

## **CHAPTER 2 - ALTERNATIVES**

### **Introduction**

This chapter describes and compares the alternatives considered for the repair of the washout on FSR 2610 and damaged fill on the Dosewallips Road. It includes a description of each alternative considered and presents them in a comparative form, displaying the differences between each alternative and providing a clear distinction for public review and comment, and for a subsequent decision by the Responsible Officials. Topics discussed in this chapter include:

- The process used to develop the alternatives.
- A description of alternatives considered but dismissed from detailed study (including the rationale for elimination).
- A description of alternatives considered in detail.
- Management requirements.
- A monitoring plan for implementation and effectiveness of the eventual decision.
- A comparison of the alternatives considered in detail.

### **Alternative Development**

The proposed action was developed to address the purpose and need for action in the project areas. Public comments on the proposed action were encouraged through a scoping letter, Notice of Intent in the Federal Register, and the ONF's Schedule of Proposed Actions (SOPA). Responses to these scoping efforts as well as comments received during previous NEPA analyses for this project were used to identify issues or concerns regarding the proposed action.

Five build alternatives were originally developed to satisfy the purpose and need for the project for the washout on FSR 2610, while there is only one alternative for repairing the damaged fill of the Dosewallips Road at MP 0.85 within ONP. As subsequently explained, two of these alternatives have been dismissed from further consideration. The interdisciplinary team (IDT) preliminarily evaluated each alternative in terms of its ability to meet the project's purpose and need, its feasibility, and its impacts to resources and issues developed during scoping.

National Environmental Policy Act regulations require that federal agencies identify a preferred alternative or alternatives in the DEIS if one or more exists after detailed review of the analyses of the potential environmental consequences. As previously stated in Chapter 1, a preferred alternative has not been identified at this time. The environmentally preferred alternative has also not been identified in this DEIS.

### **Alternatives Considered but Eliminated**

The NEPA requires federal agencies to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail. The Agencies' discussions and public comments received in response to the Proposed Action provided suggestions for alternative methods of addressing the conditions created by the washout on FSR 2610 and the damaged fill on the Dosewallips Road. The Agencies considered these alternatives and eliminated the following from detailed consideration

along with rationale for their dismissal.

### **Alternatives Evaluated in Detail but Eliminated from Consideration**

Although Alternatives D and E were evaluated in detail by the IDT, they were eventually eliminated from further consideration. In a December 20, 2006, interagency meeting the Agency executives considered the results of the IDT alternative evaluations and scoping input from National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). NMFS stated serious concerns about replacing the washed-out road into the Dosewallips River channel, as this potential placement could result in a serious long-term affect so great as to jeopardize the continued existence of the Puget Sound Chinook salmon Evolutionary Significant Unit (ESU). Based on their review the Agency executives determined that the two alternatives (Alternatives D and E) which propose establishing the road bed into the river channel have unacceptable environmental impacts and will be dismissed from further consideration. A more complete description of these alternatives can be found in Appendix A, and a detailed analysis can be found in Appendix B and project specialist reports.

### **Replace-in-Kind – Formerly Alternative D**

This alternative would reestablish road access in the washout area as close to the preexisting conditions as possible. It would be designed to meet the project's purpose and need, minimize impacts to terrestrial habitats by avoiding the clearing associated with road construction in LSR, and minimize construction costs.

A single lane road about 500 feet in length would be reconstructed similar to what existed prior to the washout. It would provide access for passenger cars, recreational vehicles, and vehicles pulling trailers. The horizontal alignment would swing into the hillside as much as possible without undercutting the slope while also providing sufficient catchment area at the base of the slope to accommodate bank sloughing and ravel. Near the upstream portion of the washout the road fill would occupy about one-half of the existing bankfull channel width. The bluff slope would be laid back to a slope angle of 1 horizontal:1 vertical (1h:1v) to create a more stable slope. This would require moving the top of the slope back about 60 feet and removing about 0.7 acre of ground. There would be clearing of danger trees for approximately 100 feet from the top of the laid back slope, involving about 1 acre of forest within LSR. Road bank protection (most likely in the form of rip rap) would extend along the new construction area and approaches for a distance of about 680 feet.

This alternative would also include mitigation to compensate for the impacts to the Dosewallips River and the fish it supports. Approximately five log complexes would be constructed in the river near the project area. These complexes would be designed to: (a) dissipate the increased flow energy that would be translated downstream from the project site, (b) redirect flow toward the south stream bank at the mid-level terrace to encourage channel migration in that direction and possible recruitment of spawning gravels and large wood from a high terrace, and (c) create cover, rearing, and spawning habitat.

Additionally the Dosewallips Road at milepost 0.85 would be repaired. This section of road is in the vicinity of the Dosewallips Falls. Approximately 120 feet of road that was constructed in the 1940's on log retaining wall/structures failed in late 2003. The road would be repaired by

removing the old road fill material and reconstructing the road prism by using riprap and crushed rock to form a foundation on which structural backfill would be constructed. Stabilization techniques would be used to protect the stabilized fill from erosion. All of the construction would be above the ordinary high water line of the river.

The cost of road construction was estimated in early 2006 at \$1.72 million (costs have not been updated to 2008 values).

This alternative would include site-specific, non-significant amendments to the Forest Plan. These amendments are associated with Aquatic Conservation Strategy (ACS) objectives and management direction for Key Watersheds.

### **Low-water Revetment – Formerly Alternative E**

This alternative would reestablish road access in the washout area as close to the preexisting location as possible with a low-water revetment. It would be designed to meet the project's purpose and need, minimize impacts to terrestrial habitats by avoiding the clearing associated with road construction in LSR, and minimize construction costs. As compared to Alternative D it would also lessen aquatic habitat and riparian function impacts by reducing the reconstructed road's encroachment into the river, thereby allowing some gravel recruitment from the high bank.

About 500 feet of single land road would be reconstructed. It would provide seasonal access for passenger cars, recreational vehicles, and vehicles pulling trailers. The horizontal alignment would be similar to former Alternative D and would swing into the hillside as much as possible without undercutting the slope, while also providing sufficient catchment at the base of the slope to accommodate bank sloughing and ravel. In the area close to the upstream portion of the washout the road fill would occupy about one-third of the existing bankfull channel width. There would be no scaling back of the bluff slope, but there would be clearing of danger trees for approximately 100 feet from the top of the slope, involving about 1 acre of forest within LSR.

The height of the roadway surface would be at a grade to minimize the road's footprint while meeting design criteria for a 10-year flood (Q<sub>10</sub>). The design would be such that the road would be overtopped by the river during moderately large flood events, such as a 10-year flood. This alternative also would have long-term road maintenance needs due to slope ravel and repairs to the road's surface after flood events.

Additionally the Dosewallips Road at milepost 0.85 would be repaired. This section of road is in the vicinity of the Dosewallips Falls. Approximately 120 feet of road that was constructed in the 1940's on log retaining wall/structures failed in late 2003. The road would be repaired by removing the old road fill material and reconstructing the road prism by using riprap and crushed rock to form a foundation on which structural backfill would be constructed. Stabilization techniques would be used to protect the stabilized fill from erosion. All of the construction would be above the ordinary high water line of the river.

The cost of road construction was estimated in early 2006 at \$1.40 million (costs have not been updated to 2008 values).

This alternative would include site-specific, non-significant amendments to the Forest Plan.

These amendments are associated with Aquatic Conservation Strategy (ACS) objectives and management direction for Key Watersheds.

### **Alternatives Considered but Eliminated from Detailed Study**

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives, and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail. IDT discussions and public comments received in response to the Proposed Action provided suggestions for alternative methods of addressing the conditions created by the washout. The IDT considered these alternatives and eliminated the following from detailed consideration. The rationale for their dismissal is included.

## **Alternatives to the Repair of FSR 2610**

### **Southern Road**

Road access to ONF and ONP recreational facilities would be established on the south side of the river by utilizing FSR 2610-010 (Six Mile bridge road) and FSR 2610-012 and constructing a connector road to FSR 2610-040 (Ten Mile bridge road). This route was proposed as an alternative to reestablishing road access on the north side of the river and the resource impacts associated with reconstructing on the north side. Reconnaissance of the proposed south side route was conducted in November 2004. Based on that field review this alternative was eliminated from detailed consideration for the following reasons: (a) the route would cross The Brothers Wilderness (a Wilderness boundary adjustment would require congressional approval), (b) it would be longer than the reroutes on the north side of the river (2 miles new construction and 2.5 miles reconstruction), (c) the route crosses areas of very steep ground and cliff line, and (d) the route crosses tree stands of late-successional character that are not near existing roads and therefore are of higher quality than the late-successional stands that would be crossed by the two reroute alternatives considered in detail.

### **Eight Percent Grade Reroute**

The washed out section of FSR 2610 would be reconstructed above the washout site along an 8 percent grade, which would facilitate easier access for large recreational vehicles. This alternative was eliminated from detailed consideration for the following reasons: (a) an 8 percent slope road would require construction of approximately 50 percent more road than the reroute alternatives and would encroach on the Buckhorn Wilderness, (b) vehicles would still have to negotiate the existing 18 percent grade to reach the facilities in the park (the park does not recommend large recreational vehicles or vehicles pulling trailers use this section of road), and (c) an improvement to the previous road condition would not qualify for ERFO funding.

### **Wetland Avoidance**

This alternative would relocate FSR 2610 above and north of the current washout site with an alignment that would avoid impacts to the wetlands located adjacent to FSR 2610 east of the washout. This alternative was eliminated from detailed consideration because: the reroute would have been longer with a greater impact on late successional reserve habitat, and more of the reroute would have been on steep and potentially unstable slopes.

### **Decommission FSR 2610 and Convert to Trail**

This alternative would decommission both FSR 2610 and the park's Dosewallips Road upriver of the washout and convert these roads to non-motorized trails. With this as the main theme,

several variations were suggested which included building a new ONF campground and ONP campground and ranger station facilities downriver of the washout and constructing a new trail network to tie into the existing trail system. While the decommission/convert to trail alternative was considered in the 2003 EA, it was eliminated from detailed consideration in this analysis because it would not meet the project's purpose and need of restoring road access for motorized vehicles to the ONF and ONP lands and recreational facilities.

### **Footbridge**

The footbridge would be constructed to replace the washed out section of FSR 2610, and a shuttle system would be used to transport visitors to Elkhorn Campground and park facilities. This alternative was eliminated from detailed consideration because it would not meet the project's purpose and need of restoring road access for motorized vehicles on FSR 2610 and the park's Dosewallips Road to the ONF and ONP lands and recreational facilities.

### **Light Traffic Bridge**

A proposal was suggested to construct a bridge over the washout area that would be suitable for use by vehicles such as wheelchairs, all terrain vehicles (ATVs), and light pick-ups (to be used for administrative purposes). This alternative was eliminated from detailed consideration because it would not meet the project's purpose and need of restoring road access for motorized vehicles on FSR 2610 and the park's Dosewallips Road to access both ONF and ONP lands and recreational facilities.

### **Private Land Purchase**

A suggestion was made to include the purchase of private land in the lower Dosewallips River valley and the decommissioning of roads within these areas as part of the alternatives. This proposal is outside the scope of the decision to be made for this project and was eliminated from detailed consideration.

### **Reroute Alternatives with LSR/AMA Exchange Forest Plan Amendment**

A variation of the two reroute alternatives (Alternatives B and C) was considered which proposed a Forest Plan amendment to redesignate a block of Adaptive Management Area (AMA) Forest Plan allocation to LSR to mitigate the removal of LSR habitat under the reroute alternatives. A potentially suitable stand of AMA was identified near Mt. Turner, to the east of the project area, but after a field visit to the stand the proposal was eliminated from detailed consideration because the stand does not have similar high quality biological and physical features as compared to the area of LSR affected by the reroute alternatives.

### **Alternative to the Repair of Dosewallips Road at MP 0.85**

#### **Bypass**

A suggestion was made to construct a bypass uphill of the failed section of road away from the Dosewallips River. This proposal was eliminated from detailed consideration because the side slope is extremely steep and rocky, and the road would need to be constructed on a very steep grade, about 18 percent. The financial cost of this option would be too high, and the environmental impacts would be unnecessarily severe to restore this section of road.

## **Alternatives Considered in Detail**

### **Alternative A - No Action**

#### **Objective**

This alternative allows current geological processes, including the continued deterioration of FSR 2610 and Dosewallips Road to continue with the associated risks and benefits. This alternative provides a baseline for comparison with other alternatives.

#### **Description**

The No Action alternative is required by NEPA. In this document the No Action alternative means that the proposed project would not take place at this time. It is designed to represent the existing condition.

Motorized access on FSR 2610 would end at or near the washout. Only measures to provide for public safety at the washout site would be implemented, such as blocking FSR 2610 to prevent a vehicle from plunging into the river. The road would be blocked with a traffic barrier such as a jersey barrier and would be signed to warn motorists of the road closure. Similarly the park's failed section of the Dosewallips Road near the Dosewallips Falls would not be repaired.

The estimated cost for this alternative is \$5,000.

Current FS management plans would continue to guide management of the project area on ONF lands. Existing uses, such as parking along the edge of the road near the washout and in the adjacent dispersed camping area, would continue. The Elkhorn Campground would remain closed and would not be maintained.

On ONP lands, the park's Dosewallips Campground and restrooms would also remain closed. The ranger station and quarters would continue to be closed or possibly converted to a backcountry site.

A future decision likely would be needed to determine appropriate management of the Forest and park roads and recreational facilities located beyond the washout.

#### **Forest Plan Amendment**

Selection of the No Action alternative would not require a site-specific non-significant amendment (as defined under the NFMA) to the Forest Plan.

### **Alternative B – Reroute 1 Bench Emphasis**

#### **Objective**

This alternative is designed to meet the project's purpose and need by rerouting FSR 2610 past the washout site out of the river floodplain utilizing standard road construction techniques. This alternative was developed to minimize impacts to aquatic habitat and riparian function that would otherwise occur by allowing gravel recruitment from the high bank by the river.

## Description

FSR 2610 would be rerouted along the hillslope above and to the north of the washout (Figure 12); to restore access for passenger cars, recreational vehicles, and vehicles pulling trailers. Approximately 0.84 mile of single lane road with a 14-foot road surface and turnouts would be constructed to maintenance level 3 standards using standard construction methods. Construction would occur over a 3-year period. Standard construction methods involve trying to balance cuts and fills, with no particular emphasis on minimizing the foot print of cleared area. The preliminary design indicates there would be more excavation (cut) than embankment (fill) so the excess material would be hauled off-site to an approved disposal area<sup>5</sup>. An estimated 17,000 cubic yards of excess material would be hauled on FSR 2610 and County Road 2500 to Highway 101 and then to an approved disposal site. Construction would involve the clearing of about 7.1 acres designated as Late-Successional Reserve (LSR) in the Forest Plan<sup>6</sup>. Most of the route (about 95 percent) would be new road construction, with the remaining 5 percent following the alignment of an old timber harvest spur road. The road would have sustained grades up to a maximum of about 10 percent. Danger trees would be removed from within 100 feet of the top of cut or toe of fill.

New road cuts with vertical heights in excess of 50 feet and slope distances from the ditch to the top of cut of 60 to 80 feet or more would be required. Some of the cuts would be located in alluvial fans or old landslide features that would be susceptible to slope instability following construction. Springs and seepage areas exist in some locations along the proposed alignment. To ensure these areas don't cause failure to the road, future slope stabilization measures such as rock buttresses, flattened slopes, retaining walls, and horizontal drain systems may be required to drain groundwater and stabilize unstable slopes and landslides resulting from the excavation of new cuts. Geotechnical drilling would occur following clearing and pioneering construction in order to determine appropriate stabilization measures.

The estimated cost of this reroute is \$2.55 million. An additional cost estimate included in this estimate is the additional maintenance needed on FSR 2610 from the Forest boundary to the reroute location due to the increased road wear associated with the disposal of excess excavation, estimated at \$18,500. Other estimated costs associated with this alternative are the deferred maintenance on FSR 2610 past the reroute to the Forest boundary, estimated at \$15,400; the estimated maintenance costs for the reroute itself for the first two years (\$33,900) and then \$2,000 annually; and the annual maintenance on FSR 2610 past the washout to the Forest boundary, estimated at \$10,800.

For purposes of description the reroute can be broken into 6 segments (Figure 13), based on differences in terrain or geomorphic (landform) types. The segments and approximate lengths are defined as follows progressing from east to west.

- Segment 1 – Would be about 450 feet long and would cross flat to gently sloping terrain from the existing road to the base of the hillslope. This segment would cross an unnamed tributary to Gamm Creek, a tributary to the Dosewallips River.

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<sup>5</sup> Disposal sites have not been identified. All ancillary areas such as material sources, waste sites, and staging areas that are not within the project area would either be a licensed commercial site or a site approved for such uses. If non-commercial sites were utilized then the use of such sites would need to demonstrate no effects to protected cultural sites, wetlands and waters of the U.S., and ESA listed threatened and endangered species.

<sup>6</sup> The quantities and estimates are based on a very preliminary survey.

- Segment 2 – Would be about 1750 feet long and would begin to climb the slope with grades up to 10 percent with steep sideslopes (80 to 100 percent). This segment contains small streams and seeps and signs of past slope movements. The lower portion of this segment would have the largest cuts and fills.
- Segment 3 – Would be about 420 feet long and begins where the sideslopes flatten, and partially occupies the route of an old logging spur. The reroute road grade is about 6 percent.
- Segment 4 – Would be about 470 feet long and crosses a flat to gently sloping bench that is about 110 feet above river level.
- Segment 5 – Would be about 780 feet long. It would descend off the bench at about a 10 percent grade with steep sideslopes (80 to 100 percent) to the base of the sideslope.
- Segment 6 – Would be about 220 feet long and crosses a gently sloping area on a lower terrace surface. It rejoins FSR 2610 about 800 feet upstream of the washout.

The proposed reroute alignment was originally established on the ground with flagging and survey stakes as part of the preliminary design conducted by WFLHD. Based on the washout site survey conducted in December 2007 the proposed alignment as staked has been slightly adjusted toward the north, away from the upper edge of the washout to provide for an adequate hazard set-back. This change only affected segments 3 and 4 which occur on the relatively gentle sloping topography above the steep grades and away from the areas with potential slope stability problems.

During construction FSR 2610 would be closed to the public from the Forest boundary up to the washout site to provide for public safety. Portions of FSR 2610 and previously disturbed dispersed camping areas (approximately 2 acres) near the washout would be used for construction equipment staging areas. The dispersed camping areas would be rehabilitated at the conclusion of construction activities. Rehabilitation would include soil improvement work, possibly wetland mitigation, scattering of large wood, seeding/planting, and treatment for invasive species.

A wood use plan would be developed to insure the best use of the trees removed during construction activities. Trees would be tipped instead of cut when possible as stems with root wads attached are more suitable for restoration projects. The FS would give priority use for these downed trees for future restoration and enhancement uses such as instream large woody debris (LWD) structures, terrestrial coarse woody debris, and tribal uses. Additional uses may include road decommissioning rehabilitation and repair of the park's Dosewallips Road. Trees in excess to these uses may be sold.

About 0.7 mile of FSR 2610, located on either side of the washout to the take off points for the reroute, would be decommissioned. The section of road to be decommissioned is in the riparian area but not within the active (100-year) floodplain (see Figure 30). Decommissioning the section of road upstream of the washout would involve removal of drainage structures and the fill in draws and drainage pathways, but it is possible that not all of the fill that is present would be removed. The surfacing would be removed, the roadbed would be ripped or otherwise de-compacted, and it would be replanted with appropriate native, woody vegetation. Decommissioning the section of road downstream of the washout would involve removal of drainage structures and the roadfill to an extent to facilitate wetland restoration.

Additionally ONP and WFLHD would repair the Dosewallips Road at MP 0.85 in the vicinity of

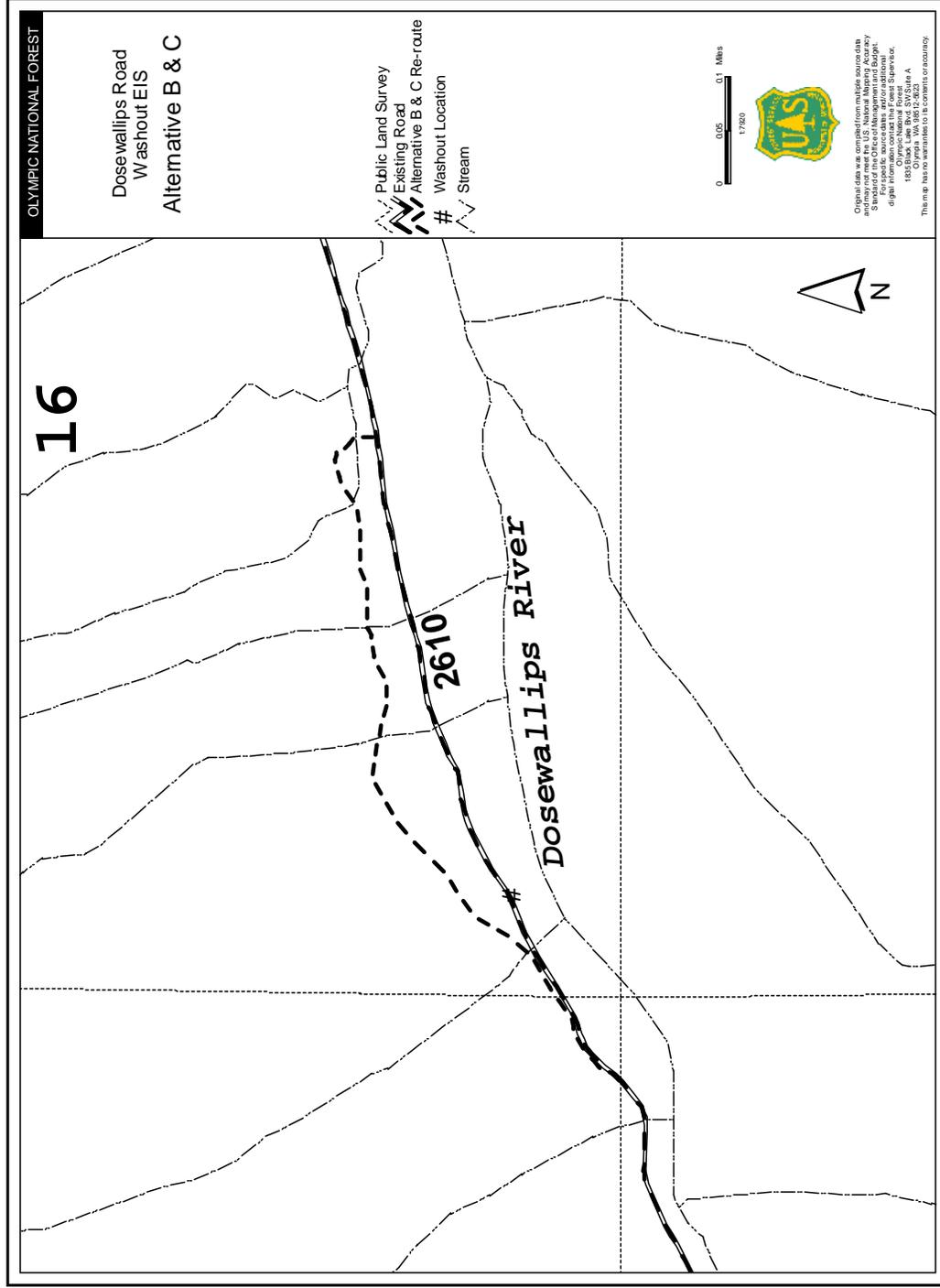
the Dosewallips Falls, at an estimated cost of \$350,000. The construction would take 1 year to complete and would begin after access was restored on FSR 2610. Approximately 120 feet of road that was constructed in the 1940's on log retaining wall/structures failed in late 2003. The road would be repaired by removing the old road fill material and reconstructing the road prism by using riprap and crushed rock to form a foundation on which structural backfill would be constructed. Stabilization techniques would be used to protect the stabilized fill from erosion. All of the construction would be above the ordinary high water line of the river. The park would need to conduct maintenance that has been deferred on the Dosewallips Road prior to the repair work at an estimated cost of \$4,500.

### **Forest Plan Amendments**

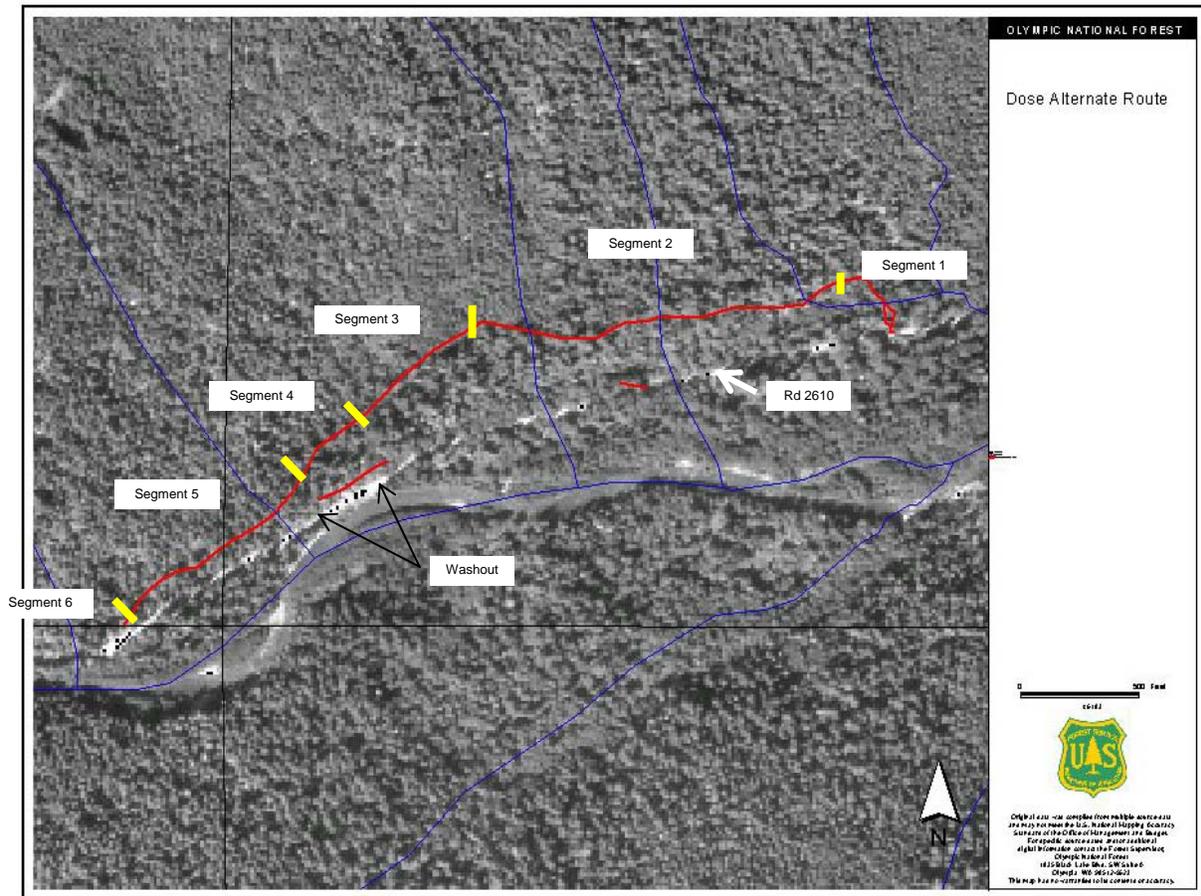
Selection of this alternative would include site-specific, non-significant amendments (as defined under the NFMA) to the Forest Plan. The following amendments are associated with certain standards and guidelines for LSR and RR as identified in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (referred to as the NWFP ROD), which amended the ONF's Forest Plan.

1. A NWFP ROD (C-10) standard and guideline for LSR requires preproject surveys of marbled murrelet habitat according to protocol, which currently equates to 2 years of surveys, to assure that no marbled murrelet nests exist in areas planned for timber harvest. In lieu of completing the required surveys the Forest has assumed occupancy of the project area by murrelets. A proposed amendment would waive this standard and guideline to complete murrelet surveys in the project area for this specific project.
2. A NWFP ROD (C-10) standard and guideline for LSR requires that if murrelet occupancy is documented (or in the case of this project assumed), all contiguous existing and recruitment habitat for murrelets within a 0.5 mile radius will be protected. Some existing murrelet habitat would be removed under this alternative so a proposed amendment would waive this standard and guideline to protect all contiguous existing and recruitment habitat in the project area for this specific project.

Figure 12: Alternatives B and C reroute



**Figure 13: Reroute segments**



3. A NWFP ROD (C-16) standard and guideline requires as a general guideline that nonsilvicultural activities located inside LSR be neutral or beneficial to the creation and maintenance of late-successional habitat. This alternative proposes the removal of about 7.1 acres of late-successional habitat in LSR. A proposed amendment would waive the guideline that nonsilvicultural activities inside LSR be neutral or beneficial to the creation and maintenance of late-successional habitat in the project area for this specific project.
4. A NWFP ROD (C-16) standard and guideline requires that if new roads are necessary in LSR, that they be designed to minimize adverse impacts. This alternative would use standard road construction techniques and there would be no particular effort to minimize the removal of LSR habitat. Consequently a proposed amendment would waive this standard and guideline to minimize adverse impacts in the project area for this specific project.
5. A NWFP ROD (C-32) standard and guideline for RR requires avoiding wetlands entirely when constructing new roads. This alternative would directly impact about 0.019 acre of

wetlands. A proposed amendment would waive this standard and guideline to avoid wetlands entirely in the project area for this specific project.

## **Alternative C – Reroute 2 Retaining Wall Emphasis**

### **Objective**

This alternative is designed to meet the project's purpose and need by rerouting FSR 2610 past the washout site out of the river floodplain. Instead of using standard construction practices as described for Alternative B, this alternative would narrow the road's footprint to limit the amount of clearing and excavation needed for the proposed construction. This alternative was also developed to minimize impacts to aquatic habitat and riparian function that would otherwise occur with eliminated Alternatives D and E by allowing gravel recruitment from the high bank by the river.

### **Description**

This alternative would generally follow the same alignment as proposed under Alternative B (Figure 12), however there would be some slight shifts in grade and horizontal alignment to reduce the road's footprint on the landscape.

FSR 2610 would be rerouted along the hillslope above and to the north of the washout to restore access for passenger cars, recreational vehicles, and vehicles pulling trailers. Approximately 0.84 mile of single lane road with a 14-foot road surface and turnouts would be constructed to maintenance level 3 standards. Construction would occur over a 3-year period. Use of measures such as retaining walls and reinforced fills would be used where possible to minimize the cleared area. About 6.5 acres designated as LSR in the Forest Plan would be cleared, about 8 percent less disturbance than Alternative B. The preliminary design indicates the embankment volume would be about 8 times the amount of excavation, therefore material would have to be obtained and hauled to the project site from an approved materials source. An estimated 33,800 cubic yards of borrow material would be hauled on FSR 2610 and County Road 2500 from Highway 101, from an approved borrow site<sup>7</sup>. Most of the route (about 95 percent) would be new road construction, with the remaining 5 percent following the alignment of an old timber harvest spur road. The road would have sustained grades up to a maximum of about 10 percent. Danger trees would be removed from within 100 feet of the top of cut or toe of fill.

The preliminary design indicates that some retaining walls would be up to 33 feet high. These walls would require temporary shoring nearly as high as the walls themselves to allow construction to occur within the road prism. Extensive drainage systems could be needed to drain subsurface water from the slopes behind and beneath the retaining walls for slope stability. Geotechnical drilling would occur following clearing and pioneering construction in order to determine appropriate stabilization measures.

The estimated cost of this reroute is \$3.76 million. An additional cost estimate included in this estimate is the additional maintenance needed on FSR 2610 from the Forest boundary to the reroute location due to the increased road wear associated with the disposal of excess excavation, estimated at \$18,500. Other estimated costs associated with this alternative are the deferred maintenance on FSR 2610 past the reroute to the Forest boundary, estimated at \$15,400; the

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<sup>7</sup> The quantities and estimates developed are very preliminary and not entirely based on complete survey data. As the NEPA process progresses, resource and survey data will be refined.

estimated maintenance costs for the reroute itself for the first two years (\$34,200) and then \$2,000 annually; and the annual maintenance on FSR 2610 past the washout to the Forest boundary, estimated at \$10,800.

Similar to Alternative B for purposes of description the reroute can be broken into 6 segments (Figure 13), based on differences in terrain or geomorphic (landform) types. The segments and approximate lengths are defined as follows progressing from east to west:

- Segment 1 – Would be about 450 feet long and would cross flat to gently sloping terrain from the existing road to the base of the hillslope. This segment would cross an unnamed tributary to Gamm Creek, a tributary to the Dosewallips River.
- Segment 2 – Would be about 1750 feet long and would begin to climb the slope with grades up to 10 percent with steep sideslopes (80 to 100 percent). This segment contains small streams and seeps and signs of past slope movements. The upper portion of this segment would have the largest cuts and fills.
- Segment 3 – Would be about 420 feet long and begins where the sideslopes flatten, and partially occupies the route of an old logging spur. The reroute road grade is about 6 percent.
- Segment 4 – Would be about 470 feet long and crosses a flat to gently sloping bench that is about 110 feet above river level.
- Segment 5 – Would be about 780 feet long. It would descend off the bench at about a 10 percent grade with steep sideslopes (80 to 100 percent) to the base of the sideslope.
- Segment 6 – Would be about 220 feet long and crosses a gently sloping area on a lower terrace surface. It rejoins FSR 2610 about 800 feet upstream of the washout.

The proposed reroute alignment was originally established on the ground with flagging and survey stakes as part of the preliminary design conducted by WFLHD. Based on the washout site survey conducted in December 2007 the proposed alignment has been slightly adjusted toward the north, away from the upper edge of the washout to provide for an adequate hazard set-back. This change only affected segments 3 and 4 which occur on the relatively gentle sloping topography above the steep grades and away from the areas with potential slope stability problems.

FSR 2610 would be closed during construction to the public from the Forest boundary up to the washout site to provide for public safety. Portions of FSR 2610 and previously disturbed dispersed camping areas (approximately 2 acres) near the washout would be used for construction equipment staging areas. The dispersed camping areas would be rehabilitated at the conclusion of construction activities. Rehabilitation would include soil improvement work, possibly wetland mitigation, scattering of large wood, seeding/planting, and treatment for invasive species.

A wood use plan would be developed to insure the best use of the trees removed during construction activities. Trees would be tipped instead of cut when possible as stems with root wads attached are more suitable for restoration projects. The FS would give priority use for these downed trees for restoration and enhancement uses such as instream large woody debris structures, terrestrial coarse woody debris, and tribal uses. Additional uses may include road decommissioning rehabilitation and repair of the park's Dosewallips Road. Trees in excess to these uses may be sold.

About 0.7 mile of FSR 2610, located on either side of the washout to the take off points for the reroute, would be decommissioned. The section of road to be decommissioned is in the riparian area, but not within the active (100 year) floodplain (see Figure 30). Decommissioning the section of road upstream of the washout would involve removal of drainage structures and the fill in draws and drainage pathways, but it is possible that not all of the fill that is present would be removed. The surfacing would be removed, the roadbed would be ripped or otherwise de-compacted and it would be replanted with appropriate native, woody vegetation. Decommissioning the section of road downstream of the washout would involve removal of drainage structures and the roadfill to an extent to facilitate wetland restoration.

Additionally ONP and WFLHD would repair the Dosewallips Road at MP 0.85 in the vicinity of the Dosewallips Falls, at an estimated cost of \$350,000. The construction would take 1 year to complete and would begin after access was restored on FSR 2610. Approximately 120 feet of road that was constructed in the 1940's on log retaining wall/structures failed in late 2003. The road would be repaired by removing the old road fill material and reconstructing the road prism by using riprap and crushed rock to form a foundation on which structural backfill would be constructed. Stabilization techniques would be used to protect the stabilized fill from erosion. All of the construction would be above the ordinary high water line of the river. The park would need to conduct maintenance that has been deferred on the Dosewallips Road prior to the repair work at an estimated cost of \$4,500.

### **Forest Plan Amendments**

Selection of this alternative would include site-specific, non-significant amendments (as defined under the NFMA) to the Forest Plan. The following amendments are associated with certain standards and guidelines for LSR and RR as identified in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (referred to as the NWFP ROD), which amended the Olympic's Forest Plan.

1. The NWFP ROD (C-10) requires preproject surveys of marbled murrelet habitat according to protocol which currently equates to 2 years of surveys to assure that no marbled murrelet nests exist in areas planned for timber harvest. In lieu of completing the required surveys the Forest has assumed occupancy of the project area by murrelets. A proposed amendment would waive the requirement to complete murrelet surveys in the project area for this specific project.
2. The NWFP ROD (C-10) requires that if murrelet occupancy is documented (or in the case of this project assumed), all contiguous existing and recruitment habitat for murrelets within a 0.5 mile radius will be protected. Some existing murrelet habitat would be removed under this alternative so a proposed amendment would waive the requirement to protect all contiguous existing and recruitment habitat in the project area for this specific project.
3. The NWFP ROD (C-16) requires as a general guideline that nonsilvicultural activities located inside LSR be neutral or beneficial to the creation and maintenance of late-successional habitat. This alternative proposes the removal of about 6.5 acres of late-successional habitat in LSR. A proposed amendment would waive the guideline that nonsilvicultural activities inside LSR be neutral or beneficial to the creation and maintenance of late-successional habitat in the project area for this specific project.

4. A NWFP ROD (C-32) standard and guideline for RR requires avoiding wetlands entirely when constructing new roads. This alternative would directly impact about 0.020 acre of wetlands. A proposed amendment would waive this standard and guideline to avoid wetlands entirely in the project area for this specific project.

## **Mitigation Measures and Management Requirements Common to Reroute Alternatives**

All mitigation measures shall be required if Alternative B or C is selected and are applicable to ONF and ONP actions unless noted.

**Vegetation:** Mitigation measures in this section include standards set forth in the October 2005 Record of Decision for the Pacific Northwest Region Invasive Plant Program: *Preventing and Managing Invasive Plants Final Environmental Impact Statement* (USDA 2005b).

- Prior to mobilization, all construction equipment would be required to be cleaned before being brought into National Forest System Lands (NFSL) and ONP lands.
- Certified weed-free straw and/or mulch would be used as needed. If State certified straw and/or mulch is not available, proposed sources would need to be certified weed-free using the North American Weed Free Forage Program standards or a similar certification process.
- Any proposed gravel, fill, sand stockpiles, quarry and borrow material sites would need to be inspected for invasive plants before use and transport. Infected sources would require treatment before any use of pit material. Only gravel, fill sand, and rock that are judged to be weed free by the Forest weed specialists would be used.
- As part of the design, there would be an inventory of weed infestations and a prioritization plan for treatment in the project area and access routes.
- Consultation with Forest invasive plant specialists would be required prior to any ground-disturbing activities that would be conducted in areas with high concentrations of invasive plants. The design and construction would incorporate invasive plant prevention practices as appropriate.
- Assessment of the area would occur to assess if there would be timely natural regeneration of the native plant community. Otherwise native plant materials would be used for revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. This management requirement would not apply to park actions.

### **Watershed:**

- General and applicable specific project provisions would be incorporated as found in appendix A of the Memorandum of Understanding between the Washington State Department of Fish and Wildlife and USDA Forest Service, Pacific Northwest Region regarding Hydraulic Projects Conducted by the USDA Forest Service, Pacific Northwest Region (USDA/WDFW 2005).
- Slope instability would likely be encountered. Design measures would be implemented to retain the unstable slopes along the route, including use of structures that provide for adequate drainage. To the extent possible, the road and its turnouts would be designed to

avoid and minimize placement of large amounts of fill material on steep slopes to provide for stability and reduce the impacts of soil movement.

- Where road and road turnouts would be constructed on slopes steeper than 40 percent, and where the vertical height of cut or fill would exceed five (5) feet, design measures would be incorporated to stabilize cuts and fills. Retaining structures shall be incorporated into the design as needed.
- Road design would use measures (such as porous fill material and fabrics) to minimize the effects to natural groundwater hydrology. Best management practices (BMPs) would be used to minimize sedimentation and contamination of road materials into the permanently and seasonally wet soils. Sidecasting of loose material in riparian areas during construction or maintenance activities would be prohibited.
- The design would include sufficient road drainage structures and energy dissipation devices to provide adequate conveyance of water bodies and release of water pressure.
- Surface erosion and sedimentation from road construction activities into streamcourses would be minimized through the use of appropriate erosion control devices (i.e. straw bales, filter fences, etc.). Erosion control seeding and fertilization would be used where appropriate on all areas of exposed mineral soils as soon as possible when soil moisture levels permit. No fertilization would occur within 50 feet of streamcourses and wetlands. No fertilization in the park and erosion control seeding would use park approved sterile mixed grass seed.
- Hydromulch would be used on new cut and fillslopes where appropriate.
- The FS would apply best management practices for road maintenance upon completion of the repairs by keeping culverts and ditches open and free of cutslope sloughing and other debris and keeping all elements of the drainage system functioning properly. Maintenance shall especially be kept current in areas of instability with drainage problems.
- All new culverts would be designed to sufficiently pass 100-year flows and debris. All attempts would be made to match grade of culvert bed with existing stream bed.
- The design and construction would be conducted to minimize disruption to natural hydrologic flow paths, including streamflow, surface, and subsurface flow.
- The road would be designed to provide a drainage system that minimizes the concentration of water, and that drains water away from potentially unstable channels and hillslopes.
- Construction activities within or adjacent to perennial streams would be conducted during summer low-flow season. Erosion control measures would be developed in the design and later applied in construction and maintenance procedures to limit sediment delivery to streams from the road surface.
- Earthwork activities for road construction including access ways, ditches, and stream culverts shall be completed during the dry season.
- Wherever road construction occurs within riparian areas, erosion control measures would be installed prior to the normal heavy rainfall period.
- Areas of standing water would be drained from road. Water would be directed so that it disperses onto the ground and not into streams or other waterbodies.
- A geotechnical engineer or soil scientist would be consulted prior to modifying any of the project design criteria that could impact slope stability or water quality.
- The road would be designed to avoid wetlands to the greatest extent possible. Where wetlands cannot be avoided, measures would be used to minimize impacts. Impacts that cannot be avoided would be mitigated.

- A spill prevention plan would need to be prepared prior to any construction activity. Hazardous spill clean-up materials would be required on the project site.
- Any machinery maintenance involving potential contaminants (fuel, oil, hydraulic fluid, etc) would occur at an approved site or greater than 100 feet from wetlands, waterbodies, or stream channels.
- Prior to starting work each day, all machinery would be checked for leaks (fuel, oil, hydraulic fluid, etc), and all necessary repairs would be made.
- There may be some construction activities that will take place outside the construction limits that will require ground disturbance, occupation, clearing, or could result in some environmental impacts. Such activities may be material extraction, material wasting, water retrieval, staging, etc. These activities will take place at either commercial or non-commercial sources. Commercial sources are established, have provided material to public and private entities on a regular basis over the last two years, have appropriate state and local permits, and do not require expansion outside their currently established and permitted area. Should a non-commercial source be used, use of the area (a) will not affect properties on or eligible for listing to the National Register of Historic Places; (b) have no effect on species or habitat listed as threatened or endangered under the Endangered Species Act (ESA); and (c) not encroach into waters of the U.S. or wetlands protected under Executive Order 11990.

**Fish and Wildlife:**

- Operating periods for project activities would be followed as described below. See “Type of Disturbance and Operating Period for Dosewallips Washout by Alternative” chart in Wildlife Report for additional detail. Any exceptions to these operating periods will require future consultation with US Fish and Wildlife Service for threatened and endangered species.

<b>Type of Disturbance/Activity</b>	<b>Operating Period</b>
Blasts greater than 2 pounds	Aug 6 – Feb 28
Blasts less than or equal to 2 pounds	Aug 6 – Feb 28
Impact pile drivers, jackhammers, or Rock drills	Aug 6 – Feb 28
Large-size helicopters (Sikorsky type)	Aug 6 – Feb 28
Heavy equipment, motorized tools	July 16 – Feb 28
Chainsaws felling trees	Oct 1 – Feb 28
Chainsaws down wood	Aug 6 – Feb 28
Instream work	July 16 – Aug 31

- A plan would be prepared to address the removal of trees greater than or equal to 21 inches diameter breast height (dbh) and logs (live or dead, standing or down) that would need to be moved for construction activities. This plan would also include the use of these trees and logs. This plan would include the location and placement of all logs in the project area, consistent with the list and priorities noted in the wood plan reference in the alternative descriptions.
- During construction, strict garbage control measures would be used to prevent scavengers (e.g. crows), which are predators on murrelet nests, from being attracted to the project area. No food scraps would be discarded or fed to wildlife.
- Culverts in fish-bearing streams would be designed, installed, and maintained to provide

fish passage for all fish species and all their life stages that are likely to be encountered at the crossings.

- All in-stream or riparian work will occur between July 16 and August 31. Pending weather conditions and concurrence with WDFW and NOAA Fisheries instream work window may be extended. Any variance of the work period or soil disturbing activities would also be in compliance with the terms and conditions provided by the Biological Opinions as a result of Endangered Species Act consultation.
- Construction would be conducted between two hours after sunrise and two hours before sunset when such work includes the use of equipment which produces noise above 92 decibels (such as chainsaws, heavy equipment, and helicopters) and would occur between April 1 and September 15.
- Tree removal within suitable habitat for northern spotted owl and marbled murrelet for road construction would occur between October 1 and February 28 (outside the entire breeding season for marbled murrelets and spotted owls).
- Trees identified as danger trees (having the potential for or imminent danger to roadway traffic), which need to be felled to provide a safe working environment, may be felled year round. During the nesting season of the northern spotted owl and marbled murrelet (March 1 to September 30), and bald eagle (January 1 – August 31), any trees that are considered danger trees within suitable habitat and potential nesting trees for these species may be felled, but a wildlife biologist would need to be consulted prior to felling of the tree to perform a visual inspection to determine if the tree/area is used for nesting by murrelets, spotted owls, or bald eagles.
- The road would be constructed to minimize impacts to adjacent late-successional forest habitat by falling trees away from the habitat if it is possible and safe to do so.

### **Cultural Resources:**

- An appropriate heritage resource inventory has been conducted and no properties potentially eligible for the National Register of Historic Places (NRHP) have been located. These alternatives will have no effect on any properties on or eligible to the NRHP. In the event that previously unidentified cultural resources are located during implementation of one of these alternatives, the work shall cease until the heritage sites are evaluated by the heritage resource specialist and the Forest and FHWA fulfills its consultation requirements in accordance with 36 CFR Part 800.11. If newly discovered properties are found to be on or eligible to the NRHP, appropriate protective and mitigation measures would be implemented to comply with the NHPA.

## **Alternative F – Bridge**

### **Objective**

This alternative was developed to meet the project's purpose and need and minimize impacts to terrestrial habitats and soil productivity by avoiding the clearing associated with road construction in LSR as compared to Alternatives B and C. This alternative lessens impacts to aquatic habitat and riparian function impacts by allowing gravel recruitment from the high bank by the river.

### **Description**

A 14-foot wide single lane bridge, about 700 feet long spanning the washout, would be constructed. Construction would occur over a 3-year period. It would restore access to passenger cars, recreational vehicles, and vehicles pulling trailers. The bridge would likely be constructed

of pre-cast spans and would be supported by about 5 to 7 intermediate piers (Figure 14). Pier foundations would be constructed below the bottom of the river at a depth sufficient to avoid damage or failure due to scour. Bridge alignment would be essentially straight. Construction of approaches (estimated to be about 50 feet long) at both ends of the bridge may involve minor adjustments in the existing vertical and horizontal road alignment and include the construction of turnouts. Approaches would require some clearing of vegetation. The bridge abutments would require bank protection (rip-rap). The downstream abutment would be constructed about 100 feet east of the washout to establish it in a more secure location in relation to the meander bend of the river. This would involve digging a trench and armoring the area with large rock. The existing roadway and ground between the downstream abutment and the washout would be left in place to erode in response to natural river conditions. There would be no scaling back of the bluff slope but there would be clearing of danger trees for approximately 100 feet from the top of the slope, involving about 1 acre of forest within LSR<sup>8</sup>.

Bridge construction would involve the following:

- Temporary road construction at either end of the washout to provide construction equipment access to the riverbed. Temporary roads would be decommissioned at the end of the construction season.
- Geotechnical drilling adjacent to the washout to properly design the bridge foundation.
- Construction of a temporary road built from clean rock in the river channel to provide access to pier drilling equipment. The temporary road would be removed at the end of the construction season.
- Driving foundation piles or drilling vertical shafts into the riverbed. A de-watering plan would detail disposal of waste water generated from drilling.
- Concrete forming of bridge piers and placement of superstructure spans.
- Construction of bridge approaches.

The cost of bridge construction is estimated at \$8.75 million. Additional construction cost estimates are associated with additional maintenance needed on FSR 2610 from the Forest boundary to the bridge location due to the increased road wear associated with construction traffic, estimated at \$7,700. Other estimated maintenance costs include the deferred maintenance on FSR 2610 past the bridge to the Forest boundary, estimated at \$15,400; the estimated annual maintenance cost for the bridge itself at \$1,600 annually; and an annual bridge inspection cost of \$1,200. Bridge maintenance includes the removal of large wood which racks up against the bridge piers when such wood inhibits gravel recruitment from the high bank or affects bridge performance, estimated at \$2,300 annually. Annual maintenance on FSR 2610 past the washout to the Forest boundary would also be needed, estimated at \$10,800.

FSR 2610 would be closed during construction periods to public access from the Forest boundary up to the washout site to provide for public safety. Portions of FSR 2610 and previously disturbed dispersed camping areas (approximately 2 acres) near the washout would be used for construction equipment staging areas. The dispersed camping areas would be rehabilitated at the conclusion of construction activities. Rehabilitation would include soil improvement work, possibly wetland mitigation, scattering of large wood, seeding/planting, and treatment for invasive species.

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<sup>8</sup> The quantities and estimates are based on a very preliminary survey.

A wood use plan would be developed to insure the best use of the trees removed during construction activities. Trees would be tipped instead of cut when possible as stems with root wads attached are more suitable for restoration projects. The FS would give priority use for these downed trees for restoration and enhancement uses such as instream large woody debris structures, terrestrial coarse woody debris, and tribal uses. Additional uses may include road decommissioning rehabilitation and repair of the park's Dosewallips Road. Trees in excess to these uses may be sold.

Additionally ONP and WFLHD would repair the Dosewallips Road at MP 0.85 in the vicinity of the Dosewallips Falls, at an estimated cost of \$350,000. The construction would take 1 year to complete and would begin after access was restored on FSR 2610. Approximately 120 feet of road that was constructed in the 1940's on log retaining wall/structures failed in late 2003. The road would be repaired by removing the old road fill material and reconstructing the road prism by using riprap and crushed rock to form a foundation on which structural backfill would be constructed. Stabilization techniques would be used to protect the stabilized fill from erosion. All of the construction would be above the ordinary high water line of the river. The park would need to conduct maintenance that has been deferred on the Dosewallips Road prior to the repair work at an estimated cost of \$4,500.

### **Forest Plan Amendment**

Selection of this alternative would include a site-specific non-significant amendment (as defined under the NFMA) to the Forest Plan. The following amendment is associated with RR standards and guidelines as identified in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (referred to as the NWFP ROD), which amended the Olympic's Forest Plan.

1. A NWFP ROD (C-32) standard and guideline for RR requires avoiding wetlands entirely when constructing new roads. This alternative would directly impact about 0.016 acre of wetlands. A proposed amendment would waive this standard and guideline to avoid wetlands entirely in the project area for this specific project.



## Mitigation Measures and Management Requirements for Alternative F - Bridge

All mitigation measures shall be required if Alternative F is selected and are applicable to ONF and ONP actions unless noted.

**Vegetation:** Mitigation measures in this section include standards set forth in the October 2005 Record of Decision for the Pacific Northwest Region Invasive Plant Program: *Preventing and Managing Invasive Plants Final Environmental Impact Statement* (USDA 2005b).

- Prior to mobilization, all construction equipment would be required to be cleaned before being brought into National Forest System Lands (NFSL) and ONP lands.
- Certified weed-free straw and/or mulch would be used as needed. If State certified straw and/or mulch is not available, proposed sources would need to be certified weed-free using the North American Weed Free Forage Program standards or a similar certification process.
- Any proposed gravel, fill, sand stockpiles, quarry and borrow material sites would need to be inspected for invasive plants before use and transport. Infected sources would require treatment before any use of pit material. Only gravel, fill sand, and rock that are judged to be weed free by the Forest weed specialists would be used.
- As part of the design, there would be an inventory of weed infestations and a prioritization plan for treatment in the project area and access routes.
- Consultation with Forest invasive plant specialists would be required prior to any ground-disturbing activities that would be conducted in areas with high concentrations of invasive plants. The design and construction would incorporate invasive plant prevention practices as appropriate.
- Assessment of the area would occur to determine if there would be timely natural regeneration of the native plant community. Otherwise native plant materials would be used for revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. This management requirement would not apply to park actions.

### Watershed:

- Equipment operating instream would use applicable best management practices for operations in and around water and would fully comply with all applicable regulations.
- Construction activities in or adjacent to perennial streams would be primarily conducted during summer low-flow season. Erosion control measures would be developed in the design and later applied in construction and maintenance procedures to limit sediment delivery to streams from the road surface.
- Wherever road construction occurs within riparian areas, erosion control measures would be required to be installed prior to the normal heavy rainfall period.
- General and applicable specific project provisions would be incorporated as found in appendix A of the Memorandum of Understanding between the Washington State Department of Fish and Wildlife and USDA Forest Service, Pacific Northwest Region regarding Hydraulic Projects Conducted by the USDA Forest Service, Pacific Northwest Region (USDA/WDFW 2005).
- Surface erosion and sedimentation from road construction activities into streamcourses would be minimized through the use of appropriate erosion control devices (i.e. straw bales, filter fences, etc.). Erosion control seeding and fertilization would be used where

appropriate on all areas of exposed mineral soils as soon as possible when soil moisture levels permit. No fertilization would occur within 50 feet of stream-courses. No fertilization would occur within 50 feet of streamcourses and wetlands. No fertilization in the park and erosion control seeding would use park approved sterile mixed grass seed.

- The FS would conduct road maintenance activities upon completion of construction to ensure all elements of the drainage system functioning properly, including ditches, culverts, and the running surface. Maintenance especially would be kept current in areas of instability with drainage problems. Best management practices will be followed.
- A soil scientist would be consulted prior to modifying any of the project design criteria that could impact the aquatic environment.
- A spill prevention plan would need to be prepared prior to any construction activity. Hazardous spill clean-up materials would be required on the project site.
- Any machinery maintenance involving potential contaminants (fuel, oil, hydraulic fluid, etc) would occur at an approved site or greater than 100 feet from wetlands, waterbodies, or stream channels.
- Prior to starting work each day, all machinery would be checked for leaks (fuel, oil, hydraulic fluid, etc), and all necessary repairs would be made.
- Heavy equipment operating in the river channel would use vegetable oil replacement for hydraulic fluid.
- There may be some construction activities that will take place outside the construction limits that will require ground disturbance, occupation, clearing, or could result in some environmental impacts. Such activities may be material extraction, material wasting, water retrieval, staging, etc. These activities will take place at either commercial or non-commercial sources. Commercial sources are established, have provided material to public and private entities on a regular basis over the last two years, have appropriate state and local permits, and do not require expansion outside their currently established and permitted area. Should a non-commercial source be used, use of the area (a) will not affect properties on or eligible for listing to the National Register of Historic Places; (b) have no effect on species or habitat listed as threatened or endangered under the Endangered Species Act (ESA); and (c) not encroach into waters of the U.S. or wetlands protected under Executive Order 11990.

**Fish and Wildlife:** To minimize the impact of the reconstructed road on fluvial processes, reduce the risk of the road to a future failure, and improve channel function the following recommendations shall be included in the design for the reconstructed road if Alternative F is selected:

- Operating periods for project activities would be followed as described below. See “Type of Disturbance and Operating Period for Dosewallips Washout by Alternative” chart in Wildlife Report for additional detail. Any exceptions to these operating periods would require consultation with the US Fish and Wildlife Service and NOAA NMFS for threatened and endangered species.

<b>Type of Disturbance/Activity</b>	<b>Operating Period</b>
Blasts greater than 2 pounds	July 1 – Feb 28
Blasts less than or equal to 2 pounds	July 1 – Feb 28
Impact pile drivers, jackhammers, or Rock drills	
General project and park work	Aug 6 – Feb 28
Bridge work	July 1 – Feb 28
Heavy equipment, motorized tools	July 1 – Feb 28
Chainsaws felling trees	Oct 1 – Feb 28
Chainsaws down wood	Aug 6 – Feb 28
Instream work	July 1 – Oct 15

- A plan would be prepared to address the removal of trees greater than or equal to 21 inches diameter breast height (dbh) and logs (live or dead, standing or down) that would need to be moved for construction activities. This plan would also include the use of these trees and logs. This plan would include the location and placement of all logs in the project area, consistent with the list and priorities noted in the wood plan reference in the alternative descriptions.
- During construction, strict garbage control measures would be used to prevent scavengers (e.g. crows), which are predators on murrelet nests, from being attracted to the project area. No food scraps will be discarded or fed to wildlife.
- Tree removal within suitable habitat for northern spotted owl and marbled murrelet for road construction would occur between October 1 and February 28 (outside the entire breeding season for marbled murrelets and spotted owls).
- All in-stream or riparian work will occur between July 1 and October 15. Any variance of the work period or soil disturbing activities would also be in compliance with the terms and conditions provided by the Biological Opinions as a result of Endangered Species Act consultations.
- It would be required to have a specific, approved dewatering and erosion control plan to minimize sediment laden waters from entering the river and to prevent fish from entering the work area.
- There would be no disposal of excess project materials within the bankfull channel of the river.
- Erosion control methods would be used to minimize silt-laden water from entering the stream. These may include but are not limited to straw bales, silt fencing, filter fabric, temporary sediment ponds, and/or immediate mulching of exposed areas.
- If wet weather conditions during project operations generate and transport sediment above anticipated levels to the stream channel, operations would be ceased until the weather conditions improve, unless delaying operations would increase the risk of adverse resource impacts.
- All erosion control measures would be installed prior to all ground disturbing activities where runoff has the potential to drain into stream channels or other waterbodies. An approved plan for erosion control would be required prior to seasonal shut downs. Within one year after ground-disturbing activities are complete, disturbed streambanks would be planted with woody vegetation. Native species would be used for permanent revegetation.

- The riprap material used in the instream reconstruction would be clean and free of loose dirt and soil material.
- Construction would be conducted between two hours after sunrise and two hours before sunset when such work includes the use of equipment which produces noise above 92 decibels (such as chainsaws, heavy equipment, and helicopters) and would occur between April 1 and September 15.
- Trees identified as danger trees, which need to be felled to provide a safe working environment, may be felled year round. During the nesting season of the northern spotted owl and marbled murrelet (March 1 to September 30) and bald eagle (January 1 – August 31) any trees that are considered danger trees within suitable habitat and potential nesting trees for these species may be felled, but a wildlife biologist would be consulted prior to felling of the tree to perform a visual inspection to determine if the tree/area is used for nesting by murrelets, spotted owls, or bald eagles.
- A fish biologist would be consulted prior to modifying any of the project design criteria that could impact aquatic resources.
- When moving large wood off the bridge piers efforts would be made to minimize cutting up the wood. The intent would be to move large intact pieces of wood downstream off the piers.

#### Cultural Resources:

- An appropriate heritage resource inventory has been conducted and no properties potentially eligible for the National Register of Historic Places (NRHP) have been located. This alternative will have no effect on any historic properties. In the event that previously unidentified cultural resources are located during implementation of this alternative, the work shall cease until the heritage sites are evaluated by the heritage resource specialist and the Forest and FHWA fulfill its consultation requirements in accordance with 36 CFR Part 800.11. If newly discovered properties are found to be on or eligible to the NRHP appropriate protective and mitigation measures would be implemented to comply with the NHPA.

## Monitoring Common to All Action Alternatives

The following implementation and effectiveness monitoring is recommended. Monitoring observations would be documented with copies provided to District staff and planning personnel. Depending on available funding, some of the effectiveness monitoring may not be conducted.

#### Implementation:

- Before a contract would be awarded for the selected alternative, the contract would be reviewed to ensure all commitments contained in the NEPA document, consultations, and permits are covered in the contract.

#### Effectiveness:

- The construction site and adjacent and downstream channels would be observed during the first winter after implementation. This monitoring would be tiered to the Forest Monitoring Plan, Aquatic Resource section.
- To reduce the potential for road failure, upon completion the ONF and ONP would visit the roads periodically, especially after major storm events to determine what measures are necessary to stabilize road conditions.

- Inspection for the invasion of noxious weeds would be conducted for at least two years after project completion.

## Comparison of Alternatives

**Table 1: Alternative summary comparison**

ISSUE	ALTERNATIVE A No Action	ALTERNATIVE B Reroute 1 Bench Emphasis	ALTERNATIVE C Reroute 2 Retaining Wall Emphasis	ALTERNATIVE F Bridge
<b>ROAD MANAGEMENT</b>				
<u>Estimated Costs</u>				
• Construction	ONF = \$5,000	ONF = \$2,550,000	ONF = \$3,760,000	ONF = \$8,750,000
• Annual maintenance	ONP = \$0	ONP = \$350,000	ONP = \$350,000	ONP = \$350,000
○ Short-term				
▪ Deferred	\$0	\$19,900	\$19,900	\$19,900
▪ 1 <sup>st</sup> 2 year	\$0	\$33,900	\$34,200	\$3,900
○ Long-term	\$0	\$11,000	\$11,000	\$3,900
○ Bridge inspection				\$1,200
<u>User Safety</u>				
	Block FSR 2610 with traffic barrier	Treat danger trees	Treat danger trees	Treat danger trees

ISSUE	ALTERNATIVE A No Action	ALTERNATIVE B Reroute 1 Bench Emphasis	ALTERNATIVE C Reroute 2 Retaining Wall Emphasis	ALTERNATIVE F Bridge
<p>GEOTECHNICAL HAZARDS AND GEOMORPHIC PROCESSES</p> <ul style="list-style-type: none"> <li data-bbox="172 422 358 453">• Slope stability</li> <li data-bbox="172 884 315 940">• Fluvial processes</li> <li data-bbox="172 1094 380 1125">• Sediment supply</li> </ul>	<p>Natural conditions</p> <p>Natural conditions</p> <p>Natural conditions</p>	<p>Segment 2 has areas of pre-existing slope movement and groundwater seepage. Construction of new cuts up to 60 to 80 feet high could result in potentially unstable slopes and minor landslides. Natural conditions at the high bank.</p> <p>Same as Alt. A.</p> <p>Same as Alt A.</p>	<p>Same as Alt B.</p> <p>Same as Alt. A.</p> <p>Same as Alt A.</p>	<p>Similar to Alt A in the short-term. Long-term – Continued shallow slope movement on high bank until stable angle naturally achieved.</p> <p>Similar to Alt A in the short-term. Reduced river effect on high bank in the long-term.</p> <p>Similar to Alt A in the short-term. Reduction in supply in the long-term.</p>
<p>SOIL PRODUCTIVITY</p>	<p>No additional road. 3.9 miles of abandoned road. 42 acres in detrimental soil condition, slow natural recovery. Erosion continuing on abandoned road. No effect to slope stability or hillslope hydrology.</p>	<p>0.84 miles new road. 0.7 miles road decommissioning. 44.7 acres in long-term detrimental conditions. Increased short-term erosion. Second highest risk of slope instability. Effects to hillslope hydrology.</p>	<p>0.84 miles new road. 0.7 miles road decommissioning. 44.1 acres in long-term detrimental conditions. Increased short-term erosion, higher than Alt. B. Highest risk of slope instability. Effects to hillslope hydrology, same as Alt. B.</p>	<p>700 foot long bridge. 42.0 acres in long-term detrimental conditions. Minimal surface erosion. Lowest risk of slope instability. No effect to hillslope hydrology.</p>

<b>ISSUE</b>	<b>ALTERNATIVE A No Action</b>	<b>ALTERNATIVE B Reroute 1 Bench Emphasis</b>	<b>ALTERNATIVE C Reroute 2 Retaining Wall Emphasis</b>	<b>ALTERNATIVE F Bridge</b>
AQUATIC HABITAT (Matrix Indicators: Project Scale/Watershed Scale)				
Temperature	M/M	M/M	M/M	M/M
Sediment	D/M	D (tribs) M (Dose)/M	D (tribs) M (Dose)/M	D/M
Large Woody Debris	M/M	D/M	D/M	M/M
Pool Freq and Quality	M/M	M/M	M/M	M/M
Off-channel Habitat	M/M	D/M	D/M	M/M
Width/Depth Ratio	M/M	M/M	M/M	M/M
Streambank Condition	M/M	M/M	M/M	D/M
Drainage Network	M/M	D/M	D/M	M/M
Road Density/Location	M/M	M/M	M/M	M/M
Function of Riparian Reserves	M/M	D/M	D/M	M/M
Puget Sound Chinook	No Effect	NLAA	NLAA	LAA
Chinook Critical Habitat	No Effect	NLAA	NLAA	LAA
Puget Sound Steelhead	No Effect	NLAA	NLAA	NLAA
Hood Canal summer chum	No Effect	NLAA	NLAA	NLAA
Summer chum Critical Habitat	No Effect	NLAA	NLAA	NLAA
Coastal Puget Sound bull trout	No Effect	NLAA	NLAA	NLAA

(M)aintain = project may affect indicator, but impact is neutral.

(D)egrade = project is likely to have a negative impact on the habitat indicator.

NLAA = Not Likely to Adversely Affect

LAA = Likely to Adversely Affect

<b>ISSUE</b>	<b>ALTERNATIVE A No Action</b>	<b>ALTERNATIVE B Reroute 1 Bench Emphasis</b>	<b>ALTERNATIVE C Reroute 2 Retaining Wall Emphasis</b>	<b>ALTERNATIVE F Bridge</b>
<b>TERRESTRIAL HABITAT</b>				
N. Spotted Owl	No habitat impact No Effect	Remove 7.1 acres suitable habitat (one activity center below habitat threshold); LAA	Remove 6.5 acres suitable habitat (one activity center below habitat threshold); LAA	Degrade 1 acre suitable habitat (one activity center below habitat threshold); 2.5 acres noise disturbance LAA
NSO Critical Habitat	No habitat impact No Effect	Remove 7.1 acres constituent element (nesting, roosting, foraging, or dispersal habitat) LAA	Remove 6.5 acres constituent element LAA	Degrade 1 acre constituent element LAA
Marbled Murrelet	No habitat impact No Effect	Remove 7.1 acres suitable habitat; 15.7 acres noise disturbance LAA	Remove 6.5 acres suitable habitat; 15.7 acres noise disturbance LAA	Degrade 1 acre suitable habitat; 2.5 acres noise disturbance LAA
MM Critical Habitat	No habitat impact No Effect	Remove 7.1 acres, constituent element LAA	Remove 6.5 acres, constituent element LAA	Degrade 1 acre of constituent element LAA
<b>BOTANICAL SPECIES AND HABITAT</b>				
Vascular plants	No risk to species viability or a trend toward Federal listing	Same as Alt A	Same as Alt A	Same as Alt A
Bryophytes	No risk to species viability or a trend toward Federal listing	Same as Alt A	Same as Alt A	Same as Alt A
Fungi	No risk to species viability or a trend toward Federal listing	May impact species or habitat, very low likelihood of risk to species viability or trend toward Federal listing	Same as Alt B	Same as Alt A
Lichens	No risk to species viability or a trend toward Federal listing	Same as Alt A	Same as Alt A	Same as Alt A

ISSUE	ALTERNATIVE A No Action	ALTERNATIVE B Reroute 1 Bench Emphasis	ALTERNATIVE C Reroute 2 Retaining Wall Emphasis	ALTERNATIVE F Bridge
ACCESS AND RECREATION  Deferred maintenance and start-up costs	Non-motorized access only. Maintains non- motorized trail experience in non- wilderness area. Campgrounds remain closed  park = \$0 Forest = \$0	Access restored to pre- washout conditions. Easier access for elderly, persons with disabilities, and day visitors. Campgrounds open.  park = \$17,600 Forest = \$162,000	Same as Alt. B.  park = \$17,600 Forest = \$162,000	Same as Alt. B.  park = \$17,600 Forest = \$162,000
WILDERNESS	No effect.	Minor short-term effects to solitude and unconfined recreation during construction. No long-term effects.	Same as Alt. B.	Same as Alt. B.
SOCIAL/ECONOMIC	Continued reduced income for local service businesses. Present Value of Discounted Costs (PVDC): Forest = \$5,000. park = NA.	Increased income for local service businesses. Dosewallips area again a visitor destination attraction. PVDC: Forest = \$3,116,300. park = \$330,100.	Social same as Alt. B. PVDC: Forest = \$4,329,100. park = \$330,100.	Social same as Alt. B. PVDC: Forest = \$9,095,000. park = \$330,100.
INVASIVE SPECIES	Minimal manual control of existing populations. No control of new infestations.	Newly exposed ground susceptible to invasive plant colonization. Positive results in prevention of invasive plant spread and treatment of current and new infestations.	Same as Alt B	Same as Alt B
VISUAL QUALITY (ONF only)	No change, long-term vegetative recovery of high bank	Visual Quality Objective (VQO) of retention met	Visual Quality Objective (VQO) of retention met	Visual Quality Objective (VQO) of partial retention met

<b>ISSUE</b>	<b>ALTERNATIVE A No Action</b>	<b>ALTERNATIVE B Reroute 1 Bench Emphasis</b>	<b>ALTERNATIVE C Reroute 2 Retaining Wall Emphasis</b>	<b>ALTERNATIVE F Bridge</b>
CLIMATE TRENDS AND STREAM FLOWS	No added concerns or costs if stream flows increase	Same as Alt A	Same as Alt A	Bridge would be designed for expected streamflow.
SOUNDSCAPES	No adverse impact	Short-term, moderately adverse impacts to soundscapes. Would be consistent with park purpose and zoning.	Same as Alt B	Same as Alt B
PARK OPERATIONS	Continued deterioration of trails and facilities. Increase flight time for air support to trail maintenance and search and rescue operations.	Improved maintenance of trails, reduced time and funding requirements. Improved search and rescue operations.	Same as Alt B	Same as Alt B
WETLANDS AND WATERS OF THE U.S.	No effect	0.019 acre impacted, no net loss	0.020 acre impacted, no net loss	0.016 acre impacted, no net loss Placement of piers in the river and riprap for abutment stabilization could alter river channel in the future.
IMPLEMENTATION COMPLETE (assumes ROD signed in Fall 2008)	2009	2012	2012	2012
FOREST PLAN AMENDMENTS	None	4 Terrestrial, 1 Aquatic	3 Terrestrial, 1 Aquatic	1 Aquatic

## Forest Plan Amendments

As previously described all action alternatives would require non-significant amendments as defined under the National Forest Management Act (NFMA) to the 1990 Olympic National Forest Land and Resource Management Plan. The need for these amendments is due to changed physical conditions, i.e. the road washout. The ONF determined that the proposed amendments would be non-significant based on criteria found in FSM 1900, Chapter 1920, Section 1926.5.

If an amendment to a Forest Plan results in “a significant change in the plan,” the NFMA and its 1982 implementing regulations under which this DEIS is prepared, require that the amendment process follow the procedures used in the initial development of the plan. The 2008 Forest Service planning regulations (36 CFR 219) allow plan amendments to be made using the procedures from the 1982 planning regulations during the three-year transition period. If the proposed changes in the plan are not significant, public notification and completion of the NEPA procedures are still required (16 USC 1604 (f)(4) and 36 CFR 219.10(f)). Determining whether a plan amendment is a significant change uses different criteria than those used in evaluating significance in the NEPA process. For the NFMA requirement, the Forest Service Manual (FSM 1926.51 and .52) provides specific direction.

FSM 1926.51 – Changes to the Land Management Plan that are Not Significant. Several examples are provided in the manual of changes to the land management plan that are not significant. The applicable examples to this project and how they apply are as follows:

*1. Actions that do not significantly alter the multiple-use goals and objectives for the long-term land and resource management.*

The actions proposed in the action alternatives would not alter the objectives and the multiple-use goals of the Olympic Land and Resource Management Plan as amended by the Northwest Forest Plan. The purpose of these alternatives is to facilitate achieving those goals and objectives. These alternatives will continue to provide for species protection in compliance with all applicable laws and regulations, while providing for other forest management priorities.

*3. Minor changes in standards and guidelines.*

The proposed forest plan amendments would waive specified standards and guidelines added to the Forest Plan by the Northwest Forest Plan amendment. These changes would be specific to the Dosewallips project area and would apply only for this specific project. These proposed amendments would not significantly change the key elements of the underlying strategy or standards and guidelines. Waiving the specified standards and guidelines would be a relatively minor change because the Northwest Forest Plan is an ecosystem-based approach that relies primarily on a system of reserves and standards and guidelines to accomplish its primary objectives.

FSM 1926.52 – Changes to the Land Management Plan that are Significant. The following examples indicate circumstances that may cause a significant change to a land management plan. A brief discussion of why these examples do not apply to this project follows each example.

*1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (36 CFR 219.10(e)).*

The changes proposed by the action alternatives would help achieve, not alter, the relationship between the levels of multiple-use goods and services originally projected. The Forest Plan identified the Elkhorn Campground as a developed recreation site, to provide both for existing developed recreation use and an expected increase in demand for developed recreation sites by reconstruction/expansion of the campground.

*2. Changes that may have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.*

The changes proposed by the action alternatives are specific to the Dosewallips Road Washout Project area. These changes only apply to a very small portion (about 7 acres out of a total of 632,000 acres) of the Olympic National Forest. Also as previously stated the changes do not affect the key elements of the underlying strategy or standards and guidelines.

The proposed amendments involve plan components established in the 1994 NWFP ROD. The implementation section of the ROD (E-18) states “Changes or adjustments to these standards and guidelines may be made through amendments to those plans [Forest Plans] required by regulations as described above. The authority to change or amend those plans remains as specified in applicable regulations. The amendments will be reviewed by the Regional Interagency Executive Committee to assure consistency with the objectives of these standards and guidelines”. A review by the Regional Interagency Executive Committee will be conducted prior to the Olympic National Forest Supervisor signing a ROD for this proposed project.

## **Environmentally Preferred Alternative**

The environmentally preferred alternative is defined as “the alternative that will best promote the national environmental policy as expressed in section 101(b) of the National Environmental Policy Act.” Basically the environmentally preferred alternative would cause the least damage to the biological and physical environment and best protect, preserve, and enhance historic, cultural, and natural resources.

The environmental consequences of the alternatives as analyzed (as documented in Chapter 3 of this document), will be used to help evaluate how well the goals stated in section 101 of the National Environmental Policy Act are met by the alternatives. The Agency Responsible Officials will identify the environmentally preferred alternative at the time the Final EIS is prepared.

The goals established by section 101 are listed below.

- 1) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2) Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;

- 3) Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- 4) Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- 5) Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- 6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

