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Department of
Agriculture

Forest Service

Pacific
Northwest
Region

2009

Clackamas
Road Decommissioning for Habitat Restoration

Proposed Action

Clackamas River Ranger District, Mt. Hood National Forest
Clackamas and Marion Counties, Oregon
The project is located in the Upper Clackamas watershed

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Decommissioned road with an earth berm and log debris

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CHAPTER 1 - PURPOSE AND NEED FOR ACTION

1.1 Introduction

The Clackamas River Ranger District, Mt. Hood National Forest proposes to decommission select spur roads for aquatic and terrestrial habitat restoration. In 1994, the Northwest Forest Plan (NWFP) recognized the need for watershed restoration:

> "Watershed restoration will be an integral part of a program to aid in recovery of fish habitat, riparian habitat, and water quality. Restoration will be based on watershed analysis and planning" (NWFP p. B-30).
>
> The most important components of a watershed restoration program are control and prevention of road-related runoff and sediment production, restoration of the condition of riparian vegetation, and restoration of in-stream habitat complexity" (NWFP p. B-31).

The Mt. Hood National Forest (Forest) has accomplished numerous restoration projects in the past few years including several hundred miles of road decommissioning. The Forest-wide Roads Analysis recommended decommissioning roads that have low access needs and considerable environmental risk (USDA Forest Service 2003). The public that uses the road network expects the Forest Service to keep roads open and free from safety hazards. However, Forest Service budgets during the last decades have not kept pace with the costs to maintain all the system roads as safe and properly functioning. Ongoing forest-wide road decommissioning efforts are addressing a maintenance backlog, an anticipated decrease in maintenance budgets, and potential impacts to hydrologic function. While reduced road maintenance funding is the primary reason for action, the Forest Service has chosen to prioritize which roads to decommission based on their impacts to fish and wildlife habitats.

This document includes roads in four sixth field watersheds within the Clackamas River basin: Last and Pinhead Creeks, Berry and Cub Creeks, Middle Upper Clackamas River (includes Lowe, Tumble, Rhododendron, Fawn, and Hunter Creeks), and Upper Clackamas Headwaters (includes Squirrel, Olallie, Lemiti, and Slow Creeks). In subsequent years, other Environmental Assessments will address roads in other watersheds. This document focuses on road decommissioning – stabilization and restoration of unneeded roads to a more natural state, and resulting updates to the roads system records (36 CFR 212.1). In particular, this project includes decommissioning roads currently managed at operational Maintenance Level 1 (i.e. vehicle traffic is currently prohibited) and 2 (i.e. open only to high-clearance vehicles). Other types of restoration projects would be included in separate Environmental Assessments.

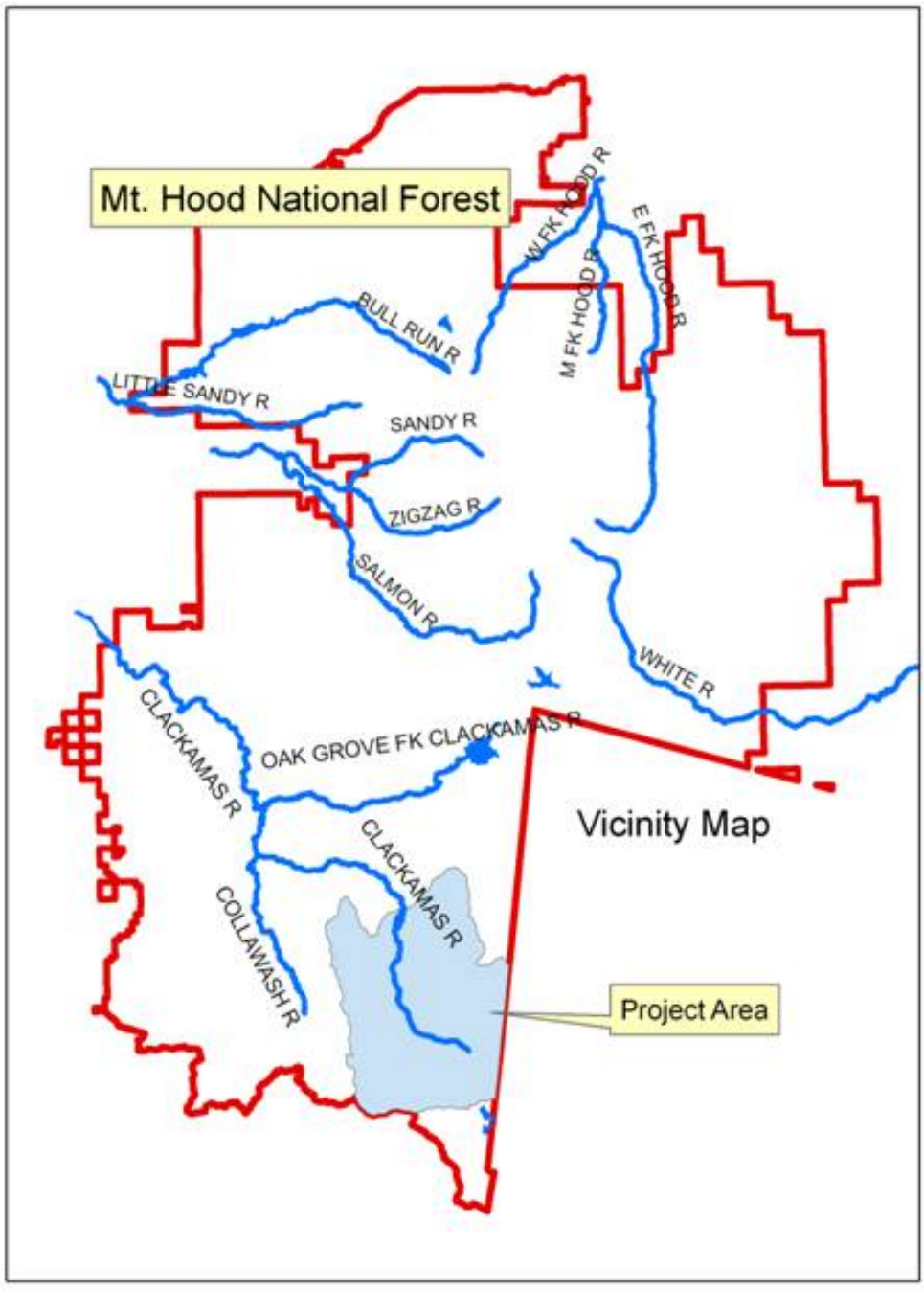
1.2 Document Structure

This document is written to fulfill the purposes and requirements of the National Environmental Policy Act (NEPA), as well as to meet policy and procedural requirements of the USDA Forest Service. The intent of NEPA, its implementing regulations, and Forest Service policy is to evaluate and disclose the effects of Proposed Action on the quality of the human environment. The document is organized into the follow parts:

- *Purpose of and Need for Action:* The section includes information on the history of the project proposal, the purpose and need for action, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

- *Alternatives, including the Proposed Action:* This section provides a more detailed description of the Proposed Action as well as the No Action Alternative and one other action alternative. This discussion also includes possible design criteria that were added as a result of environmental analysis.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Estacada Ranger Station in Estacada, Oregon.


Mt. Hood National Forest
W FK HOOD R
E FK HOOD R
M FK HOOD R
BULL RUN R
LITTLE SANDY R
SANDY R
ZIGZAG R
SALMON R
WHITE R
CLACKAMAS R
OAK GROVE FK CLACKAMAS R
CLACKAMAS R
COLLAWASH R
Vicinity Map
Project Area

1.3 Background

Why the Upper Clackamas River?
Mt. Hood National Forest is committed to examining all of its watersheds for restoration opportunities. Mt. Hood National Forest prioritized which watersheds to consider first based on numerous natural landscape, biological, management intensity, and social/administrative factors. For example, the Upper Clackamas River drainage has a fairly high road density and also includes stream habitats that are suitable for reintroducing bull trout – a threatened species listed under the federal Endangered Species Act. These watersheds also contain several Key Site Riparian Areas that "exhibit high habitat diversity and outstanding capabilities" for producing high quality water, excellent fish and wildlife habitat, and diverse plant communities {USDA Forest Service 1990}. The project area includes the headwaters of the Clackamas River – congressionally designated as a Wild and Scenic River for its "outstandingly remarkable" values" (ORVs): superb fisheries, spectacular scenery, and significant recreational opportunities {USDA Forest Service 1992}.

Roads Analysis to field examination
The Forest-wide Roads Analysis lists roads with low access needs in addition to high environmental risks {USDA Forest Service 2003, pp. 44-46}. These roads are to be considered for decommissioning during project planning. The Roads Analysis generally outlines the physical setting and potential resource impacts of road segments. Some roads that score high because they are in a high risk landscape may not actually have any imminent risks. Also a road listed with "low access needs" does not imply it has *no* access needs. Very few roads in the project area were rated as high risk, however many of them have low access needs and are being considered for decommissioning to benefit fish and wildlife habitat.

Site-specific field visits were conducted to gather data and better inform decisions about whether to keep a road open, close it to vehicle traffic, or decommission and delete it from the transportation system database. The roads in this project area were field examined to determine if there were any problems (i.e. poor drainage, erosion, excessive unauthorized activity, etc.) and the ages of the plantations were assessed for thinning opportunities. If a road is needed soon for a future restoration thinning project, it may be appropriate to delay decommissioning until after thinning timber stands.

1.4 Desired Conditions

The following statements represent desired conditions based on the Mt. Hood National Forest Land and Resources Management Plan, as amended (referred to as the Forest Plan).

- The **transportation system** allows safe access through the Forest where appropriate, and it is carefully designed and maintained to minimize impacts to aquatic

resources.

- **Habitats** provide for viable populations of existing native and desired non-native wildlife, fish, and plant species well distributed throughout their current geographic range within the National Forest System. Landscapes contain a diversity of habitats.
- **Watersheds** have hydrologic and sediment regimes that function within their ranges of natural variability. They contain a network of healthy riparian areas and streams.
- **Streams** provide a diversity of aquatic habitat for fish and other stream-dwelling organisms. They offer sufficient quantities of large woody debris; they have clean and abundant spawning gravel; and they have stable banks that are well vegetated and have cool water.
- **Riparian areas** contain plant communities that are diverse in species composition and structure. They provide summer and winter thermal regulation; nutrient filtering; and have appropriate rates of surface erosion, bank erosion, and channel migration.

1.5 Purpose and Need

The need for this project is evident when the above desired conditions are compared to existing conditions site-specifically. The purpose of this project is outlined below:

- *Reduce road maintenance costs*
  Current and anticipated road maintenance budgets are insufficient to properly maintain the volume of official Forest Service roads for safe and efficient access. There are miles of unneeded spur roads on the Forest that have not been maintained or repaired. Many such roads are no longer driveable due to brush encroachment. With the trend of declining budgets expected to continue, the Forest's backlog of roads needing maintenance could impact hydrologic function. Routine inspection of culverts and ditches on these roads is not always possible because of lack of access, personnel, and funding.

- *Reduce impacts to hydrology and aquatic habitats associated with unneeded roads*
  If roads are not maintained or decommissioned in the near future, then there is an increased risk for surface erosion, gullying, and landslides. Such potential risks may result in increased sediment delivery to streams and reservoirs. Increased sedimentation can subsequently degrade water quality, aquatic habitats (e.g. culverts impassable to fish), and threatened, endangered, and sensitive aquatic species populations thereby affecting water quality and aquatic habitat. The desired transportation system on the Forest is maintained to minimize environmental damage.

- *Reduce road density to improve terrestrial habitat utilization*
  High open road densities are associated with habitat fragmentation, poaching, and wildlife harrassment, which contribute to currently declining deer and elk populations. Existing road density is relatively high in the project area. Lower open

road densities promote healthier deer and elk populations. Decommissioned roads can also increase the forage and cover available to wildlife as old roadways begin to grow native grasses, shrubs, and trees. Many forest wildlife species tend to utilize more contiguous habitats. Decommissioned roads would no longer be barriers to animals with limited dispersal ability. For wildlife, decommissioning roads would result in greater solitude, vigor, health, and reproductive success.

- *Reduce the spread of non-native invasive plants associated with roads*
  Roads serve as potential conduits for non-native invasive plants. Managing the spread of invasive species is important to maintaining healthy forest habitats. If the invasive plants continue to spread they could displace native plants. Displacing native plants reduces functionality of habitat and forage for wildlife and livestock; increases potential for soil erosion and reduced water quality; alters physical and biological properties of soil; reduces long-term riparian area function; degrades habitat for culturally significant plants; and increases costs of controlling invasive plants. Since invasive plants know no boundaries, the spread of invasive plants also could displace native plants on adjacent lands. Overall, these impacts can impact the ability of the Forest Service to manage for desired healthy native ecosystems.

1.5 Proposed Action

In order to address the habitat and maintenance needs discussed above, this project would decommission approximately 130 miles of unneeded roads over several years, as implementation funding becomes available. The project includes roads in four sixth field watersheds within the Clackamas River basin: Last and Pinhead Creeks, Berry and Cub Creeks, Middle Upper Clackamas River (includes Lowe, Tumble, Rhododendron, Fawn, and Hunter Creeks) and Upper Clackamas Headwaters (includes Squirrel, Olallie, Lemiti and Slow Creeks).

Road decommissioning in this document means…

1. Stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1).

2. Removal from the Forest Service transportation system (i.e. the network of roads engineered and maintained to safety and drainage specifications). Decommissioned roads would no longer be maintained.

3. Re-establish vegetation and restore ecological processes interrupted or adversely impacted by the unneeded road.

The relatively short roads under consideration are currently managed at operational Maintenance Level 1 and 2. See Appendix B for photos of typical Maintenance Level 1 and 2 roads in the project area.

Maintenance Level 1 and 2 Characteristics

	Assigned Use	Expected Traffic	Features	Surface
ML 1	Closed to unauthorized vehicle traffic year-round.	*Intermittent administrative only:* Basic maintenance to protect resources and facilitate management activities.	Physically blocked or entrance is disguised. Generally single lane.	Uneven rock, gravel, or dirt (native surface).
ML 2	High-clearance vehicles. Not suitable for passenger cars.	*Minor:* Administrative, permitted, dispersed recreation, and specialty uses.	May be temporarily closed. Often single lane.	Rock, gravel, or dirt (native surface).

Decommissioned roads would be monitored to insure effectiveness, to prohibit motorized vehicle traffic and facilitate restoration to a more natural, forested landscape. Decommissioned roads would not necessarily preclude hiking or other non-motorized recreation. All decommissioned roads identified in this project would be removed from Mt. Hood National Forest's transportation system.

Proposed decommissioning treatments include appropriate combinations of the actions listed below. Site-specific treatments would be tailored to achieve the purpose and need (discussed in section 1.5) using adaptive management.

1. Removing culverts or bridges
2. Installing cross drains or water bars
3. Removing gravel surfacing
4. Decompacting road surfaces
5. Pulling back unstable fill slopes or road shoulders
6. Scattering slash on the roadbed
7. Applying erosion control mulch and seed on disturbed areas
8. Blocking and disguising the former road entrance to prevent motorized vehicle traffic (see below)
9. Installing informational signs
10. Reestablishing former drainage patterns or natural contours at stream channels
11. Other methods designed to address the specific conditions associated with the unneeded roads
12. Updating database records

Roads that are stable, already revegetated, and do not pose a hydrologic risk do not actually require much action with machinery. Many roads have not been maintained

recently and natural vegetation growth has already made them impassable to vehicles. Other roads require extensive mechanical work. Regardless of the intensity of treatment along a road, there is usually the need for some form of entrance management to keep vehicles from driving on the decommissioned road. This would occur at or near where the decommissioned road connects to an open road. Sometimes the most effective place to block a decommissioned road is not at the intersection, but a short distance away where side slopes or other features contribute to effective vehicle blockage.

Entrance management may include some or all of the following treatments both on the road surface and adjacent to the road as needed:

- Installing large earth berms
- Installing deep trenches
- Placing stumps, rootwads, logs, or boulders on the roadway
- Deeply decompacting/scarifying approximately 1/8 mile or entrance line-of-sight
- Installing informational signs consistent with Forest policy

The intent is to block all motorized vehicular traffic so that vegetation can grow on the decommissioned road bed. Monitoring would be conducted to determine blockage and restoration effectiveness. After monitoring, follow up actions may be taken to insure that decommissioning is effective.

Site-Specific Considerations
The treatment needed for decommissioning each road segment would vary based on site-specific conditions: each road has a different history, lies on different terrain, and has different natural resource features. Treatment strategies for road decommissioning would primarily emphasize either: 1) updating transportation system database records (i.e. walk away from stable roads already grown over), 2) blocking and disguising former road entrances, or 3) rehabilitating stream structure and function/stabilizing slopes. The proposed treatments strategies for each road are found in Appendix A and were developed considering the following factors:

- Proximity to streams
- Potential of sediment delivery to streams
- Proximity to special wildlife habitats
- Presence of erosion features
- Slope of land
- Cost
- Likelihood of successfully eliminating illegal vehicle traffic
- Amount of vegetation currently growing in roadway

Adaptive Management
This project will utilize the concept of adaptive management. The treatment strategy that is currently considered appropriate for each road segment was based on initial field visits

and analysis. However, the exact treatment details and the priority for that road may be adjusted at the time of implementation based on factors such as:

- Future weather events may cause road damage.
- Unauthorized uses by Off Highway Vehicles or other vehicles that were not observed during initial field visits may cause a need for more entrance work.
- A landslide or earth movement may occur.
- Funding may be greater or less than expected. Stewardship contracting opportunities may arise. Roads will need to be grouped into contracts based on proximity or funding sources.

See Chapter 2. Proposed Action for specific road segments proposed, design criteria, and further discussion.

1.6 Decision Framework

The deciding official (i.e. Responsible Official) for this project is the District Ranger for Clackamas River Ranger District, Mt. Hood National Forest. Based on the analysis in this document, and considering the public comments received during scoping, the Responsible Official will decide:

- Whether to decommission the roads as proposed, including all associated project design criteria and mitigation measures;

- To select another alternative;

- To select and modify an alternative; or

- To take no action at this time.

The primary factor that will influence the District Ranger's decision is based on how well the purpose and need are addressed. The Decision Notice will document and describe what activities will be implemented to address the purpose and need. The decision will be consistent with the Mt. Hood Forest Plan, as amended by the Northwest Forest Plan, and will incorporate the associated project design criteria and mitigation measures.

1.8 Management Direction

The Proposed Action has been designed to meet the goals and objectives of the documents listed below. This document is tiered to the Environmental Impact Statements listed below, which are incorporated by reference:

- The *Mt. Hood National Forest Land and Resource Management Plan* as amended (referred to as the Forest Plan) (USDA Forest Service 1990). The Forest Plan contains standards and guidelines applicable to this project. Consistency will be addressed in each resource section.
- The *Mt. Hood National Forest Land and Resource Management Plan Final Environmental Impact Statement*. This document discusses environmental effects for Forest-wide programs and sets the stage for project level analysis.
- The Forest Plan was amended by the *Record of Decision and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (referred to as the Northwest Forest Plan or NWFP) (USDA & USDOI 1994). The NWFP contains standards and guidelines for Matrix, Riparian Reserves and Late-Successional Reserves. Consistency will be addressed in each resource section.
- The *Northwest Forest Plan Final Supplemental Environmental Impact Statement* as amended. This document discusses environmental effects for Region-wide programs and sets the stage for project level analysis.

1.9 Public Involvement

The project was initially listed in the July 2008 Schedule of Proposed Actions (SOPA), which the Forest publishes quarterly. A scoping letter requesting public input for this project was mailed to over 400 interested individuals and parties in August 2008. This letter was also posted on the Forest website. Ten respondents submitted comments via mail, e-mail, and phone. Several individuals phoned in and visited with the Team Lead at Estacada Ranger Station for general project inquiries and clarification. The analysis file lists the individuals and organizations that were sent notices, as well as lists respondents and the complete text of comments.

The Forest Service began collaborating on this project with the Clackamas Stewardship Partners over several meetings and a field trip in the summer of 2008. Members of the interdisciplinary team (ID Team) and the Forest Public Affairs Officer discussed the project with Pioneer (Oregon City area) Chapter of Oregon Hunters Association on December 2, 2008.

1.10 Issues

An **issue** is a point of debate, dispute, or disagreement regarding anticipated effects of implementing the Proposed Action. Issues may be either non-significant or key. Non-significant issues include those: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. Key (significant) issues are directly or indirectly caused by implementing the Proposed Action. Key issues generally suggest a problem with the Proposed Action such that alternative actions need to be developed to solve that problem. Identifying the key issues provides focus for the analysis. Key issues are not only used to develop alternatives to the Proposed Action, but are also used to develop mitigation measures and track environmental effects.

Key Issues

1) Road decommissioning could decrease access by disabled hunters.

Reduced access by motorized vehicles may decrease opportunities for people with physical disabilities or limited mobility. Many visitors use motorized vehicles and object to road closures and other projects that restrict their access to the Forest. Reducing road density may reduce vehicle access to favored hunting and fishing sites.

2) Road decommissioning could decrease driveable access to favored dispersed camping sites and suitable gathering (Special Forest Products) areas.

Some people drive directly to their favorite dispersed camping sites year after year. Reducing road density may reduce vehicle access to some dispersed camping areas. Reducing road density may reduce opportunities for gathering forest products, such as huckleberries, firewood, boughs, beargrass, mushrooms, Christmas trees, landscaping plants, etc.

Additional Scoping Results Addressed

1) Convert roads to trails

Decommissioning roads in most cases would still permit non-motorized recreation, such as mountain biking and hiking. In assessing potential conversion of decommissioned roads to official non-motorized trails, the following factors were considered: if there was sufficient mileage to make the converted trail worthwhile (i.e. whether the trail would provide a meaningful recreational experience); if the converted trail could connect to an existing non-motorized trail; and if there was a request from the public to consider a specific road for trail conversion. Ninety-five percent of the roads to be decommissioned in the Proposed Action are less than two miles long; eighty percent are shorter than one mile long. No public request was made to consider a specific road for trail conversion.

2) Aggressive ground-disturbing methods on <u>all</u> decommissioned roads would eliminate

vehicle traffic more effectively and cheaply than road barriers.
Some roads would require little to no ground-disturbing methods to block vehicle access. Site-specific conditions drive the treatment methods necessary to eliminate vehicle traffic and restore the original road prism to more natural vegetation and hydrologic conditions. Completely obliterating the entire roadbed by recontouring slopes along the full road length is not a proposed treatment for this project. This treatment option was considered, and not proposed due to high unnecessary costs and resulting site disturbance. Proposed treatments are cost effective and sufficient to achieve habitat restoration objectives.

3) Passive decommissioning methods (i.e. little to no ground disturbance; informational signs only) on all decommissioned roads would promote vegetation succession.
The Proposed Action and Alternative C include decommissioning many roads that are stable and already brushed in with vegetation by "walking away" and simply updating transportation system records. Other roads with that have aquatic habitat risks or other resources concerns would require mechanical treatments to meet the Purpose and Need. Posting signs, for example "road not maintained beyond this point," would not effectively decommission those portions of the Forest transportation system consistent with the Forest Plan.

CHAPTER 2 - ALTERNATIVES

This chapter includes a description of **the range of reasonable alternatives** developed to respond to the need for actions described in Chapter 1. The alternative of no action and two action alternatives are detailed and compared to clearly distinguish alternatives for both the decision-maker and the public. Also described in this chapter are the design criteria that would be implemented to minimize or prevent adverse effects of road decommissioning.

2.1 Alternatives Considered in Detail

Alternative A: No Action

Under the No Action Alternative, no road decommissioning described in the Proposed Action would be completed. The roads would remain as they currently are on the landscape. Portions of the transportation system would continue to receive little or no maintenance. Implementing the No Action Alternative for this project would not preclude implementation of other projects in the analysis area.

Alternative B: Proposed Action

Alternative B is the Proposed Action, as described in Chapter 1. Implementing this alternative would include decommissioning approximately 129 miles of road. A complete list of roads proposed for decommissioning and their treatment strategies are found in Apprendix A. Maps highlighting the roads proposed for decommissioning are found in Appendices. The suite of decommissioning methods that would be applied, are listed in section 1.5 Proposed Action and discussed in more detail below:

Drainage structures: Culverts, bridges, and fords would be removed or treated to restore natural drainage. Restoring natural contours of stream channels in these cases typically involves excavating road fill and removing culverts from drainages and streams. For road surface drainage and intercepted shallow groundwater (springs and sheet wash), cross drains would be excavated, culverts removed, and flow from ditches routed to the cross drains. Cross drains would be designed to be large enough to capture all of the road related runoff, and suitably spaced to limit the storm runoff to small discharges and slow velocities.

Decommissioned stream crossing: Removal of the fill at stream crossings is meant to restore the stream channel and banks to original pre-road (natural) contours as much as possible. Fill materials would be tamped to reduce settling. Native riparian trees and shrubs would be planted to stabilize stream banks, where appropriate.

Cross vane or upstream U: Boulder weirs (upstream U's) would be constructed in most perennial stream channels. The purpose of the weirs is to decrease stream bed and bank

erosion by keeping the flow of the stream in the center of the channel.

Erosion control - seeding, fertilizing, mulching, and planting: Immediately following earthwork, disturbed areas would be seeded with a native seed mix or annual ryegrass. A fertilizer suitable for the local soils nutrients (e.g. 16-20-0) and weed-free mulch (e.g. annual ryegrass straw) would be applied to disturbed areas. Disturbed areas would be seeded during conditions favorable for germination. When possible, plant materials and topsoil would be saved and stockpiled from excavated areas and replanted on disturbed areas. Native plants may also be transplanted to disturbed areas. Revegetation can help restore natural hydrologic structure and function, as well as disguise the former road

Decompacting road surface: The first 1/8 mile, or line-of-sight from the original road entrance would be mechanically decompacted. Treating this initial section of decommissioned roads would prevent vehicle traffic, and promote revegetation and natural drainage.

Barrier features: Barrier features (e.g. earth berms, trenches, boulders, or log debris) would be constructed to block vehicle access on the decommissioned road. In some cases, reinforcing existing barrier features would be appropriate action.

Debris scattering: Woody debris that is removed in order to access the treatment site would be saved and scattered on the disturbed areas parallel to the slope. Scattering debris serves as: contour barriers to surface soil movement, a source of large woody debris to help reestablish vegetation, and fuel hazard reduction. The debris would be one layer thick and spaced to allow foot travel along decommissioned roads.

Removing gravel or rock surfacing: To promote revegetation, gravel or rock surfacing would be removed from decommissioned roads.

Stabilizing fill slopes: Earth material on unstable fill slopes would be pulled back away from the slope to prevent future landslides.

Updating database records: Where an unneeded road has already grown in with brush and trees, decommissioning would amount to primarily a record keeping exercise.

Alternative C:

Alternative C would decommission approximately 116 miles of road. The roads proposed for decommissioning are the same as Alternative B: Proposed Action, except the following:

Road Number	Open Mileage	Subwatershed
4220110	1.5	Last & Pinhead Creeks
4672260 Gate (Dec 1-Jul 1)	2.4	Berry & Cub Creeks
4671230	0.3	Berry & Cub Creeks
4671220	2.0	Berry & Cub Creeks/ Middle Upper Clackamas River
4672130	2.9	Middle Upper Clackamas River
4672160	1.5	Middle Upper Clackamas River
4672170	0.1	Middle Upper Clackamas River
4672180	0.3	Middle Upper Clackamas River
4690120	2.7	Upper Clackamas Headwaters
TOTAL: 13.7 miles		

Mileages are approximate

Additionally, a gate would be installed at the entrance of road 4672260 and seasonally closed from December 1 through July 1. The seasonally closed gate would block unauthorized vehicle traffic. Maps highlighting the above roads are found in Appendices.

2.2 Project Design Criteria and Best Management Practices

The following design criteria, best management practices, and requirements for the protection of natural resources would be included in implementing both the Proposed Action and Alternative C. Project design and management practices tiers to relevant standards and guidelines Forest Plan, as amended.

Botany Design Features

B-1: In order to prevent the spread of invasive plants, all off-road equipment is required to be free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds prior to coming onto National Forest lands. This practice would not apply to service vehicles traveling frequently in and out of the project area that would remain on the roadway. Contracts would include provisions to minimize the introduction and spread of invasive plants. These provisions contain specific requirements for the cleaning of off-road equipment.

B-2: Existing roadways would be used to minimize the impacts to riparian vegetation and function. Native vegetation in and around project activity would be retained to the maximum extent possible consistent with project objectives.

B-3: Soil disturbance that promotes invasive plant germination and establishment would be minimized to the extent practical (consistent with project objectives).
B-4: The contractor would be educated in simple techniques to avoid spreading weeds (e.g. provide the contractor with the flyer, *Simple Things You Can Do to Help Stop the Spread of Weeds*, supplied by a Forest Service botanist).
B-5: Following earthwork, especially near stream banks, the disturbed area would be seeded with a native seed mix if available and mulched with a weed-free straw. Disturbed areas would be seeded during conditions favorable for germination.
B-6: Contracting Officer's Representatives would check with the district noxious weed coordinator and consider a review or site visit to be sure there are no weed sites that would need to be treated. If an invasive weed treatment site is identified along the road or on land accessed by the road, weed treatment would be completed prior to decommissioning the road.
B-7: Native plant materials are the first choice in revegetation of bare soils. Non-native, non-invasive plant species may be used if native plant materials are not available or as an interim measure designed to aid in the re-establishment of native plants. Non-native invasive plant species would not be used for revegetation.
B-8: Grass seed would preferably be certified by the states of Oregon or Washington or grown under government-supervised contracts to assure noxious weed free status. In certain cases, non-certified seed may be used if it is deemed to be free of invasive plants of concern to the Mt. Hood National Forest botanist.
B-9: When straw and mulch are utilized, it would originate from the state of Oregon or Washington fields, which grow state-certified seed, or grown under government-supervised contracts to assure noxious weed free status, or originate from Willamette Valley Oregon fields that commercially grow annual ryegrass seed for seed production.
B-10: Invasive weeds would be controlled as necessary at project sites.

Fisheries Design Features
F-1: An experienced fisheries biologist, hydrologist, and/or technician would participate in the design and implementation of the project.
F-2: Slide and waste material would be disposed of in stable, non-floodplain sites. However, disposal of slide and waste material within existing road prism or adjacent hillslopes would be acceptable if restoring natural or near-natural contours. For riparian areas, affected areas would be recontoured to mimic natural floodplain contours and gradient to the greatest degree possible.
F-3: Disturbance of existing vegetation in ditches and at stream crossings would be minimized to the extent necessary to restore the hydrologic function.
F-4: Soil disturbance and displacement caused by project activities would be minimized, but where sediment risks warrant, soil movement off-site would be prevented through the use of filter materials (such as weed-free straw bales or silt fencing) if vegetation strips were not available.
F-5: Project activities would be implemented during dry-field conditions (also see WQ-1).
F-6: The Oregon Department of Fish and Wildlife (ODFW) Guidelines for Timing of In-Water Work would be followed (except where the potential for greater damage to water

quality and fish habitat exists). Exceptions to ODFW guidelines for timing of in-water work would be requested and granted from appropriate regulatory agencies.
F-7: Power equipment would be refueled at least 150 feet from water bodies to prevent direct delivery of contaminants into a water body. If local site conditions do not allow for a 150-foot setback, then refueling would be as far away as possible from the water body. For all immobile equipment, absorbent pads would be used (also see WQ-16).
F-8: An approved Spill Prevention Control and Containment Plan (SPCCP) would be created, which describes measures to prevent or reduce impacts from potential spills. The SPCCP would include a description of the hazardous materials that would be used; and a spill containment kit would be located on-site (also see WQ-17).
F-9: Hazard trees within riparian areas would be felled (for safety purposes), if possible, towards the stream.
F-10: For culvert removal, natural drainage patterns would be restored and when possible promote passage of all fish species and life stages present in the area. Channel incision risk would be evaluated and in-channel grade control structures would be constructed when necessary.
F-11: Drainage features should be spaced to hydrologically disconnect road surface runoff from stream channels.
F-12: Project would avoid applying fertilizer in close proximity to live streams and wetlands.
F-13: Project would follow measures in the 2007 programmatic and conference (Opinion) by the National Marine Fisheries Service and U.S. Fish and Wildlife Service.
F-14: If other aquatic restoration activities are used as complementary actions, follow the associated design criteria and conservation measures.

Heritage Design Features
H-1: In the event that archaeological properties are located during implementation, project activities would be halted until consultation with the Forest Archeologist can determine appropriate site-specific mitigation. Protection measures would be developed in consultation with the Oregon State Historic Preservation Officer (SHPO), appropriate Tribes, and, if necessary, the Advisory Council on Historic Preservation.
H-2: Boundaries of identified archaeological sites would be flagged where appropriate to exclude heavy machinery and ground disturbance. Above-ground barricade devices would be installed where appropriate to avoid identified archaeological sites.

Recreation Design Features
R-1: Trailhead access and parking would be maintained or closure would be minimized during implementation. The locations of any changes that may be necessary are not analyzed in detail in this document, and may require further survey, analysis, and documentation.
R-2: Trail signs for Rhododendron Ridge Trail (Trail #564) near roads 6350270, 6350280, and 6350033 would be protected during implementation.

Water Quality Design Features
WQ-1: Road decommissioning activities would be suspended if there is more than 2

inches of rainfall in a 24 hour period in the project area.
WQ-2: Project operations would be suspended if soil moisture is recharged and streamflows rise above baseflow levels.
WQ-3: Removal of the fill at stream crossings would attempt to restore the stream channel and banks to original pre-road (natural) contours as much as possible.
WQ-4: The removed material would be carefully placed at cutslopes or on the road surface beyond the natural channel slope at less than a 2 to 1 slope angle (or to match the existing side slopes).
WQ-5: All removed fill materials at stream crossings would be tamped by the bucket of the excavator to reduce settling.
WQ-6: Stream channel width would be at least 1.1x bankfull width as measured above the stream crossing. Stream banks would be constructed at a maximum of 1.5 to 1 slope angle (or matching the natural channel slopes).
WQ-7: Where road surface would be decompacted, it would be decompacted through the sub-grade, or deep enough to facilitate revegetation and water infiltration.
WQ-8: All perennial streams would be evaluated to determine if "Upstream U's" are necessary to prevent streambed and bank erosion. Structures would be installed as outlined in the following table:

Pool to Pool Spacing

Wetted Stream Width (feet)	**Minimum Boulder Size Needed (inches)**	**Stream Gradient (percent) 0-2% 2-6% 6-15% 15-30%**			
0 to 5	18	42 feet	15 feet	8 feet	4 feet
5 to 10	24	63 feet	21 feet	12 feet	6 feet
10 to 15	24	105 feet	36 feet	20 feet	10 feet
15 to 25	30	167 feet	57 feet	32 feet	16 feet

WQ-9: The ends of structures would be keyed into the stream bank for at least ¼ of the diameter of the boulder to minimize the stream cutting into the stream bank at high flows.
WQ-10: Activities associated with culvert or bridge removal in streams with active streamflow would be suspended if turbidity criteria, as identified by appropriate Forest Service personnel, are exceeded.
WQ-11: Removal-Fill Permits would be obtained for project activities when appropriate.
WQ-12: A site-specific water quality control plan would be submitted and approved for each stream diversion prior to the start of excavation. Live streams would be diverted during excavation to prevent mobilization of fill material.
WQ-13: Drainage structures would be installed, where appropriate, at a maximum of every 200' or closer dependent upon road grade and associated geology.
WQ-14: If fuels are stored in the project area, the Forest Service would approve the site in advance. Appropriate measures for containment, such as berms and catch basins with plastic liners would be used (also see F-8).

WQ-15: All vehicles and machinery would be free of petroleum leaks. Any leaks that occur would be immediately repaired and the appropriate personnel would be notified.
WQ-16: Absorbent pads would be required under all stationary equipment and fuel storage containers during all servicing and refueling operations (also see F-7).
WQ-17: All trucks used for refueling should carry a hazardous material recovery kit (also see F-7). Any contaminated soil, vegetation or debris must be removed from National Forest System lands and disposed of in accordance with state laws.
WQ-18: All petroleum products being transported or stored would be in approved containers meeting Occupational Safety and Health Administration standards and Oregon Department of Transportation.
WQ-19: All vehicles hauling more than 300 gallons of fuel would have an approved communication system with which to report accidental spills. If any fuel or fluid storage container exceeds a capacity of 660 gallons, the contractor would prepare a spill prevention control countermeasures plan. Such plan would meet applicable Environmental Protection Agency requirements (40 CFR 112) including certification by a registered professional engineer.
WQ-20: The contractor would be liable for cleanup of any hazardous material or fuel spill occurring as a result of his/her work on this contract.
WQ-21: The contractor would, on a daily basis, remove all trash and refuse from the project work area.
WQ-22: In order to preclude erosion into or contamination of the stream or floodplain, staging areas (used for construction equipment storage, vehicle storage, fueling, servicing, hazardous material storage, etc.) would be located beyond the 100-year floodplain.

Wildlife Design Features
W-1: Hazard trees outside of the riparian areas that pose a safety risk would be directionally felled, where feasible, away from the road prism and into the surrounding forestland.

2.3 Comparison of Alternatives

The following table displays the three alternatives. Alternatives are compared here to highlight differences in road decommissioning for the public and the Responsible Official.

Comparison	No Action	Proposed Action	Alternative C
Proposed decommissioning	0 mi.	129 mi.	116 mi.
New seasonally gated (Dec. 1 – July 1) road	0 mi.	0 mi.	2 mi.
*Resulting road system**			
ML 1 – Vehicle traffic prohibited	**100** mi.	**14** mi.	14 mi.
ML 2 – High clearance vehicles permitted	**150** mi.	**103** mi.	**116** mi.
ML 3 – Passenger cars permitted	47 mi.	47 mi.	47 mi.
ML 4 – Generally collector route, aggregate surfaced	21 mi.	21 mi.	21 mi.
ML 5 – Normally double-lane, paved arterial route	0 mi.	0 mi.	0 mi.
TOTAL	**318** mi.	**196** mi.	**209** mi.
Proposed decommission roads are mostly short and already ML 1			
Percent of roads to decommission < 2 mi. long	-	95%	97%
Percent of roads to decommission < 1 mi. long	-	80%	82%
Proposed decommission roads already closed to vehicle traffic (i.e. operational Maintenance Level 1)	-	82 mi.	82 mi.

*Mileage calculations are approximate

APPENDIX B

Operational Maintenance Level 1 and 2


Maintenance Level 1 roads are closed to vehicle traffic. These two are typical of the project area, blocked with an earth berm (left) or guard rail (right).


Maintenance Level 2 roads are suitable for high-clearance vehicles. These two are typical of the project area, low traffic volume and low speed spur roads. Most roads proposed for decommissioning are less than 1 mile long.