abandoned and active logging roads	Permanent	Improve 2,059' of moderately steep (10-15%) grade; no unstable areas.	Install new 50' long bridges at second and third crossings of Hemphill Creek; old log stringer	2.36 miles	None	Response time would be double the current emergency response time.	Multiple, including private landowners	\$1,424,480

SECTION 3

Alternatives Analysis

Alternative	Access to all Parcels	Unstable Areas or Steep Grades	Creek, River, Fish Impacts	Construction, Maintenance Impacts	Marbled Murrelet Habitat	Emergency Response	Right-of-way Acquisition	Cost-not including maintenance
			bridges on Dowans Creek & first crossing of Hemphill Creek require replacing with 50' long bridges in near future.					
5 – South Ridge on logging road and abandoned road grade	Permanent	Improve 1,100' (verify) of steep (15-20%) grade; and new construction on 700' of very steep (20-25%) grade in unstable area.	None	2.55 miles	None	Response time would be greater than current time.	Rayonier	Very steep grade in unstable area makes this alternative infeasible.

After comparing the potential impacts from construction of the various alternatives, Alternative 2 (the Proposed Action) is also the environmentally preferred alternative because of the route's significantly shorter length compared to the other alternatives, avoidance of steep grades and unstable slopes, and avoidance of stream crossings. A suitable marbled murrelet mitigation site will be provided to compensate for impact to marbled murrelet habitat under this alternative, and conservation measures and best management practices (BMPs) are environmental mitigation measures included as part of the proposed project. Under the Proposed Action, emergency response time would also be less than other action alternatives.

*EFH: Essential Fish Habitat for coho and Chinook under the Magnuson-Stevens Fishery Conservation and Management Act

This section discusses the existing condition of affected resources and the potential effects of the No Action and Proposed Action alternatives.

4.1 CLIMATE AND CLIMATE CHANGE

The U.S. Global Change Research Program website provides observations of trends in climate change. According to the website, the Pacific Northwest region has grown warmer and wetter over the 20th century with annual average temperature increasing 1°F to 3°F. Annual precipitation has increased across the region by 10% on average. These variations in the region's climate show clear correlations with two large-scale patterns of climate variation over the Pacific: the El Niño/Southern Oscillation (ENSO) on scales of a few years; and the more recently discovered Pacific Decadal Oscillation (PDO) on scales of a few decades. The observed effects of these patterns provide powerful illustrations of regional sensitivities to climate, but how they might interact with future climate change is not yet understood.

Model scenarios project regional warming in the 21st century to be much greater than observed during the 20th century, with average warming over the region of about 3°F by the 2030s and 5°F by the 2050s. Through 2050, average precipitation is projected to increase, although some locations have small decreases.

Project Area Climate

The Dowans Creek Road Relocation project area is located in the western Olympic Peninsula in Water Resource Inventory Area (WRIA) 20, which experiences higher levels of precipitation than described by the U.S. Global Climate Change website for the Puget Sound area. The project area is often exposed to high winds and heavy rainstorms. Annual rainfall in the Bogachiel Sub-Basin (in WRIA 20) is the highest in Washington State with an average of 80 inches near the coast to 240 inches in the Olympic Mountains.

According to the WRIA 20 Technical Assessment, in addition to the interannual effects of natural climate variability, water resources in WRIA 20 will also be affected by global climate change. An evaluation of seven 21st century climate change scenarios for the Pacific Northwest shows that, in general, the region is expected to get warmer and wetter as a result of climate change.

Stream flows in low elevation rain dominant basins (such as most of the basins in WRIA 20) respond directly to precipitation events and generally peak in mid-winter with the Pacific Northwest wet season. Climate change impacts in rain dominant basins, therefore, depend primarily on projected changes in winter (October-March) precipitation, which are less certain than projected temperature changes.

If total winter precipitation increases as projected and/or precipitation intensity in individual storms increases, annual flow volumes in rain dominant basins should increase. The severity of floods and flood-related impacts, including erosion, infrastructure damage, and loss of salmon nests (“redds”) to high flow riverbed scouring events, may also increase. The opposite effects would be experienced if total precipitation in winter decreases and/or the precipitation intensity in individual storms decreases.

Changes in the timing of spring stream flow are driven by the influence of warmer winter/spring temperatures on the timing of snow melt. Warmer temperatures earlier in the snowmelt season induce earlier snow melt, potentially shifting the peak of spring runoff earlier into the spring season by as much as four weeks by 2040.

For both rain dominant and transient snow basins, warmer summer temperatures may reduce late summer base flows if net evapotranspiration increases. Changes in cloud cover and wind (which are difficult to model reliably) can have significant mitigating effects on evapotranspiration losses, however.

Climate Change and Agency Guidance

The CEQ has issued draft guidance for federal agencies in their consideration of the effects on greenhouse gas emissions and climate change in NEPA documentation (CEQ 2010). Per the CEQ guidance, the recommended threshold at which NEPA documents should include quantitative analysis for an action is if it will release over 25,000 metric tons of greenhouse gases per year. Based on the scale of the proposed action alternatives and relatively short construction periods, the 25,000 metric ton threshold of greenhouse gasses release is not anticipated to occur under any of these alternatives.

4.1.1 Environmental Consequences

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to relocate a segment of Dowans Creek Road, the project would not go forward, and there would not be potential to add the project’s incremental effect on climate.

Alternative 2 – Proposed Action

The Proposed Action will provide greater resilience and function in the face of potential effects brought on by climate change by relocating Dowans Creek Road out of the landslide area. The more stable location will not be as susceptible to failure from future storm events.

Relocating a segment of Dowans Creek Road would not increase vehicle trips and would not increase the present level of contribution to greenhouse gas production. Construction and maintenance of the road would result in short-term emissions from equipment operation and worker transportation; these would represent a negligible contribution to greenhouse gas emissions.

4.2 GEOLOGY AND SOILS

Topography and underlying geology (e.g. steep grades and unstable slopes) in the project area constrain the identification of possible alternative routes and are important factors in selection of a preferred route. Thus, this EA addresses geology in greater detail than would be required for most EAs.

The project area was the subject of the *Geotechnical Report for the Dowans Creek Road Realignment*, which provides a discussion of the geologic setting and processes, the landslide complex on which the road is located, and the dynamics of the Bogachiel River, including an analysis of the Channel Migration Zone. According to the study, the surrounding area is comprised of glacial deposits that are likely underlain by marine sedimentary rocks consisting of sandstone and thinly bedded siltstone, shale, and slate that outcrop at the Dowans Creek confluence and north of the Bogachiel River. The following discussion provides additional excerpts from the geotechnical report.

The approximately 280-acre landslide complex in the project area occurs in older alpine glaciofluvial/glaciolacustrine terrace deposits and is described as an ancient deep-seated landslide. The area of the Dowans Creek Road landslide and the proposed road realignment are mapped as Klone soil, which occurs in glacial outwash slopes from 35 to 90% gradient. The very gravelly loam soil contains from 40 to 60% rock fragments. Soil depths are typically greater than 60 inches. The Klone soil type has a medium to high mass wasting potential rating.

Based on field observations and review of historic aerial photographs, the geotechnical report concludes that the deep-seated landslide is currently inactive, despite recent slope movement at the toe of the feature and translational landslides from the main scarp. The landslide at Dowans Creek Road is located at the toe of the dormant deep-seated landslide complex and extends for approximately 750 feet, parallel to the Bogachiel River. The landslide appears to have been initially activated between 1981 and 1985 as the river migrated into the hillslope. It appears that the Dowans Creek Road was re-routed around the most active portion of the landslide in the early 1990s. As the bend in the Bogachiel River continued to migrate downstream and into the hillside, the landslide area progressively expanded to its present size. A portion of the road was lost to the landslide in the storm of December 2007. A small seasonal stream flows into the

portion of the landslide that caused the road washout and was likely an important contributing factor that helped to saturate soils and increase pore water pressure in the landslide.

The fact that the landslide was initiated coincident with the channel migrating to this portion of the hillside indicates that the underlying cause of the landslide is undercutting of the landslide toe by the Bogachiel River. While the landslide feature may have already existed in a dormant state, the river likely removed a critical amount of material that was buttressing the glacial sediments. The removal of material at the toe of the landslide has caused the rotational failure of several slump blocks within the larger feature. There is continued active movement of slump blocks associated with the landslide, as well as the flow of saturated material.

Proposed New Road Alignment

The proposed road alignment would be located approximately 400 feet south and upslope of the existing road location. No evidence of slope movement was observed for 200 feet on either side of road centerline. The combination of moderate slope gradients and unconsolidated glacial sediments with a high infiltration rate limit the potential for slope instability.

Channel Migration Zone

The analysis of the channel migration zone (CMZ) was performed by a geotechnical consultant based on aerial photographs since 1950. Thus the study period for CMZ is only for the last 50 years. In general, the Bogachiel River has exhibited a fairly consistent meander pattern that has been steadily increasing in amplitude and progressing downstream over the past 50 years. No significant channel avulsions (sudden movement of the river from one channel to another) took place during the past 50 years; however, potential for future avulsions are high in some areas. The eastern end of the proposed road location where it reconnects with the existing Dowans Creek Road is closest to the Bogachiel River. The ancient landslide immediately east of the Dowans Creek Road landslide has not been subject to any significant channel migration or bank erosion over the past 60 years, despite being at the outer edge of a meander bend during most of this time period. This location appears well armored by boulder lag deposits and, therefore, is not prone to bank erosion and future channel migration.

The geotechnical report concludes that the proposed realignment of Dowans Creek Road along the body of a stable, ancient deep-seated landslide has a low likelihood of reactivating the feature.

4.2.1 Environmental Consequences

Alternative 1 – No Action

Under the No Action Alternative, FEMA would not provide funding to relocate Dowans Creek Road. The hillside would continue to slump, cause road damage and closures, and the county would conduct repairs to the extent possible until the road became no longer usable. Road damage and construction for repairs would cause ground disturbance and associated impacts such as soil erosion and sedimentation.

Alternative 2 – Proposed Action

The Proposed Action to relocate Dowans Creek Road out of a geologically unstable area would result in less soil impacts and stability-related issues than the No Action alternative as this alternative would avoid the unstable area on which the road is currently located. Soil impacts from road construction would be small and short-term based on the small scale of the project and minor ground-disturbing activities. In addition, best management practices (BMPs) for erosion control, as described in Section 3.2 of this EA, would be followed.

4.3 VEGETATION

The vegetative community in the project vicinity is comprised of tree and shrub species. The damaged site and project area are for the most part in second growth immature conifer and mixed conifer-deciduous forest composed mainly of Douglas fir, hemlock, Sitka spruce, western red cedar, big leafed maple, and alder. Trees range in size from 8-inches diameter at breast height (DBH) to 30-inches DBH, with the majority averaging approximately 20-inches DBH. The understory consists of vine maple, sword fern, red huckleberry, salmonberry, and hemlock seedlings.

4.3.1 Environmental Consequences

Alternative 1 – No Action

Under the No Action Alternative, construction of a new road segment would not take place and vegetation would not be removed.

Alternative 2 – Proposed Action

The Proposed Action would result in the removal of 1.95 acres of vegetation, a minor amount considering the minor scope of the project within a much larger area of similar vegetation. The proposed road realignment takes advantage of an existing logging road for more than half its length. The portion of the existing Dowans Creek Road to be abandoned is in an area where,

based on the county's observation, natural revegetation would occur by hemlock seedlings within approximately one year.

4.4 FISH AND WILDLIFE

See the Vegetation section (4.3 above) for a description of vegetation in the project vicinity. A small portion of the Proposed Action passes through more mature timber but would still not qualify as mature or old growth forest for species in this habitat. The constructed roadways form the only edge habitat available in the immediate project vicinity. The surrounding mountainsides have been logged in previous decades and are in various stages of growth from seedling to immature. The project area provides some cover, nesting, and escape habitat for various species due to the maturity of the timber compared to that of the surrounding slopes. Most, if not all, species that are common to the forested portions of the Olympic Peninsula will be found near the project area at some time. The combination of logged area and revegetated logging plots provides habitat and cover for elk, deer, bear, grouse, cougar, bobcat, mountain beaver, and numerous other wildlife species.

4.4.1 Federally Listed Species and Critical Habitat

Lists of federally endangered and threatened species and designated critical habitats with the potential to occur in Jefferson County and/or the water bodies in the project area were obtained from the U.S. Fish and Wildlife Service (USFWS) and are included in Appendix B. Animal species that are listed as endangered or threatened by the USFWS (there are no listed plant species) under the Endangered Species Act (ESA) in or around the project vicinity include marbled murrelet (threatened) and northern spotted owl. Designated northern spotted owl habitat is present north of the Bogachiel River.

In accordance with Section 7 (a)(2) of the Endangered Species Act of 1973, as amended, Federally funded, constructed, permitted, or licensed projects must take into consideration impacts to Federally listed and proposed threatened or endangered species. FEMA initiated formal consultation with the USFWS on April 5, 2012, for the Proposed Action (Alternative 2). The consultation was completed with receipt of a concurrence letter dated February 25, 2013 (Appendix C), of "not likely to adversely affect" the northern spotted owl, northern spotted owl critical habitat, and marbled murrelet critical habitat, and a Biological Opinion (BiOp) that addresses adverse effects to marbled murrelets associated with the action.

Marbled Murrelet

A site investigation by the USFWS and DNR biologists of the proposed road alignment in March and June 2008 identified habitat for the marbled murrelet. This habitat consists of second growth

timber that contains groups of branches on individual trees that could function as nest platforms; however, no nests were observed. Murrelet have been observed flying below the tree canopy and the area is, therefore, considered “occupied habitat.” (Habitat was not identified for the northern spotted owl in the project vicinity). Further detailed analysis of threatened and endangered species, habitat, and effects of the Proposed Action, is included in the project’s Biological Assessment (March 28, 2012) and USFWS BiOP (February 25, 2013; Appendix C). In the BiOP, the USFWS determined that the level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat. The USFWS BiOp provided Terms and Conditions in order to be covered by the Incidental Take Statement which are listed in the Project Conditions and Mitigation Measures section.

Fish

Listed (threatened and endangered) fish species are not present in the project vicinity; however, the Bogachiel River is essential fish habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act for coho and Chinook salmon.

The Bogachiel River and many of the major tributaries provide spawning and rearing habitat for summer and fall Chinook, coho, and chum salmon, and summer and winter steelhead. Small numbers of sockeye salmon have been reported in lower reaches of the Bogachiel River though these may be strays from other populations. Small numbers of pink salmon have been noted on the mainstem. According to the Washington Department of Fish & Wildlife website, SalmonScape, coho and winter steelhead are present in lower sections of Dowans Creek and Hemphill Creek. These stocks of coho and winter steelhead are not listed as threatened or endangered under the ESA.

Migratory Birds

The project area provides habitat for a variety of migratory bird species, including songbirds and birds of prey. The USFWS Office of Migratory Bird Management maintains a list of migratory birds (50 CFR 10.13). The Migratory Bird Treaty Act of 1918, as amended, prohibits the “take” of migratory birds, their active nests, eggs, and parts from harm, sale, or other injurious actions. The applicant is responsible for compliance with the Act’s provisions.

Fisher

A population of fisher (a member of the weasel family) has been introduced into the Olympic National Park since 2008. As of 2010 a total of 90 fisher have been released, in the Bogachiel, Elwha, Hoh, and Queets river drainages surrounding the project area (which is in the Bogachiel River drainage). Distances traveled by fisher ranged up to 111 km from the release sites. This and ongoing radio collar tracking of individual animals released in the Olympic National Park

confirm that fisher have potential to be in the project area. The fisher is a candidate species but is not listed under the ESA and consultation with USFWS is not required.

4.4.2 Environmental Consequences

Alternative 1 – No Action

Under the No Action Alternative, construction of the new road realignment would not take place and terrestrial plant and animal species would not be affected.

This alternative would, however, result in continued slope failure, damage to Dowans Creek Road, and county efforts to maintain the road until the road became no longer usable. Fish habitat would be temporarily degraded (during storm events and undercutting by the Bogachiel River) from erosion, sedimentation, and reduced water quality. Water quality impacts to fish species would dissipate after an erosive event subsides, although fish habitat impacts could last longer depending on the amount and duration of erosion.

Alternative 2 – Proposed Action

Marbled Murrelet

The Proposed Action would improve 2,270 feet of active logging road and construct 1,690 feet of new road through DNR-owned land, a portion of which (904 feet) is in occupied marbled murrelet habitat. A 60-foot wide easement, with widths of 75 to 8- feet in limited areas, would be cleared along the new road alignment, and would result in the removal of 1.25 acres of forest habitat.

The USFWS, DNR, Jefferson County and FEMA worked cooperatively to identify options and develop a Compensatory Conservation Strategy to address the impacts of the Proposed Action on occupied marbled murrelet habitat. The Compensatory Conservation Strategy relies on purchasing private forest property and transferring it to the State (DNR) for permanent protection of murrelet habitat. The three options, in order of priority, for identifying replacement property for acquisition included:

1. In-kind – same habitat function/value [occupied or suitable habitat (greater than 80 years old) and threatened with removal,
2. Out-of-kind – not currently suitable nesting habitat (50-80 years old), but could be suitable in the near future, on the western Olympic Peninsula or, alternatively on the eastern Olympic Peninsula or southwestern Washington,
3. Young forest (less than 50 years) – Least preferred option because of the length of time it will take for stands to function as suitable nesting habitat.

After identifying and evaluating potential properties, the agencies determined that no properties that met Option 1 criteria, or Option 2 criteria were available on the western Olympic Peninsula. The agencies also contacted numerous land trusts to explore partnership options; however, FEMA does not have a mechanism for funding the required endowments and/or maintenance costs associated with long-term land conservation management by the land trust entities.

Other geographic areas as far as southwestern Washington that were identified as priority areas for marbled murrelet recovery were also considered. These areas were not considered viable because of distance from the project site, trees that were too young, and parcels that were too small and isolated for DNR to manage as reserves.

The agencies did identify and have agreed that purchase of suitable property in the vicinity of the Dabob Bay Natural Area Preserve (NAP) would be a viable compensation option. Dabob Bay NAP, which is managed by DNR, was established in 1984 to protect examples of high quality habitats, including mature coastal forests. Private forest property adjacent to the Dabob Bay NAP with the potential to become marbled murrelet nesting area in the near future will be purchased and transferred to DNR as mitigation for the lost habitat resulting from the project.

Fish and Essential Fish Habitat (EFH)

The Proposed Action would have less potential than other alternatives to affect water quality and fish species as the proposed alignment would be 400 feet upslope and farther south of the Bogachiel River and would not have stream crossings. Seasonal stormwater runoff would occur in the area of the proposed road alignment. Any soil erosion resulting from road construction, particularly with implementation of the BMPs, distance from the river, and high permeability of soil, would be unlikely to reach any fish bearing waters. Therefore no adverse impacts to fish or fish habitat are anticipated as a result of this alternative. The Proposed Action is expected to benefit fish and fish habitat by reducing potential erosion and sedimentation compared with the No Action Alternative.

Migratory Birds

Under this alternative, the potential for construction-related impacts to migratory birds would be eliminated or greatly reduced by avoiding vegetation and land clearing activities during the most sensitive portion of the nesting season, which falls generally between early April through September. If seasonal restrictions are not practicable, a pre-construction survey to identify any active nests would be conducted by a qualified biologist familiar with local bird species prior to any disturbing activities (see Project Conditions and Mitigation Measures; #11).

Fisher

Fisher are highly mobile and can relocate if disturbed. Recent monitoring of released animals in the Olympic Peninsula and other studies have shown adult fisher can and do relocate dens and move kits from one den to another. Whether a fisher will move dens due to human activity at a site is uncertain. If a fisher were to be using the project area, it is possible that they will be able to relocate to avoid disturbance. Suitable habitat exists adjacent to the project area and throughout the Olympic Peninsula. High quality old growth denning habitat exists nearby and throughout the Olympic National Park.

Wildlife

Due to nearly a century of intensive timber management and road building practices in this area the Proposed Action is not expected to affect general wildlife (non-listed species) beyond the status quo for common practices in the area. Construction activity and noise may cause temporary displacement of animals to other similar adjoining habitats. Similar habitat attributes to those affected, such as hiding cover, standing dead timber, and large woody debris can be found immediately adjacent to the project area. The extension of the existing logging road will introduce traffic, noise, edge habitat, and access by predators to the DNR parcel and will decrease dense forest habitat effectiveness in that localized area. However, the closure of the existing roadway will offset these effects to some extent over time and the compensatory habitat that will be provided for marbled murrelet conservation will offset similar habitat loss for other wildlife species as well. Therefore the Proposed Action may cause temporary displacement disturbance to existing wildlife in the immediate area but is not expected to change wildlife populations beyond the status quo.

4.5 COASTAL ZONE MANAGEMENT ACT (CZMA)

Actions affecting coastal resources that involve federal activities, federal licenses or permits, and federal assistance programs (funding as in the current case), are required to be consistent with Washington's Coastal Zone Management Program (CZMP) to the "maximum extent practicable." According to the CZMP, Jefferson County is a coastal county and therefore subject to review of the project's potential effects on coastal resources.

4.5.1 Environmental Consequences

Alternative 1 – No Action

Under this alternative, there would not be a federal action and there would be no requirement for compliance with the CZMA. However, the hillside would continue to slump, cause road damage and closures, and the county would conduct repairs to the extent possible until the road became no longer usable. Road damage and construction for repairs would cause ground disturbance and

associated impacts such as soil erosion and sedimentation, with potential to affect the Bogachiel River and coastal resources (e.g. anadromous fish).

Alternative 2 – Proposed Action

The proposed project is not likely to affect coastal resources because of its small scale, and because the project seeks to move road construction and maintenance activities 400 feet farther from the body of water that leads to the coast (the Bogachiel River). Jefferson County has obtained a letter, dated November 2, 2010, from Ecology certifying that the Proposed Action is consistent with Washington's CZMP.

4.6 HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

FEMA determined that the Area of Potential Effect (APE) is a corridor approximately 100 feet wide along the total length of the proposed alignment, an area of slightly less than 10 acres. A review of existing data showed no known historic or archaeological sites or districts in or near (within ½ mile) of the APE. FEMA archaeologist Charles Diters visited the project area on March 20, 2008 and walked the flagged route of the proposed realignment. The portion of the road that crosses Rayonier land is along a constructed road grade, passing through recently logged areas; the ground surface of the whole area is considerably disturbed. The remaining portion crosses timbered lands. Ground visibility was limited in this area, but the combination of slopes and the distance from the river suggest a relatively low likelihood of the existence of any undiscovered archaeological resources in the area. As part of the scoping process for this EA, FEMA solicited information from the Hoh Indian Tribe, the Quileute Indian Tribe, and the Quinault Nation concerning the natural and human environment of the project area. No additional information concerning cultural properties in the area was received. Accordingly, FEMA made a determination of “no historic properties affected” for this undertaking and the Washington Department of Archaeology and Historic Preservation (DAHP) concurred with these findings in a letter dated April 9, 2008 (see Appendix D).

4.6.1 Environmental Consequences

Alternative 1 – No Action

Under this alternative, the project would not be funded and there would not be a potential to affect archaeological, cultural, or historical resources.

Alternative 2 – Proposed Action

The results of a cultural resources surface survey found that the proposed road realignment was previously disturbed and its topography and distant location from the river suggest a low likelihood of the existence of any undiscovered archaeological resources in this area. No

significant (NRHP-eligible) cultural resources were found to be located within the project area. Therefore, the Proposed Action would not affect any known resources. In the event of an unanticipated discovery during construction, in compliance with various state and Federal laws protecting cultural resources, including Section 106 of the NHPA, all construction work shall cease in the immediate vicinity of the find until appropriate parties (including the SHPO and the previously mentioned Indian Tribes) are consulted and an appropriate plan is established.

4.7 SOCIOECONOMIC AND ENVIRONMENTAL JUSTICE (EO 12898)

Executive Order (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 US resulting from federal programs, policies, and activities. Socioeconomic and demographic data for residents in the project vicinity were studied 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 project alternatives.

U.S. Census Bureau 2008 data for Jefferson County was used to identify the minority and low-income compositions of the study area. Jefferson County extends from the Pacific Coast on the west to the Hood Canal on the east. Generally speaking, the eastern end of the county is more populated than the western end. The project location is toward the western end of Jefferson County and sparsely populated. Only nine full- or part-time residences are in the project study area, which includes 53 parcels. Census 2000 data at the county level and census block group level were reviewed. In Jefferson County and Block Group 9501, the minority population ranges from 9 percent for the county to 45 percent in western Jefferson County. The poverty level for Jefferson County was 12 percent, while the poverty level in Block Group 9501 (West End) was 40 percent. The project vicinity has a low number of residents, the Census Block Group in which the area is located is less than 50 percent minority or low-income.

4.7.1 Environmental Consequences

Alternative 1 – No Action

Under this alternative, the potential for damage to the road and road closures would continue, and county and taxpayers would continue to bear maintenance costs until the road is no longer usable. Road closures would also likely result in economic impact to owners of parcels serviced by the road who are unable to access to their property.

Alternative 2 – Proposed Action

The proposed road relocation would not result in disproportionately high and adverse human health or environmental effects on minority and low-income populations. Property owners and

any minority or low-income populations would have access restored, thus avoiding any long term economic impacts.

4.8 FLOODPLAINS (EO 11988) AND WETLANDS (EO 11990)

EO 11988 (Floodplains) requires federal agencies to reduce the risk of flood loss, minimize the impact on human health, safety, and welfare, and restore the natural and beneficial values served by floodplains. Under FEMA's implementing regulations at 44 CFR Part 9, FEMA must evaluate the potential effects of any actions it may take in a floodplain and consider alternatives to avoid adverse effects. Similarly, EO 11990 (Wetlands) requires that federal agencies take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial effects of wetlands. Federal agencies, in planning their actions, are required to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. Federal agencies are also required under 44 CFR Part 9 to provide public notice and review of plans for actions in floodplains and wetlands. The public notice for this disaster and public review of the Draft EA meet FEMA's public notice and review requirements.

While portions of Dowans Creek Road are located in a floodplain, none of the project alternatives are located in a floodplain. The damaged section of road is approximately 120 feet above the Bogachiel River and the relocated road would be at least 400 feet farther south and upslope of the river.

Future flooding events of the Bogachiel River could, under both the No Action and Proposed Action alternatives, continue to exacerbate the landslide activity. If the road were not relocated under the No Action alternative, erosion and sedimentation impacts in the floodplain would continue to a greater extent than under the Proposed Action since actions taken to try to rebuild and maintain the road (and impacts associated with those activities) in its current location would not continue.

Based on the National Wetland Inventory and field observations, the No Action and Proposed Action alternatives would not take place in or affect wetlands as there are none in or near the road alignments.

SECTION 5 Cumulative Impacts, Project Conditions and Mitigation Measures, Public Involvement, Conclusion

CUMULATIVE IMPACTS

Cumulative effects or impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects are determined by combining the effects of an action with other past, present, and reasonably foreseeable future actions.

While 1.95 acres of vegetation would be removed, due to the limited scope of the work and the proposed mitigation, project impacts are not expected to contribute a measurable amount to cumulative effects. The road relocation would not result in increased capacity, nor are there known plans for future development in the area (personal communication, S. Hoskins, Jefferson County 2010). Mitigation for marbled murrelet is expected to avoid any potential for the project to jeopardize continuation of the species.

PUBLIC INVOLVEMENT

FEMA is the lead federal agency for conducting the NEPA compliance process prior to deciding whether to fund the road relocation project. As the lead agency, FEMA prepares NEPA documents, responds to any public comments, meets the spirit and intent of NEPA, and complies with all NEPA provisions. A scoping letter was sent to agencies, tribes, and local interested parties on March 1, 2010. The letter provided a description of the proposed project and requested comments on the alternatives and potential effects of the project. Four letters were received during Scoping and were considered in the preparation of the Draft EA.

The public had the opportunity to comment on the Draft EA for 30 days after the publication of the public notice (Appendix E). The comment period closed May 5, 2012. One comment letter was received from WDNR that identified agreement with the marbled murrelet mitigation strategy, as outlined in this EA.

PROJECT CONDITIONS, AND MITIGATION MEASURES

In addition to the BMPs already discussed in this Final EA, the following requirements are a condition of approval for the federal funding:

USFWS BiOP (February 25, 2012):

- 1) Construction on the segment of road within and adjacent to identified murrelet stand (Station 37 and to the east] may occur only on or after August 14, and during the remainder of the nesting season work that generates noise that could affect murrelets in the stand would be restricted to 2 hours after sunrise to 2 hours before sunset. The

SECTION 5 Cumulative Impacts, Project Conditions and Mitigation Measures, Public Involvement, Conclusion

activities for which this timing restriction would apply include chainsaw work within 135 feet of the murrelet habitat or heavy equipment within 105 feet of the murrelet habitat.

- 2) The new route shall be adequately marked prior to felling of trees and/or operating heavy equipment. Old or obsolete marking shall be removed, relevant marking shall be made so that they are highly visible and spaced appropriately, and on-the-ground orientation by WDNR and/or County staff shall be held with fellers and operators to ensure they understand the layout and what is expected. Proper understanding and communications will help minimize inadvertent removal of potential nest trees, trees that provide cover to potential platforms, and addition trees that help ensure stand integrity. No fellers or equipment operators will work on the project until they have completed an on-the-ground orientation with WDNR and/or the county.
- 3) Only trees within the marked work area shall be felled in preparation for or during road construction. This will minimize the initial loss of potential nest trees.
- 4) Ensure that contractors employ effective sanitation practices for proper disposal of food and garbage with may otherwise attract corvids and increase the likelihood of predation on nesting murrelets and/their chicks.
- 5) In order to monitor the impacts of incidental take, the Federal agency or any applicant (i.e. Jefferson County) must report the progress of the action and its impact on species to the Service as specified in the incidental take statement [(50 CFR 402.14 (i)(3))]
 - a. FEMA shall provide written notification to USFWS describing any incidental observations or evidence of use by murrelets that may be found during the construction period. Electronic correspondence is acceptable for this report.
 - b. In order to monitor the impacts of the proposed action and the implementation of the reasonable and prudent measures, FEMA shall prepare a report describing the implementation of the proposed action, including implementation of the associated terms and conditions, and impacts to the murrelet (50 CFR 402.14(I)(3)). The report shall be submitted to the consulting biologist or branch manager of the Washington State Office within 120 days of project completion. Electronic correspondence is acceptable for this report.
- 6) If, during the course of the action, incidental take described in the BiOP is exceeded, FEMA must immediately provide an explanation of the causes of the taking and review with the USFWS the need for possible modification of the reasonable and prudent measures.
- 7) The USFWS is to be notified within three working days upon location a dead, injured or sick endangered or threatened species specimen. Initial notification must be made to the nearest USFWS Law Enforcement Office. Notification must include the date, time, precise location of the injured animal or carcass, and any other pertinent information. Care should be taken in handling sick or injured specimens to preserve biological material in the best possible state for later analysis of cause of death, if that occurs. In conjunction with the care of the sick or injured endangered or threatened species or

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preservation of biological material from dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed. Contact the U.S. Fish and Wildlife Service Law Enforcement Office at (425) 883-8122, or the Service's Washington Fish and Wildlife Office at (360) 753-9440.

General Project Required Conditions:

- 8) The applicant shall obtain all required local, state and federal permits and approvals prior to implementing the Proposed Action Alternative and comply with any and all conditions imposed.
- 9) Any change in the approved scope of work will require re-evaluation for compliance with NEPA and other laws and Executive Orders.
- 10) In the event that cultural, archaeological or historic materials are discovered during project activities, work in the immediate vicinity shall be discontinued, the area secured, and the State, Affected Tribes, and FEMA notified.
- 11) To ensure compliance with the Migratory Bird Treaty Act, if clearing of the project area and any activity that involves habitat destruction is conducted from April 1 through September 31 (the general bird nesting season), the County shall conduct a pre-construction survey of the project area to determine if there are active migratory bird nests present.
 - a. If an occupied nest is discovered in a tree, shrub or grasses that would be impacted by project activities, construction in the immediate vicinity shall not commence until the bird has completed nesting activities or any coordination exchange with USFWS, to include any necessary permit, has been obtained from USFWS. Documentation of the survey and all communication with USFWS must be provided to FEMA at close-out.
 - b. If no nests are found, construction activities shall proceed. Empty or abandoned nests can be removed but cannot be taken into possession without a permit. Permits are not required to remove or alter the structure the nest is built in or on if it is determined to be inactive.

CONCLUSION

This EA evaluated the potential environmental effects of the Proposed Action and alternatives. Based on findings to date, if the Proposed Action were implemented with the mitigation measures, best management practices, and conservation measures identified in this EA and conditions of other agency approvals, no significant environmental impacts were identified.

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SECTION 6

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SECTION 6

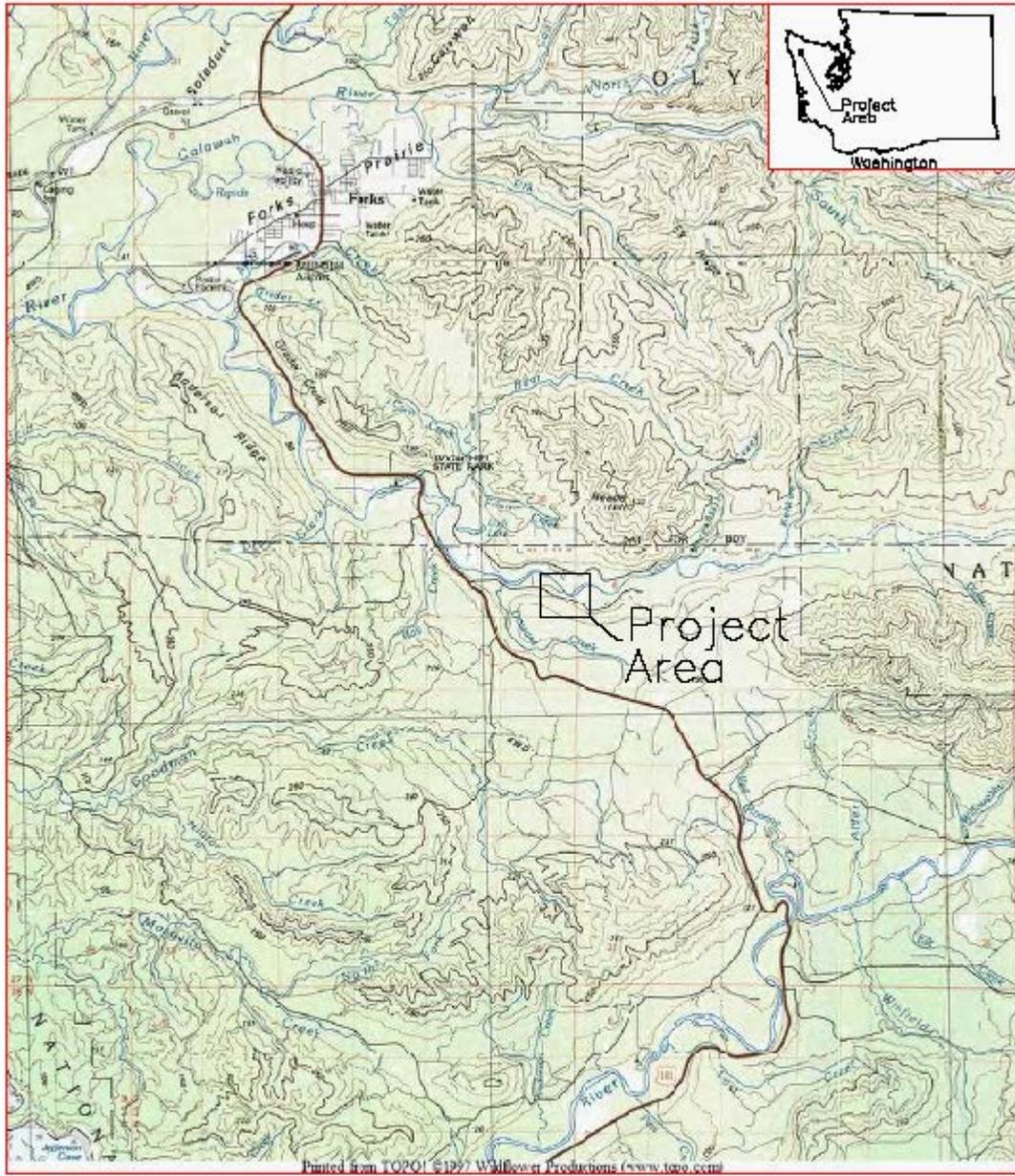
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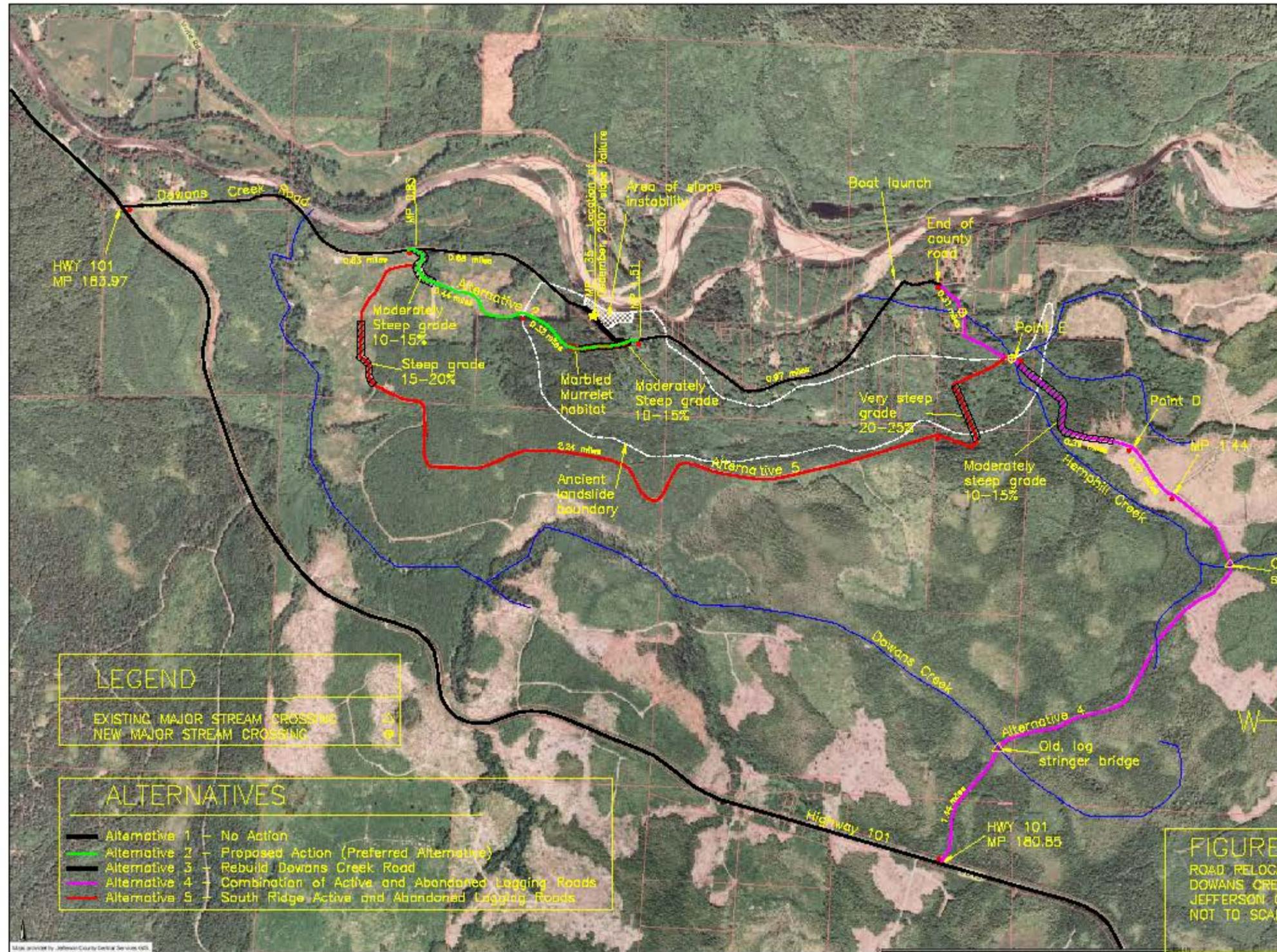
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0 1 2
Approximate Scale in Miles

Figure 1
Site Location Map

Dowans Creek Road Relocation Project
Jefferson County, Washington



**LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES
AND CRITICAL
HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN
IN JEFFERSON COUNTY
AS PREPARED BY
THE U.S. FISH AND WILDLIFE SERVICE
WASHINGTON FISH AND WILDLIFE OFFICE
(Revised August 1, 2011))**

LISTED

Bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound DPS
Marbled murrelet (*Brachyramphus marmoratus*)
Northern spotted owl (*Strix occidentalis caurina*)
Short-tailed albatross (*Phoebastria albatrus*) [outer coast]

Major concerns that should be addressed in your Biological Assessment of project impacts to listed animal species include:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.
3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

DESIGNATED

Critical habitat for bull trout
Critical habitat for the marbled murrelet
Critical habitat for the northern spotted owl

PROPOSED

Dolly Varden (*Salvelinus malma*) due to similarity of appearance
Revised critical habitat for bull trout

CANDIDATE

Fisher (*Martes pennanti*) – West Coast DPS

SPECIES OF CONCERN

Aleutian Canada goose (*Branta canadensis leucopareia*)
Bald eagle (*Haliaeetus leucocephalus*)

Brown pelican (*Pelecanus occidentalis*) [outer coast]
Cascades frog (*Rana cascadae*)
Cassin's auklet (*Ptychoramphus aleuticus*)
Coastal cutthroat trout (*Oncorhynchus clarki clarki*) [southwest Washington DPS]
Destruction Island shrew (*Sorex trowbridgii destructioni*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Olive-sided flycatcher (*Contopus cooperi*)
Olympic torrent salamander (*Rhyacotriton olympicus*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Tufted puffin (*Fratercula cirrhata*)
Valley silverspot (*Speyeria zerene bremeri*)
Van Dyke's salamander (*Plethodon vandykei*)
Western toad (*Bufo boreas*)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503



FEB 25 2013

In Reply Refer To:
01EWF00-2012-F-0192

Mark Eberlein, Regional Environmental Officer
Federal Emergency Management Agency
U.S. Department of Homeland Security
Region X
ATTN: William Kerschke
130 228th Street, SW
Bothell, Washington 98021-9796

Dear Mr. Eberlein:

Subject: Project Worksheet 202 FEMA-1734-DR-WA
Relocation of Dowans Creek Road Biological Opinion

This document transmits the U.S. Fish and Wildlife Service's Biological Opinion (Opinion) based on our review of the proposed relocation of Dowans Creek Road and the effects on marbled murrelet (*Brachyramphus marmoratus*). Dowans Creek Road lies just to the south of and generally parallels the Bogachiel River east of U.S. Highway 101 about 5 miles south of the City of Forks in Jefferson County, Washington. The section between Mile Post (MP) 0.83 and MP 1.51 would be relocated approximately 400 feet to the south (uphill). This consultation is being conducted in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your April 5, 2012, request for formal consultation was received on April 9, 2012.

This Opinion is based on information provided in the March 28, 2012, Biological Assessment; April 5, 2012, draft Environmental Assessment; July 11, 2012, site visit; August 17, 2012, e-mail regarding the nesting season and construction timing; and additional information. The proposed relocation involves Jefferson County constructing a section of new road on lands managed by the Washington State Department of Natural Resources under their Trust Lands Habitat Conservation Plan (WDNR 1997). A portion of the new road traverses a stand of timber considered to be occupied by marbled murrelets. The Federal Emergency Management Agency will provide funding assistance to Jefferson County and is therefore the Federal action agency for this proposed action.

Mark Eberlein

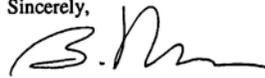
2

You also requested concurrence with your determination that the proposed action "may affect, but is not likely to adversely affect" the northern spotted owl (*Strix occidentalis caurina*) and its designated critical habitat, as well as designated critical habitat for the marbled murrelet. We hereby concur with your determinations for the reasons stated in the enclosed Opinion.

The enclosed Opinion addresses the adverse effects to marbled murrelets associated with these and other construction-related activities. A complete record of this consultation is on file at the U.S. Fish and Wildlife Service's Washington Fish and Wildlife Office in Lacey, Washington.

If you have any questions about this letter or our joint responsibilities under the Endangered Species Act, please contact Bill Vogel at (360) 753-4367 or Carolyn Scafidi at (360) 753-4068, of this office.

Sincerely,



Ken S. Berg, Manager
Washington Fish and Wildlife Office

Enclosure:

cc:
WDFW, Montesano, WA (Region 6)
WDOE, Lacey, WA (L. Ochoa)



STATE OF WASHINGTON

Department of Archaeology and Historic Preservation

1063 S. Capitol Way, Suite 106 • PO Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065
 Fax Number (360) 586-3067 • <http://www.dahp.wa.gov>

April 9, 2008

Mr. Mark Eberlein
 FEMA- Region X
 130 228th Street SW
 Bothell, Washington 98021

Re: Dowan's Creek Road Project
 DR-1634-WA / PW-202
 Log No.: 040908-07-FEMA

Dear Mr. Eberlein:

Thank you for contacting our department. We have reviewed the materials for the proposed Dowan's Creek Road Repair Project in Jefferson County, Washington. Thank you for your description of the Area of Potential Effect (APE). We concur.

We appreciate you summarizing the results of Mr. Ditters' on-site inspection.

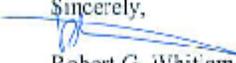
We concur with the professional findings of Mr. Ditters and your determination of No Historic Properties Affected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribe's cultural staff and cultural committee and this office notified.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with the Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800.4. Should additional information become available, our assessment may be revised, including information regarding historic properties that have not yet been identified. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,


 Robert G. Whitlam, Ph.D.
 State Archaeologist
 (360)586-3080
 email: rob.whitlam@dahp.wa.gov



PUBLIC NOTICE
Draft Environmental Assessment
Dowans Creek Road Relocation
Jefferson County, WA

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide funds to Jefferson County for a road relocation project on the Olympic Peninsula in western Washington (Section 1, Township 27 North, Range 13 West W.M.). A segment of Dowans Creek Road is proposed to be abandoned between milepost (MP) MP 1.32 and MP 1.51, and relocated approximately 400 feet farther south and upslope of the Bogachiel River.

A section of Dowans Creek Road, approximately 360 feet in length, was damaged by a landslide during a December 2007 storm. A geotechnical report concluded that the landslide was most likely caused by undercutting of the slope by the Bogachiel River, and the instability would continue. Thus, the Jefferson County Public Works Department determined that the damaged segment of Dowans Creek Road should be closed and a new road segment constructed to provide access to residents and others.

FEMA prepared a Draft environmental assessment (EA) for the proposed project pursuant to the National Environmental Policy Act (NEPA) and FEMA's implementing regulations. The EA evaluates project alternatives and compliance with applicable environmental laws and Executive Orders. The alternatives evaluated in the EA are the (1) No Action; and (2) Proposed Action (or Preferred Alternative). Other alternatives were considered but not carried forward in the analysis. Mitigation measures are included as part of the project proposal. In consultation with the U.S. Fish & Wildlife Service, a compensatory conservation strategy was developed for the marbled murrelet (a bird species listed under the Endangered Species Act) to identify suitable parcels for acquisition, management, and protection by the Washington State Department of Natural Resources.

Analysis of the environmental impacts associated with the project alternatives is available in the Draft EA. The Draft EA is available for viewing on the FEMA website at:

<http://www.fema.gov/plan/ehp/envdocuments/ea-region10.shtm>

And Jefferson County website: <http://www.co.jefferson.wa.us>

If no substantive 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 Final EA and FONSI will be available for viewing at the FEMA website noted above. Unless substantive comments are received, FEMA will not publish another notice for this project. Please submit your written comments to FEMA Region X Environmental Officer, Mark Eberlein, no later than 5 p.m. on May 11, 2012. Comments can be:

1. Mailed: 130 228th Street SW, Bothell, Washington 98021
2. Faxed: 425-487-4613
3. E-mailed: mark.eberlein@fema.dhs.gov

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