

**ENVIRONMENTAL ASSESSMENT
OR 128-01-18**

EMERGENCY REPAIR OF FEDERALLY OWNED ROADS
(ERFO 2001)

A Proposal to Decommission, Repair, or Realign Storm Damaged Roads
Within the Coos Bay District

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This action is subject to and in conformance with the *Coos Bay District Record of Decision and Resource Management Plan*, dated May 1995, and the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* with its *Record of Decision and Standards and Guidelines* (Interagency, 1994).

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SECTION I - PURPOSE AND NEED FOR ACTION

Purpose and Need

The Bureau of Land Management (BLM), Coos Bay District (CBD), controls an extensive road system. Winter storms in 1998-1999 damaged parts of the Mytlewood road system. Low level maintenance and repairs normally bring damaged areas back to proper function. However, the winter storms of 1998-1999 caused severe enough damage to ten roads (14 individual sites) such that routine, minor maintenance actions cannot restore them to their proper function and safety level. Steep slopes and saturated soils, compounded by lack of culverts or culvert failures resulted in mass soil movement downhill undermining most sites. Slide material was deposited on the road prism and/or the road grade dropped (slumped). The damaged roads can lead to increased sediment delivery into streams, impacting fish, fish habitat, and other riparian aquatic life. Most of all it is the intent of the Bureau of Land Management to provide safe public passage through lands managed by and under the control of the BLM. Federal funding through Emergency Repair of Federally Owned (ERFO) roads has been secured to repair the damaged road grades.

The goal of the preferred alternative is to reduce the potential for sediment delivery to streams from the road failures and minimizing corridor widths while effectively managing public resources. In addition to the 14 project sites, waste sites are identified for disposal of material excavated from project locations (see Table 1 and Appendix Location Maps).

Direction for management actions regarding these roads comes from the *Final Coos Bay District Resource Management Plan (RMP) and Environmental Impact Statement (EIS)* - (BLM, September 1994), and its *Record of Decision (ROD)* - (BLM, May 1995), and from the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (Interagency, February 1994) (FSEIS; Northwest Forest Plan), its *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*, and accompanying *Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (Interagency, April 1994). This Environmental Assessment (EA) is tiered to these documents. Watershed analyses are completed for these areas and are hereby incorporated by reference. The above documents are available for review at the Coos Bay and North Bend Public Libraries, the Coos Bay District Office of BLM, and the Oregon State Office of BLM in Portland, Oregon. These plans have been reviewed to determine if the preferred action conforms with the land use plan's terms and conditions as required by 43 CFR 1601.5. The preferred projects are in conformance with the Aquatic Conservation Strategy (ACS) objectives as described in the Standards and Guidelines (S&G's, pp. B-9 through B-34) of the Northwest Forest Plan. The analysis file for this project contains several reports from staff specialists, which are hereby incorporated by reference.

Management activities within the natural range of POC conform to the BLM *Port-Orford-Cedar Management Guidelines*, to mitigate damage caused by *Phytophthora lateralis* (ROD, p. 23). The activities will also conform to the *Noxious Weed Strategy for Oregon & Washington* (USDI BLM August 1994) and *Partners Against Weeds, An Action Plan for the Bureau of Land Management* (USDI BLM January 1996). The above are hereby incorporated by reference.

This EA assesses and mitigates potential impacts that may result from implementing either the “No Action or Preferred Action” alternative, and documents the decision-making process. The decision to be made from this EA for each damaged road segment is to:

- ! Not implement extensive repairs to damaged sites (No Action), or
- ! Implement a series of extensive repairs, as described in this document (Preferred Action).

Issues, Concerns, and Opportunities

Specific projects were developed after a post-storm road inventory identified 14 moderate or severe road failures. Issues, concerns, and opportunities were developed by the interdisciplinary team (IDT) assigned to the repair projects. The IDT identified the following:

Issue: Sedimentation

Mass movement caused road failures at many locations due to steep slopes and saturated soils. These failures may have been compounded by lack of culverts or culvert failures at some of the sites. The current site conditions at many of the sites have re-vegetated but delivery of fine sediment may still be occurring. The site disturbance necessary to repair these sites may lead to a short term increase of fine sediment being removed from the site and transported to the stream network.

Issue: Aquatic habitat connectivity

Life histories for at least some aquatic species involve movements up and down streams. Culverts may affect movements of aquatic species by creating barriers to upstream movements. Culvert designs which accommodate some species groups may not accommodate others.

Issue: Transportation Network Safety and Closure

In order to provide safe and normal passage for all vehicles typically associated with timber management activities, the standard of the road is required to remain and not be allowed to decrease at various points along the route. Should the standard change (decrease-in the case of closure) the access through the site should be limited to the type of vehicle that can safely pass. If future needs of the road, as identified through our Transportation

Management Objectives review, have identified the road for closure the opportunity to close the road now was given consideration. Outcome of closure was based on future needs for land management activities, private access rights and risk to the general public.

Issues Identified, Analyzed, then Eliminated from Further Consideration

Some additional issues and opportunities were identified and analyzed but then were eliminated from further consideration when it became apparent that BMPs and Design Features adequately addressed the issues, that the issues were insignificant because of the scope or location of the projects, or that the opportunities stretched beyond the boundaries for ERFO repairs. These include:

- ! Short-term interruptions of instream flow during construction, loss of wildlife habitat, direct wildlife mortality, terrestrial Threatened or Endangered Species, road corridor widths, hazardous materials leakage/spill, Port Orford Cedar Management, cultural resource discoveries, and nonnative plants (especially noxious weeds) issues are covered by project design features or use of BMP's.
- ! Other road repairs near ERFO sites that are more appropriately called "routine maintenance".
- ! Minimizing corridor (road) widths at realignment sites due to the location within Land Allocation Unit classified as either Late Successional or Connectivity the enlargement of the road right of way should be modified to keep the width to as narrow as possible and still provide the safe transport of vehicles through the site.

Geographical Area

The projects sites occur on land or roadways presently managed or controlled by BLM within the Myrtlewood Resource Area (see Table 1 and Appendix Location Maps).

Permits, Licenses, and Entitlements Necessary to Implement the Projects

No Federal permits, licenses, or entitlements are required for these projects other than those necessary for ESA compliance..

SECTION II - ALTERNATIVES INCLUDING THE PREFERRED ACTION

No Action Alternative

Under the No Action Alternative, no major road repair to federal government standards or culvert replacement would occur. Routine BLM road maintenance and monitoring inspections, as identified in the ROD, would continue at the damaged sites. Maintenance may involve minor repairs to the damaged sites and might include cleaning culverts and ditches, moving slide material to allow traffic passage or blocking roads with barriers, and patching cracks or small slumps. Inspections are conducted annually on major roads and roughly every two or three years on smaller spur roads. These inspections would only detect increased erosional damage after it had occurred. At passable sites, traffic would have to slow down and use caution to pass. At blocked sites, traffic would be stopped, with no access to areas beyond the failure. There is a potential for continued slumping or failure at the sites. Should management actions by other adjacent landowners necessitate access beyond the road failures, then the road repairs would be made by those landowners. Repairs by the private landowner would be conducted according to agreed upon standards delineated within the Rights of Way Agreement.

Preferred Action Alternative

Under the Preferred Action Alternative, identified road failure sites would be repaired to federal government standards and problem culverts would be replaced. The Preferred Action considers whether future management actions by BLM, timber companies, or adjacent landowners would require access beyond the road failure thus necessitating the repair of the damage. Each site was carefully considered for potential road decommissioning. Initial Transportation Management Objectives (TMOs) developed during watershed analysis for these areas indicated that access was required beyond the road failures for most of the sites. Those sites that have Right-of-Way Agreements (RWA) that provide companies or individuals access to their lands cannot legally be closed without their consent. TMOs for some sites indicated a low need for near-term use and potential for closure. Repairs proposed in this alternative reflect TMOs from watershed analyses. Objectives in the Record Of Decision for BLM's transportation system include: short and long term transportation needs, reconstruction prioritization based on current and potential impact to riparian resources and the ecological value of the riparian resources affected, and decommissioning or obliterating roads based on current and potential effects to Aquatic Conservation Strategy objectives. On-site discussions during which the preferred actions were developed addressed these considerations and included the cause of the failure, issues of concern (ex. safety for those woods workers/recreationists using the transportation system), land use allocation, and current or future management needs of the resource values. The current road failures are unsafe for vehicle traffic normally associated with forest management activities and are apt to get worse and more dangerous.

The Preferred Action covers:

- ! Repairing or rebuilding nine damaged roads within, or nearly within, their original alignment.
- ! Waste site identification for ten of the thirteen repair sites. Some repair sites may need to have two waste sites identified in the event that earth quantities are greater than can be handled at one site.
- ! Strengthening a road closure device on the Indian Creek 8.1 road.
- ! Closure of the final 0.8 miles of the 28-11-36.0 and 30-11-8.1 road.
- ! Replacement of one first order stream crossing with a larger diameter culvert on Baker Creek 30-12-3.0 rd. and

- correcting the upslope diversion of a second channel by removing the culvert and rocking the channel and outflow.
- ! Re-establishing the width and armoring the bottom of the channel of a culvert failure on Edson Butte 31-14-4.0 road. Removal of two ditch relief culverts on the remaining portion of the road to the west.
 - ! Removal and replacement of the open bottom arch structure on Mayfield Creek with a baffled culvert filled with appropriate sized rocks and an outlet structure that would facilitate some aquatic organism passage. The adjacent stream crossing to the west would be replaced and an intermittent stream to the east would have a ditch relief culvert installed.

Repairing or rebuilding damaged roads would occur within or nearly within their original alignment (i.e. the road could be moved to the side 10 to 30' from its existing location). See Table 1, below for project and waste site locations, and the proposed action for each site. Repairs would require the use of standard engineering practices such as: a) buttressing, reestablishing, reinforcing, and/or armoring the fill slope; b) reconstructing the subgrade and running surface of the road which may require blasting, c) reestablishing ditchlines to control surface runoff; and d) repairing or replacing culverts and adding water bars and dips as necessary to provide adequate drainage. Work would involve the use of trucks, excavators, loaders, and other heavy motorized equipment, chainsaws, diesel powered drilling units, and road paving equipment. Blasting equipment may also be utilized. Projects could generate noises above ambient and could disturb wildlife. Generation of noise above ambient levels has the most potential for negative impacts on wildlife. Blasting would generate the highest noise level of the project types, but would occur at only a few sites, and would be of limited duration. Blasting would be limited to specific areas about 30-40 feet long and 2-3 feet deep. All repair procedures on public lands are required to meet, or not retard, the attainment of Aquatic Conservation Strategy objectives. Total work time for any one project site should not exceed a few weeks. Affected roads may be closed to through traffic during construction. Removal of trees/vegetation would be kept to a minimum.

Waste sites are proposed for ten of the thirteen repair sites. The waste sites are for the slide material removed from the road templates, and/or excavated material (see Appendix Location Maps). Two of the sites will use previously developed waste areas and two of the sites can have the material disposed at the damage area. All other sites need new waste areas located.

Project Design Features

Many of the following are Best Management Practices (BMP's) from the RMP but are included here for emphasis.

- ! If any cultural materials are encountered during activities associated with this project, all work must stop, and the District Archeologist must be notified at once.
- ! Noxious weeds are to be treated at each site and along haul routes prior to starting work.
- ! Stabilize all exposed soil and waste sites with BLM approved grass seed mixtures (use native grasses if available), fertilizer and mulch. Grass and straw mulch material shall be certified as weed free, and should be obtained from local sources, if possible. Soil stabilization should be completed upon completion of construction activities at each site, rather than waiting until all sites are completed.
- ! Ditch relief culverts will be replaced and/or spaced at appropriate intervals according to road width and slope, to prevent excessive road runoff and associated sediments from traveling to and reaching stream channels.
- ! Contain offsite movement of sediment from waste sites, roads, or ditch flow near streams with silt fence or sediment entrapping blankets or straw bales. These must allow for the free passage of water without detention or

plugging and should receive frequent maintenance. They will be removed at the completion of work, with sediment retained by the filters to be transported to an upland location to prevent subsequent delivery to aquatic resources. (locations to be specified by BLM hydrologist or fisheries biologist).

- ! Waste disposal sites are not to be in riparian reserves and need to be stable. Waste sites need to be approved by a geo-technical engineer or other qualified personnel. Design features will include erosional controls to minimize sediment delivery to water bodies.
- ! Where landslides have removed vegetation from within Riparian Reserves, areas suitable for reestablishing conifer should be planted in order to stabilize soils in the long-term and provide future sources of large woody material.
- ! Any existing down wood or live trees cut during construction activities should be scattered on site with priority given to the riparian area.
- ! The contract will include standard Threatened and Endangered Species stipulation(s).
- ! Any significant changes to the action (including the time period of excavation and hauling) shall require further review.
- ! Seasonal and timing restrictions will be implemented as listed in table 1 in order to reduce disturbance impacts to threatened wildlife species and insure compliance with the Endangered Species Act and the pertinent terrestrial wildlife biological opinions (Service Log numbers 1-7-98-F-079 and 1-15-00-F-629).
- ! The Contractor shall be required to follow BLM's Hazardous Materials Contingency Plan and procedures, and specific directions found in the District Oil Spill Plan. This includes having a Spill Prevention, Control and Countermeasures Plan (SPCC) in place, and a Petroleum Spill Kit on site during operations.
- ! Equipment used during this project shall be inspected and cleaned prior to move-in, to limit the introduction or spread of: petroleum or other chemical contaminants; noxious weeds; and POC root rot disease. Any visible leakage of petroleum product shall be corrected. Equipment shall be washed offsite at a commercial facility. Wash receipts are to be filed in the main contract file.
- ! All sites covered by this EA fall within the range of listed, proposed, or candidate fish species. Mandatory terms and conditions that resulted from the National Marine Fisheries Service's (NMFS) March 18, 1997 Biological Opinion for the RMP/LRMP will be implemented. In order to minimize the "take" of these species, terms and conditions were established based on BMP's as described in the District's RMP. All applicable BMPs will be used when culvert replacement and road realignment activities occur on and near perennial, intermittent, and ephemeral streams and spring seeps. The project shall be consistent with ACS objectives. In addition, seasonal restrictions for in-channel work (ODFW 1997) at these sites will apply.
- ! The listing status/consultation requirements for special status fish species is complex, and subject to change. Therefore, the status of consultation requirements for each project site will need to be assessed and complied with prior to awarding contracts to begin work.
- ! Road corridors will be planted with native conifer and/or hardwood tree species, especially in disturbed areas, to reduce the width of road corridors.

Monitoring of Preferred Action

During implementation of project contracts, BLM Project Inspectors perform compliance monitoring to ensure that contract stipulations are met. Resource specialists may also periodically visit the site. Unanticipated problems which arise during the contract would be brought to the attention of the contracting officer's representative, EA team lead, and resource specialists.

Pre- and post-implementation monitoring would be carried out in accordance with the Northwest Forest Plan and the Coos Bay District RMP (BLM 1995). Future monitoring of the sites would be conducted as part of the district implementation monitoring plan under the ROD.

Map 1
EA 128-01-18
ERFO 2001 Project Site Locations

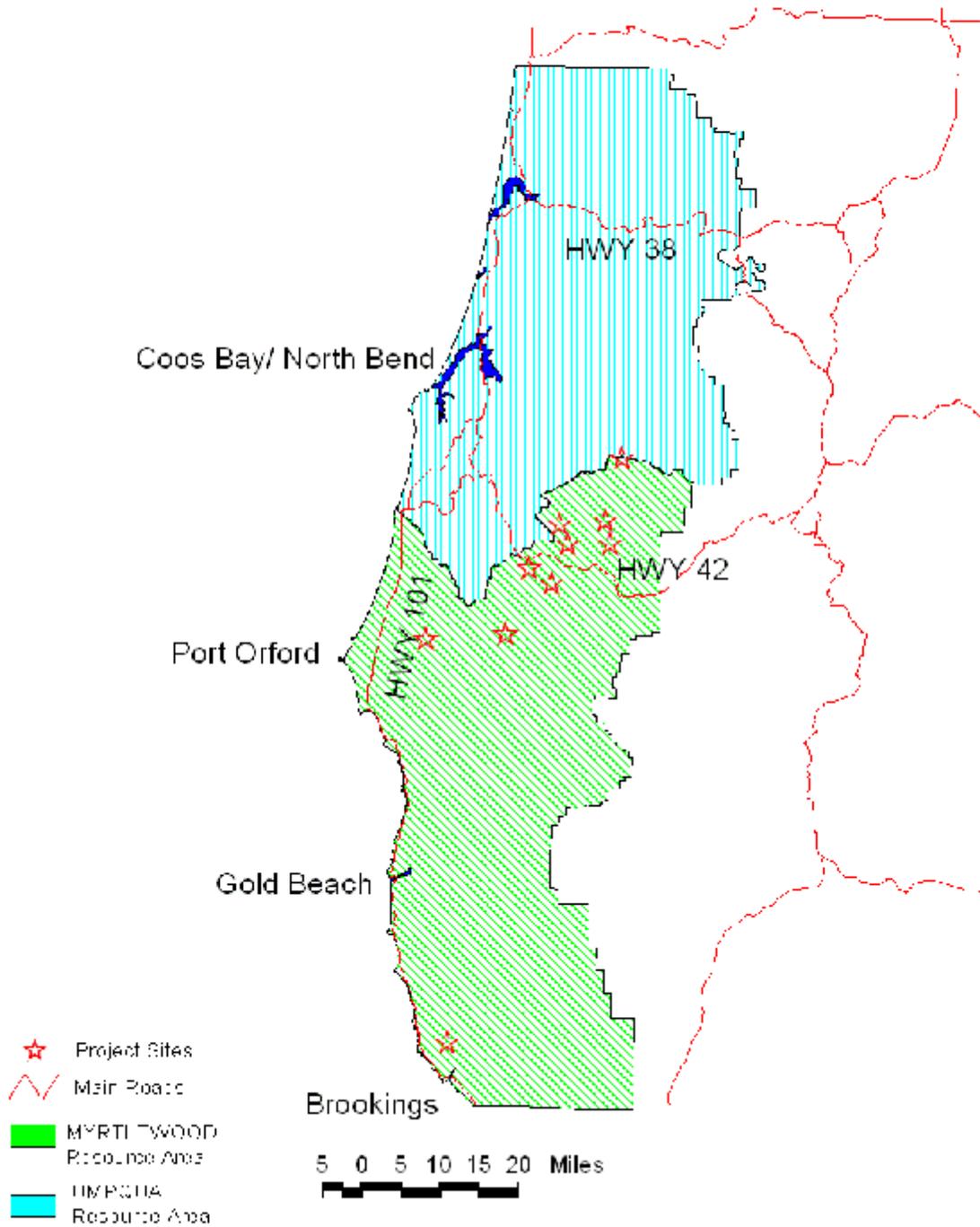


Table 1 - Preferred Action Summary

Site Name & Location	Site Repair or Use	Highest Seasonal & Daily Restrictions for the Site		Additional Comments
		Wildlife Comments	Fisheries Comments	
Baker Creek Mainline H366 Road 31-12-3.0, Mile Post 2.7	Remove Uphill Diversion and Replace Culverts Dig a channel on old road to replace culvert that diverts flow remove culvert. Realign new culvert and catch basin on main road to prevent water from pooling in ditchline.	Seasonal restriction ¹	Remove diversion from culvert on old road	Within POC range. No Noxious weeds detected No Botanical concerns.
<u>WASTE SITE</u> - Road 31-12-17.1 (at bottom of quarry, previously used)	Waste Site - To be covered with seed, mulch and fertilized	Seasonal restriction ¹		Within POC range. No Noxious weeds detected No Botanical concerns.
Burnt Mountain Mainline H361 Road 27-11-12.0, Mile Post 9.7	Realignment Blasting may be needed.	Seasonal restriction ² & Blasting restriction ³		Within POC range No Noxious weeds detected No Botanical concerns.
<u>WASTE SITE</u> - Road 27-11-14.0 & 14.2	Waste Site - Use old landing areas of road for waste. Leave Access open Cover with seed, mulch and fertilized.	Same as for work site		Within POC range. No Noxious weeds detected No Botanical concerns.
Edson Butte H367 Road 31-14-4.0 seg G1	Reshape channel banks and armor bottom. Remove two ditch relief culverts on west section of road and dig one trench above pipes to better direct flows.	Blasting restriction ⁵	Re-establish safe drainage of stream channel	Within POC range. Private quarry providing rock No Noxious weeds detected No Botanical Concerns
Elk Creek @ Big Creek Divide H364 Road 28-11-29.0, MP 11.0	Fill Failure of Slump Drill and determine slip plane. Dig out material and replace with either large rock or reinforced basket and rock, move waste to spur.	Seasonal restriction ¹		Within POC range. Scotch Broom to be treated in 2001 No Botanical concerns.
<u>WASTE SITE</u> - Short spur off road 28-11-29.2	Waste Site - To be covered with seed, mulch and fertilized	same as for site		Within POC range Scotch Broom to be treated in 2001 No Botanical Concerns

1 Seasonal Restriction No activity 1April - 5 Aug. Daily timing restrictions 6 Aug. - 15 Sept. No work which generates noise during the period 2 hours after sunrise or 2 hours before sunset.

2 Daily timing restriction: from 1 April - 15 Sept. No work will be scheduled to occur earlier than 2 hours after sunrise and no later than 2 hours after sunset.

3 Blasting restriction: no blasting will occur during the period 1 March -30 Sept. If site is surveyed for spotted owls and no nesting determined, could begin blasting 6 Aug with daily timing restrictions.

4 No blasting 1 Mar - 30 Sept. If no owl nesting after surveyed could begin blasting 15 Sept.

5 No blasting 1 Mar -5Aug. Plus daily timing restrictions 6 Aug -15 Sept.

6 No Blasting 1 Mar -15 Sept.

Site Name & Location	Site Repair or Use	Highest Seasonal & Daily Restrictions for the Site		Additional Comments
		Wildlife Comments	Fisheries Comments	
Elk Creek Area H365 Road 28-11-36.0, MP 0.9	No Repair, Road to remain closed	none		Within POC range Road to remain closed to foot traffic only No Botanical Concerns
Elk Creek Ridge Road H362 Road 28-11-29.1, MP 2.5	Mechanically Reinforced Embankment Build up the outside edge of the fill using wire baskets and rock to provide stable subgrade surface, Pavement replaced.	Seasonal restriction ¹		Within POC range Scotch Broom being treated in this area 2001 No Botanical Concerns
Elk Creek Ridge Road H363 Road 28-11-29.1, MP 3.3	Realignment to the west	Seasonal restriction ¹		Within POC range Scotch Broom being treated in this area 2001 No Botanical Concerns
<u>WASTE SITE:</u> Roads 28-11-33.1, 29-11-4.1	Waste Site - Potentially will need multiple sites to contain volume to be removed. Open currently closed 33.1, Block both end of when finished.	Seasonal restriction ¹		Within POC range Scotch Broom being treated in this area 2001 No Botanical Concerns
Fall Creek Mainline H368 Road 29-11-15.1 MP 0.7	Replace fill failure Road access currently is available above & below the slide.	Seasonal restriction ¹ & Blasting restriction ⁴		Within POC range Scotch Broom being treated in this area 2001 No Botanical Concerns
<u>WASTE SITE:</u> Road 29-11-10.2	Waste Site - On end of old landing on southeast corner. Small reproduction to remove then seed, mulch and fertilize the spoil material.	Same as for site		Within POC range Scotch Broom being treated in this area 2001 No Botanical Concerns
Indian Creek Mainline, H369 Road 29-12-36.1 MP 1.6	Trench, map, design fill failure toe hold. Place rock at bottom of landing to hold hillside above from sliding. Pave upper road to restore width.	Daily timing restriction ²		Within POC range No Noxious weeds detected No Botanical concerns.
Indian Creek Mainline, H369 Road 29-12-36.1 MP 2.0	Fill failure and drainage structure to be constructed.	Daily timing restriction ²		Within POC range No Noxious weeds detected No Botanical concerns.
Indian Creek Mainline, H369 Road 30-11-8.1 MP 0.2 & 0.3	Pullback road edge, contour into sidehill. Block to traffic Road to remain closed till future use necessary	Daily timing restriction ²		Within POC range No Noxious weeds detected No Botanical concerns.

1 Seasonal Restriction No activity 1 April - 5 Aug. Daily timing restrictions 6 Aug. - 15 Sept. No work which generates noise during the period 2 hours after sunrise or 2 hours before sunset.

2 Daily timing restriction: from 1 April - 15 Sept. No work will be scheduled to occur earlier than 2 hours after sunrise and no later than 2 hours after sunset.

3 Blasting restriction: no blasting will occur during the period 1 March -30 Sept. If site is surveyed for spotted owls and no nesting determined, could begin blasting 6 Aug with daily timing restrictions.

4 No blasting 1 Mar - 30 Sept. If no owl nesting after surveyed could begin blasting 15 Sept.

5 No blasting 1 Mar -5Aug. Plus daily timing restrictions 6 Aug -15 Sept.

6 No Blasting 1 Mar -15 Sept.

Site Name & Location	Site Repair or Use	Highest Seasonal & Daily Restrictions for the Site		Additional Comments
		Wildlife Comments	Fisheries Comments	
Mayfield Creek H370 Road 40-14-25.0 MP 5.7	Remove open bottom arch and replace with embedded squash pipe and outlet structure.	Blasting restriction ⁶ Replace structure to pass other aquatic organisms	Need not pass fish	Outside POC range No Noxious weeds detected No Botanical Concerns
<u>WASTE SITE</u> : End of road 40-12-17.0	Waste Site - Seed, mulch and fertilize spoil materials	Same as for site		Outside POC range No Noxious weeds detected No Botanical Concerns
Sandy Creek H371 29-10-15.0 MP 3.4	Drill, map and design a re-alignment and/or build the outside edge up from a stable bench. Do pullback of material sliding into plantation	None		Within POC range No Noxious weeds detected No Botanical concerns.
<u>WASTE SITE</u> : Currently have a developed area north of site at 29-10-9.7 road	Waste Site - Open site, place material, seed mulch and fertilize and close with earthen berm materials	Same as for site		Within POC range No Noxious weeds detected No Botanical concerns.

1 Seasonal Restriction No activity 1 April - 5 Aug. Daily timing restrictions 6 Aug. - 15 Sept. No work which generates noise during the period 2 hours after sunrise or 2 hours before sunset.

2 Daily timing restriction: from 1 April - 15 Sept. No work will be scheduled to occur earlier than 2 hours after sunrise and no later than 2 hours after sunset.

3 Blasting restriction: no blasting will occur during the period 1 March -30 Sept. If site is surveyed for spotted owls and no nesting determined, could begin blasting 6 Aug with daily timing restrictions.

4 No blasting 1 Mar - 30 Sept. If no owl nesting after surveyed could begin blasting 15 Sept.

5 No blasting 1 Mar -5Aug. Plus daily timing restrictions 6 Aug -15 Sept.

6 No Blasting 1 Mar -15 Sept.

SECTION III - AFFECTED ENVIRONMENT

This section describes the environmental components that could be affected, by either alternative. It does not address the environmental effects or consequences, but rather serves as the baseline for the comparisons in Section IV - Environmental Consequences.

Critical Elements of the Human Environment

Examination has shown the following critical elements of the human environment to be *unaffected* by the projects:

1. - Air Quality
2. - Farmlands (Prime or Unique)
3. - Flood Plains
4. - Wilderness Values
5. - Cultural Resources *
6. - Hazardous Materials & Solid Wastes *
7. - Areas of Critical Environmental Concern
8. - Native American Religious Concerns
9. - Wild and Scenic Rivers
10. - Environmental Justice*
11. - Port-Orford-Cedar Management*

Examination has shown the following critical elements of the human environment could be *affected* by the projects:

12. - Water Quality (Surface/Ground)
13. - Noxious Weeds/Invasive Nonnative Species*
14. - Threatened, Endangered, Survey and Manage, and other Special Status Species (Plants & Animals) *
15. - Wetlands/Riparian Zones
16. - ACS objectives*

* Specialist review required - any reports, including effects determinations for wildlife, are located in the Analysis File

Environmental Justice

The proposed project areas are not known to be used by, or disproportionately used by, Native Americans, minorities or low-income populations for specific cultural activities, or at greater rates than the general population. Including the relative geographic location and cultural, religious, employment, subsistence, or recreational activities that may bring them to these areas. BLM concludes that no disproportionately high, adverse human health or environmental, effects would occur to Native Americans, minorities, or low-income populations from these actions.

Cultural Resources

Review of project documentation and a records check shows no know cultural resources in the vicinity of the proposed/existing road use area. *Section 2: Project Design Features* include stipulations that cover any discoveries that may occur.

Port Orford Cedar Management

Most of the project areas and waste sites are within the natural range of Port Orford Cedar (see Table 1). Standard vehicle washing stipulations are required and project work would occur mostly during the dry season. Since transportation via water and/or wet soil is the primary means of introducing and spreading the root disease (*Phytophthora lateralis*), these two stipulations help prevent the accidental spread or introduction of the root disease.

Hazardous Materials

Contaminant surveys were conducted at each site, and approved by the District Environmental Specialist for Hazardous Materials/Solid Waste. No contaminants were identified, and any discoveries or accidents would be dealt in accordance with the applicable contingency plan as listed in *Section 2 Project Design Features*.

Water Quality (Surface/Ground)

Hydrology

The Coos Bay District climate is characterized by moderate temperatures, wet winters and cool, dry summers. Thus, precipitation in the form of rain is the major influence on hydrologic characteristics and controls the hydrologic cycle. Higher elevations may occasionally receive snow, but the quantity and duration of the snow does not normally produce rain-on-snow events. Varied topography of high relief has a strong effect on the precipitation pattern, causing large differences within small areas. Virtually all precipitation comes from general storms associated with tropical cyclones originating over the Pacific. Annual precipitation averages 60 to 70 inches along the coast, increasing to 80 to 120 inches near the Coast Range crest. Approximately 80% of the precipitation occurs between October and March (50% of that occurs between November and January). The months of July, August, and September receive < 4% of the annual precipitation.

The distribution of annual stream flow is closely related to the distribution of annual precipitation, thus high flows are observed during the winter months and low flows predominant in the summer. This close correlation between monthly precipitation and monthly stream flow indicates that these stream systems rapidly translate precipitation into runoff due to a high drainage density, low bedrock permeability, coarse textured and shallow soils, high precipitation totals, and steep slopes. The lack of ground water storage results in a “flashy” hydrologic response (i.e. rainfall rapidly becomes stream flow).

For site specific hydrology comments see the Aquatic Species and Habitat Affected Environment Section.

Soils

The project sites are all located in the Coast Range and Kalamath Mountain physiographical provinces. The geological materials associated with the soils of the area are developed from the Tye Otter Point, and Dothan-Franciscan Formations. The Tye Formation is composed of rhythmically bedded sandstone and siltstone. The Tye Formation tends to have high ground water in some areas, rapid runoff, steep slopes, and sharply alternating beds of sandstone and softer siltstones. The potential for slumps, debris and earth flows are intensified by these characteristics. Due to the fine-grained nature of the bedrock and steep slopes, slumps and earth flows are common.

Burroughs (1976) classed this formation into two types, I and II. The Type I sites are characterized by sharp ridges with steep slopes that may show a uniform gradient from near the ridgetop to the valley bottom. Headwalls can cause sharp rises in the groundwater levels in the soil mantle during winter storms due to slope gradients of 100 percent or more. Ground water seepage on exposed bedrock is common even in the summer. The soils on the most critical portions of Type I sites are coarse textured and shallow, less than 20 inches to bedrock. These soils are considered to be unstable on slopes greater than 80 percent when dry and 65% when saturated.

The Type II sites have slopes with gradients which range from less than 10 percent to 70 or 80 percent. Longer slopes may be broken by benches, the ridges rounded, and the drainages fewer. The soils are considerably deeper (often greater than 40 inches) but can have high clay contents (50 to 70%) but the bedrock is fractured and weathered such that there is a gradual transition from the soil into the massive bedrock. Type II sites tend to have more slump and earthflow slope failures. Road failures frequently involve poorly consolidated or poorly drained road fills and embankments greater than 12 to 15 feet. The red clayey soils such as Blachly are a good example of a soil type subject to such failures. The more shallow, coarser textured Digger and Bohannon soils on the 60 to 70 percent side slopes are soil types on the Type II sites subject to failures.

The Otter Point Formation contains roughly 30 to 40 percent black mudstone interbedded with fine sandstone; 20 to 30 percent each of coarse sandstone and conglomerate; volcanic rocks make up the remainder. Slope stability is frequently encountered in this formation, causing slumping, settling or entire sections of the road to fail. This formation has a bluish-colored clay subsoil 20-30 inches below the surface that provides a poor foundation for road construction. This is the Etelka-Whobrey soil type that is common throughout the Baker Creek drainage.

The Dothan-Franciscan Formation contains sandstone, mudstone, siltstone and some volcanic rocks in varying proportions throughout its range. Portions of the formation have been serpentinized by intrusions of serpentinite and ultramafic rocks and have some severe slope stability problems. The Dothan is composed of about 60 percent black mudstone and siltstone.

The geological units and the soils within the project areas can be found in Table A. Specific soil data can be obtained from the Soil Survey of Coos County, Oregon, 1989 and from the NRCS website for the unpublished data of the Curry Co. area.

Table A: Individual Site Information

Location	Soils	Geology
Baker Creek Mainline H366 Road 31-12-3.0, Mile Post 2.7	22E Etelka-Whobrey-Remote complex, 30 to 60% slopes	Otter Point Formation
Burnt Mountain Mainline H361 Road 27-11-12.0, Mile Post 9.7	50 E Remote-Digger-Preacher complex, 30 to 50% slopes	Tyee Formation Type I
Edson Butte H367 Road 31-14-4.0 seg G1	110E Etelka-Whobrey-Remote complex, 15 to 30% slopes	Dothan-Otter Point Formation
Elk Creek @ Big Creek Divide H364 Road 28-11-29.0, MP 11.0	38F Milbury-Bohannon-Umpcoos assn. 50 to 80% slopes	Tyee Formation possibly on inclusion of Otter Point
Elk Creek Ridge Road H362, H363 Road 28-11-29.1, MP 2.5, 3.3	15F Digger- Umpcoos-Rock assn, 50 to 90% slopes	Tyee Formation
Fall Creek Mainline H368 Road 29-11-15.1 MP 0.7	14F Digger-Preacher-Umpcoos assn., 50 to 80% slopes	Tyee Formation

Location	Soils	Geology
Indian Creek Mainline, H369 Road 29-12-36.1 MP 1.6, 2.0 Road 30-11-8.1 MP 0.2, 0.3	21D Etelka- Whobrey silt loams, 7 to 30% 14F Digger-Preacher-Umpcoos assn., 50 to 80% slopes	Otter Point Formation Tyee Formation
Mayfield Cree3k H370 Road 40-14-25.0 MP 5.7	122F Fritsland-Bravo-Cassiday 30 to 60% slopes	Dothan Formation
Sandy Creek H371 29-10-15.0 MP 3.4	46F Preacher-Bohannon loams, 60 to 90% slopes	Tyee Formation

Threatened, Endangered, & Other Special Status Species (including Survey & Manage):

Fisheries and Special Status Fish

Under the Endangered Species Act the Oregon Coast coho salmon Evolutionary Significant Unit (ESU) is listed as Threatened. Edson Butte (T 31S. R14W. Section 15) and Baker Creek (T31S. R12W. Section 17) sites are locations within this ESU. These sites are also within the Oregon Coast steelhead trout ESU (federal candidate), and the Oregon Coastal cutthroat trout ESU (federal candidate). The Mayfield repair site (T40S, R13W. Section 17) is within the Southern Oregon/Northern California Coasts coho salmon ESU (listed as Threatened under the Endangered Species Act). These proposed project sites will indirectly affect listed fish.

Only two of the proposed project sites, Mayfield Creek and Baker Creek have the potential to affect listed juvenile fish by creating turbidity within a tributary that flows into waters where listed fish reside, and the third site, Edson Butte, is located on a tributary to the West Fork of Floras Creek which does not have listed fish, but does have steelhead, a candidate species for listing, and cutthroat trout. Therefore only those three sites will be addressed with regards to fish species and habitat.

Aquatic Species and Habitat

Edson Butte: Road 31-14-4.0 segment G1

The Edson Butte proposed repair site is located in a middle reach of a tributary to the West Fork of Floras Creek. According to a 1975 stream and fish survey conducted by the Gold Beach Ranger District of the Siskiyou National Forest, there are steelhead within this tributary in section 15 (on BLM-managed lands). Steelhead do not extend past a boulder falls that functions as a barrier, but the surveys did not delineate exactly where the barrier is located within the tributary. Therefore, it is unknown if the steelhead are within the proposed repair site.

Observations of channel condition for a short section upstream and downstream of the proposed repair site reveals that the stream was able to access its floodplain and terrace with bankfull widths ranging from 14 to 18 feet. Within the 40 feet of the proposed repair area, however, the stream channel is incised and narrowed to about 10 feet in width. The banks on both sides of the stream have been eroded and have potential to collapse. They are vulnerable to further erosion from the tributary. Also, boulders have been placed in the localized area where the stream had initially diverted from the channel due to the culvert plugging. The boulder placement is not extensive enough (high

enough on the bank) to contain the stream during flows above bankfull; bankfull flows and above may allow the streambank to erode behind the placed boulders during these high flow events.

Mayfield Creek: Road 40-14-25.0 MP 5.7

Mayfield Creek is a 2nd order tributary to the North Fork Chetco River. The project is located within the Chetco River 5th field watershed, the North Fork Chetco 6th field sub-watershed, and the Lower North Fork Chetco Key Watershed.

Mayfield Creek is a Rosgen stream channel type 'A2', which is a steep, deeply entrenched and confined stream channel with boulder-sized channel material and lesser amounts of cobble and gravel present. It is a high energy and high sediment supply stream type.

Habitat surveys have been conducted on Mayfield Creek by ODFW in September, 2000. Reach 2 ends 87 feet above the proposed project site. The survey suggests that both reaches of Mayfield Creek are 'poor' with regards to the criteria for Large Woody Debris (LWD), both in volume and in the number of pieces. More interestingly, though, was that fish were observed and recorded as close as 437 feet downstream from the proposed repair site. In the North Fork Chetco Watershed Analysis, verified upper limits of fish were recorded at approximately 0.25 miles above the repair site. From that upper limit, downstream for approximately one mile, only resident cutthroat trout are found within Mayfield Creek.

This currently failing culvert is allowing erosion to occur around the cement foundation supporting the metal arch culvert. This degradation of culvert integrity has caused further erosion at the upstream lip, the downstream channel and within the fill material of the structure.

Baker Creek: Road 31-12-3.0 MP 2.7

The proposed project site is located on an intermittent tributary to Baker Creek in T31S., R12W., Section 17. The project is located within the South Fork Coquille 5th field watershed, the Lower South Fork Coquille 6th field sub-watershed, and the Baker Creek 7th field drainage.

According to the Lower South Fork Coquille Watershed Analysis (BLM, 1996), the tributary on which the proposed project would occur is not fish-bearing, however, it flows into Baker Creek within 0.3 miles; within this reach of Baker Creek only resident fish are found. Within 0.25 miles downstream, however, Baker Creek becomes an anadromous stream containing Chinook salmon (fall), Coho salmon, Steelhead, Cutthroat trout, Pacific lamprey and many non-anadromous fish species.

Stream surveys were conducted of Baker Creek in July, 1992, however, the survey did not continue upstream to the confluence of this unnamed tributary. The survey ended about a mile downstream of the tributary. The uppermost surveyed reach indicates that many portions of the reach are in poor or fair condition with regards to the ODFW benchmark criteria. Data from the table indicates that the uppermost reach is lacking in gravel and has an overabundance of silt, sand and organics. Not surprisingly, then, pool area is also marginal, since too much

silt/sand/organics can fill pools.

The proposed project site currently has an 18" culvert that is too small and angled incorrectly to be fully effective. Runoff from a closed road that is perpendicular to the 3.0 road funnels substantial amounts of water down to the culvert during the wet season. This water is currently dispersed inefficiently, with a small earthen berm causing the pooling of water near the road.

Wildlife Species Habitat and Occurrence (including T&E)

All of the projects occur within, or immediately adjacent to road prisms. Most are in young conifer plantations or hardwood and shrub habitat. The Elk Creek at Big Creek Divide, Elk Creek Ridge 2.5, Burnt Ridge, and Sandy Creek sites have late-seral conifer forest adjacent to them. The projects occur within the range and habitat of two Threatened or Endangered (T&E) wildlife species: northern spotted owl and marbled murrelet. Several project sites are within 1 mile of known T&E wildlife sites or potential habitat. See the wildlife specialist's report for details. Some of the project areas have been surveyed for spotted owls and marbled murrelets as part of other project proposals.

USDA, USDI (2001) lists species for which additional protection under the Northwest Forest Plans Survey and Manage (S&M) program is warranted. Red tree voles are the only wildlife S&M species potentially present in the project vicinities. Potential red tree vole habitat is present adjacent to the Elk Creek at Big Creek Divide, Elk Creek Ridge 2.5, Burnt Ridge, and Sandy Creek sites. Red tree vole surveys were completed immediately adjacent to each project site having suitable habitat. No trees identified for removal contained potential or confirmed red tree vole nests.

Table C-3 of the Coos Bay District Record of Decision and Resource Management Plan (1995) provides a list of Special Status Species that are known or suspected to occur on the Coos Bay District and thus could occur at the project sites. Given the proximity of the project sites to wet areas, amphibian species are of special concern relative to the proposed actions. Some Special Status amphibian species that could occur at project sites are the southern torrent salamander, clouded salamander, California slender salamander, western toad, tailed frog, northern red-legged frog, and foothill yellow-legged frog. Under the Preferred Action culvert installation would occur at 2 sites. All aquatic species can probably navigate up and down stream through the existing open bottom culvert at Mayfield Creek; although the site itself is very rugged and probably naturally June 18, 2001 hinders movements. Conditions inside the culvert simulate natural stream conditions. Cursory stream surveys identified only Pacific giant salamanders. There are 3 existing culverts at the Baker Creek site. The one proposed for replacement occurs on a temporary stream that does not offer much habitat value for amphibians or other special status species. The other two occur on a small perennial stream. Cursory surveys did not turn up any amphibians or other special status species. The existing culverts have dropoffs at their outlets which probably impede upstream movements of some aquatic species. Nesting habitat for birds protected by the Migratory Bird Treaty Act occurs in the vicinity of all the project sites. Appendix T of the Final Coos Bay District Proposed Resource Management Plan Environmental Impact Statement, Volume II (1994) lists wildlife species that occur on the Coos Bay District. Some of these species could be impacted by the proposed project activities.

Botanical

There are no known occurrences of Special Status plants, or Survey and Manage Strategy A or C species within or adjacent to the project areas or waste sites. There is only one Special Status plant likely to occur at or near two of the fourteen project sites, *Iliamna latibracteata*. Although predisturbance surveys for these species aren't required, surveys were conducted at these two sites and adjacent areas. In total, 12 of the 14 sites were surveyed. No presence of *Iliamna latibracteata* was found. All sites are within the existing road prisms which are subject to disturbance due to continual maintenance. No negative effects to special status plants or Survey & Manage species are anticipated from these projects.

Noxious Weeds and Invasive Nonnative Species

Scotch Broom occurs at some sites or along the roads accessing the sites (see Table 1), and are a likely seed source. No other noxious weeds or invasive nonnative species of concern were noted. *Section 2* includes standard design features to help prevent the introduction/spread of noxious weeds.

SECTION IV - ENVIRONMENTAL CONSEQUENCES

This section provides the scientific and analytic basis for comparing the No Action and Preferred Action alternatives described in Section II. The potential short- and long-term impacts to the affected resources are discussed here for each project type, as it relates to the issues for each alternative. No irreversible or irretrievable commitment of resources have been identified for either of the alternatives.

NO ACTION ALTERNATIVE

Under this alternative, no major road repair or culvert replacement would occur. Routine BLM road maintenance and monitoring inspections, as identified in the ROD, would continue at the damaged sites. Maintenance may involve minor repairs to the damaged sites and might include cleaning culverts and ditches, moving slide material to allow traffic passage or blocking roads with barriers, and patching cracks or small slumps. Inspections are conducted annually on major roads and roughly every two or three years on smaller spur roads. These inspections would only detect increased erosional damage after it had occurred. At passable sites, traffic would have to slow down and use caution to pass. At blocked sites, traffic would be stopped, with no access to areas beyond the failure. There is a potential for continued slumping or failure at the sites. Should management actions by other adjacent landowners necessitate access beyond the road the failures, then the road repairs would be made by those landowners. Repairs would be according to agreed upon standards within the Rights of Way Agreement with the private landowner.

Issue: Sedimentation - Direct Effects:

Water Quality (Surface/Ground)

Hydrology and Soils -

The surface and groundwater flows would remain in their current state. Plugged culverts and diversions would continue to pose the risk of increased erosion. Road failures which are presently contributing sediment to the stream network would continue until the sites stabilize and naturally re-vegetate; usually 2 to 3 years on most sites on the District. Fill material and hillslope slumps above road failures could be delivered to the stream network through diversions or during storm events. Ordinary road maintenance may correct some of the drainage problems although a portion of the road fills would continue to have a high potential to fail during winter storms. The Edson and Mayfield sites will continue to contribute high amounts of sediment downstream from bed and bank channel erosion. At Baker Creek additional flow caused by a diversion could erode the channel, supply sediment and saturate the main road fill to a point of failure.

Threatened, Endangered, & Other Special Status Species (Including Survey & Manage):

Fish - Aquatic Habitat / Aquatic Species (including Special Status Species)

The routing of the runoff (surface and groundwater) would remain "as is" at most of the sites. Road failures that are presently contributing sediment to aquatic resources would continue to do so until these sites stabilize and naturally re-vegetate. Fill material above road failures could be delivered to the stream network through diversions during storm events. .

If sediment delivery occurs during the late fall and winter during spawning season, it could have an effect on the intragravel environment of salmonid embryos. Inorganic sediments may clog substrate interstices and diminish intragravel water and oxygen flows. Fine sediment may also act as a physical barrier to fry emergence and/or have lower survival to emergence (Spence, et al, 1996). Cumulative effects of sedimentation would be most prevalent in the Edson Butte site because the fry would be adjacent to the proposed project and would not have the benefit of turbidity dilution. At the Mayfield and Baker Creek sites, however, some filtering and dilution would be occurring prior to infiltration into waters in which listed fish reside. In Mayfield Creek, resident cutthroat trout would be immediately affected by the cumulative effects of sedimentation. At Baker Creek, some vegetative filtering could occur since the water would be routed to a less defined channel that retains some bank and in-channel vegetation.

Wildlife Species Habitat and Occurrence (including T&E)

Sedimentation is a concern primarily for aquatic forms of wildlife. Many of these species breathe through gills or their skin and if sediment is encountered it could interfere with this process. Under the “No Action” alternative, increased sedimentation could have a long term negative impact on aquatic wildlife. Corn and Bury (1989) found aquatic amphibians were less common in recently logged areas and suggested that habitat degradation due to sedimentation was the primary cause.

Issue: Sedimentation - Indirect Effects:

Water Quality (Surface/Ground)

Hydrology and Soils: Exposed soils, fill material, and debris jams would naturally re-vegetate and stabilize, however, prolonged precipitation and run-off events could cause additional erosion and road failures in the future. This could result in an increase in sediment delivery above baseline to downstream channels, potentially impacting water quality and stream channel morphology. Future road stability and passage could be compromised by additional failures of hillslope materials and road sub-grades. Chronic fine sediment delivery from these locations would continue without a long term repair.

Threatened, Endangered, & Other Special Status Species (Including Survey & Manage):

Fish - Aquatic Habitat / Aquatic Species (including Special Status Species)

While these sites would naturally re-vegetate and stabilize, future high intensity run-off events could cause additional erosion and road failures. This could result in an increase in sediment delivery above baseline to downstream channels, potentially impacting fish habitat and species. Impacts would be most prevalent at the Edson Butte site. Steelhead, a candidate species for listing, could potentially be affected, since they may be downstream of the site.

Wildlife Species Habitat and Occurrence (including T&E)

Increases in sediment delivery through continued road failures would fill in the interstitial spaces in the rocky substrates and degrade habitat quality for aquatic wildlife species.

Issue: Sedimentation - Cumulative Effects:

Water Quality (Surface/Ground)

Hydrology and Soils: Short term cumulative impacts from downstream fine sediment delivery will be concentrated

until re-vegetation occurs. Natural re-vegetation could take 2 to 3 years or longer depending upon local seed sources, site aspect, and weather conditions. The types and amount of private forest management can not be known, therefore a cumulative impact analyses which would include these activities is difficult to determine. The distribution of these sites across the landscape is very broad and it is unlikely that delivery of sediment from these particular sites will be any greater than other sediment delivery processes in the watersheds they are located.

Threatened, Endangered, & Other Special Status Species (Including Survey & Manage):

Fish - Aquatic Habitat / Aquatic Species (including Special Status Species)

There may be short-term cumulative impacts to fish/aquatic habitat from downstream sediment delivery at the Edson Butte, Mayfield and Baker Creek sites as erosion and soil loss continues prior to natural re-vegetation occurring. Sediment delivery to streams above background levels would have negative impacts to downstream water quality and fish/aquatic habitats.

Wildlife Species Habitat and Occurrence (including T&E)

Habitat degradation due to sedimentation from these road failures would combine with habitat degradation through sediment injections via other sources and exacerbate the current habitat problems for aquatic wildlife species.

Issue: Aquatic Habitat Connectivity - Direct Effects:

All aquatic species are limited by the debris fan at the culvert outlet and probably cannot navigate up and down stream through the existing open bottom culvert at Mayfield Creek. Conditions inside the culvert were intended to simulate natural stream conditions but have become altered and passage does not occur during some months of the year. The water in the channel either goes sub-surface or the low becomes very low. The two culverts on the small perennial stream at the Baker Creek site would retain drop-offs at their outlets and would continue to present barriers to upstream movements of Pacific giant salamanders and snails (*Juga* spp.).

Passage of fish is not imperative within Mayfield Creek. While replacement of the current structure is necessary in order to prevent a catastrophic road failure in the near future, channel characteristics present above and below the culvert and at the respective location high in the drainage does not warrant fish passage as the highest priority. There are other barriers within Mayfield Creek that do not allow fish passage much beyond the culvert site.

Aquatic habitat connectivity is desirable within the Edson Butte site. It is unknown how far steelhead travel upstream within this tributary, however, it does maintain a reasonable flow throughout the year and appears to have habitat that could be utilized by juvenile salmonids. Without repair to the Edson Butte site, it is possible that juvenile salmonids would not be able to move past the site. The channel has been narrowed at the proposed repair location and is not armored. It is possible that flow velocity could provide a barrier to aquatic movement.

Issue: Aquatic Habitat Connectivity - Indirect Effects:

Other aquatic species potentially present (insects and frogs) have adult phases that can likely cross relatively low-standard, gravel roads, at least on occasion. cursory surveys suggest populations of vertebrates in Baker and Edson Creeks are low, if present at all; snails are common but their extremely low mobility suggests up and down

stream movements may not be an integral part of their life history. The Mayfield Creek culvert is failing and will likely continue to degrade rendering future passage of this culvert is uncertain.

The 'no action' alternative could affect aquatic habitat connectivity at the Mayfield and Edson Butte sites by not allowing the movement of aquatic life within those streams past the proposed repair area. Above the Mayfield culvert, there is a small amount of cutthroat trout habitat, however, if connectivity is not re-established at this site, it is unlikely to substantially affect cutthroat habitat since the habitat above is abbreviated and steep. Above Edson, there appears to be habitat, however, it is unknown if there are any barriers to fish to the project area.

Issue: Aquatic Habitat Connectivity - Cumulative Effects:

Our experiences suggests that most road crossings of perennial, non fish-bearing streams on the District probably present at least some degree of barrier to movements of aquatic species. The cumulative effects of continued barriers on the small perennial stream at the Baker Creek site are not expected to be appreciable, however, because the stream is quite small and has marginal habitat value for vertebrates.

Edson Butte would most likely have cumulative effects from not re-establishing aquatic habitat connectivity. Although it is unknown as to whether juvenile steelhead and/or trout inhabit the reach above the proposed project area or how far into that reach they may move, it is possible that the proposed repair site location could be a barrier. This could translate into less available micro-habitat for juveniles.

Issue: Transportation Network Safety and Closure - Direct Effects:

The lack of repair on these sites may endanger those individuals using the road system at the various points of failure. The narrow width or sudden change in road grade could cause a driver to be unable to control the vehicle through the site or not provide a place to pass another vehicle coming in the opposite direction. The roads that have failed from below may not support the type of heavy equipment associated with harvesting timber from the forest environment. Roads that are not deemed safely passable may encourage individuals to attempt passing the blockage and become stranded or slide off the hillside.

Issue: Transportation Network Safety and Closure - Indirect Effects:

The traffic pattern of certain users of the roads will need to be altered. Timber haul will need to take other routes as well as heavy equipment associated with timber harvesting. The cost to use the secondary route may have to be incurred by the private companies and individuals expecting to use a shorter more direct route. The lower use of the roads with may dictate that maintenance activities do not occur at their regularly scheduled times.

Issue: Transportation Network Safety and Closure - Cumulative Effects:

The increased traffic on other transportation network roads may cause those roads to degenerate and cost additional maintenance funds in the future.

Noxious Weeds and Invasive Nonnative Species

The project sites presently have exposed soil areas created by soil movement. Exposed soil is highly preferred by

noxious weeds and invasive nonnative species. Standard road maintenance practices do not include grass seeding of these exposed sites. Under the “No Action” alternative no treatment of existing weeds or grass seeding would occur. There is a likely probability that noxious weeds would become established at these sites if seed from a source were provided. The continued spread of weeds to other areas could be initiated by the plants that may colonize the disturbed area. Non-treatment of these sites aids in the persistence, spread, and size of these undesirable plant populations across the landscape. Future control efforts would be more involved requiring both herbicide and long term monitoring of the sites. (ex. Scotch Broom seeds can last 80+ years before germinating).

PREFERRED ACTION ALTERNATIVE

The Preferred Action covers:

- Repairing or rebuilding nine damaged roads within, or nearly within, their original alignment.
- Waste site identification for ten of the thirteen repair sites. Some repair sites may need to have two waste sites identified in the event that earth quantities are greater than can be handled at one site.
- The installation of water and slope monitoring wells on the Indian Creek rd. MP 2.0
- Strengthening a road closure device on the Indian Creek 8.1 road.
- Closure of the final 0.8 miles of the 28-11-36.0 road.
- Replacement of one intermittent first order stream crossing with a larger diameter culvert on Baker Creek 30-12-3.0 rd. and correcting the upslope diversion of a second channel by removing the culvert and rocking the channel and outflow.
- Re-establishing the bankfull width and armoring the bottom of the channel of a culvert failure on Edson Butte 31-14-4.0 road. Removal of two ditch relief culverts on the remaining portion of the road to the west.
- Removal and replacement of the open bottom arch structure on Mayfield Creek with a baffled culvert filled with appropriate sized rocks and an outlet structure that would facilitate some aquatic organism passage. The adjacent stream crossing to the west would be replaced and an intermittent stream to the east would have a ditch relief culvert installed.

Consistency with Aquatic Conservation Strategy Objectives

The Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of a watershed and the aquatic ecosystems contained within them on public lands (Interagency 1994b). The strategy protects salmon and steelhead habitat on federal lands managed by the Forest Service and BLM within the range of Pacific Ocean anadromy (ROD, Standards and Guidelines, p. B-9). The appropriate landscape scale for evaluating the consistency of individual and groups of projects with the ACS is the watershed, corresponding with the “fifth-field” hydrologic unit code (HUC) as defined in the “Federal Guide for Ecosystem Analysis at the Watershed Scale”¹.

The intent of the ACS is to maintain and restore aquatic habitats and the watershed functions and processes within the natural disturbance regime by prohibiting activities that retard or prevent attainment of the ACS objectives. The

¹ Reference November 9, 1999 Regional Ecosystem Office memorandum concerning Northwest Forest Plan Requirements for ACS consistency determination.

primary emphasis of the Standards and Guidelines for Riparian Reserves is restoration of the ecological processes and stream habitats that support riparian-dependant organisms. The important phrases in these standards and guidelines are “meet ACS objectives,” “does not retard or prevent attainment of ACS objectives,” and “attain ACS objectives.”

The following analysis describes how the proposed ERFO projects maintain the existing condition or lead to improved conditions in the long term for each of the nine ACS objectives.

ACS Objective 1 - Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.

Completing the repair work at the various project sites would serve to protect the aquatic systems that have been impacted by road and hillslope failures. The outcome of the work would either maintain or improve the conditions that existed prior to the failures, and road damage that is presently impacting aquatic resources would be ameliorated. The proposed road repairs are consistent with this ACS Objective.

ACS Objective 2 - Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

Because the work entails the repair of existing roads that would continue to be utilized in the future, conditions would be either maintained or improved at each project site. Culvert replacements would either improve habitat connections (Baker Creek), or attempt to retain as much as reasonably possible (Mayfield Creek), or restore spatial connectivity (Edson Butte). No new culverts would obstruct routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species, and no known refugia would be affected by the proposed projects. Therefore, it is concluded this project is consistent with ACS Objective 2.

ACS Objective 3 - Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

The physical integrity of the aquatic system would be maintained by incorporating BMP's and design features as described in Section II. Some of the road failures that are presently degrading aquatic habitats through sedimentation would be corrected, and impacts to stream banks (Edson and Mayfield) that occurred as a result of the road failure would improve through time. Culverts would also be provided to improve road drainage features and minimize the potential for road failures in the future. Therefore, it is concluded this project is consistent with ACS Objective 3.

ACS Objective 4 - Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of

individuals composing aquatic and riparian communities.

The proposed projects would maintain or improve the condition of the roads at each of the project sites. The road failures that are impacting water quality would be repaired and improve water quality conditions in the short- and long-term. Sediment filters would be located where sediment would have the potential to affect aquatic communities during construction activities, and disturbed soils would be re-vegetated to prevent chronic sedimentation. Therefore, the proposed projects would be consistent with ACS Objective 4.

ACS Objective 5 - *Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

The proposed projects would reduce the severity and duration of sedimentation that is occurring due to the road failures or bank and channel failures. Although the extent of increased sedimentation that has occurred in the past and would occur until the projects are completed is unknown, it's expected that the road and culvert repairs would significantly decrease the timing and rate of sedimentation in the future. The elements outlined in ACS Objective 5 would be maintained or improved.

ACS Objective 6 - *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

The proposed road repair and culvert projects are not likely to influence instream flows or affect peak, high, or low flows. Patterns of sediment, nutrient, and wood routing would be either maintained or improved because the proposed projects involve repairs to pre-existing roads. Therefore, it is concluded this project is consistent with ACS Objective 6.

ACS Objective 7 - *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

The proposed projects would restore or improve the affected road segments. Therefore, no impacts to water tables or floodplains would occur and it is concluded this project is consistent with ACS Objective 7.

ACS Objective 8 - *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.*

The loss of vegetation that occurred as a result of the road failures would be restored or improved in conjunction with the road repairs. Exposed soils would be re-vegetated to minimize sediment delivery to aquatic resources, and eventually provide shade to regulate temperatures in the streams that are in close proximity to the project sites. Trees would be planted to reduce road corridor widths and improve vegetative connectivity. Therefore, it is concluded the proposed project is consistent with ACS Objective 8.

ACS Objective 9 - Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Native grass seeds would be utilized to stabilize soils if available. If trees are planted in areas impacted by the road failures, only tree species indigenous to the affected areas would be used. Road repairs that reduce sediment delivery to aquatic resources would benefit the populations described under this objective. Re-vegetating sites would also benefit riparian-dependent species. Habitat conditions that existed prior to the road failures would be either maintained, improved or retained to the degree possible. Therefore, it is concluded this project is consistent with ACS Objective 9.

Noxious Weeds and Invasive Nonnative Species

Noxious weeds and invasive nonnative species are not an issue due to Best Management Practices and other Design Features.

Issue: Sedimentation - Direct Effects:

Water Quality (Surface/Ground)

Hydrology and Soils: The design features of the proposed action will employ best management practices during road repairs and culvert replacements, to ensure compliance with Aquatic Conservation Strategy objectives, and terms and conditions of National Marine Fisheries Service consultation and Biological Opinions.

Erosion control best management practices will be employed at each repair site. Some short-term low level delivery of fine sediments could reach the stream channel during repair of the Edson Butte site. The Mayfield site is an intermittent second order channel and no water was flowing at the time of an earlier project. It is not expected to be flowing when the repair is taking place. The Baker site also appears to be an intermittent second order channel and is expected to be dry during the repair. The sediment delivery at Edson Butte may be visible in the stream for a couple of hours as rock is bedded in the channel. This should only be for one half day of activity. Turbidities would return to normal after all bank protection rock are in place. In-stream processes will sort most of the sediments, but there may be visible downstream channel deposition for several hundred feet. All other sites are on ridge tops or mid-slopes that have no connection to water or stream networks.

Removal of some trees and brush may occur in the vicinity of the road grade to allow for proper culvert alignments and replacements, but impacts on soil disturbance and hillslope stability will be minimal. At the completion of disturbance all soil will be seeded, mulched and fertilized to protect the exposed soil from precipitation events. Construction activities may result in short-term fine sediment delivery at project sites after the first flush of rain in the fall. Once vegetation is established in areas where repairs occur, the amount of post-installation sediment delivered to streams should be negligible. Because slide and waste materials would be located in non-Riparian Reserve sites, and on stable ground, impacts to aquatic resources are not anticipated as a result of the disposal of excess fill and materials resulting from construction work.

Threatened, Endangered, & Other Special Status Species - (including Survey & Manage):

Fish - Aquatic Habitat / Aquatic Species (including Special Status Species)

The design features of the proposed action would employ BMP's during road repairs and culvert replacements, and would re-establish vegetation following construction to ensure compliance with Aquatic Conservation Strategy objectives (see ACS section of this EA), and terms and conditions of NMFS consultation and Biological Opinions.

Although BMP's for erosion control would be employed at each repair site, there would likely be low level amounts of fine sediments reaching stream channels during repairs and the first freshets following construction at the sites in proximity to stream channels. These sediments may be visible in the receiving stream from a couple of hours up to a few days after repairs are made. However, it's anticipated that the extent and duration of sedimentation would be less than what would occur if the road failures are not repaired.

Repair of the Mayfield culvert would reduce the long term, low levels of turbidity that have been occurring. Although the replacement or repair of the culvert would likely result in short term turbidity after construction turbidity would not exceed background levels above the natural variability.

Repair of the Edson Butte site will reduce the probability of larger amounts of sediment entering the tributary and affecting juvenile cutthroat and steelhead. Winter flows have the potential to erode the banks in the area of the repair site which may result in further de-stabilization of the overhanging banks and cause sediment to enter the stream. Although the repair of the site will result in short term turbidity, machinery may operate on boulders placed within the channel which would minimize the churning of the channel bottom and therefore sediment distribution to downstream habitats. Also, repair would be conducted during low summer flows which would minimize delivery and stream levels may be sub-surface at this site.

Repair of the Baker Creek site will minimize the potential of the culverts plugging and sending large amounts of sediment downstream into Baker Creek. The repair would drain pooling water away from the road sub-grade, prevent diversions from upslope and lessen the possibility of sediment delivery through future road failures at this site. The Baker Creek area is notorious for its unstable soils, and therefore, if the road became saturated, the chances of it slumping would be high. Sediment in the amounts expected from a washed-out road could easily affect listed fish within Baker Creek.

Wildlife Species Habitat and Occurrence (including T&E)

Could just refer to fish section or integrate the two. Sedimentation is a concern primarily for aquatic forms of wildlife. Many of these species breathe through gills or their skin and if sediment is encountered it would interfere with this process. Some sedimentation is inevitable with these projects and would be a short term impact. Mulching and seeding at project sites would aid in minimizing some sedimentation impacts. Following appropriate management practices that best minimize erosion and sedimentation would also decrease this impact.

Issue: Sedimentation - Indirect Effects:

Water Quality (Surface/Ground)

Hydrology and Soils: By employing best management practices and seasonal in-stream work restrictions, sediment produced from site repairs will be minimized. Short-term downstream sediment delivery should be insignificant. Seeding of grasses and legumes on exposed soils at the repair sites will ensure soil stabilization.

Threatened, Endangered, & Other Special Status Species (Including Survey & Manage):

Fish - Aquatic Habitat / Aquatic Species (including Special Status Species)

By employing BMPs and seasonal in-stream work restrictions, sediment produced from repairs at sites in close proximity to stream channel would be minimized, and any indirect impacts to fish and aquatic habitat would be short-term and not measurable. Daily recovery periods would provide clean waters to flow through the sites following cessation of work in the evening. Sediment delivery should be reduced, and re-establishing vegetation on disturbed ground would ensure long-term soil stabilization.

Wildlife Species Habitat and Occurrence (including T&E)

Since repairs are expected to reduce overall sediment delivery, the amount of habitat degradation would be less than the No Action alternative.

Issue: Sedimentation - Cumulative Effects:

Water Quality (Surface/Ground)

Hydrology and Soils: The use of best management practices and performing site repairs during the established in-stream work period would minimize delivery of fine to medium sized sediments. Long term impacts would not adversely affect water quality. These road damage sites are widely scattered across many sub-watersheds on the District. Determining the action of private land owners and timber companies cannot be determined for the purposes of this analysis at the 5th field watershed scale.

There may be short term cumulative impacts to water quality and channel morphology from downstream sediment delivery during both initial and post construction when water is diverted and subsequently returned to its original channel. However, BMPs for reducing erosion and soil loss would be used, and cumulative impacts to downstream water quality from repair actions at these sites would not be measurable.

As repairs are being made, other BLM activities as well as private forest management would be ongoing. The types and amount of private forest management would not be known; therefore, a cumulative impact analyses which would include these activities is difficult to determine.

Threatened, Endangered, & Other Special Status Species (Including Survey & Manage):

Fish - Aquatic Habitat / Aquatic Species (including Special Status Species)

Cumulative impacts to downstream fish/aquatic habitat or water quality from the projects would likely not be measurable after soils are stabilized. The use of BMP's, working within the established in-stream disturbance period, and lack of precipitation is expected to minimize delivery of fine to medium sized sediment from the proposed action.

Wildlife Species Habitat and Occurrence (including T&E)

There are no known cumulative sedimentation effects to the Preferred Action.

Issue: Aquatic Habitat Connectivity - Direct Effects:

The stretch of Mayfield Creek containing the culvert is steep and very rugged. A steep, boulder cascade exists just upstream from the culvert. The steep, rugged conditions probably make upstream movement for all aquatic species difficult. They also present a tremendous challenge to designing a road crossing that will survive most floods, be of reasonable cost, and will accommodate movements of aquatic organisms. Our first attempt at installing an open-bottom passable structure here failed. The preferred alternative proposes a pipe arch with baffles and embedded boulders which is safer (i.e. less likely to fail) but may present greater challenges to organisms such as salamanders and frogs trying to move upstream. We expect the culvert design to retain some substrates which should accommodate animals trying to move upstream through interstitial spaces (such as salamanders) as well as offer some exposed rocks for riparian-associated, terrestrial species (e.g. frogs, mink) to move across. The design, though, is experimental and may not retain substrates as expected. We feel it offers a reasonable compromise between organism passage and security against failure.

At the Baker Creek site, the replacement culvert on the first order intermittent stream is of little concern because it has negligible habitat value. The second order stream would be rerouted around a rusting metal culvert with a 7 foot drop-off at the outlet. After the reroute, the creek would pass through one culvert instead of two thereby improving aquatic habitat connectivity. The first order stream culvert currently has a small drop-off at the outlet. Additional rocks would be placed at the outlet to improve aquatic habitat connectivity; although the culvert barrel itself may impede movements. Nonetheless, circumventing one problem culvert and reducing a drop-off at another would result in improved habitat connections under this alternative.

Issue: Aquatic Habitat Connectivity - Indirect Effects:

No indirect effects are anticipated.

Issue: Aquatic Habitat Connectivity - Cumulative Effects:

We expect the preferred action alternative will maintain aquatic habitat connections at Mayfield and Edson Creeks and improve them at Baker Creek. It is expected that the cumulative effect of these improvements, together with improvements brought about through other restoration programs will result in beneficial cumulative effects for aquatic species.

Issue: Transportation Network Safety and Closure - Direct Effects:

The implementation of repairs on these sites will reduce the endangerment those individuals using the road system at the various points of failure. The width or road grade would be restored and would not cause a driver to be unable to control the vehicle through the site or not provide a place to pass another vehicle coming in the opposite direction. The roads that have failed from below will be able to support the type of heavy equipment associated with harvesting timber from the forest environment. Roads that are not deemed safely passable will be closed in a manner such that no access by a vehicle will occur.

Issue: Transportation Network Safety and Closure - Indirect Effects:

The traffic pattern will be returned to those roads that presently require changes by certain users of the roads. Timber haul as well as heavy equipment associated with timber harvesting can be more direct and need not take other routes. The cost to use the secondary route may not have to be incurred by the private companies and individuals expecting to use a shorter more direct route will be able to do so. The reduced use of the roads may dictate that maintenance activities occur at their regularly scheduled times.

Issue: Transportation Network Safety and Closure - Cumulative Effects:

The increased traffic on other transportation network roads will not need to occur. Those alternative roads will not degenerate and cost additional maintenance funds in the future.

Noxious Weeds and Invasive Nonnative Species

The project sites presently have exposed soil areas created by soil movement these areas will be seeded and mulched. The exposed soil that is highly preferred by noxious weeds and invasive nonnative species will be unavailable. Under the "Preferred Alternative" treatment of existing weeds would occur. There is a likely probability that noxious weeds would become established at these sites if seed from a source were provided but future monitoring of the sites will eliminate the plants before becoming a nuisance. The continued spread of weeds to other areas would be reduced by this alternative. Treatment of these sites aids in the removal, reduction of spread, and minimizes the size of these undesirable plant populations across the landscape. Future control efforts would be less involved but still requiring both herbicide and long term monitoring of the sites. (ex. Scotch Broom seeds can last 80+ years before germinating).

Persons/Agencies Consulted:

Federal Highway Administration (FHWA)
Carey Weatherly Roseburg Lumber Co.
Harry Hoogesteger South Coast Coordinating Watershed Council

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Appendix Maps

