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Forest Service

Travel Analysis Report

Wallowa-Whitman National Forest

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Executive Summary

On March 29, 2012, the US Forest Service (FS), Washington Office (WO) directed Regional Foresters to complete a science-based travel analysis process (TAP) of all National Forest System roads. This travel analysis must be documented in a travel analysis report (TAR), and is the first step in meeting those sections of Subpart A of the 2005 Travel Management Rule to identify the minimum sustainable road system needed for safe efficient travel, protection of natural resources, management and use of NFS lands, and identify roads no longer needed for management of resources.

The TAP is intended to generate a TAR which identifies opportunities for the national forest transportation system to meet current and future management objectives, and provides information that allows integration of ecological, social, and economic concerns into future decisions. The TAP is tailored to local situations and landscape/site conditions as identified by forest staff members coupled with public input related to transportation issues.

The TAR makes no decisions; rather, it provides a list of potential opportunities for managing the forest transportation system to address administrative, resource, and public issues. A thorough travel analysis informs subsequent National Environmental Policy Act (NEPA) processes, allowing individual projects to be more site-specific and focused, while still addressing cumulative impacts.

The working group assigned to this project met to discuss the Travel Analysis Process. After reviewing the existing information for this area (including the Final Environmental Impact Statement (FEIS) for the Travel Management Plan), and considering available resources, it was determined that the appropriate scope of analysis was all roads within the Wallowa-Whitman National Forest (WWNF) Transportation System (including those in the Hells Canyon National Recreation Area (HCNRA)). The analysis period is 50 years to describe the needs, effects, and implications of the recommendations made in this report. Due to the limited number of miles and their popularity, motorized trails were considered but not analyzed for any changes in this process. Opportunities for additions to the motorized trail system through conversion of roads to trails were part of the options considered during the roads analysis.

Summary of Issues

Issues were identified using previous public involvement and internal Forest Service input.

- Access for a wide variety of recreation activities is very important to WWNF users and local communities.
- Changes in road management may have a negative effect on the economic wellbeing of local communities and businesses.
- Road access is important to the custom and culture of the people who live near the WWNF. Reducing this access may impact the people who depend on the WWNF for their livelihood, recreation, and traditions.
- Roads are necessary for administration and management of NFS lands.
- Roads support emergency, firefighting, and law enforcement activities.
- Roads are needed to provide access to private lands, mining, and for permitted activities such as grazing, ditches, municipal watershed management, etc.
- Local community members may depend on some forest roads as emergency evacuation routes.
- Motor vehicle use on National Forest System (NFS) roads has the potential to negatively impact big game species and their habitat.
- Disturbance to big game on NFS lands has the potential to move elk and deer herds onto adjacent private lands and impact ranchers and farmers crops.

- There is a potential for increased input of fine and coarse sediment into streams from roads.
- Roads can impact riparian areas, resident and TES fish habitat and populations including the loss of streamside vegetation and shade; compaction or loss of floodplains impacting hydrologic connectivity; and destabilization of steep slopes.
- Culverts of inadequate size or performance restrict passage of fish and other aquatic organisms.
- Roads and associated human activities increase the spread of noxious weeds.
- Extensive NFS roads and user-built roads provide access for firewood cutting; however, this may also negatively impact snag habitat and those wildlife species dependent on this habitat.
- Road maintenance funding is not adequate to maintain the current Forest Service road system to standard.
- Future funding trends indicate that without changes, road maintenance funding may not be adequate to maintain the routes identified in this analysis as the road system necessary for public and administrative access.

Summary of Potential Opportunities to Respond to Issues

- Maintain access to recreational sites that are provided by the Forest Service for public use.
- Balance motor vehicle access for recreational activities with resource protection needs and where possible, mitigate resource issues with storm damage risk reduction (SDRR) requirements.
- Work with recreation staff to identify loop trail opportunities using existing roads.
- Provide information and education about motor vehicle regulations and responsible use of motorized vehicles on the National Forest. Install information board at area trailheads, recreation sites, and parking areas. Inform the public to create an understanding of the problems created by off road driving.
- Maintain road signage in accordance with handbook direction.
- Strategically reduce the number of roads located in critical wildlife areas to create larger blocks of security habitat.
- Use seasonal restrictions on roads to address a variety of resource concerns such as for protection of soil and water quality and in critical wildlife areas.
- Reduce the road width and maintenance level to minimum needed for safe vehicle passage and to meet the intended need in sensitive wildlife and fisheries areas.
- Implement the guidelines for mitigating road risks to reduce soil and drainage impacts from roads.
- Remove or relocate drawbottom roads where possible. Reduce the total number of roads in watershed with TES fish habitat and species.
- Install adequate and appropriate culverts to accommodate high flows and allow for fish passage.
- Identify redundant and/or infrequently used roads, and effectively close them to reduce road maintenance costs.
- Close roads needed for administrative access only.
- During the NEPA process for management activities, consider closing open roads in the project area to reduce the maintenance costs.
- Instead of decommissioning roads in high fire risk areas, close them for use as fire line roads during prescribed burns and wildfires in consultation with the fire staff.
- Utilize traffic devices such as signs and physical barriers that discourage use of unauthorized roads and ML1 roads. Natural material to prevent use (downed trees, boulders, etc.) is preferred in most cases, but in situations where previous decommissioning efforts have been unsuccessful, more aggressive means may be employed (such as gates).
- Where there are no access needs other than access to private land, enter into an appropriate mechanism to authorize the use of the road with the landowner, stipulating that the permittee has maintenance responsibilities.

- Identify areas with supplies of suitable firewood or forest products along open system roads, and provide maps to the public to reduce the use of closed or unauthorized roads.
- Reduce the number of road miles that need to be maintained or reduce the maintenance level to reduce maintenance costs. Reducing the miles of roads that need to be maintained by converting closed roads into motorized trails would effectively increase trail maintenance costs and is not a recommended action solely to address this issue.
- Leverage funds/efforts to increase maintenance capabilities. Continue to seek opportunities within the Forest, with other Forests, with counties and private individuals to increase the amount of maintenance accomplished through cooperative efforts. For trails there are opportunities to work with volunteers to maintain them.
- Periodically open and close roads to provide access to firewood areas.

Analysis Performed

An Interdisciplinary team (IDT) used a combination of landscape level analyses (including those completed in the WWNF Travel Management Plan FEIS) and a site specific road-by-road assessment to analyze WWNF NFS roads based on a set of issues (recreation access needs, wildlife disturbance, impacts on water quality, administrative access needs, etc.) identified by the public and Forest Service specialists. The IDT evaluated the need for each road based on their field of expertise and the issues identified for this analysis.

Key Results and Findings

Through the travel analysis process, the IDT analyzed the WWNF road system on a road-by-road basis and identified opportunities for changes to the current system based on their risks to natural resources and their benefits to recreation use, forest product access, agency and permittee access, vegetation management, and emergency (primarily for fire management and suppression) access.

- **Total Opportunities for Change:** 1,122 miles or 12 percent of the roads assessed in the current system were identified as a priority for consideration for changes such as re-opening, decommissioning, closure or conversion to a trail, leave open, or maintenance level changes for open roads. The IDT reviewed the roads in these categories, and made more refined recommendations which can be found in Appendix A.
- **Total Roads Likely Needed for Forest Management:** 7,854 miles or 86 percent of the current system (summarized in Table 7) are roads identified as having a moderate to high priority for retention due to public and administrative needs and should be considered for continuing routine maintenance, additional maintenance to mitigate resource risk, or converted to maintenance level one and used only for administrative needs.

Many of the roads discussed above fit into both categories (roads with opportunities for change and roads to be retained); therefore, some double counting occurs in the two bullets above. The “opportunities for making changes to the road system section” of this report is summarized on the maps and data tables in Appendices A and E.

How the Report Will Be Used

TAP results will assist the WWNF in addressing issues related to the roads and motorized trails systems on the forest and could be helpful in assisting in discussions with the public about providing access to public lands. It will not be used for Forest Plan Revision; however, it will be used to inform future analyses, decisions, and site-specific actions.

Project Area Description

The entire WWNF (including the HCNRA) was considered for analysis under this Travel Analysis Process (TAP) totaling about 2.4 million acres.

The WWNF will use this forest-level TAR for future NEPA projects where the laws, regulations, manual and handbook direction governing the travel analysis process requires that a TAR be completed prior to the NEPA projects inception. This forest-wide TAR will assist Forest Line Officers in development of project proposals and analysis of future NEPA projects as it analyzes all 9,119 miles (2014 data) of roads on the Wallowa-Whitman National Forest. It will also help with access opportunity and priority discussions with the public.

Future NEPA projects may include transportation access to mining activities, vegetation management and fuels reduction activities, access to recreation sites and areas, watershed restoration project, access to authorized users of special use permits including easements, additional projects may include transportation access to forest improvements including user constructed facilities, designated areas, designated resource areas, and special use areas. Future NEPA projects may include access to traditional and cultural property and resources.

This TAP assessed the benefits and risks the transportation system presents in providing access for recreation, private lands, administrative and permitted activities, and emergencies; fuels reduction and fire suppression activities; threatened and endangered species (TES); water quality impacts; noxious weed spread; and big game impacts.

1. Introduction

Purpose

The purpose of this section is to:

- Describe the background and regulations related to this analysis
- Identify the project area and state objectives
- Identify technical specialists and their roles
- Describe the analysis process

Background

On November 9, 2005, the Forest Service regulations at 36 CFR part 212 governing administration of the forest transportation system and regulations at 36 CFR part 295 governing use of motor vehicles off National Forest System (NFS) roads were combined and clarified in the final rule as part 212, Travel Management, covering the use of motor vehicles on NFS lands. Subpart A remained essentially unchanged from the January 12, 2001 Road Management Rule. The rule revised regulations concerning the management, use, and maintenance of the National Forest Transportation System. The goal of the rule was to ensure that additions to the national forest system road network were essential for resource management and use; that construction, reconstruction, and maintenance of roads minimized adverse environmental impacts; and that unneeded roads were decommissioned and restoration of ecological processes initiated.

On March 29, 2012, the US Forest Service (FS), Washington Office (WO) directed Regional Foresters to complete a science-based analysis of all National Forest System roads by the end of Fiscal Year 2015.

This travel analysis must be documented in a travel analysis report, and is the first step in meeting those sections of Subpart A of the 2005 Travel Management Rule to:

- identify the minimum road system needed for safe and efficient travel and for the protection, management, and use of NFS lands (including public access needs); and
- identify roads that are no longer needed to meet forest resource management objectives and which therefore should be scheduled for decommissioning or considered for other uses.

In October 2003, a draft Forest Roads Analysis was completed for all maintenance level (ML) 3 through 5 roads (roads maintained for passenger vehicle use) on the Wallowa-Whitman National Forest. This analysis:

- Determined the appropriate road system for ML 3-5 roads describing which roads are needed to be maintained to level 3-5 standards for resource management objectives;
- confirmed the appropriate maintenance level for each of these roads; and
- set funding priorities for maintenance of level 3-5 roads.

This 2015 Wallowa-Whitman Travel Analysis Report (TAR) incorporates the 2003 Roads Analysis information and expands the analysis to include the ML 1 and 2 roads on the forest. It also relies heavily on analyses completed in the 2012 WWNF Travel Management Plan FEIS.

Project Area and Objectives

The travel analysis process (TAP) was conducted for all ML 1 to 5 roads on the Wallowa-Whitman National Forest (WWNF). For additional information on the definition of forest service maintenance levels, please see the Glossary at the end of this document which defines travel management terminology.

The analysis area for this TAP encompasses the entire WWNF (2.4 million acres). See the project area boundary map in Figure 1. The WWNF is located in the Pacific Northwest Region (R6) of the Forest Service and is approximately 2.4 million acres in size. Of these, approximately 89,500 acres of private land and 3,000 acres of land are managed by other governmental agencies within the National Forest boundary. In addition, the WWNF administers about 141,000 acres of land lying within the Nez Perce and Payette National Forests in Region 1 and Region 4, respectively. These lands are designated as part of the Hells Canyon National Recreation Area. The forest also contains all or portions of four Wilderness Areas: Eagle Cap, North Fork John Day, Monument Rock, and Hells Canyon). There is also a small tract (approx. 10,000 ac) of Nez Perce tribal land lying within National Forest boundaries. Although not within the forest boundary, it is significant to note that the Umatilla Indian Reservation land lies directly adjacent to the northwestern boundary of the forest.

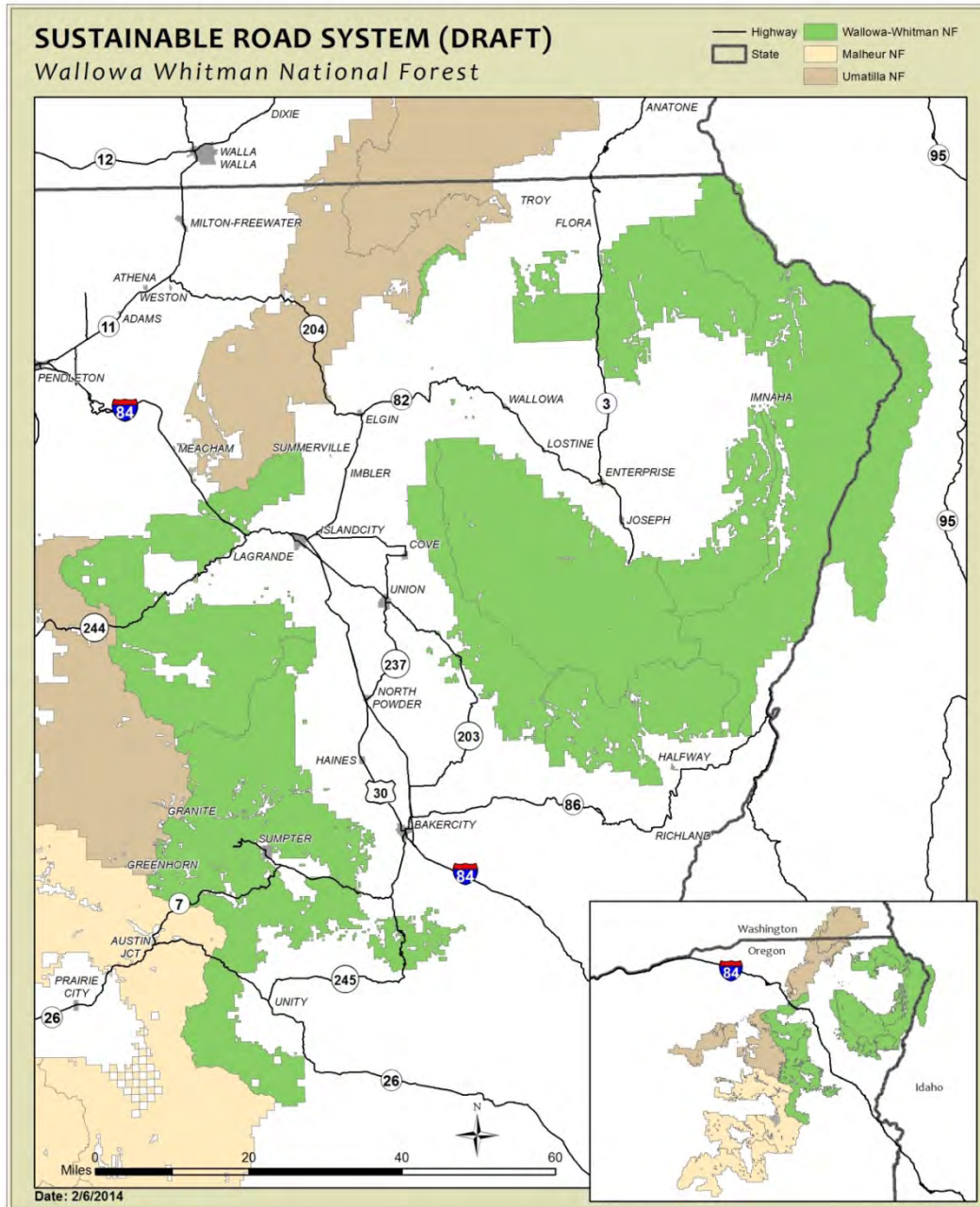
There are 35 5th hydrologic unit code (HUC) watersheds encompassed wholly or in part by the Wallowa-Whitman National Forest or lands administered by the forest.

The objective of the analysis is to provide information for managing roads, motorized trails, and areas that are safe and responsive to public needs and desires, conforms to the WWNF Land and Resource Management Plan (LRMP), is efficiently administered, has minimal negative ecological effects on the land, and reflects funding available for needed management actions.

The TAP is intended to be a broad scale comprehensive look at the transportation network. The main objectives of the TAP are to:

- Identify opportunities for making changes to the forest transportation system that balance the need for access while minimizing risks by examining important ecological, social, and economic issues related to roads and trails;
- Develop maps, tables, and narratives that display transportation management opportunities and strategies that address current and future access needs, and environmental concerns.
- Identify opportunities for changes by comparing the current road system to the desired condition;

Figure 1 – Sustainable Roads Vicinity Map and Project Area Boundary



- Identify opportunities for change that will inform travel management decisions in subsequent NEPA documents.
- Provide a list of opportunities and analysis background necessary for the identification of the sustainable road system (SRS) needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands per 36 CFR 212.5(b)(1)

Roles of Specialists

An interdisciplinary team (IDT) of forest specialists was assigned to the TAP and was in place until 2012. The team members and their primary analysis role are listed below:

Table 1. Interdisciplinary Team Members and Roles

Team Member	Title	Resource
Jen Fitzpatrick	Forest Admin Officer and Customer Services Staff	Leader
Dave Salo	Forest Hydrologist	Hydrology/Soils
Dana Taylor	Assistant Forest Engineer	Transportation/Economics
Mark Penninger	Forest Wildlife Biologist	Wildlife
Steve Hawkins	Forest Fuels Specialist	Fire/Fuels
Mitch Bulthuis	Forest Range Staff	Range & Noxious Weeds
Brian Watt	Forest Timber Staff	Timber
Dan Ermovick	Forest Recreation Staff	Recreation/Scenery
Mike Montgomery	District Recreation Manager	Recreation/Special Uses
Sarah Crump	Forest Archaeologist	Heritage Resources
Paul Boehne	Forest Fisheries Biologist	Fisheries/Soils
Penny Hall	South Zone Botanist	Sensitive Plants
Mick Hiatt	District Road Manager	Data Resources
Melanie Sutton	GIS Coordinator	Data Resources
Cindy Christensen	Environment Coordinator	Writer/Editor

Analysis Process

This TAP followed the six-step process outlined in Chapter 20 of Forest Service Handbook (FSH) 7709.55.

The IDT followed the following process in order to carry out the analysis:

Preparation:

- Reviewed and assembled existing data (including in depth survey information gathered by public volunteers and provided during to the Forest Service during County efforts for the 2007-2012 TMP subpart B planning process).
- Verified accuracy of data and system road locations on maps.
- Identified and fixed discrepancies between on-the-ground conditions, the Forest's INFRA database, and current management direction.
- Where possible, verified the current conditions of roads, trails, and associated features including closure devices, surface type, and impacts on other resources.
- Analysis assumptions were developed (see below) for determining a sustainable road system considering access and resource issues, concerns and opportunities.

Selection of Analysis Baseline:

The record of decision for the WWNF LRMP (Forest Plan) was signed in 1990. Since that time, hundreds of in-depth, thoughtful, site-specific road management decisions have been made in public processes through the requirements of the National Environmental Policy Act (NEPA) on the roaded portions of the forest. These decisions have resulted in a recommended network of roads and objective maintenance levels for long term management, access, and protection of natural resources across the entire forest. Due to available funding, only a portion of these decisions to decommission, open, close or maintain roads have been physically implemented on the ground. The intent of these plans was to implement them as funding became available over time.

The Forest Leadership Team instructed the interdisciplinary team to start with the road data that reflected the objective maintenance levels from these past decisions. They then supported the inclusion of adjustments identified during the travel management planning process (Subpart B) based on public participation, special use and administrative access, mining, and resource protection (such as critical wildlife areas, protection of cultural resources, road density thresholds for threatened and endangered fish species) as a baseline layer (FEIS, 2012) for in-depth analysis during this process.

The past decisions and adjustments meet or move the forest toward the standards and guidelines in the Forest Plan, as amended, for resource protection, the terms and conditions of the Biological Opinion for threatened and endangered fish species, and respond to a variety of the access needs voiced by the public during travel planning over the last 7 years. Because the goal of this analysis is to inform future NEPA decisions that will identify a minimum sustainable road system for safe and efficient travel and for the protection, management and use of NFS lands, this adjusted system was considered an appropriate base for use to begin this analysis process. Refer to maps in Appendix F and in the project files.

2. Existing Situation

Purpose

The purpose of this section is to:

- Summarize current land management direction
- Describe current travel management direction
- Summarize the existing road and motorized trail system
- Describe the existing motorized uses
- Describe public and administrative access needs and motorized recreation opportunities
- Summarize existing travel management decisions
- Describe road maintenance levels and current financial resources available for maintenance

Current Land Management Direction

The forest plan, as amended, includes management goals and objectives and standards and guidelines, both forest-wide and specific to land allocations (management areas (MA)). The project area consists of all NFS lands within the WWNF administrative boundaries.

The project area includes Management Areas 1, 3, 3A, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, and 18 (Figure 3).

MA 1 emphasizes wood fiber production on suitable timber lands while providing high levels of forage and recreation opportunities.

MA 3 and MA 3A are similar to MA 1; however, timber management is designed to provide near-optimum cover and forage conditions on big game winter ranges (MA 3) and selected summer ranges (MA 3A).

MA 4 are areas on the forest managed in accordance with the Oregon Wilderness Act to preserve and protect their wilderness characteristics.

MA 5 includes Mason Dam, Phillips Lake, and the surrounding lands. Management recognizes a variety of resource values with an emphasis on recreation opportunities.

MA 6 emphasizes opportunities for dispersed recreation activities, such as observing wildlife, backpacking, and gathering mushrooms and berries.

MA 7 is intended to preserve the outstandingly remarkable values of those rivers and river segments which are part of the National Wild and Scenic Rivers System.

MA 8, 9, 10, and 11 are focused on the Snake River corridor, dispersed recreation and native vegetation, forage production, and timber management within the Hells Canyon National Recreation Area (HCNRA).

MA 12 emphasizes the preservation of natural ecosystems for comparison with those influenced by humans; provides educational and research areas for ecological and environmental studies; and preserves gene pools for typical, rare, and endangered plants and animals.

MA 13 is the Homestead Further Planning Area which is managed to preserve wilderness characteristics until a detailed study to designate as wilderness is completed.

MA 14 provides the management direction for the Starkey Experimental Forest and Range which is allocated to research use and is managed to protect existing research projects and provide for future research needs.

MA 15 is intended to maintain habitat diversity, preserve aesthetic values, and provide old growth habitat for wildlife.

MA 16 includes sites, such as work centers, fire lookouts, permitted ranch headquarters, campgrounds, seed orchards, and other areas, which are occupied by facilities for administration, public recreation, or features of cultural significance.

MA 17 is used for the transport of gas, oil, or electricity.

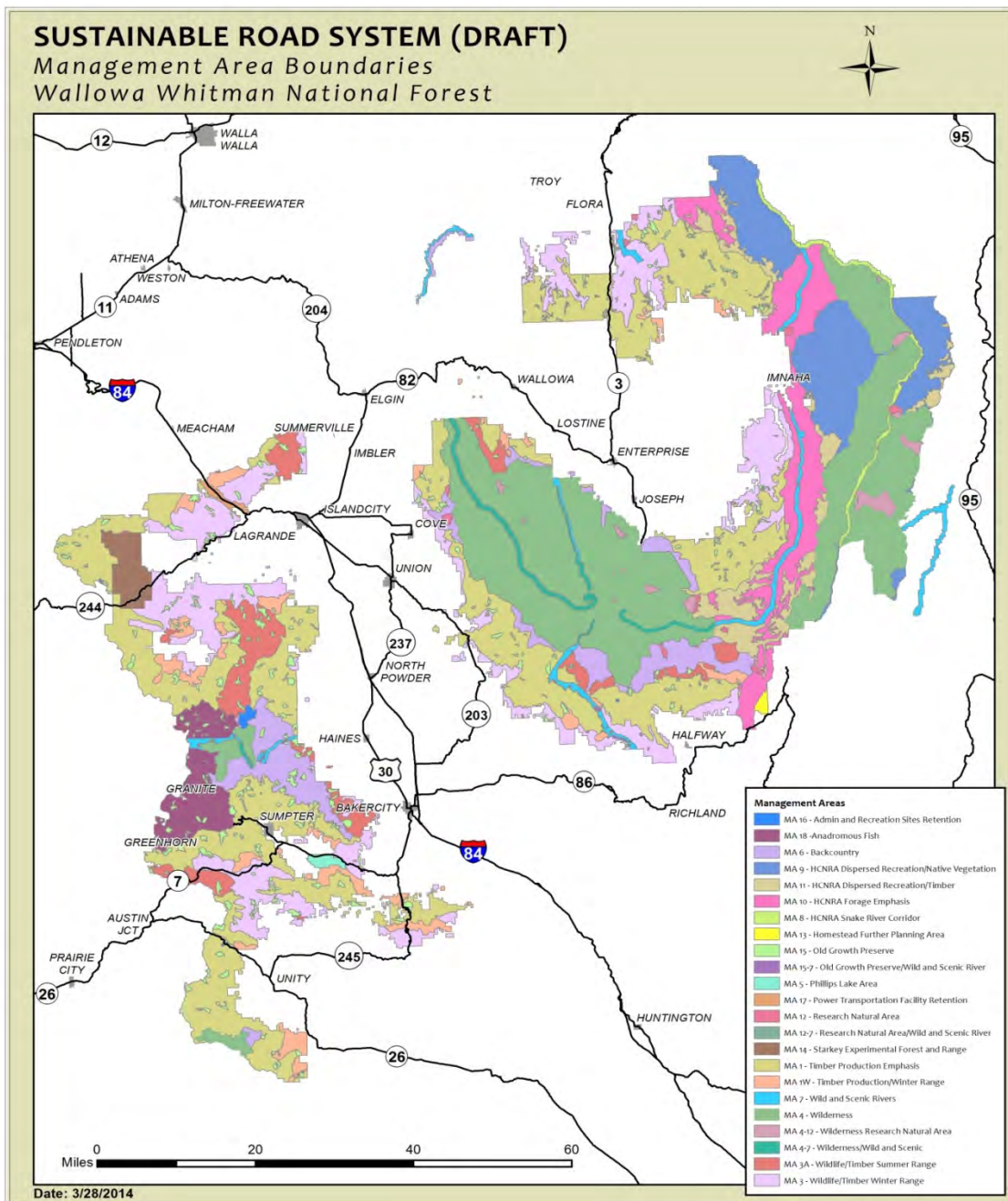
MA 18 is intended to achieve and maintain optimum conditions for anadromous fish and provide near-optimum conditions for big game.

The WWNF is considered an “open” forest. The 1990 Forest Plan states that it is acceptable to “permit all-terrain vehicle (ATV) use and over-the-snow vehicle use on blocked or closed roads unless this use is found to be incompatible with resource management objectives. These types of uses were considered to be an acceptable form of recreation except where site specific analysis shows them to be incompatible due to resource management problems” (1990 Forest Plan, pp. 4-36). Maintenance Level (ML) 1 roads currently allow use by Off Highway Vehicles (OHVs), except where posted closed and prohibited by a CFR closure order. In general, OHV traffic is currently allowed on operational ML1-3 roads on most

parts of the forest, except where closure orders have been enacted. ML4 and 5 roads are usually paved, higher traffic speeds, and are open to highway legal traffic only.

The WWNF forest plan is currently undergoing a revision; opportunities for change identified in this TAR would be available for use to inform future analyses under the new forest plan once completed.

Figure 3 – Management Direction Map



Current Travel Management Direction for Roads, Trails, and Areas

A. General

In 2005, the Forest Service issued the Travel Management Rule which is described in 3 subparts in 36 CFR 212.5(b).

- Subpart A – identify the minimum road system needed for safe and efficient travel and for the protection, management, and use of NFS lands; and identify roads that are no longer needed to meet forest resource management objectives.
- Subpart B – designate roads, trails, and areas for public motor vehicle use including type of vehicle and season of use.
- Subpart C – Use by over-snow vehicles. Due to recent court cases this portion of the Travel Management Rule has been re-written to require designation of roads, trails, and areas for over-snow vehicle use. There currently is no deadline for this and the Region is developing a strategy and guidance for completing this subpart.

In 2007, the WWNF began a planning effort to develop a Travel Management Plan meeting the requirements for Subpart B of the rule. A Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) were issued in 2012; however, due to extensive public controversy the Forest Supervisor made the decision to withdraw the ROD; however, the analysis in the FEIS was completed based on the best available science and remains valid. Currently, travel management direction continues under the 1991 Travel Management Plan. The current plan does not meet Subpart B direction and no motor vehicle use map (MVUM) has been developed.

Existing direction from laws and regulations, official directives, forest plans, forest orders, and forest-wide or project-specific roads decisions, determine the motorized routes and areas open to public motor vehicle travel under the current travel plan. This information about the managed system is documented in road and motorized trail management objectives, maps, recreation opportunity guides, tabular databases, and other sources.

Oregon state law allows Class I (3- and 4-wheelers), II (dune buggies, jeeps, etc.), and III (motorcycles) off highway vehicles (OHVs) to operate on any road open to public travel and authorized by the land authority (owner), except paved or double-lane gravel roads. Generally, this law is recognized by the Forest Service, however, in certain conditions, the federal government may preempt State law to make the designation more specific or modify the restrictions. Preemption will generally occur only after a motorized, mixed-use analysis has been conducted by a qualified engineer. This analysis was completed on the WWNF in 2012 on all roads where mixed use is allowed. These studies resulted in some open roads operating at a ML2 or 3 being closed to specific types of vehicular travel (i.e., Class I and III OHVs) and in other cases roads were opened to all vehicular traffic (i.e., some double-lane aggregate surfaced roads). Maintenance Level 4 and 5 roads are closed to all classes of OHVs, except highway legal OHVs or where designated for crossing.

There are many roads on the forest which have restrictions of some type with regards to motor vehicle use. They may be seasonal or year-long restrictions, or may be specific to the type of vehicle use on a road. These restrictions were enacted by the creation of a Code of Federal Regulations Order (36 CFR 261), generally signed by the Forest Supervisor. These restrictions became prohibitions enforceable by law, once the order was signed. On the WWNF, there are nearly 60 types of restrictions in place, ranging

from hunting and elk calving season closures to full-size vehicular restrictions on snowmobile routes. During fire season, CFR closure orders may be implemented to protect the general public and aid firefighters in accessing a wildfire. These orders will generally be implemented and then rescinded once public safety is assured and the fire is under control.

Transportation management strategies exist for the entire forest. These strategies identify a long term objective transportation network and objective maintenance levels for each road. The goal of this network is to meet the WWNF Forest plan open road density guidelines discussed under the Analysis Specifics description in Section 4 – Benefits, Problems and Risks in this document. This network supports protection of natural resources, provides access for forest, private and permitted activities, and provides for a safe, manageable and affordable network of access on the WWNF. This network of roads is the collation of the site-specific decisions made across the WWNF on each Ranger District since the signing of the WWNF Forest Plan in 1990. The goal of district and transportation managers across the forest has been to move toward this network, over time, as funding for road closures, decommissioning, and maintenance becomes available.

B. Roads

Open Road

Existing roads open to the public for motorized use are forest system roads, which are currently in the Forest's INFRA database (an Oracle database containing information on all roads and improvements on Forest Service lands) with the following attributes:

- System = National Forest System Road
- Jurisdiction = Forest Service
- Route Status = Existing
- Operational Maintenance Level = 2 through 5

Closed Road

Closed roads have been closed to vehicle traffic for at least a year but are necessary for future activities. They appear in the Forest's INFRA database under the following categories:

- System = National Forest System Road
- Jurisdiction = Forest Service
- Route Status = Existing
- Operational Maintenance Level = 1

Decommissioned Road

Decommissioned roads are no longer part of the forest transportation system. They have generally been naturally or mechanically removed from the ground. They appear in the Forest's INFRA database under the following categories:

- System = National Forest System Road
- Jurisdiction = Forest Service
- Route Status = Decommissioned
- Operational Maintenance Level = 1-5¹

¹ The maintenance level of decommissioned roads is the level they were maintained at prior to decommissioning.

Unauthorized Road

An unauthorized road is a road which exists on the forest, but is not included in a forest transportation atlas or database. These are road beds which have generally been established by various users over time. In some cases, these could be temporary roads constructed for various management activities which were not adequately decommissioned at the conclusion of that use. Most unauthorized roads were not planned, designed, or constructed by the Forest Service. Currently, these roads are not in the Forest's corporate (INFRA) database, on forest maps, nor are they part of the NFS road system and were not considered in this analysis.

C. Motorized Trails

Currently, there are 320 miles of trails designated for use by OHVs ≤ 50 inches wide (includes roads and mixed use trails designated for OHVs ≤ 50 inches wide) on the WWNF.

D. Areas

There are no designated motorized areas (as defined by the Travel Management Rule) on the Wallowa-Whitman National Forest; however, there are 32 closure areas where motor vehicle access is managed on a seasonal or year round basis. Many of these closure areas are managed in cooperation with Oregon Department of Fish and Wildlife (ODFW) to improve big game habitat, meet big game management objectives, and provide for backcountry hunting opportunities and the potential to take larger bulls.

Table 2 – Current WWNF Area Closures

Area	Closure Reason	Timing
Eagle Creek	Big Came Winter Range (BGWR)	December 1 – April 15
Dark Canyon	Cooperative Closure Area - Hunting	September 30 – November 27
Salmon Creek	BGWR	December 1 – April 15
Baker City Watershed	Water Quality Protection	Year Round
North Face	Wildlife – Big Game Habitat	January 1 – December 31
Patrick Creek	Cooperative Closure Area - Hunting	May 1 – July 1 and 3 days before rifle deer season through 2 nd rifle Bull Elk seasons
Indian Gorham	Cooperative Closure Area - Hunting	3 days prior to the 1st Rifle Bull elk season to end of 2 nd rifle bull elk
Trail Creek	Cooperative Closure Area - Hunting	3 days prior to the 1st Rifle Bull elk season to end of 2 nd rifle bull elk
Anthony Lakes	Recreation Management	Closed during the ski season to all motor vehicles except snow grooming equipment.
Clear Creek	Cooperative Closure Area - Hunting	3 days before 1st elk season through 2 nd rifle Bull Elk seasons
3 Cabin	Soils	January 1 – June 1
Spring Creek	BGWR protection	December 15 – April 30
McCarty	BGWR protection	December 15 – March 31
Oregon Trail	Protection of Cultural Resources	Year Round
Starkey	Support Research projects	Unique dates – Year Round except for open routes and Labor Day to Memorial Day on feeding grounds
Noregaard	Cooperative Closure Area -	3 days prior to archery through close of

Area	Closure Reason	Timing
	Hunting	antlerless elk season
Chesnimnus	Cooperative Closure Area - Hunting	3 days before rifle Bull Elk season through close of antlerless elk season.
W Fork Burnt River	Eagle Nest	January 1 – October 31
Phillips Lake and S. Shore Phillips	Recreation Management	Year Round – No off route dispersed camping and no off road vehicles including snowmobiles.
Spooner	Cooperative Closure Area - Hunting	3 days prior to 1st Elk through 2 nd Elk
Grouse Lick	Cooperative Closure Area - Hunting	3 days prior to 1st Elk through 2 nd Elk
Melhorn	Wildlife – Big Game Habitat	Year Round
Summit Pt	Wildlife – Big Game Habitat	Year Round
Lake Fork Dutchman	Hunting	3 days prior to archery season through close of last elk season and from May 1 to July 1
Okanogan	Calving and Cooperative Closure Area - Hunting	May 1- July 1 and 3 days before rifle deer season through all elk seasons
Dry Beaver Ladd Canyon	Cooperative Closure Area - Hunting	Year Round
Bald Angel Area Closure	Wildlife – Big Game Habitat	Year Round
S. Fk Burnt River Transportation Mgmt Area	Recreation Access	Year Round
Sled Springs	Wildlife – Big Game Habitat	To Be Determined
Hells Canyon National Recreation Area	Recreation Management	Year Round
La Grande Municipal Watershed	Water Quality	Year Round
Baker City Municipal Watershed	Water Quality	Year Round

Road Maintenance Levels

The Forest Service differentiates forest roads into five maintenance levels, which define the level of service, and maintenance required. Refer to the Glossary for a more detailed description of the maintenance levels.

Road Maintenance Level 5 (ML5) – roads are managed and maintained for a high degree of user comfort. These roads are generally paved and are suitable for passenger vehicles.

Road Maintenance Level (ML4) – roads are managed and maintained for a moderate degree of user comfort. These roads are generally paved, but sometimes may be surfaced with stabilized aggregate surfacing and are suitable for passenger vehicles.

Road Maintenance Level (ML3) – roads are managed and maintained for a moderate degree of user comfort. These roads are generally gravel surfaced and are suitable for passenger vehicles.

Road Maintenance Level 2 (ML2) – roads are managed and maintained for use by high-clearance vehicles; passenger car traffic is not a consideration.

Road Maintenance Level 1 (ML1) – roads that are kept on the transportation system for intermittent project uses and are closed to vehicular traffic between projects. The closure period must exceed 1 year for the road to be ML1 status.

Previous Travel Management Decisions

The *Wallowa-Whitman National Forest Roads Analysis for Maintenance Level 3-5 Roads* Report published in October of 2003 has been used as information by the Wallowa-Whitman National Forest Line Officers to aid in their understanding of the Transportation System on the Forest.

As described under the Selection of Analysis Baseline section of the Analysis Process description earlier in this document, hundreds of site-specific road management decisions have been made on the roaded portions of the forest since the WWNF Forest Plan was signed in 1990. These decisions have resulted in a recommended network of roads and objective maintenance levels for long term management, access, and protection of natural resources across the entire forest. Due to available funding, only a portion of these decisions to decommission, open, close or maintain roads have been physically implemented on the ground. The intent of these plans has been to implement them as funding becomes available over time. Approximately 1,015 miles of roads have been decommissioned and removed from the system since the early 1990's. Area closures remain the same as those described under the Current Travel Management Direction for Roads, Trails, and Areas described above.

The WWNF engaged in Subpart B travel management planning from 2006 to 2012 when the ROD for the WWNF Travel Management Plan (TMP) FEIS was signed. This decision was withdrawn in 2012 and currently travel management on the WWNF is still being managed under the WWNF Forest Plan as amended and the 1991 Travel Management Plan. The analysis completed in the 2012 TMP FEIS remains a valid analysis of alternatives and has been used to inform this TAP.

Existing Road and Motorized Trail System

Currently the WWNF has an extensive system of roads and motorized trails. The motorized trails were considered but not analyzed in this report. The focus in this report is the review and analysis of the 9,119 miles of ML1 through ML5 roads on the WWNF (see Table 3 below and Maps in Appendix E).

Table 3. Road summary by existing operational maintenance level for the WWNF

Maintenance Level	Miles of Road	Percent of Road System
1 – Basic Custodial Care (Closed)	4,486	49%
2 – High Clearance Vehicles	4,250	47%
3 – Suitable For Passenger Vehicles	262	3%
4 – Moderate Degree of User Comfort	1	<1%
5 – High Degree of User Comfort	120	1%
Totals	9,119	

State OHV and ATV Laws

FS regulates the type of vehicles permitted on its national forest system roads/trails and the state enforces the operation and vehicle requirements on FS.

Paved roads and two-lane gravel roads are generally closed to non-highway legal OHVs unless posted open. Gravel roads one and one-half lane wide or less are generally open to OHVs unless restricted for safety issues. If a Class II or III ATV is not highway legal (Class I and Class IV ATVs cannot be made highway legal), it can be used on restricted roads only to cross the road to reach a designated OHV trail.

Some pertinent sections of the Oregon State laws are can be found at:

http://www.oregon.gov/oprd/ATV/docs/hb_laws_rules.pdf

Further information may be obtained from:

http://www.oregon.gov/oprd/ATV/Pages/ATV_Publications.aspx

3. Issues

Purposes

The purposes of this section are to identify:

- The key issues affecting the portion of the forest transportation system under analysis.
- The primary public concerns, management concerns, and legal constraints related to travel management.
- The data needed to analyze the key issues.

Key Issues

The key issues were identified using extensive public involvement and comments received during the planning for the WWNF Travel Management Plan (2007-2012) as well as input from Forest Service personnel. The following roads issues were identified, are in random order and do not represent a hierarchy of importance.

Recreation Experience Issues

-  **Access for a wide variety of recreation activities is very important to WWNF users and local communities.**

Visitors to the WWNF seek a wide variety of recreational experiences: solitude and clean, fresh air; multigenerational family outings; hunting trips; picking berries; gathering mushrooms and firewood; camping and more. Forest roads provide access for all of these activities including access to developed recreation sites and trailheads, as well as dispersed camping sites. Many people have grown up with or developed a deep appreciation for time spent in the national forest, either alone or with their family and friends. It is important to all users that access to these opportunities be protected so that they are available for future generations.

Concerns have also been raised about restricted access for the elderly and disabled as well as the potential for user conflicts and safety as road systems shrink and maintenance falls farther behind due to inadequate funding.

Resource Protection

Big Game Habitat:

- ✚ **Motor vehicle use on National Forest System (NFS) roads has the potential to negatively impact big game species and their habitat.**
- ✚ **Disturbance to big game on NFS lands has the potential to move elk and deer herds onto adjacent private lands and impact ranchers and farmers crops.**

The disturbance and displacement by various types of travel (motor vehicle use in particular) of some big game species from traditional summer and winter habitat is of primary concern. The concern is that the lack of management of the existing road system and motor vehicle use on the national forest has contributed to lower big game populations, conflicts on adjacent private lands, and to affecting the vulnerability of elk and deer to hunting. This may lead to lower mature deer and elk numbers and a possible restriction on hunting opportunities.

Open road density is a key element in determining whether or not elk remain in an area after hunting seasons have started. In areas where a combination of high open road densities and low levels of hiding cover are found, elk have been known to move until secure areas are found, thus expending energy stores needed for winter survival and impacting crops on adjacent private lands.

Water Quality, Fisheries, Riparian Habitat, and Soils:

- ✚ **There is a potential for increased input of fine and coarse sediment into streams from roads.**
- ✚ **Roads can impact riparian areas, resident and TES fish habitat and populations including the loss of streamside vegetation and shade; compaction or loss of floodplains impacting hydrologic connectivity; and destabilization of steep slopes.**
- ✚ **Culverts of inadequate size or performance restrict passage of fish and other aquatic organisms.**

There is a public concern related to the location and use by motor vehicles of roads located directly in streams or wet meadows, which irreparably damages vegetation, reduces water quality, and compromises aquatic species habitat. Several of the streams in the project area are listed as impaired water bodies for temperature, sediment, habitat, or nutrients under the Clean Water Act. Roads located near water bodies that are impaired due to sedimentation are of particular concern.

Riparian areas are diverse, dynamic, and complex habitats. They provide habitat for a number of species, including threatened and endangered species (TES) (three federally listed fish species under the Endangered Species Act inhabit the project area), and are sites of biological and physical interaction at the terrestrial-aquatic interface. Riparian areas are a small part of the total land base of national forests; however, they tend to incur a disproportionate amount of human activity. Routes parallel to or passing through riparian areas can affect the direct loss of these habitats.

Invasive Plant Species:

- ✚ **Roads and associated human activities increase the spread of noxious weeds.**

Spread of noxious weeds is a growing concern and is of national importance. Motor vehicle use on roads has long been recognized as a vector for the introduction and spread of noxious weeds. Monitoring shows that roadways and trails are often a conduit for the spread of noxious weeds.

Snag Habitat (Including Old Growth) and Snag Dependent Species:

-  **Extensive NFS roads and user-built roads provide access for firewood cutting which negatively impacts snag habitat and those wildlife species dependent on this habitat.**

Snags, which serve as a growth substrate for microorganisms and invertebrates and provide nesting and foraging habitat for about 62 wildlife species on the forest (Thomas 1979) are seriously declining in numbers in some areas across the national forest. Historically, building roads or trails through forested habitats has reduced snag and down log density. In addition, this trend is being perpetuated as roads facilitate public access for firewood removal, which results in a continued reduction in snags.

Access

-  **Roads are needed to provide access to private lands, mining, and for permitted activities such as firewood gathering, grazing, ditches, municipal watershed management, etc.**
-  **Roads are necessary for administration and management of NFS lands.**
-  **Roads support emergency, firefighting, and law enforcement activities.**
-  **Local community members may depend on some forest roads as emergency evacuation routes.**

Roads are important for access to the WWNF for users with disabilities, administrative needs (timber harvest, firefighting, grazing, water rights, ditches, etc), emergency and law enforcement activities, firefighting efforts, private property access, mining operations and activities, permitted grazing and other special use permit operations, and firewood removal. Motor vehicle access to the WWNF is important to local and regional residents. Those working and living in and near the WWNF boundaries are dealing with emergencies, managing permitted uses, such as allotment management and special uses, gathering firewood in an area where many homes are heated with fuelwood, and actively pursuing the prospecting, exploration, and mining of minerals that accompanies mining operations of all sizes.

The key issue related to access is that the WWNF road system needs to provide appropriate motor vehicle access and direction to meet the needs of resource managers, permittees, firefighting and emergency personnel, property owners, and other users of the WWNF.

Economics

-  **Road maintenance funding is not adequate to maintain the current Forest Service road system to standard (i.e., all Forest roads).**
-  **Future funding trends indicate that without changes to the road system, maintenance funding may not be adequate to maintain the routes identified in this analysis as the road system necessary for public and administrative access.**
-  **Road closures and decommissioning may have a negative effect on the economic wellbeing of local individuals, communities and businesses.**

Forest Service Manual 7702, part 4 and Forest Service Handbook 7709.59, Chapter 60, 62.31-4 require the Forest Service to provide for safe access on open routes for public users. Road maintenance costs to achieve this safe access continue to rise while the WWNF's road and trail maintenance budgets continue to decline. In addition, there is a road management cost associated with the system that also utilizes the same transportation funding, making the amount of dollars available for the maintenance of the road and

trail system even more competitive. Keeping road systems open and appropriately maintained may be challenging based on decreasing Federal budgets and outside funding.

Many of the public interested in road management on the WWNF are concerned about the potential for road closures to have negative economic effects on local communities, local businesses, local home prices, and tourism in the local counties. The public has also expressed concern over how road closures will negatively impact the logging industry and families who are involved in it creating economic burden to small communities and lumber mills.

Social

-  **Road access is important to the custom and culture of the people who live near the WWNF.**
-  **Reducing motor vehicle access may impact the people who depend on the WWNF for their livelihood, recreation, and traditions.**

Many people indicate that they live in northeast Oregon for the sole purpose of being able to drive a short distance from home to be in the outdoors, enjoy the activities they love and they want their children and grandchildren to enjoy the same opportunities that they have enjoyed. There is concern among the local users that changing access will have the potential to change intergenerational recreation and the sharing of a culture of living off the land and getting the kids away from TV and playing computer games as much as possible.

Many pointed out that local residents and tourists from around the world use these roads for family recreation, including fishing, hunting, scouting, backcountry travel on trails, firewood gathering to heat homes, gathering forest products for personal and commercial use, lumber, fence stays, mushrooming, berry picking, antler hunting, mining, outfitter guide services, and cattle grazing. All of these uses are valued by the residents of surrounding communities and are an integral part of their custom and culture. Removing motor vehicle access to these activities has the potential to impact something they consider a “Traditional Cultural Property” (TCP). A TCP can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that a) are rooted in that community’s history, and b) are important to the continuing cultural identity of the community.

4. Benefits, Problems and Risks

Purpose

The purposes of this section are to:

- Describe the risks and benefits associated with the road system.
- Describe the cost of operating and maintaining the road system
- Describe the analysis process used in this report

Benefits and Risks

Roads on the national forest provide access for many uses including the infrastructure to facilitate motorized recreation and resource management (benefits). However, their presence also can have negative effects on the natural resources of the National Forest (risks). The risks and benefits of the road system are grouped according to the issues in the previous section that were identified by the public and the IDT.

Issue statements have been divided into 5 categories and are displayed in the tables below with the associated benefits and risks, and the guidelines used to evaluate them:

- **Access to Public Lands** – Combines Recreation Experience and Access Issues
- **Resource Impacts** – Includes all Resource Protection Issues
- **Road Management Funding** – Focuses on road management funding
- **Economics** – Focuses on local community Economics issues
- **Local Custom and Culture** – Includes all Social issues

The risks and benefits associated with each road were used by the team to determine if existing road management practices should be continued or if there were opportunities for making changes to road management objectives that would better address the risks or benefits associated with the roads. The costs of maintaining the current road system were also considered when identifying potential changes. The following tables summarize the guidelines and considerations used by the IDT when recommending changes to the current road management practices for the roads. Please note that for some issues, there are both risks and benefits associated with the road system as identified in each table below.

Access to Public Lands	
Issue: Roads support emergency, firefighting, and law enforcement activities.	
Benefits	Analysis Guidelines and Considerations
Motorized access using roads benefits the public and the Forest Service by facilitating fast and easy access in the event of an emergency. Roads provide for efficient access into areas during initial attack fire suppression activities. Roads also provide strategic locations for use as fire lines during extended attack fire suppression activities. Open and closed roads provide law enforcement officers access to areas for investigations.	ML2-5 routes are appropriate for general public access to the Forest. Some routes may be open for administrative use only in order to control access to sensitive cultural or biological resources. Roads strategically located (especially in WUIs and near private lands) may be considered for closure (ML1) but would be retained on the landscape for emergency access needs. Method of possible closure for roads recommended for change to ML1 located within WUI boundaries (see Table in Appendix A and map in Appendix E) were discussed and would be important considerations during site specific NEPA analyses and decisions for disposition of these roads.

Table 5. Benefit/Risk Statements and Evaluation Criteria for each Issue

Access to Public Lands	
Issue: Access for a wide variety of recreation activities is very important to WWNF users and local communities.	
Benefits	Analysis Guidelines and Considerations
Roads provide access to developed recreation sites (i.e. trails, campgrounds, picnic areas, recreation residence homes, and camps), and to the general forest areas where other uses (dispersed camping, hunting, berry picking, mushrooming, firewood cutting, fishing, camping, rock hounding, visiting historic mines, photography, bird watching, gold panning, sightseeing, wildlife viewing, sledding, Christmas tree hunting, etc.) can vary.	Most of the routes considered for retention in the sustainable road system are appropriate for general public access to the Forest. Some routes may be open for administrative use only in order to control access to sensitive cultural or biological resources. Re-opening closed roads to meet access needs were located outside of resource concern areas described in the Resource Impacts tables below. The risks associated with maintaining these roads as open may require some mitigation activities. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance efforts, reconstruction, relocation, seasonal maintenance restriction or seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds. Under the current Forest Plan, OHV use on closed (ML1) roads is permitted as long as there is not resource damage occurring or the closure has not been prohibited by law (CFR). Changes in access levels have the potential to impact motorized and non-motorized recreation opportunities on the forest. Reduction of the roads available for public use may impact public safety by putting more ATV users on roads with trucks, cars, and pickups and crowding people into limited areas. Reducing the number of roads available has the potential to improve recreation opportunities for non-motorized users, those seeking backcountry hunting experiences, solitude, and improved fishing opportunities.

Access to Public Lands	
Issue: Local community members may depend on some forest roads as emergency evacuation routes.	
Benefits	Analysis Guidelines and Considerations
Strategically located roads provide adequate egress to private landowners, public groups, and other forest users from homes, seasonal cabins, youth camps, and campgrounds in the event of an emergency.	Specific routes requested by public for emergency evacuation routes were factored into open road recommendations in this analysis. Roads strategically located (especially in WUIs and near private lands) may be considered for closure (ML1) but would be retained on the landscape for emergency access needs. Method of possible closure for roads opportunities to change to ML1 located within WUI boundaries (see Table in Appendix A and map in Appendix E) were discussed and would be important considerations during site specific NEPA analyses and decisions for disposition of these roads.

Access to Public Lands	
Issue: Roads are needed to provide access to private lands and for permitted activities such as grazing, ditches, municipal watershed management, etc. Issue: Roads are needed for pursuing firewood gathering opportunities.	
Benefits	Analysis Guidelines and Considerations
Because wood heat is the only or primary source of heat for a lot of homes in northeast Oregon a sustained level of firewood is essential and changes in public motor vehicle access has the potential to negatively impact firewood gathering on National Forest System lands for not only personal use firewood cutters but also commercial firewood operations. Roads provide authorized users and administrative access to forest improvements, private inholdings, approved mining operations, and grazing allotments. Forest improvements include lookout towers, communications sites, utility corridors, irrigation ditches, municipal watersheds, special use areas and facilities, designated permit areas, and designated resource areas. Motorized access to grazing allotments using roads benefits the Forest Service by facilitating the administration of grazing permits and benefits grazing permittees by providing access to manage livestock and maintain range improvements.	ML2-5 routes are appropriate for general public access to the Forest. Some routes may be open for administrative use only in order to control access to sensitive cultural or biological resources. Closed roads considered for re-opening to meet access needs were located outside of resource concern areas described in the Resource Impacts tables below. Access to private land inholdings was retained but could have been recommended for closure. Method of possible closure (i.e. gates) for roads where an opportunity to change to ML1 (see Table in Appendix A and map in Appendix E) were discussed and identified would be important considerations during site specific NEPA analyses where decisions for disposition of these roads would be made.

Access to Public Lands	
Issue: Roads are necessary for administration and management of NFS lands.	
Benefits	Analysis Guidelines and Considerations
Roads provide access for current and planned prescribed burning and timber harvest activities facilitate logging systems, act as control lines for prescribed burning, and support fuel reduction activities in private land interface areas. A sustainable road system needs to be strategic for the long term as not all roads are needed for current administrative and management activities but may be needed for future management.	The majority of the roads retained for administrative use could also provide access for the general public, depending on which type of access is appropriate to meet resource management objectives. For roads in this category that are important for public access, the Forest Service should work with cooperating agencies or user groups to provide adequate maintenance. Maintenance of drainage features and preventing erosion are the highest priority issues for these roads and SDRR work identified in Appendix A. Method of possible closure for roads with opportunities for change to ML1 located within WUI boundaries (see Table in Appendix A and Map in Appendix E) were discussed and would be important considerations during site specific NEPA analyses and decisions for disposition of these roads. If there is no compelling administrative or public need for a road in the long-term, then it was identified as an opportunity for decommissioning. The simplest method of decommissioning a road is to block it to vehicle traffic and allow it to naturally revegetate. Due to changes in management requirements and technology multiple roads accessing the same area may no longer be needed and could be returned to resource production. Due to declining budgets, roads were considered for closure or conversion to a trail depending on the level of interest and recreation potential of the route. If a closed road is primarily used for motorized recreation, is not creating resource issues, and is determined to not be needed for resource management, then it was considered for recommended conversion to a motorized trail. If there is a future need for a road but no immediate need, then it should remain on the system as a closed (ML1) road. Closed roads are closed for at least a year and are most effectively managed for short-term uses such as for facility maintenance. ML1 roads are considered a low priority for investment of time and funds to mitigate risk. Drainage features should be inspected before each closure to prevent resource impacts.

Resource Impacts	
Issue: Extensive NFS roads and user-built roads provide access for firewood cutting which negatively impacts snag habitat and those wildlife species dependent on this habitat. Issue: Roads and associated human activities increase the spread of noxious weeds.	
Risks	Analysis Guidelines and Considerations
Managing access within the forest provides the opportunity for additional protection of snag habitat and reduces the potential for spread of noxious weeds. (WWNF TMP FEIS, Pages 192-213)	General public motorized access is not recommended on closed or user-built roads, unless the road is determined to be essential for public access. Most of the roads creating resource issues should be closed or restricted to administrative use only depending on the access needs. If there is no compelling administrative or public need for a road in the long-term, then it should be decommissioned.

Resource Impacts	
Issue: Motor vehicle use on National Forest System (NFS) roads has the potential to negatively impact big game species and their habitat. Issue: Disturbance to big game on NFS lands has the potential to move elk and deer herds onto adjacent private lands and impact ranchers and farmers crops.	
Risks	Analysis Guidelines and Considerations
Motor vehicle use of roads can negatively impact how big game use an area by reducing available security habitat, impact survival by increasing how much energy an animal must expend during critical periods, and disturbing animals during calving and fawning periods. Motor vehicle use in critical wildlife areas increases the potential for chronic elk damage on adjacent private lands. Disturbance, mainly from motor vehicles, can redistribute elk in ways that can be problematic for elk, landowners, public land managers, and game managers. More roads and motor vehicle use occurs on public lands and can force elk herds onto adjacent private land where they are content with high quality forage and relatively low levels of disturbance. This redistribution costs ODFW substantial funds and manpower to address. This redistribution can result in elk ceasing to move between traditional summer and winter ranges during the respective seasons and becoming habituated to private lands. Redistribution also takes big game animals off of public lands where they are unavailable for public recreation opportunities such as viewing, hunting, etc. (WWNF TMP FEIS, Pages 118-143)	General public motorized access in key wildlife areas of concern (WACs-Appendix D) is not recommended, unless the road is essential for the management of the overall public access. Most of the roads in this category should be closed or restricted to administrative use only depending on the access needs. If there is no compelling administrative or public need for the road in the long-term, then it should be decommissioned. Roads recommended for changes within WACs were selected to facilitate the creation of larger blocks of security habitat for big game (i.e. blocks of land greater than ½ mile from open roads)

Resource Impacts

Issue: There is a potential for increased input of fine and coarse sediment into streams from roads.

Issue: Roads can impact riparian areas, resident and TES fish habitat and populations including the loss of streamside vegetation and shade; compaction or loss of floodplains impacting hydrologic connectivity; and destabilization of steep slopes.

Issue: Culverts of inadequate size or performance restrict passage of fish and other aquatic organisms.

Risks	Analysis Guidelines and Considerations
Roads can be a source of elevated sediment to streams and other hydrologic features, negatively impacting water quality. Of particular concern are drawbottom roads and stream crossings. Drawbottom roads reduce streamside vegetation and can be a source for elevated temperature. Roads can be a source of disruption to natural hydrologic flows by disrupting ground water flow and increasing surface water connectivity. High total road densities (open and closed) have negative effects on TES fish species and their critical habitat. Roads that cross streams can prevent or inhibit fish passage at various flows for different species and life stages. (WWNF TMP FEIS, Pages 166-192)	Roads with opportunities for changes for fisheries reasons focused on drawbottom roads, stream crossings, and streams with fish present. Roads suggested for retention in the SRS over drawbottom roads are generally ridge top roads or roads not near TES fish species occupied habitat. General public motorized access is not recommended for roads with identified fisheries concerns unless the road is essential for the management of the overall public access. Roads of resource concern for fisheries were considered for possible closure or restricted to administrative use only depending on the access needs. If there is no compelling administrative or public need for the road in the long-term, then it should be decommissioned. Roads recommended for SDRR are intended to reduce the chronic effects of roads (e.g., fine sediment delivery) and significantly reduce the likelihood and consequences of catastrophic failures (e.g., diversion of stream flow onto roads) associated with large storm, rain-on-snow, or other unusual natural occurrences. A variety of tools may be used to achieve these objectives, depending on site-specific conditions. These include designed overflow diversion techniques at road-stream crossings, installation of water bars and rolling drain dips, and cut/fill slope protection measures. In addition, other methods for reducing sediment transport potential such as placement of rock buttressing in drainage ditches, seeding cut/fill slopes and ditchlines, and installation of simple energy dissipating devices such as rock, wattles, or erosion control matting may be utilized. These simple treatments are intended to compliment the use of more extensive treatments (e.g., decommissioning, road realignments) that are typically implemented on relatively small segments of the network.

Road Management Funding	
Issue: Road maintenance funding is not adequate to maintain the current Forest Service road system to standard (i.e., all Forest roads). Issue: Future funding trends indicate that unless changes are made, road maintenance funding may not be adequate to maintain the routes identified in this analysis as the road system necessary for public and administrative access.	
Benefits and Risks	Analysis Guidelines and Considerations
Right-sizing the WWNF road system would prioritize where and how available road maintenance funding is used which will make these roads safer for public use and reduce potential resource impacts to water quality. Opportunities to explore alternative funding sources for road maintenance would allow for the completion of maintenance on roads beyond what funding is received on the forest.	The majority of the sustainable roads should remain available for administrative use with the ML2-5 open for the general public, depending on which type of access is appropriate to meet resource and recreation management objectives. The risks associated with sustainable road system roads may require some mitigation. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance, reconstruction, relocation, seasonal maintenance restriction, and seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds. Access needs should be prioritize based on public and administrative needs combined with any potential for resource impacts. Lower priority roads may be allowed to revert to lower maintenance levels, thus requiring less funding to maintain for high clearance vehicular access. Some roads, over time, may revegetate and impede or eliminate vehicular use as maintenance intervals grow larger or become negligible. Other roads that are identified as higher in their priority level with minimal resource impacts may experience user-based hand maintenance which would allow the road to remain passable, but surface deformations such as pot-holes and rutting may occur over time causing travel to become slower and less comfortable than smoother, more maintained roads. Roads recommended for SDRR are intended to reduce the chronic effects of roads (e.g., fine sediment delivery) and significantly reduce the likelihood and consequences of catastrophic failures (e.g., diversion of stream flow onto roads) associated with large storm, rain-on-snow, or other unusual natural occurrences. A variety of tools may be used to achieve these objectives, depending on site-specific conditions. These include designed overflow diversion techniques at road-stream crossings, installation of water bars and rolling drain dips, and cut/fill slope protection measures. In addition, other methods for reducing sediment transport potential such as placement of rock buttressing in drainage ditches, seeding cut/fill slopes and ditchlines, and installation of simple energy dissipating devices such as rock, wattles, or erosion control matting may be utilized. These simple treatments are intended to compliment the use of more extensive treatments (e.g., decommissioning, road realignments) that are typically implemented on relatively small segments of the network.

Local Custom and Culture	
Issue: Road access is important to the custom and culture of the people who live near the WWNF. Issue: Reducing this access may impact the people who depend on the WWNF for their livelihood, recreation, and traditions.	
Benefits and Risks	Analysis Guidelines and Considerations
Road access to National Forest System lands contributes to the custom and culture of the region and communities surrounding the WWNF providing for intergeneration recreation and the sharing of a culture of living off the land and getting the kids away from TV and playing computer games as much as possible. Reducing motor vehicle access on roads has the potential to negatively affect the custom and culture of the motorized users who live, work and play on and around the WWNF. Reducing motor vehicle access on roads also has the potential to improve the custom and culture of the non-motorized users who recreate on the WWNF. (WWNF TMP FEIS, Pages 213-251)	Most sustainable road system routes are appropriate for general public access to the Forest. Some routes may be open for administrative use only in order to control access to sensitive cultural or biological resources. Conversion of certain roads to motorized trails, especially in areas where a motorized trail system already exists could provide additional motorized opportunities and access to recreation and resources desired by local communities and users. The risks associated with some roads may require some mitigation activities. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction or seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds. Under the current Forest Plan, OHV use on closed (ML1) roads is permitted as long as use is not creating resource damage and the closure has not been prohibited by law (CFR).

Economics	
Issue: Road closures may have a negative effect on the economic wellbeing of local individuals, communities and businesses.	
Benefits and Risks	Analysis Guidelines and Considerations
Forest road access is an important contributor to recreational tourism in northeast Oregon, especially during big game hunting seasons in the late summer/fall. Forest roads support forest management activities which provide jobs and income to individuals and businesses in the rural NE Oregon communities. (WWNF TMP FEIS, Pages 213-251)	Most sustainable road system routes are appropriate for general public access to the Forest. Some routes may be open for administrative use only in order to control access to sensitive cultural or biological resources. The risks associated with some roads may require some mitigation activities. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction or seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds. Under the current Forest Plan, OHV use on closed (ML1) roads is permitted as long as the closure has not been prohibited by law (CFR).

Maintenance and Operation Costs

The WWNF provides many miles of roads for recreational, administrative, commercial, private, and emergency access. With over 9,000 miles of road administered by the Forest providing access for these various types of activities, the Forest is an important part of the local economies of the eastern portion of the Pacific Northwest.

Current Trends

Forest Service road budgets have been steadily declining for the past 20 plus years. Region-wide, the amount of funding for road work including both appropriated funding and work contributed by commercial users is less than 20 percent of what it was 20 years ago. Appropriated road funds to the Pacific Northwest Region (Region 6) have been reduced 40% over the 5 years used in the analysis in Figure 4. These figures do not include other sources of funding such as timber sales, contributions from permittees, etc.

Over the same 5 years, the allocation of funding for WWNF road maintenance has declined. Since 2003, these allocations have declined from \$759,700 in 2009 to \$279,100 in 2013 (a reduction of 63 percent). It is important to note that in 2009 and 2010, the America Recovery and Reinvestment Act was in effect which provided for additional funding during those years which has subsequently gone away too.

Figure 4: 5-Year Funding Trends



This decline in funding has been somewhat continual over the past couple of decades. With this trend in mind, the Forest downsized its road system in 2006 by reducing the maintenance level of 403 miles of operational ML3 through 5 roads to ML2 and ML3. These ML reductions led to a corresponding reduction in road maintenance performed on the road system, as roads which used to receive yearly attention were now being maintained over longer time intervals and to reduced standards. Since 2006,

minor adjustments to MLs on roads (on a site-specific basis) have taken place as a result of project level NEPA decisions. Changes to the management of the road system have taken place on a continual basis since the Forest Service was created, reflecting a system that is continuously in flux. It is expected that additional changes will occur in the future as a result of project-level analyses, adjusting to the resource and funding issues that are important at that time.

Refer to Appendix C, Financial Analysis, for a more detailed description of the existing costs of maintaining the current road system and potential opportunities associated with the expectation of long-term funding.

Wallowa-Whitman National Forest Travel Analysis Process

The travel management issues and the potential risks and benefits of the road system were evaluated using the following analysis assumptions and processes.

Analysis Process and Assumptions:

The following table summarizes processes and considerations that were used to identify road management opportunities and provide the analysis background necessary for the identification of the sustainable road system needed for safe and efficient travel and for administration, utilization, and protection of the Wallowa-Whitman National Forest, per 36 CFR 212.5(b)(1).

Table 4. Sustainable Road Considerations and How They Were Used in the Analysis

Processes and Considerations	Used to Identify:
Forest Roads Analysis	➤ roads (ML3-5) providing the major access on the WWNF.
Forest Plan Biological Opinion (BO) and Threatened and Endangered Species habitat (TES)	➤ roads or road segments in watersheds with TES fish species or their habitat which have total road densities above the terms and conditions provided in the biological opinions by the Regulatory Agencies.
Forest Plan Open Road Densities (ORD)	➤ roads or road segments in subwatersheds above Forest Plan open road density standards.
Watershed Condition Framework	➤ roads or road segments in subwatersheds with resource issues which make them a priority for restoration.
Mixed Use Analysis	➤ roads with safety risks for mixed motor vehicle use.
R-6 Terrestrial Restoration and Conservation Strategy (TRACS)	➤ roads or road segments in watersheds which are a priority for improving degrading conditions to improve habitat components.
Forest Prioritization of Watershed Restoration Process (POWR)	➤ roads or road segments in watersheds outside of the historical range of variability and under stress.
HCRNA CMP Road Density Goals	➤ roads or road segments in watersheds above CMP open road density guidelines.
Storm Damage Risk Reduction (SDRR)	➤ roads or road segments which are of concern for sediment and erosion and the restoration work needed to remediate it.
Wildlife Areas of Concern (WCA)	➤ roads or road segments located within areas identified in cooperation with ODFW which are contributing to chronic elk damage on private lands.
Wildland Urban Interface (WUI) Areas	➤ roads or road segments in Wildland urban interface areas defined in Community Wildfire Protection Plans where strategic access for suppression activities is important.
Warm/Dry Ponderosa Pine (PIPO)	➤ areas which would be a priority for silvicultural treatments in

Processes and Considerations	Used to Identify:
	the reasonably foreseeable future requiring road access to facilitate fuel reduction and harvest activities.
Past Fire Occurrence	➤ areas of high fire frequency where road access to facilitate fire suppression activities may be a priority.
Logging Systems	➤ roads which exist in strategic locations that are needed to facilitate specific logging system requirements for vegetation management activities.
Duplicate Access	➤ multiple roads accessing the same area which may not be necessary for use due to technological improvements in logging system equipment and capabilities.
Road Management Economic Analysis	➤ opportunities for road system changes to match available funding for maintenance.
Access to developed recreation sites	➤ roads which access developed recreation sites.

While there are other access and social concerns related to the WWNF road system, this analysis does not designate NFS roads, trails or areas for public motor vehicle use, use of the following analysis considerations and processes focus on management and administration of the forest and provide opportunities for change which could minimize negative effects of motor vehicle use on natural resources, conflicts between recreational uses and users, and the compatibility of motor vehicle use in populated areas (36 CFR 212.55 (a) and (b)).

Analysis Specifics

Specific analysis processes, methods, and considerations are described below. These processes and considerations emphasize compliance with the 1990 WWNF Forest Plan as well as State and Federal law, resolution of issues raised by the public during travel management planning, and protection of natural resources on the forest. When identifying sustainable road system opportunities, compliance with State and Federal laws along with public safety were prioritized over other considerations. Because the sustainable road system opportunities identified in this TAR are not decisions, they should be considered and prioritized by an interdisciplinary team during site-specific project planning efforts in order to make final decisions for which opportunities should be implemented and when.

1. Sustainable Road System Opportunities

Opportunities for change identified by the IDT fell into the following categories:

- **Open Roads** – validate which roads, both open (ML2-5) and closed (ML1), need to remain open in the future, and receive road maintenance activities for administrative, public, and private land access on the forest.
- **Close Roads (ML1)** – validate currently closed roads or open roads to be recommended for closure because they are not currently thought to be needed for year round access but are needed for future or current administrative or emergency (fire suppression activities, etc.) access across the forest. These roads would remain closed or be considered for closure and receive the appropriate level of pre-closure maintenance actions. These recommended actions would provide protection for resources and put them into storage for future access needs. Methods of closure are recommended based on administrative or emergency needs identified.
- **Decommission Roads** – validate roads already identified for decommissioning and recommend additional roads or segments to be considered for decommissioning based on

current and future forest service and public access needs, impacts to resources, maintenance costs, and if they are duplicate access to an area.

- **Road Maintenance** – validate operational and objective road maintenance levels and recommend potential ML changes and/or additional storm damage risk reduction (SDRR) and reconstruction work to protect natural resources.
- **Conversion to Trails** – in certain areas where extensive OHV trails already exist, opportunities were identified for some roads that could be considered for conversion to motorized trails to enhance the available motorized trail opportunities.

2. Large-Scale Assessments and Restoration Initiatives:

The following large-scale assessments were used to establish priority areas for sustainable road system recommendations:

- **Forest Watershed Condition Framework (WCF) Analysis** – a strategic framework designed to improve the efficiency, efficacy, and accountability of the FS watershed restoration program which focuses on the restoration of soil, water, and aquatic resources. The WCNF WCF assessed and classified watershed conditions. It also identified priority watersheds for restoration. These priority watersheds were carried forward as part of the IDT sustainable road system deliberations and recommendations.

At the 6th HUC level subwatersheds rated as Class 2 (Functioning-at-Risk with ratings from 1.67 to 2.32) and Class 3 (Impaired Function with ratings from 2.33 to 3.0) were considered as priority areas for sustainable road system deliberations.

- **Forest Mixed Use Analysis - Safety** - In Forest Service Region 6, the regional forester determined that a motorized mixed-use analysis must be conducted on all roads where motorized mixed use is allowed. These studies resulted in recommended changes in the type of motor vehicle permitted on specific roads. Due to the high rate of speed on ML 5 roads they are closed to all classes of OHVs, except highway legal OHVs or where designated for crossing. All other roads were analyzed on a case by case basis and recommendations made for what types of motor vehicle use would be safe.
- **R-6 Terrestrial Restoration and Conservation Strategy (TRACS)** – TRACS identifies species, habitats, and watersheds that are Region 6 priorities for conservation, restoration, and habitat enhancement. These biological resources are priorities because of one or more of the following reasons: departure from historical condition or abundance, strong public or FS management interest, rarity, ongoing threats including climate change, and historical use. Conservation is aimed at protecting and maintaining healthy and functional habitats while restoration is focused on improving degrading habitats, and enhancement focuses on improving habitat components. TRACS priority watersheds (Eagle Creek, Headwaters North Fork John Day River, Lostine River, Minam River, North Powder River, Pine Creek, Upper Imnaha River, and Upper Wallowa River), social/economic vertebrates (elk, bighorn sheep, white-tailed deer, and mule deer), and priority habitats (late-seral ponderosa pine, eastside late-seral mixed conifer and riparian cottonwood) were carried forward by the IDT and used to define priority areas for sustainable road system deliberations and the depth of analysis for species and habitat.
- **Forest Prioritization of Watershed Restoration Process (POWR)** - In 2002, the Wallowa-Whitman Forest Leadership Team established a watershed restoration strategy with the overall goal to achieve Forest Plan direction and maintain or improve the baseline condition and health of all watersheds across the forest. The watershed restoration strategy was developed to assist in

prioritization of restoration needs, aide in cumulative effects analyses, and display how projects improve or maintain baseline conditions over time.

POWR is based upon the concept of “stressors and indicators.”

Stressors are effectors that push the ecosystem to the outer limits of the Historical Range of Variability (HRV). Ecosystems with high stressor values are more likely to experience large-scale re-adjustments from uncharacteristic events or disturbances.

Indicators are values that provide a relative indication of a watershed’s ability to maintain or restore viable populations of threatened, endangered or sensitive species. The indicators were chosen to represent a relative indication of watershed health. Low indicator values are often associated with a system that is under stress.

Four stressors represent the primary factors or processes affecting watersheds on the WWNF. The stressors include fire risk, forest insect and disease, roads, and noxious weed invasion. While other stressors exist, these four are considered the most influential at this time.

Four indicators were selected to evaluate ecosystem health including aquatic (fish habitat), vegetation (HRV and structural stage departure), terrestrial (TES species, old growth, big-game and road density), and watershed (water quality, stream channel characteristics, and soil hydrologic function).

Across the forest these stressors and indicators were rated in each 5th HUC as high, medium, or low. The IDT focused sustainable road discussions in HUCs where stressors are rated high and indicators are rated low. (See Appendix A)

- **Forest Roads Analysis** - A science-based roads analysis which identifies risks, benefits and future maintenance standards for ML 3-5 NFS roads that are safe and responsive to public needs and desires, affordable and efficient, have minimal adverse effects on ecological processes and ecosystems health, diversity, and productivity of the land, and reflects available funding for needed management actions.” The roads identified during this analysis are part of the baseline road system described on page 11 which was used as a starting point by the IDT for this analysis.

3. Forest Plan Biological Opinion (BO) Road Densities

The 1998 LRMP BO for Snake River Basin national forests for Snake River Steelhead (NOAA Fisheries) which updated the 1995 LRMP BO for Snake River salmon, has nondiscretionary Term and Condition which identified the 2.0 mi/mi² total road density (open and closed roads) value for watersheds functioning appropriately. It also identifies as a term and condition the need to implement recommendation #5, which identifies a road standard for road restoration, and a watershed restoration standard for accelerated restoration (particularly roads).

The 1998 LRMP BO for Columbia Basin national forests for Columbia River Bull Trout (FWS) has Conservation Recommendations which seek a net reduction of roads in bull trout watersheds. Overall watershed total road densities of less than 1.0 mi/mi² are desired. Application of the FWS Matrix is a Term and Condition, identifies the 1.0 mi/mi² total road density value for watersheds functioning appropriately.

Road densities have been used on the WWNF relative to fish habitat and water quality since 1998 in response to Endangered Species Act (ESA) consultations on federally listed fish. The forest made commitments to NOAA Fisheries and US Fish and Wildlife Service under ESA to trend towards reducing total road densities to 1.0 mi/mi² in bull trout watersheds and 2.0 mi/mi² in salmon and steelhead watersheds. These commitments are found in the non-discretionary Terms and Conditions of the Biological Opinions on the Land and Resource Management Plan.

Existing total road densities at the watershed scale on the WWNF range from 0.05 mi/mi² to 6.27 mi/mi². Of the 1,862,063 acres with either threatened or endangered fish species (TES) or their critical habitat, approximately 66% of those acres currently exceed Forest Plan BO road density terms and conditions.

These road density requirements were also taken into consideration when identifying opportunities for making changes to current road management practices in this analysis so the WWNF can move toward the NMFS and USFWS requirements.

4. Forest Plan Open Road Density (ORD) Calculation Methodology

The method for calculating Forest Plan ORDs is described generally in the WWNF Forest Plan (LRMP, page 4-35). This description indicates that ORDs should be determined at a subwatershed level (6th HUC) by management area and be expressed in miles per square mile. The following additional clarifications were added during this process to provide for consistent calculation of these ORDs during this analysis and in future planning activities across the forest.

- Only NFS lands are included in the analysis
- Private lands and the roads that cross them (including NFS roads) are removed from consideration in this analysis due to a lack of site specific private road information about their existence and condition.
- State and County roads located within NFS boundaries are included in this analysis as their existence, condition, and benefits/impacts to resources are well known.
- Allocated old growth areas (MA15) which are scattered throughout other management areas are included in the acres of the management area that surrounds it (MAs 1, 1W, 3, or 3A).
- Slivers of ≤ 0.1 square miles that occur along boundaries where subwatersheds, planning areas, and management areas do not match up perfectly will be dropped from consideration in these calculations as they are at an inappropriate scale for this type of analysis.
- Queries are done by 6th HUC subwatershed for each 5th HUC watershed to ensure that subwatersheds with the same name are not combined skewing the information.
- Management areas combined with subwatershed boundaries that encompass less than one square mile were also dropped from consideration in this analysis due to inappropriate scale.

Road density standards and guidelines are referenced in Chapter 4 of the Forest's Land and Resource Management Plan (Forest Plan), and are often indicators for affects to wildlife, soils, and water quality. Open road density guidelines are specifically addressed with respect to management areas at a subwatershed scale. Only five management areas have specific target road densities specified: MA 1 (timber emphasis), MA 1W (timber/wildlife emphasis), MA 3/3A (big game winter/summer range), and MA 18 (Anadromous Fish Emphasis). For MA 3, "Snow will effectively close most winter range areas to access by wheeled vehicles during the winter months, consequently, road closures more restrictive than those applied to Management Area 1 will not normally be necessary" (Wallowa-Whitman FLRMP, pp. 4-63).

Target values for open road densities (ORDs) stated in the Forest Plan (Chapter 4):

Management Area 1	2.5 miles/mile ²
Management Area 1W	1.5 miles/mile ²
Management Area 3	1.5 miles/mile ²
Management Area 3A	1.5 miles/mile ²
Management Area 18	1.5 miles/mile ²

In general, approximately 66% of all acres with Forest Plan open road densities within the project area are within the standards described above (see analysis in Appendix B). As stated in the Current Land Management Direction section, within the MA 3 areas, where snow effectively closes the roads during the critical winter periods, year round adherence to those more restrictive standards is not required.

Within the Hells Canyon National Recreation Area (HCNRA) the Forest Plan does not identify any road density requirements; however, the Comprehensive Management Plan (CMP) for the HCNRA established road management objectives, standards and guidelines for levels of road access, construction, reconstruction, and maintenance for roads in each recreation analysis area. To reduce impacts to wildlife and to meet the intent of section 7 (4) of the HCNRA Act, a goal was established of moving toward open-road densities of 1.35 mi/mi² in all but one subwatershed in the HCNRA. The remaining watershed (Imnaha River Mile 55) open road density goal was established at 1.9 mi/mi². Currently 89% of the subwatershed acres within the HCNRA meet these open road density goals.

Analysis of the potential compliance with Forest Plan standards and guidelines when considering the opportunities for change described in this TAR is discussed in Appendix E.

Analysis Process:

- Preliminary access and resource issues, concerns, and opportunities were identified.
- Road safety issues were identified using on-the ground knowledge and the mixed use analysis described above under assumptions.
- Additional issues, concerns, and opportunities were incorporated through previous public involvement (2012 WWNF Travel Management Plan FEIS) and from internal resource staff discussions.
- Based on the above, between 2010 and 2012 the Forest completed a road-by-road analysis to identify opportunities for making changes to the road system based on balancing the needs/requirements/and potential issues for:
 1. Recreation - Recreational access for camping, hiking, OHV, etc. were considered a priority for retention in the sustainable road system.
 2. Fisheries and Water Quality- Adjacency to streams and threatened, endangered, and sensitive (TES) fish distribution were important considerations for the IDT. Roads with stream crossings and drawbottom roads (in particular those along streams with TES fish or habitat) were considered a priority for restoration consideration (closure, decommissioning, or mitigation such as storm damage risk reduction (SDRR) measures, and opportunities to reduce total road densities to meet Forest Plan Biological Opinion (BO) road density requirements.
 3. Landslide Prone Areas – Where these areas were known about on the ground by the IDT, roads at risk were considered a priority for alternative access, mitigation if possible, and restoration. This information is not currently available electronically for the forest; however, they are unusual occurrences which will be considered on a site-specific basis during project level planning efforts. As technology develops it will be utilized in future analyses.

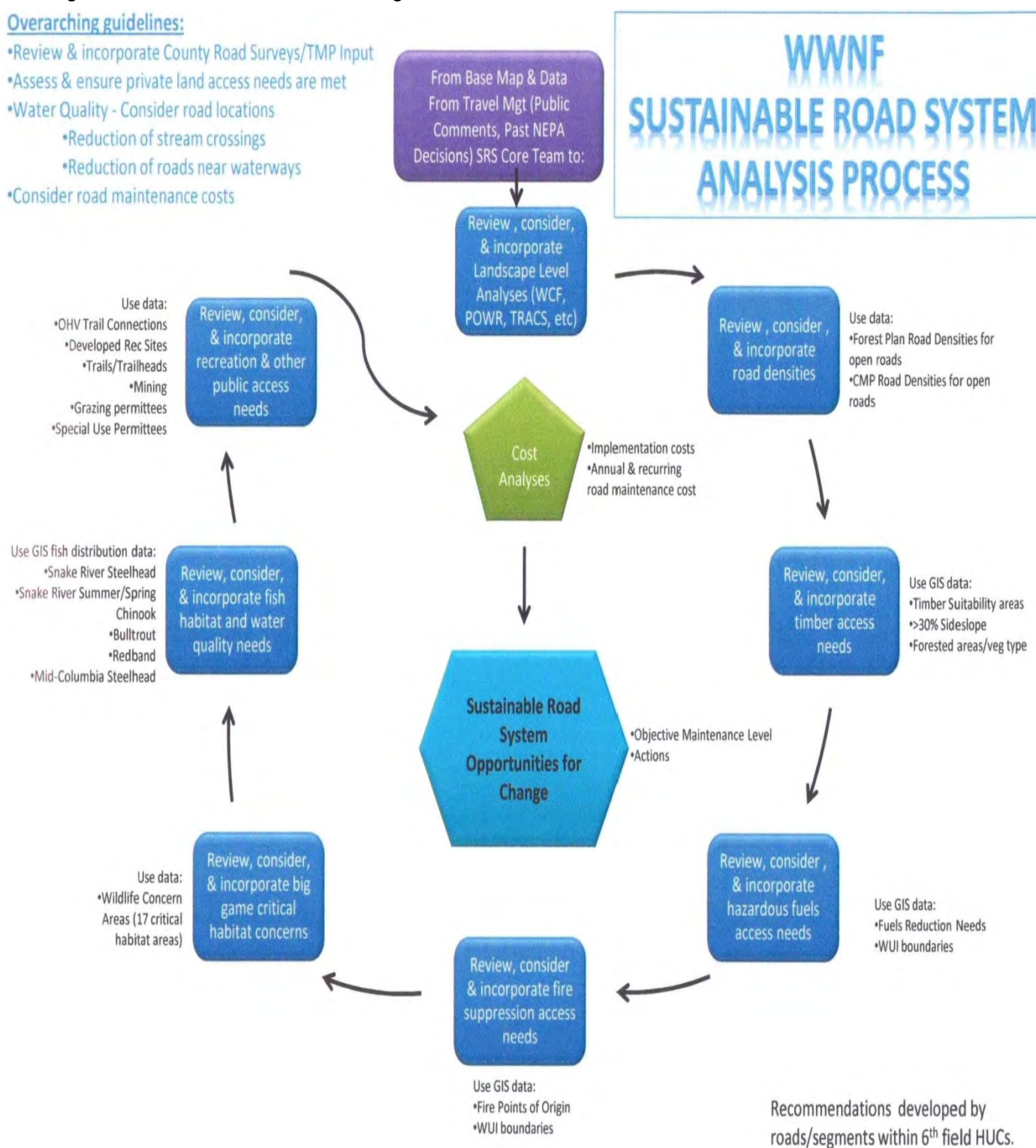
4. Big Game – Seventeen critical elk habitat areas (Wildlife Areas of Concern (WACs)) were identified through years of survey, experience, and observations by biologists at ODFW and the Forest Service (table 19 and Figure 8 map in Appendix D). These areas range in size from 11 to 77 square miles and represent areas where chronic elk damage on adjacent private lands, critical summer or winter range areas on public lands, and where user conflicts occur due to poor distribution of elk on the WWNF. These areas were considered a priority for wildlife concerns during sustainable roads deliberations. Within the HCNRA, areas which were above CMP open road density goals were also considered during sustainable road deliberations.
 5. Fuels/Fire – Priority areas to retain long term access for fire and fuels were defined using Wildland Urban Interface area (WUIs) boundaries as defined in Community Wildfire Protection Plans, past fire occurrence maps which helped to define frequent lightning paths, and stands of warm/dry ponderosa pine within 1,000 feet of roads which have received no management activity within the past 20 years and are very likely to receive management in the near future to manage condition classes and match historic fire regime disturbance frequencies.
 6. Timber Suitability and Logging Systems – Timber suitability was mapped and used to define where future timber harvest activities could occur. Access to these areas in addition to probable logging system requirements for ground based and skyline yarding systems was utilized to consider road access needs into the future and highlight areas where access to the same area was duplicated.
 7. Access Duplication – Road systems which have multiple routes to the same area were considered based on possible impacts to resources, logging systems, recreation needs, management needs, private land access, etc. for redundancy and opportunities for closure or removal from the road system.
- Municipal Watersheds – The municipal watersheds located on USFS lands on the WWNF were considered in this analysis. It was determined that current management under special use permits (including area closures for any motor vehicle use) adequately protect these watersheds and provide for administrative management of the facilities involved. Based on the findings of this analysis and the associated rationale, suggested opportunities for changes to the road system were made that would provide a more sustainable road system for the future. These opportunities were identified on working maps located in the Analysis File for this project as well as in the database in Appendix A. Rationale for these opportunities also included ratings from the Forest WCF Analysis, Regional TRACS priority ratings, the Forest POWR rankings, the Forest Roads Analysis, roads in watersheds which were above the open road density goals described in the HCNRA CMP (Appendix B), roads in subwatersheds above Forest Plan management area standards for open road densities (Appendix B), and watersheds where the total road densities are above the terms and conditions of the Forest Plan BO.
 - District resource specialists reviewed the draft and final sustainable road opportunities that were identified during this TAP to ensure that no key access needs or issues were overlooked, determine if there were additional opportunities that may be identified, and generate forest-wide support for the process and results.

Figure 2 on the following page provides a flowchart of the overall process used, and how the individual steps are related.

Figure 2 – WWNF Process Overview Diagram

Overarching guidelines:

- Review & incorporate County Road Surveys/TMP Input
- Assess & ensure private land access needs are met
- Water Quality - Consider road locations
 - Reduction of stream crossings
 - Reduction of roads near waterways
- Consider road maintenance costs



5. Opportunities and Priorities

Purpose

The purpose of this step is to:

- Identify management opportunities and priorities and formulate proposals for changes to the forest transportation system that respond to the issues, risks, and benefits identified previously in the analysis.
- Summarize opportunities for making changes to the road system
- Describe actions that respond to the issues
- Provide guidelines for mitigating road risks

Road Management Opportunities

The opportunities for change related to access to public lands, economic, social, and custom and culture issues are described in the analysis results summary below. A complete list of the roads where an opportunity for change was identified along with the specific rationale for those changes is located in Appendix A.

Below is a summary of the general TAP results based on the analysis processes and benefits/risks described earlier. Each road in the project area was considered individually by the IDT. Objective (future) maintenance levels for roads identified as “baseline roads” were reviewed and either validated as correct or opportunities for changes were identified for them, including supporting rationale. Roads not part of the baseline were evaluated resulting in a specific opportunity for change and rationale for the change which can be found in Appendix A.

Final decisions on the disposition of roads where opportunities for change were identified are site-specific and will require the appropriate level of NEPA analysis in a separate public process. The recommendations made in this TAR are not decisions, they are merely recommendations based on the analysis processes described earlier.

Baseline Roads – No Changes Identified:

Of the 9,119 miles of existing roads on the WWNF, IDT review did not reveal any proposed changes to the objective maintenance levels (as defined by their current NEPA decisions) for 7,997 miles of roads. These NEPA decisions have been implemented on 6,441 miles (81%) of them to date. Due to lack of available funding, the remaining 1,556 miles (19%) have not been implemented yet. There are no proposed changes to these roads under this TAP. Refer to table 6 below for a description of the disposition of these roads.

Table 6. Road summary for roads with previous NEPA decisions for the WWNF

Maintenance Levels	Implemented NEPA Decisions	NEPA Decisions Still to be Implemented
1 – Basic Custodial Care (Closed)	3,342	ML2 – 66 Decomm - 331
2 – High Clearance Vehicles	2,762	ML1 – 816 ML3 – 247 Decomm - 95
3 – Suitable For Passenger Vehicles	217	ML4 – 1

Maintenance Levels	Implemented NEPA Decisions	NEPA Decisions Still to be Implemented
4 – Moderate Degree of User Comfort	0	None
5 – High Degree of User Comfort	120	None
Total Road Miles	6,441	1,556

Analysis Roads – Opportunities for Change Identified:

The travel analysis process reviewed access needs to public lands as well as economic, social, and custom and culture issues and identified opportunities for making changes to current road management practices for the remaining 1,122 miles of roads on the WWNF. Opportunities for change related to resource impact analysis completed in this process focus on roads where a change is needed to address access and resource issues. These opportunities and rationale are described below.

The Summary of Opportunity Results below shows the miles of those opportunities and the analysis criteria used. Total miles per criteria are identified and then broken down by miles for each of the opportunities identified.

For example:

To respond to the issue related to access needs for Wildland firefighting, the following opportunities for change were identified within WUIs in the project area:

WUI - 319 miles are located within WUIs and could be considered for the following opportunities for change.

- 1 Mile – To ML1
- 176 Miles – To Decommission
- 1 Mile – Conversion to Trail
- 0 Miles – Re-Open
- 141 Miles – Leave Open

Of the 319 miles within WUIs, 1 mile could be converted to ML1 (meaning it could be physically closed but would be retained on the ground for emergency access or future management needs), 176 miles could be decommissioned (because adequate alternate access into the area is available), 1 mile of roads was identified for potential conversion to motorized trails in a WUI, 0 miles of currently closed roads were identified for possible re-opening to access strategic areas for fire suppression activities within WUIs, and 141 miles of roads that had past decisions to either close them or reduce the level of maintenance required would be left open.

Summary of Opportunity Results:

Opportunity for Change Totals - This summary incorporates the 1,122 miles of roads where analysis identified the following potential opportunities to change future (objective) maintenance levels.

- Potential change to ML3 – 41 miles
- Potential change to ML2 – 233 miles
- Potential change to ML1 – 9 miles
- Potential convert use to motorized trail – 24 miles
- Potential change to decommission – 815 miles

The following sections focus on the opportunities identified during the travel analysis process as they relate to resource or economic issues. These are organized by the key analysis process categories described earlier in section 4 of this report. Please note that the total mileage summaries in these individual categories will not add up to the total mileage changes described in the summary above. This is due to the fact that many roads overlap several of the different categories described below and are included in each of them. They have been separated out in the total mileage summary list above.

WUI - 319 miles are located within WUIs and could be considered for the following opportunities for change.

- 1 Mile – To ML1
- 176 Miles – To Decommission
- 1 Mile – Conversion to Trail
- 0 Miles – Re-Open
- 141 Miles – Leave Open

POWR – 307 miles of roads are High priority for restoration roads and could be considered for the following opportunities for change.

- 1 Miles – To ML1
- 222 Miles – To Decommission
- 0 Miles – Conversion to Trail
- 11 Miles – Re-Open
- 73 Miles – Leave Open

Vegetation Management – 839 miles of roads were identified as likely not needed for vegetation management in the future and could be considered for the following opportunities for change.

- 0 Miles – To ML1
- 815 Miles – To Decommission
- 24 Miles – Conversion to Trail

Hells Canyon CMP Road Density and Recreation Goals – 35 miles of open roads were identified as likely not needed and could be considered for the following opportunities to change to meet these goals.

- 0 Miles – To ML1
- 20 Miles – To Decommission
- 15 Miles – Conversion to Trail

Forest Plan Open Road Density Standards – 202 miles of open roads are in subwatersheds above Forest Plan ORDs and could be considered for the following opportunities for change.

- 1 Miles – To ML1
- 81 Miles – To Decommission
- 2 Miles – Conversion to Trail
- 0 Miles – Re-Open
- 118 Miles – Leave Open

TRACS – 211 miles of roads are High priority for restoration and likely not needed and could be considered for the following opportunities for change.

- 0 Miles – To ML1
- 159 Miles – To Decommission

- 2 Miles – Conversion to Trail
- 7 Miles – Re-Open
- 43 Miles – Leave Open

Wildlife Areas of Concern – 212 miles of roads are in WACs and likely not needed, could be considered for the following opportunities for change.

- 3 Miles – To ML1
- 169 Miles – To Decommission
- 3 Miles – Conversion to Trail
- 0 Miles – Re-Open
- 37 Miles – Leave Open

Forest Plan BOs – 610 miles of roads are in 5th HUCs above BO road densities with TES fish or habitat and likely not needed, could be considered for the following opportunities for change.

- 6 Miles – To ML1
- 468 Miles – To Decommission
- 6 Miles – Conversion to Trail
- 2 Miles – Re-Open
- 128 Miles – Leave Open

WCF – 927 miles of roads are in subwatersheds functioning at risk or impaired and likely not needed, could be considered for the following opportunities for change.

- 4 Miles – To ML1
- 679 Miles – To Decommission
- 13 Miles – Conversion to Trail
- 18 Miles – Re-Open
- 214 Miles – Leave Open

SDRR – 1,145 Miles

Actions that Respond to the Issues

The following section describes strategies that the Forest may choose to employ in projects and situations where the issues occur (see part 3. Issues in this report). The scale at which these actions may be implemented is dependent on the site and the compatibility of the action with the overall management focus of the surrounding area. The list below is intended to provide options that project leaders and decision-makers may consider when implementing changes to the road system.

Recreation Access and Social Issues: Roads provide access to the public for traditional recreational purposes

Action: Maintain access to recreational sites and areas that are maintained by the Forest Service for public use.

Action: Maintain road signage in accordance with handbook direction.

Action: Balance motor vehicle access for recreational activities with resource protection needs, where possible mitigate resource issues with SDRR treatments rather than closing or decommissioning.

Resource Protection Issue: Roads have effects on Wildlife and Big Game Habitat and Adjacent Private Lands

Action: Strategically reduce the number of open roads located in critical wildlife areas to create larger blocks of security habitat.

Action: Consider seasonal restrictions on roads in critical wildlife areas to limit disturbance during critical timeframes for wildlife.

Action: Reduce the road width and maintenance level to minimum needed for safe vehicle passage and to meet the intended need in sensitive wildlife areas.

Action: Provide information and education about motor vehicle regulations and responsible use of motorized vehicles on the National Forest. Installation of information boards at area trailheads, recreation sites, and parking areas may be an option to facilitate this process. Inform the public to create an understanding of the impacts caused to wildlife by motor vehicle use.

Resource Protection Issue: Roads have effects on water quality, riparian and fish habitat, and TES species.

Action: Implement the guidelines for mitigating road risks to reduce soil and drainage impacts from roads.

Action: Remove, reconstruct or relocate roads adjacent to or within riparian areas where possible. Reduce the total number of roads in watersheds with TES fish habitat and species.

Action: Install adequate and appropriate culverts accommodate high flows and allow for fish passage.

Action: Provide information and education about motor vehicle regulations and responsible use of motorized vehicles on the National Forest. Installation of information boards at area trailheads, recreation sites, and parking areas may be an option to facilitate this process. Inform the public to create an understanding of the water quality problems created by motor vehicle use, including but not limited to drawbottom roads.

Access Issues: Roads provide access for general forest management and administration of NFS lands and emergency access.

Action: Identify the necessary open and closed road system needed to support forest management, administration and emergency access needs.

Action: Close roads needed only for occasional administrative access.

Action: Consider seasonal closures where appropriate to meet resource and management needs.

Action: During the NEPA process for management activities, consider opening or closing roads in the project area to reduce the maintenance costs and meet management needs.

Action: Consider closure methods when identifying roads for closure to facilitate future access needs for fire suppression, and administrative management needs.

Action: Instead of decommissioning roads in high fire risk areas, close them for use as fire line roads during prescribed burns and wildfires in consultation with the fire staff.

Action: Utilize traffic devices such as signs and physical barriers that discourage use of unauthorized roads and ML1 roads. Natural material to prevent use (downed trees, boulders, etc.) is preferred in most cases, but in situations where previous decommissioning efforts have been unsuccessful, more aggressive means may be employed.

Access Issues: Need for access to private lands for landowners and other public lands

Action: If landowner is the only access needed, enter into a special use agreement with the landowner, stipulating that the landowner has maintenance responsibilities.

Access Issues: Need for access to firewood and other forest products gathering areas.

Action: Identify areas with supplies of suitable firewood or forest products along open system roads, and provide maps to the public to reduce the use of closed or unauthorized roads and cross-country travel.

Action: During site specific project planning consider roads and areas which would lend themselves to firewood gathering for specific timeframes.

Action: Consider opening closed roads seasonally on a site specific basis to allow for firewood removal opportunities and then roads can be closed back down.

Economics Issues: Insufficient resources for maintenance of the existing system roads

Action: Reduce the number of road miles that need to be maintained or reduce the maintenance level to reduce maintenance costs. Reducing the miles of roads that need to be maintained by converting closed roads into motorized trails would effectively increase trail maintenance costs and is not a recommended action solely to address this issue.

Action: Leverage funds/efforts to increase maintenance capabilities. Continue to seek opportunities within the Forest, with other Forests, with counties and private individuals to increase the amount of maintenance accomplished through cooperative efforts. For motorized trails there are opportunities to work with volunteers to maintain them.

Action: Take advantage of natural revegetation processes and close roads that are naturally closing themselves.

Action: Invest scarce maintenance funding on roads that provide high priority access.

Guidelines for Mitigating Road Risks

The general guidelines for mitigating the risks discussed in the previous section are listed below. These guidelines should be used for existing roads determined to remain open for motorized travel, for managing the storage of roads closed to motorized travel, and/or for the relocation of roads when they are determined to be needed for the long-term travel systems but have unacceptable resource risks in their current location. For roads that are determined not to be needed for the long-term transportation system, similar guidelines can be used for decommissioning techniques.

Storm Damage Risk Reduction

Storm damage risk reduction (SDRR) refers to specific, non-recurring treatments that reduce the potential for resource impacts and damage or failure of a road feature or road system resulting from storm events. SDRR treatments (Storm Damage Risk Reduction Guide for Low Volume Roads, G. Keller and G. Ketcheson, October, 2013) are expected to reduce the potential for future damage to roads, reduce the magnitude of failures and resource damage when major storms occur, add redundant systems to protect roads receiving less frequent maintenance, and improve the hydraulic efficiency and resilience of existing road drainage features. SDRR treatments relate to open and stored roads. These techniques provide long-term benefits to adjacent resources during all periods of time, not just during storm events. SDRR techniques can be very site specific, and it is recommended that field reconnaissance by qualified personnel during the NEPA processes be utilized before implementing treatments.

6. Key Findings of the Analysis

Desired Condition of the Future Road System

Travel Management Rule, 36 CFR 212.5 (b) states:

“...b) Road system--(1) Identification of road system. For each national forest, national grassland, experimental forest, and any other units of the National Forest System (Sec. 212.1), the Responsible Official must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. In determining the minimum road system, the responsible official must incorporate a science-based travel analysis at the appropriate scale and, to the degree practicable, involve a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. The minimum system is the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.”

This report documents the science-based travel analysis which is a key first step towards identifying a sustainable road system. The results of this Travel Analysis will be used by the responsible official for identification of the forest's minimum sustainable road system following appropriate NEPA analysis. The ID team has identified a variety of opportunities for making changes to current road management practices that would meet the direction described above in 36 CFR 212.5 (b).

Based on the analysis completed by the IDT, approximately 1,122 miles of roads could be considered for status changes (e.g., opened, closed, decommissioned, converted to a trail, or a change in maintenance). The IDT took a detailed look at the roads considered as likely not needed for future resource management and identified 815 miles of roads that could be further considered for decommissioning and 24 miles that could be converted to trails and removed from the system.

The Appendix A spreadsheets display all roads with management opportunities for each road. Management opportunities included in the spreadsheet data were used to develop the Road Maintenance Level Opportunity maps in Appendix F that display roads that are likely needed for future use and management of the WWNF.

The following table summarizes the total road miles likely needed to manage and access NFS lands, private lands, administrative sites, developed campgrounds, etc. and the opportunities for road management changes identified in this travel analysis.

The opportunities for change summarized in table 7 are the IDT's recommendations only. Prior to any travel management decisions being made regarding these recommendations, including any roads being added or deleted from the system, site-specific analysis, including public involvement, would be completed through the NEPA process at an appropriate scale.

Table 7. Summary of Miles of Road Likely Needed for Forest Management by ML for the WWNF and Opportunities Identified in this Analysis

Maintenance Level	Road System Likely Needed for Future Forest Management	TAP Opportunities	
		Changes within Maintenance Levels	Roads Likely Not Needed for Future Uses
1 – Basic Custodial Care (Closed)	4,167	9	
2 – High Clearance Vehicles	3,061	233	
3 – Suitable For Passenger Vehicles	505	41	
4 – Moderate Degree of User Comfort	1	0	
5 – High Degree of User Comfort	120	0	
Potential for Conversion to Trails			24
Potential for Decommissioning			814

The difference between the road system likely needed for future forest management and the current road system (-1,265 miles) is a reflection of the opportunities defined in this travel analysis (if they were implemented) and previous NEPA decisions which have not yet been implemented (426 miles of decommissioning from table 6). The potential conversion of roads to trails combined with the decommissioning opportunities above (table 7) and the 426 miles of decommissioning from previous NEPA decisions equal 1,265 miles.

Financial Analysis Results

The Financial Analysis in Appendix C includes a scenario using the total mileages from the opportunity categories listed above to examine the potential reduction in maintenance costs if these changes were to be made. The results of that analysis show that total routine annual maintenance costs, with these changes implemented, would require approximately \$915,000 per year in annual maintenance funding. This is a reduction of approximately \$440,000 per year in routine annual maintenance funding needs, which is within 20% of the previous 5 year average funding level for the forest, and therefore would reflect long-term funding expectations according to Region 6 guidelines.

The opportunities identified above reflect a forest transportation system that could be sustained given a predicted road maintenance budget trend of \$876,000 $\pm$ 20%. In this particular scenario, the predicted budget would need to exhibit an increase of 4% (\$36,000) to be sustainable, economically. But many different iterations of road management options are possible to develop a road system entirely within the predicted budget trend, so resource managers and responsible officials should closely examine the opportunities listed in Appendix A to evaluate the appropriate objectives on a site specific basis.

It is also important to note that the analysis above only includes routine annual maintenance items, (e.g., blading, brushing, drainage maintenance, hazard removal, etc.), and does not include things like replacing gravel surfacing, replacing pavements, or replacing bridges and structures, since funding for those items is not included in annual forest appropriations. The WWNF receives less than 20% of the funding necessary to keep all those items replaced on schedule. Because we will not have enough funding available to keep all road surfacing materials and structures replaced on schedule, we can expect

the deferred maintenance backlog to continue to grow, and we will continue to see a decline in the overall serviceability of our road system.

In addition to the costs of maintaining the road system to these minimum standards, there are also costs associated with any proposed road decommissioning, road closures, and road improvements necessary to address risks and environmental concerns that are identified in the TAP report. These costs are not included in the balancing of road maintenance funds because funding for these activities is not appropriated along with the normal road maintenance funds used in the calculations. Funding for this type of work generally comes through other programs such as capital investment programs, Legacy Roads and Trails funding, Federal Highway programs, partnerships with outside groups and agencies, etc.

Given the current trend in reduced funding for road maintenance work, and the enormous gap between current funding and need, it does not appear possible to identify a future road system where the entire cost of annual maintenance and improvement work necessary to fully maintain the roads to standard would be in balance with available funding, (i.e., to include annual maintenance items and cyclic capital costs for replacement of gravel surfacing, pavements, structures, bridges, etc.). The size of road system to meet that requirement would be less than 200 miles on the Wallowa-Whitman National Forest and would not allow the forest to meet resource management objectives in the Forest Plan or to meet statutory and regulatory requirements as described in the Travel Management Rule.

Because of the size and complexity of the operations of the Forest, a system of roads larger than what can be fully maintained to standard is necessary for management of and access to the forest. This results in a need for a management strategy that incorporates a system of maintenance levels on an operational and objective basis. Roads will be maintained operationally at a determined level based on resource and access needs, with the majority of roads experiencing lower levels of maintenance which would occur on extended intervals. Reliance on outside sources of cooperation such as other agencies, partners, purchasers, commercial operators, and permittees will continue to be important component in management of this size of road system. If funding trends reverse, or project level resources become available, objective maintenance levels may be achieved, generally through reconstruction activities.

Even though we can't alter the road system so much as to be fully affordable and sustainable within today's budget levels, we can certainly take steps to move it in a better direction. By utilizing the opportunities identified from the Wallowa-Whitman NF Travel Analysis Process, we can certainly move the Wallowa-Whitman NF road system to a much more affordable and sustainable state.

Acronym List

ARRA – American Recovery and Reinvestment Act

ATV – All Terrain Vehicles

BGWR – Big Game Winter Range

BO – Biological Opinion

CFR – Code of Federal Regulations

CIP – Capital Improvement Program

CMP – Comprehensive Management Plan

ESA – Endangered Species Act

FEIS – Final Environmental Impact Statement

FS – Forest Service

FSH – Forest Service Handbook

FSM – Forest Service Manual

GIS – Geographic Information System

GPS – Global Positioning System

HCNRA – Hells Canyon National Recreation Area

HUC – Hydrologic Unit Code

IDT – Interdisciplinary Team

INFRA – Infrastructure Database

LRMP – Land and Resource Management Plan

MA – Management Area

ML – Maintenance Level

MVUM – Motor Vehicle Use Map

NEPA – National Environmental Policy Act

NFS – National Forest System

NOAA – National Oceanic and Atmospheric Administration

ODFW – Oregon Department of Fish and Wildlife

ODOT – Oregon Department of Transportation

OHV – Off Highway Vehicle

OPIS – Oil Price Information Service

ORD – Open Road Density

ORV – Off Road Vehicle

POWR – Prioritization of Watershed Restoration Process

RMO – Road Management Objectives

ROW – Right of Way

S&Gs – Standards and Guidelines

SDRR – Storm Damage Risk Reduction

SRS – Sustainable Road System

TAP – Travel Analysis Process

TAR – Travel Analysis Report

TCP – Traditional Cultural Property

TES – Threatened and Endangered Species

TMP – Travel Management Plan

TRACS – Terrestrial Restoration and Conservation Strategy

USFS – United States Forest Service

WAC – Wildlife Areas of Concern

WCF – Watershed Condition Framework Analysis

WMU – Wildlife Management Unit

WO – Washington Office

WUI – Wildland Urban Interface

WWNF – Wallowa-Whitman National Forest

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Glossary

Administrative Unit. A national forest, a national grassland, a purchase unit, a land utilization project, Columbia River Gorge National Scenic Area, Land Between the Lakes, Lake Tahoe Basin Management Unit, Midewin National Tallgrass Prairie, or other comparable unit of the NFS (36 CFR 212.1).

Administrative Use Road. Any NFS road that is not a public road. An administrative use road may be closed to the public by use of a gate or by prohibition issued in a road use order. Administrative use roads are not shown on Motor Vehicle Use Maps. (FSM 7730.5, FSH 7709.56.40.5, FSH 7709.59.405)

All-Terrain Vehicle (ATV). A type of off-highway vehicle that travels on three or more low-pressure tires; has handle-bar steering; is less than or equal to 50 inches in width; and has a seat designed to be straddled by the operator.

Area. A discrete, specifically delineated space that is smaller, and in most cases much smaller, than a ranger district (36 CFR 212.1).

Arterial Road. An NFS road that provides service to large land areas and usually connects with other arterial roads or public highways.

Bridge. A road or trail structure, including supports, erected over a depression or obstruction such as water, a road, trail or railway and having a deck for carrying traffic or other loads.

Closed Road. A road that has been put into storage between intermittent use periods. Both administrative and public motorized uses have been either eliminated or prohibited. These roads are placed into operational maintenance level 1, and are perpetuated for future administrative (project) uses. These roads are kept on the transportation inventory but are not shown on Motor Vehicle Use Maps.

Collector Road. An NFS road that serves smaller areas than an arterial road and that usually connects arterial roads to local roads or terminal facilities.

Designated Road, Trail, or Area. An NFS road, an NFS trail, or an area on NFS lands that is designated for motor vehicle use pursuant to 36 CFR 212.51 on an MVUM (36 CFR 212.1).

Forest Road or Trail. A road or trail wholly or partly within or adjacent to and serving the NFS that the Forest Service determines is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources (36 CFR 212.1).

Forest Transportation Atlas. A display of the system of roads, trails, and airfields of an administrative unit (36 CFR 212.1).

Forest Transportation Facility. A forest road or trail or an airfield that is displayed in a forest transportation atlas, including bridges, culverts, parking lots, marine access facilities, safety devices, and other improvements appurtenant to the forest transportation system (36 CFR 212.1).

Forest Transportation System. The system of NFS roads, NFS trails, and airfields on NFS lands (36 CFR 212.1).

Forest Transportation System Management. Travel planning, analysis, designation of roads, trails and areas for motor vehicle use, recordkeeping, scheduling, construction, reconstruction, maintenance, decommissioning, and other operations undertaken to achieve environmentally sound, safe, and cost-effective access for the use, enjoyment, protection, administration, and management of NFS lands.

Highway-Legal Vehicle. Any motor vehicle that is licensed or certified under state law for general operation on all public roads in the state. Operators of highway-legal vehicles are subject to state traffic law, including requirements for operator licensing.

Hydrologically Connected Roads. Roads or portions of roads that route water and/or sediment directly to stream channels.

Jurisdiction Over a Forest Transportation Facility. The legal right to control or regulate use of a forest transportation facility derived from title, an easement, an agreement, or other similar source.

Local Road. An NFS road that connects a terminal facility with collector roads, arterial roads, or public highways and that usually serves a single purpose involving intermittent use.

Motor Vehicle. Any vehicle which is self-propelled, other than:

- a. A vehicle operated on rails; and
- b. Any wheelchair or mobility device, including one that is battery-powered, that is designed solely for use by a mobility-impaired person for locomotion and that is suitable for use in an indoor pedestrian area (36 CFR 212.1).

Motor Vehicle Use Map. A map reflecting designated roads, trails, and areas on an administrative unit or a ranger district of the NFS (36 CFR 212.1).

Motorcycle. A two-wheeled motor vehicle on which the two wheels are not side-by-side but in line.

Motorized Mixed Use. Designation of an NFS road for use by both highway-legal and non-highway-legal motor vehicles.

National Environmental Policy Act (NEPA) procedures. The rules, policies, and procedures governing agency compliance with the National Environmental Policy Act set forth in 50 CFR parts 1500-1508, 7 CFR part 1b, Forest Service Manual Chapter 1950, and Forest Service Handbook 1909.15. (36 CFR 251.51)

National Forest System Road. A forest road other than a road which has been authorized by a legally documented right-of-way held by a state, county, or local public road authority (36 CFR 212.1).

National Forest System Trail. A forest trail other than a trail which has been authorized by a legally documented right-of-way held by a state, county, or local public road authority (36 CFR 212.1).

Non-Highway-Legal Vehicle. Any motor vehicle that is not licensed or certified under state law for general operation on all public roads within the state. Operators of non-highway-legal vehicles are subject to state requirements, if any, for licensing and operation of the vehicle in question.

Objective Maintenance Level. The maintenance level to be assigned at a future date considering future road management objectives, traffic needs, budget constraints, and environmental concerns. The objective maintenance level may be the same as, or higher or lower than, the operational maintenance level. The transition from operational maintenance level to objective maintenance level may depend on reconstruction or disinvestment. (FSH 7709.59, 62.3)

Off-Highway Vehicle. Any motor vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (36 CFR 212.1).

Open Road. A road that has been placed into operational maintenance level 2-5. Both administrative use roads and public use roads are considered to be open roads.

Open to Public Travel. Except during scheduled periods, extreme weather conditions, or emergencies, open to the general public for use with a standard passenger auto, without restrictive gates or prohibitive signs or regulations, other than for general traffic control or restrictions based on size, weight, or class of registration. (23 CFR 660.103)

Operational Maintenance Level. The maintenance level currently assigned to a road considering today's needs, road condition, budget constraints, and environmental concerns. It defines the level to which the road is currently being maintained. (FSH 7709.59, 62.3)

Over-Snow Vehicle. A motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow (36 CFR 212.1).

Private Road. A road under private ownership authorized by an easement granted to a private party or a road that provides access pursuant to a reserved or outstanding right.

Public Road. A road under the jurisdiction of and maintained by a public road authority and open to public travel (23 U.S.C. 101(a)).

Qualified Engineer. An engineer who by experience, certification, education, or license is technically trained and experienced to perform the engineering tasks specified and who is designated by the Regional Office Director of Engineering.

Road. A motor vehicle route over 50 inches wide, unless identified and managed as a trail (36 CFR 212.1).

Road Construction or Reconstruction. Supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road (36 CFR 212.1).

Road Decommissioning. Activities that result in restoration of unneeded roads to a more natural vegetated state. Decommissioned roads are not planned to be used again in the future and are removed from the transportation inventory.

Road Maintenance. Ongoing upkeep of a road necessary to maintain or restore the road in accordance with its road management objectives (FSM 7714).

Road Maintenance Levels. Maintenance levels define the level of service provided by, and maintenance required for, a specific road. Maintenance levels must be consistent with road management objectives and maintenance criteria.

1. LEVEL 1. These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate" all traffic. These roads are not shown on motor vehicle use maps.

Roads receiving level 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However,

while being maintained at level 1, they are closed to vehicular traffic but may be available and suitable for non-motorized uses.

2. LEVEL 2. Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are not provided with the exception that some signing, such as W-18-1 "No Traffic Signs," may be posted at intersections. Motorists should have no expectations of being alerted to potential hazards while driving these roads. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to:

- a. Discourage or prohibit passenger cars, or
- b. Accept or discourage high clearance vehicles.

3. LEVEL 3. Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. The Manual on Uniform Traffic Control Devices (MUTCD) is applicable. Warning signs and traffic control devices are provided to alert motorists of situations that may violate expectations.

Roads in this maintenance level are typically low speed with single lanes and turnouts. Appropriate traffic management strategies are either "encourage" or "accept." "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users.

4. LEVEL 4. Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. Manual on Uniform Traffic Control Devices is applicable. The most appropriate traffic management strategy is "encourage." However, the "prohibit" strategy may apply to specific classes of vehicles or users at certain times.

5. LEVEL 5. Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. Manual on Uniform Traffic Control Devices is applicable. The appropriate traffic management strategy is "encourage."

Road Management Objectives (RMO). RMOs document the intended purpose of an individual road in providing access to implement a land and resource management plan as well as decisions about applicable standards for the road. RMOs should be based on management area direction and access management objectives. RMOs contain design criteria, operation criteria, and maintenance criteria. (FSM 7709.59.11)

Road Storage. Short-term or long-term actions taken to place roads into operational maintenance level 1, (closed). Road storage activities are focused on altering or maintaining drainage facilities and runoff patterns to prevent damage to adjacent resources and to perpetuate the road for resource management needs at some point in the future.

Road Subject to the Highway Safety Act. An NFS road that is open to public use in a standard passenger car, including a road with access restricted on a seasonal basis and a road closed during extreme weather conditions or for emergencies, but which is otherwise open to public travel.

Road Use Order. An order that institutes or terminates traffic rules on NFS roads (36 CFR 261.54; FSM 5330.13). (FSM 7730.5)

Road Use Permit. A written authorization issued pursuant to Title 36, Code of Federal Regulations, part 212, Subpart A, that allows an act or omission on an NFS road or NFS road segment and associated transportation facilities that would otherwise be in violation of a traffic rule in effect on the road, including:

1. Use of a closed road to access non-federal property (36 CFR 212.6(b));
2. Commercial hauling on a road where that use is otherwise restricted (36 CFR 212.9(d) and 261.54); and
3. Motor vehicle use on an NFS road that is not designated for that purpose (36 CFR 212.51(a)(8)). (FSM 7730.5)

Route. A road or trail.

Special Use Authorization. A permit, term permit, lease, or easement which allows occupancy, use, rights, or privileges of National Forest System land. (36 CFR 251.51, 36 CFR 261.2)

Temporary Road or Trail. A road or trail necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road or a forest trail and that is not included in a forest transportation atlas (36 CFR 212.1).

Terminal Facility. A transfer point between the forest transportation system and forest resources served by the system, or between different transportation modes, including parking areas, turnouts, boat ramps and docks, trailheads, marine access facilities, airfields, and heliports.

Traffic Management Strategies. Options for managing traffic on NFS roads where appropriate to control traffic. Use one or a combination of the following five strategies for different modes of travel:

Encourage use - Encourage use consistent with the condition of the road and its Road Management Objectives (FSH 7709.59).

Accept use - Accept, but do not encourage, use by vehicles that are suitable for the road.

Discourage use - Discourage some or all types of motor vehicle use.

Eliminate use - Eliminate use by blocking access to the road by motor vehicles.

Prohibit use - Prohibit motor vehicle use. (FSM 7731.11)

Trail. A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 CFR 212.1).

Travel Management Atlas. An atlas that consists of a forest transportation atlas and an MVUM or MVUMs (36 CFR 212.1).

Unauthorized Road or Trail. A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas (36 CFR 212.1).

Appendix A – Opportunities for Change Database

This electronic database displays all roads on the WWNF where an opportunity for change was identified and the rationale or explanation for the change related specifically to:

- Road number
- Miles
- Maintenance levels – operational and objective
- INFRA – Route Status, Jurisdiction, and System
- Opportunities for change
- Comments
- Critical Wildlife Areas
- TRACS priority watersheds
- Watershed and SWS names
- Watershed priority ratings from WCF
- WCF Scores and Classes
- POWR Indicators and Stressors
- WUIs
- Fisheries BO Densities – Watersheds above Biological Opinion total road densities.
- Forest Plan and HCNRA CMP open road densities

This spreadsheet is intended to be used during the interdisciplinary project planning process. It will aid individuals in various resource areas to identify roads or segments of roads which may reside in one or more of the areas of concern listed above and across the larger landscape as a whole. If a particular area of concern is the dominant reason for project generation, then the spreadsheet can be sorted to display all of the roads present in that area, and the SRS team's potential opportunity for management of that particular road. This would serve as a starting point for further discussion and refinement of the opportunities for change (or no change), thus enabling NEPA activities to more precisely identify the effects relating to the management of the transportation system.

Appendix B – Road Density Tables

The following tables illustrate the analyses for Forest Plan open road densities (ORDs), HCNRA CMP ORDs, and the total road densities for the terms and conditions from the Forest Plan Biological Opinion. Each analysis looked at existing conditions and compared it to what the road densities would be if the opportunities for change identified in Appendix A were implemented.

HCNRA CMP Open Road Densities

With the exception of subwatershed (SWS) Mile 55, SWS ORD goals within the HCNRA are 1.35 mi/mi². Mile 55 ORD goal is 1.9 mi/mi². The following describes the legend for this analysis:

	Slivers of subwatersheds with less than or equal to 1 mi ² within the project area were removed
	Subwatersheds meeting CMP ORD Goals
	Subwatersheds above CMP ORD Goals
	Subwatersheds containing Mile 55 which has a different ORD goal (SWS boundaries changed since CMP completed)

Forest Plan Biological Opinion Total Road Densities

Total road density terms and conditions from the Forest Plan biological opinion are described under the Analysis Assumptions under section 1 of this TAR (Introduction). The following describes the legend for this analysis:

	Slivers of watersheds with less than or equal to 1 mi ² within the project area were removed
	Watershed total road densities that meet Forest Plan Biological Opinion Terms and Conditions (BO T&C)
	Watersheds with TES Salmon/Steelhead: BO T&C= 2.0 mi/mi ² (blocks with numbers are above these levels)
	Watersheds with TES Bull Trout or Critical Habitat: BO T&C= 1.0 mi/mi ² (blocks with numbers are above these levels)
	Watersheds without TES Fish or Critical Habitat

Forest Plan Open Road Densities

As outlined in the Current Land Management Direction (section 2 of this TAR) and the Analysis Process description under section 1 (Introduction), the WWNF Forest Plan has open road density standards. The Forest Plan ORD tables in this section display the analysis of which management areas are above forest plan standards. Management areas without ORD standards are not discussed in the table. The following describes the legend for this analysis:

	Slivers of subwatersheds with less than or equal to 1 mi ² within the project area were removed
	Management areas within subwatersheds meeting Forest Plan ORD standards
	Management areas within subwatersheds above Forest Plan ORD standards

Appendix B - HCNRA CMP Road Density Summary for Existing Condition and Post-SRS
SUSTAINABLE ROADS SYSTEM (draft)

3/28/2014

FULLNAME	Subwatershed Name	Watershed Name	GIS Acres	Sq. Miles (GIS Acres/640)	Existing OPEN Rd Miles	Post MRS OPEN Rd Miles	CMP ORDS	OPEN Rd Mile Density	Existing/ Post Miles Above	Post SRS ORDs	Post ORDs Not Meeting Reduced
HELLS CANYON NRA	Bare Creek-Imnaha River	Lower Imnaha River	1,216	2	0	0	1.35	0.00		0	
	Bear Creek	Wildhorse River	5	0	0	0	1.35	0.00		0	
	Big Canyon Creek-Snake River	Getta Creek-Snake River	11,218	18	8.75	8.75	1.35	0.50		0.5	
	Broady Creek	Lower Joseph Creek	3,204	5	5.63	5.41	1.35	1.12		1.08	
	Butte Creek-Snake River	Granite Creek-Snake River	19,294	30	2.97	2.97	1.35	0.10		0.1	
	Cache Creek-Snake River	Cherry Creek-Snake River	8,999	14	0	5.95	1.35	0.00		0.42	
	Chalk Creek-Imnaha River	Middle Imnaha River	6,197	10	0.94	0.94	1.35	0.10		0.1	
	Cherry Creek	Cherry Creek-Snake River	12,338	19	10.03	10.03	1.35	0.52		0.52	
	Cook Creek	Cherry Creek-Snake River	17,811	28	8.37	14.22	1.35	0.30		0.51	
	Copper Creek-Rapid River	Rapid River	9	0	0	0	1.35	0.00		0	
	Corral Creek-Snake River	Cherry Creek-Snake River	679	1	0	0	1.35	0.00		0	
		Getta Creek-Snake River	13,316	21	9.97	11.05	1.35	0.48		0.53	
	Cow Creek-Salmon River	Race Creek-Salmon River	35	0	0.06	0.06	1.35	1.09		1.09	
	Crazyman Creek-Imnaha River	Upper Imnaha River	14,529	23	27.75	23.45	1.35	1.22		1.03	
	Deep Creek	Granite Creek-Snake River	8,572	13	1.12	1.12	1.35	0.08		0.08	
		Wolf Creek-Snake River	17,268	27	0.45	0	1.35	0.02		0	
	Deer Creek	Skookumchuck Crk-Salmon River	10	0	0	0	1.35	0.00		0	
	Deer Creek-Imnaha River	Middle Imnaha River	18,165	28	6.58	6.58	1.35	0.23		0.23	
	Devils Run Creek	Chesnimnus Creek	376	1	0.24	0.24	1.35	0.41		0.41	
	Divide Creek	Wolf Creek-Snake River	48	0	0	0	1.35	0.00		0	
Imnaha 55 SWS	Dry Creek-Imnaha River	Upper Imnaha River	0	0	72.33	71.23	1.35	0.00		0	
	Imnaha River-Mile 55		8,932	14	33.8	31.1	1.9	2.42	8932	2.23	8932
	Imnaha River-Mile 58		12,578	20	38.4	40	1.35	1.95	12578	2.04	
	Dry Creek-Snake River	Wolf Creek-Snake River	6,556	10	0	0	1.35	0.00		0	
	Dug Bar-Snake River	Wolf Creek-Snake River	6,905	11	1.7	1.7	1.35	0.16		0.16	
	Eureka Bar-Snake River	Wolf Creek-Snake River	6,484	10	0	0	1.35	0.00		0	
	Fence Creek-Imnaha River	Lower Imnaha River	8,054	13	0.26	0.26	1.35	0.02		0.02	
	Fish Creek-Pine Creek	Pine Creek	0	0	0	0	1.35	0.00		0	
	Freezeout Creek	Middle Imnaha River	9,192	14	2.86	2.86	1.35	0.20		0.2	
	Getta Creek	Getta Creek-Snake River	168	0	0	0	1.35	0.00		0	
	Granite Creek	Granite Creek-Snake River	21,427	33	0	0	1.35	0.00		0	
	Gumboot Creek	Upper Imnaha River	11,879	19	55.09	54.18	1.35	2.97	11879	2.92	11879
	Hells Canyon Dam-Snake River	Indian Creek-Snake River	11,533	18	1.36	1.73	1.35	0.08		0.1	
	Herman Creek-Snake River	Indian Creek-Snake River	1,114	2	0.51	0.51	1.35	0.29		0.29	
	Horse Creek	Lower Joseph Creek	5,774	9	13.33	15.56	1.35	1.48	5774	1.72	
	Indian Creek	Indian Creek-Snake River	11	0	0	0	1.35	0.00		0	
	Jim Creek-Snake River	Cherry Creek-Snake River	7,898	12	0	1.71	1.35	0.00		0.14	
	Kurru Creek-Snake River	Getta Creek-Snake River	14,976	23	10.86	11.22	1.35	0.46		0.48	
	Lake Fork Creek	Pine Creek	1,210	2	0.86	0.86	1.35	0.45		0.45	
	Lick Creek	Upper Big Sheep Creek	7,059	11	23.84	26.96	1.35	2.16	7059	2.44	
	Lower Cottonwood Creek	Lower Joseph Creek	6,709	10	5.7	5.7	1.35	0.54		0.54	
	Lower Cow Creek	Lower Imnaha River	11,127	17	0.43	0	1.35	0.02		0	
	Lower Grouse Creek	Middle Imnaha River	1,133	2	2.49	2.48	1.35	1.41	1133	1.4	1133

Appendix B - HCNRA CMP Road Density Summary for Existing Condition and Post-SRS
SUSTAINABLE ROADS SYSTEM (draft)

3/28/2014

FULLNAME	Subwatershed Name	Watershed Name	GIS Acres	Sq. Miles (GIS Acres/640)	Existing OPEN Rd Miles	Post MRS OPEN Rd Miles	CMP ORDS	OPEN Rd Mile Density	Existing/ Post Miles Above	Post SRS ORDs	Post ORDs Not Meeting Reduced
	Lower Horse Creek	Lower Imnaha River	11,654	18	3.54	3.54	1.35	0.19		0.19	
	Lower Lightning Creek	Lower Imnaha River	9,747	15	0	0	1.35	0.00		0	
	Lower Little Sheep Creek-Big Sheep Creek	Lower Big Sheep Creek	12	0	0	0	1.35	0.00		0	
	Lower North Pine Creek	Pine Creek	7,952	12	4.76	4.62	1.35	0.38		0.37	
	Lower Pine Creek	Pine Creek	4	0	0	0	1.35	0.00		0	
	Lower Rapid River	Rapid River	7	0	0	0	1.35	0.00		0	
	Marr Creek-Big Sheep Creek	Upper Big Sheep Creek	71	0	1.1	1.1	1.35	9.91		9.91	
	McGraw Creek-Snake River	Indian Creek-Snake River	12,076	19	8.42	5.92	1.35	0.45		0.31	
	Middle Chesnimnus Creek	Chesnimnus Creek	92	0	0.49	0.49	1.35	3.42		3.42	
	Race Creek	Race Creek-Salmon River	27	0	0.01	0.01	1.35	0.23		0.23	
	Rock Creek-Imnaha River	Upper Imnaha River	3,990	6	0.42	0.42	1.35	0.07		0.07	
	Saddle Creek	Granite Creek-Snake River	11,591	18	1.81	1.81	1.35	0.10		0.1	
	Salt Creek-Big Sheep Creek	Upper Big Sheep Creek	8	0	0	0	1.35	0.00		0	
	Salt Creek-Snake River	Getta Creek-Snake River	21,029	33	14.05	12.38	1.35	0.43		0.38	
	Sand Creek-Snake River	Getta Creek-Snake River	12,913	20	2.13	2.13	1.35	0.11		0.11	
	Sheep Creek	Granite Creek-Snake River	25,855	40	1.57	1.57	1.35	0.04		0.04	
	Sherwin Creek-Salmon River	Race Creek-Salmon River	14	0	0.13	0.13	1.35	5.76		5.76	
	Sleepy Creek	Lower Imnaha River	11,725	18	1.79	0	1.35	0.10		0	
	Sluice Bar-Snake River	Granite Creek-Snake River	30,329	47	1.01	1.01	1.35	0.02		0.02	
	Sommers Creek-Snake River	Getta Creek-Snake River	14,916	23	2.25	2.25	1.35	0.10		0.1	
	Squaw Creek	Lower Little Salmon River	10	0	0	0	1.35	0.00		0	
	Steer Creek-Big Sheep Creek	Upper Big Sheep Creek	48	0	0	0	1.35	0.00		0	
	Summit Creek-Imnaha River	Middle Imnaha River	14,911	23	15.88	19.1	1.35	0.68		0.82	
	Temperance Creek	Getta Creek-Snake River	9,263	14	4.55	0.37	1.35	0.31		0.03	
	Thorn Creek-Imnaha River	Lower Imnaha River	18,821	29	6.33	6.33	1.35	0.22		0.22	
	Tyee Creek-Big Sheep Creek	Upper Big Sheep Creek	22	0	0.34	0.34	1.35	9.80		9.8	
	Upper Chesnimnus Creek	Chesnimnus Creek	301	0	2.1	1.51	1.35	4.47		3.21	
	Upper Cottonwood Creek	Lower Joseph Creek	12,177	19	12.61	12.61	1.35	0.66		0.66	
	Upper Cow Creek	Lower Imnaha River	13,874	22	6.55	0	1.35	0.30		0	
	Upper Grouse Creek	Middle Imnaha River	56	0	0.61	0.49	1.35	7.03		5.65	
	Upper Horse Creek	Lower Imnaha River	21,573	34	13.36	15.53	1.35	0.40		0.46	
	Upper Lightning Creek	Lower Imnaha River	16,812	26	6.99	9.69	1.35	0.27		0.37	
	Upper North Pine Creek	Pine Creek	18,716	29	49.82	49.54	1.35	1.70	18716	1.69	18716
	Upper Rapid River	Rapid River	3,879	6	5.06	5.06	1.35	0.83		0.83	
	Wapshila Creek-Salmon River	Deer Creek-Salmon River	125	0	0	0	1.35	0.00		0	
	West Fork Rapid River	Rapid River	10,064	16	0.66	0.66	1.35	0.04		0.04	
	Wolf Creek	Wolf Creek-Snake River	2	0	0	0	1.35	0.00		0	
HELLS CANYON NRA Total			628,549						66,071		40,660
= Subwatersheds containing Mile 55 which has different ORD goal (SWS boundaries changed since CMP completed)											
= Subwatersheds with less than 1 sq. mile											
= Subwatershed meeting CMP ORD Goals											
= Subwatershed above CMP ORD Goals											

Note: Imnaha River Mile 55 and Mile 58 subwatersheds were split out of Dry Creek-Imnaha River because they have different ORD goals in the CMP.

**Appendix B - Forest Plan Biological Opinion Existing Total Road Density and Post-SRS
SUSTAINABLE ROAD SYSTEM (draft)**

2/11/2014

Road Density by Watershed, ON FOREST Only, OPML

WATERSHED NAME	GIS Acres	Sq. Miles Acres/640)	(GIS OPEN Rd Miles	Open Rd Density	ML1 Rd Miles	ML1 Rd Density	Total Rd Density	Ex Cond >2.0	Ex Cond >1.0	Post-SRS >2.0	Post-SRS >1.0	Existing Above	Post-MRS Above	Above but Reduced
Baldock Slough-Powder River	3,310	5	12	2.39	6	1.14	3.53	3.53		3.53				
Bear Creek	36,458	57	30	0.53	11	0.19	0.72							
Beaver Creek-Grande Ronde River	64,378	101	115	1.15	256	2.55	3.70		3.70		3.25	64378	64378	64378
Big Creek	23,981	37	73	1.95	90	2.39	4.35	4.35		3.75				
Big Creek-Burnt River	11,310	18	29	1.64	22	1.22	2.87	2.87		2.64				
Big Creek-North Fork John Day River	64	0	0	0.00	0	0.00								
Birch Creek	270	0	1	2.28	0	0.00								
Bridge Creek-Middle Fork John Day River	28	0	0	3.59	0	2.47								
Burnt River Canyon-Burnt River	4,566	7	6	0.86	42	5.83	6.70	6.70		4.71				
Camp Creek	22,026	34	57	1.65	76	2.22	3.87	3.87		3.21				
Camp Creek-Middle Fork John Day River	8	0	0	0.80	0	0.00								
Cherry Creek-Snake River	48,147	75	20	0.27	24	0.32	0.58							
Chesnimnus Creek	64,335	101	338	3.36	157	1.56	4.92	4.92		4.22		64335	64335	64335
Clarks Creek-Burnt River	13,270	21	33	1.61	80	3.84	5.45	5.45		4.31				
Deer Creek-Salmon River	125	0	0	0.00	0	0.00								
Eagle Creek	105,148	164	199	1.21	265	1.61	2.82	2.82		2.5				
Five Points Creek-Grande Ronde River	36,785	57	113	1.97	58	1.02	2.99		2.99		2.78	105148	105148	105148
Getta Creek-Snake River	97,799	153	53	0.34	12	0.08	0.42							
Granite Creek	40,623	63	104	1.64	221	3.49	5.12	5.12		4.43		40623	40623	40623
Granite Creek-Snake River	117,067	183	8	0.05	2	0.01	0.06							
Grossman Creek-Grande Ronde River	6,166	10	0	0.00	1	0.09	0.09							
Headwaters North Fork John Day River	42,462	66	67	1.01	95	1.43	2.44		2.44		2.13	42462	42462	42462
Indian Creek-Grande Ronde River	22,934	36	93	2.60	44	1.23	3.83		3.83		3.02	22934	22934	22934
Indian Creek-Snake River	24,820	39	10	0.27	2	0.06	0.33							
Ladd Creek	2,355	4	12	3.23	6	1.75	4.97	4.97		4.78		2355	2355	2355
Little Malheur River	95	0	1	6.28	0	0.00								
Lostine River	43,747	68	21	0.30	6	0.09	0.39							
Lower Big Sheep Creek	28,509	45	31	0.70	21	0.47	1.17		1.17			28509		
Lower Catherine Creek	9,147	14	22	1.52	17	1.21	2.73		2.73		2.59	9147	9147	9147
Lower Imnaha River	124,650	195	40	0.21	31	0.16	0.36							
Lower Joseph Creek	51,914	81	97	1.20	54	0.67	1.87							
Lower Little Salmon River	10	0	0	0.00	0	0.00								
Lower Powder River	481	1	3	4.42	0	0.05	4.47	4.47		3.94				
Lower Wallowa River	8,576	13	27	2.00	35	2.64	4.64		4.64		3.77	8576	8576	8576
McKay Creek	4,268	7	25	3.73	2	0.33	4.06	4.06		4				
Meacham Creek	844	1	1	0.74	2	1.64								
Meadow Creek	83,267	130	306	2.36	229	1.76	4.12	4.12		3.64		83267	83267	83267
Middle Imnaha River	75,115	117	87	0.74	101	0.86	1.60		1.60		1.27	75115	75115	75115
Middle Wallowa River	547	1	2	2.46	2	2.52								
Middle Willow Creek	2,898	5	6	1.25	6	1.38	2.62	2.62		2.62				
Minam River	136,958	214	8	0.04	2	0.01	0.05							
Mud Creek-Grande Ronde River	54,521	85	185	2.17	117	1.37	3.54	3.54		3.41		54521	54521	54521
North Fork Burnt River	103,163	161	362	2.25	297	1.84	4.09	4.09		3.25				
North Powder River	47,157	74	65	0.88	119	1.62	2.50	2.50		2.25				
Pine Creek	112,682	176	231	1.31	174	0.99	2.30		2.30			112682		

**Appendix B - Forest Plan Biological Opinion Existing Total Road Density and Post-SRS
SUSTAINABLE ROAD SYSTEM (draft)**

2/11/2014

Road Density by Watershed, ON FOREST Only, OPML

WATERSHED NAME	GIS Acres	Sq. Miles (GIS Acres/640)	OPEN Rd Miles	Open Rd Density	ML1 Rd Miles	ML1 Rd Density	Total Rd Density	Ex Cond >2.0	Ex Cond >1.0	Post-SRS >2.0	Post-SRS >1.0	Existing Above	Post-MRS Above	Above but Reduced
Race Creek-Salmon River	77	0	0	1.66	0	0.91								
Rapid River	13,958	22	6	0.26	0	0.00	0.26							
Reynolds Creek-John Day River	3	0	0	6.66	0	0.00								
Rock Creek-Powder River	26,214	41	22	0.55	23	0.57	1.12		1.12			26214		
Ruckles Creek-Powder River	26,315	41	98	2.39	122	2.96	5.35	5.35		4.64				
Skookumchuck Creek-Salmon River	10	0	0	0.00	0	0.00								
South Fork Burnt River	45,168	71	131	1.86	188	2.66	4.52	4.52		2.54				
Sutton Creek-Powder River	25,819	40	71	1.75	125	3.10	4.85	4.85		4.05				
Upper Big Sheep Creek	71,831	112	125	1.11	108	0.96	2.07		2.07		1.86	71831	71831	71831
Upper Camas Creek	6,870	11	29	2.71	23	2.13	4.84	4.84		4.8		6780	6780	
Upper Catherine Creek	51,764	81	94	1.17	119	1.47	2.64		2.64		2.19	51764	51764	51764
Upper Grande Ronde River	116,798	182	259	1.42	422	2.31	3.73		3.73		3.51	116798	116798	116798
Upper Imnaha River	90,284	141	159	1.12	104	0.74	1.86		1.86		1.6	90284	90284	90284
Upper Joseph Creek	57,823	90	175	1.93	80	0.89	2.82	2.82		2.43		57823	57823	57823
Upper North Fork Malheur River	2	0	0	0.00	0	0.00								
Upper Powder River	81,886	128	230	1.80	309	2.42	4.21		4.21		3.45	81886	81886	81886
Upper Wallowa River	56,319	88	3	0.03	5	0.06	0.09							
Wildhorse River	5	0	0	0.00	0	0.00								
Willow Creek	3,639	6	3	0.49	1	0.14	0.63							
Wolf Creek-Powder River	14,541	23	43	1.91	99	4.36	6.27		6.27		5.36	14541	14541	14541
Wolf Creek-Snake River	37,301	58	2	0.04	3	0.05	0.08							
2,403,614												1,231,973	1,064,568	1,057,788
												66%	57%	99%

Slivers of watersheds with less than or equal to 1 square mile within the project area were removed.

Watershed total road densities that meet Forest Plan Biological Opinion Terms and Conditions (BO T&C)

Watersheds with TES Salmon/Steelhead - BO T&C = 2.0 mi/sq mi (blocks with numbers are above these levels)

Watershed with TES Bull Trout or Critical Habitat - BO T&C = 1.0 mi/sq mi (blocks with numbers are above these levels)

Watersheds without TES Fish or Critical Habitat

SUITABLE ROAD SYSTEM (draft)

3/25/2014

Appendix B: Forest Plan Open Road Density Summary for Existing Condition and Post-SRS

SUBWATERSHED NAME	WATERSHED NAME	MAS CODE	GIS Acres	Sq Miles (GIS Acres/640)	Existing Open Rd Miles in SUB/MAS	PostSRS Open Rd Miles SUB/MAS	Fplan ORDs	EC Fplan ORD Miles/Sq Miles	PostSRS FP ORDs Mi/SqMi	Meet Existing FP ORD Acres	Meet PostSRS FP ORD	Reduced FP ORDs but not meet
Alder Creek	Chesnimnus Creek	1	751	1	1.6	1.6	2.5	1.4	1.4	751	751	
		1W	1,392	2	3.6	3.6	1.5	1.6	1.6	1392	1392	
Antelope Creek	Wolf Creek-Powder River	1	113	0	0.0	0.0	2.5	0.0	0	113	113	
Auburn Creek-Burnt River	Clarks Creek-Burnt River	1	2,582	4	9.6	9.5	2.5	2.4	2.4	2582	2582	
		1W	2,337	4	7.4	7.3	1.5	2.0	2			
		3	2,414	4	5.1	4.8	1.5	1.3	1.3	2414	2414	
Baldy Creek-NFk John Day River	Headwaters NFk John Day River	18	1,533	2	5.5	5.5	1.5	2.3	2.3			
Balm Creek	Ruckles Creek-Powder River	1	3,552	6	16.8	16.8	2.5	3.0	3			
		3	1,835	3	3.2	3.2	1.5	1.1	1.1	1835	1835	
Beagle Creek	Big Creek	1	1,093	2	6.1	6.1	2.5	3.5	3.5			
		3	1,834	3	4.3	2.5	1.5	1.5	0.9	1834	1834	
Bear Creek-Grande Ronde River	Grossman Creek-Grande Ronde River	1	87	0	0.0	0.0	2.5	0.0	0	87	87	
Bear Gulch	Lower Big Sheep Creek	3	9,155	14	5.5	5.5	1.5	0.4	0.4	9155	9155	
Beaver Creek	Granite Creek	1	17	0	0.1	0.0	2.5	2.7	1.5	17	17	
		18	12,086	19	38.0	29.7	1.5	2.0	1.6			12086
Beaver Creek	Sutton Creek-Powder River	1	1,339	2	1.7	1.7	2.5	0.8	0.8	1339	1339	
		3	156	0	0.3	0.0	1.5	1.4	0	156	156	
Bennett Creek-Eagle Creek	Eagle Creek	1	5,039	8	22.2	18.8	2.5	2.8	2.4			5039
		3A	3,426	5	2.8	2.8	1.5	0.5	0.5	3426	3426	
Big Creek	Big Creek-NFk John Day River	1	54	0	0.0	0.0	2.5	0.0	0	54	54	
Blue Canyon Creek-Powder River	Sutton Creek-Powder River	1	327	1	0.3	0.3	2.5	0.5	0.5	327	327	
		3	1,349	2	6.5	4.5	1.5	3.1	2.1			1349
Bowman Creek-Camas Creek	Upper Camas Creek	1	25	0	0.4	0.4	2.5	9.1	9.1	25	25	
Bridge Creek	Little Malheur River	1	90	0	0.9	0.9	2.5	6.2	6.2	90	90	
Brinker Creek-Catherine Creek	Upper Catherine Creek	3	155	0	0.0	0.0	1.5	0.0	0	155	155	
Broady Creek	Lower Joseph Creek	1	5,343	8	18.7	14.8	2.5	2.2	1.8	5343	5343	
		3	1,723	3	1.2	0.0	1.5	0.4	0	1723	1723	
Buck Creek	Mud Creek-Grande Ronde River	1	6,713	10	34.7	22.8	2.5	3.3	2.2			6713
		3	2,430	4	1.0	1.0	1.5	0.3	0.3	2430	2430	
Bull Run Creek	Granite Creek	1	203	0	0.2	0.1	2.5	0.5	0.2	203	203	
		18	17,975	28	37.8	26.4	1.5	1.3	0.9	17975	17975	
Camp Creek	North Fork Burnt River	1	14,282	22	87.7	35.4	2.5	3.9	1.6			14282
		18	24	0	0.3	0.1	1.5	8.1	1.6	24	24	
		1W	1,218	2	3.9	3.4	1.5	2.1	1.8			1218
		3	1,551	2	6.9	4.6	1.5	2.9	1.9			1551
Carrol Creek-Big Sheep Creek	Upper Big Sheep Creek	1	6,616	10	32.3	29.1	2.5	3.1	2.8			6616
		3	1,937	3	1.1	1.1	1.5	0.4	0.4	1937	1937	
Cave Creek-Burnt River	Burnt River Canyon-Burnt River	1	328	1	1.9	1.9	2.5	3.7	3.7			
		1W	190	0	0.7	0.7	1.5	2.5	2.5	190	190	
Cherry Creek	Cherry Creek-Snake River	1	10	0	0.4	0.4	2.5	26.2	26.2	10	10	
Chicken Creek	Upper Grande Ronde River	1	7,397	12	12.9	11.8	2.5	1.1	1	7397	7397	
		1W	2,490	4	5.6	3.2	1.5	1.4	0.8	2490	2490	
		3	1,073	2	4.5	4.5	1.5	2.7	2.7			
Clark Creek	Indian Crk-Grande Ronde River	1	4,806	8	29.7	13.2	2.5	4.0	1.8			4806

Appendix B: Forest Plan Open Road Density Summary for Existing Condition and Post-SRS

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		1W	26	0	0.4	0.1	1.5	9.0	2.7	26	26	
Clear Creek	Granite Creek	18	1,556	2	0.1	0.1	1.5	0.0	0	1556	1556	
	Pine Creek	1	7,539	12	32.4	29.9	2.5	2.8	2.5		7539	
		3A	1,835	3	2.9	1.5	1.5	1.0	0.5	1835	1835	
Clear Creek-Powder River	Upper Powder River	1	2,621	4	7.3	7.3	2.5	1.8	1.8	2621	2621	
		1W	823	1	1.3	1.3	1.5	1.0	1	823	823	
Clover Creek-Powder River	Ruckles Creek-Powder River	1	369	1	3.2	3.2	2.5	5.6	5.6			
		3	1,294	2	4.8	4.8	1.5	2.4	2.4			
Coleman Ridge-GRonde River	Beaver Creek-Grande Ronde River	3	6,824	11	21.5	7.8	1.5	2.0	0.7			6824
Conley Lake-Grande Ronde River	Lower Catherine Creek	1	28	0	0.0	0.0	2.5	0.0	0	28	28	
		3	2,696	4	0.8	0.7	1.5	0.2	0.2	2696	2696	
Cook Creek	Cherry Creek-Snake River	1	54	0	1.2	1.0	2.5	14.1	11.3	54	54	
Cougar Creek-Joseph Creek	Upper Joseph Creek	1	2,820	4	19.5	16.5	2.5	4.4	3.7			2820
		3	9,012	14	10.2	8.8	1.5	0.7	0.6	9012	9012	
Cracker Creek	Upper Powder River	1	11,597	18	37.7	32.5	2.5	2.1	1.8	11597	11597	
Crane Creek-North Fork John Day R	Headwaters Nfk John Day River	18	2,684	4	7.8	7.4	1.5	1.9	1.8			2684
Crazyman Creek-Imnaha River	Upper Imnaha River	1	33	0	0.2	0.1	2.5	4.4	1.7	33	33	
Dark Canyon Creek	Meadow Creek	1	2,547	4	15.6	7.7	2.5	3.9	1.9		2547	
		1W	1,560	2	11.5	6.9	1.5	4.7	2.8			1560
		3	5,880	9	22.8	16.0	1.5	2.5	1.7			5880
Dark Canyon Creek-Burnt River	Burnt River Canyon-Burnt River	1	1,621	3	3.5	3.5	2.5	1.4	1.4	1621	1621	
		1W	673	1	0.0	0.0	1.5	0.0	0	673	673	
		3	1,753	3	0.0	0.0	1.5	0.0	0	1753	1753	
Davis Creek	Upper Joseph Creek	1	4,012	6	25.6	23.7	2.5	4.1	3.8			4012
		3	3,955	6	1.3	1.3	1.5	0.2	0.2	3955	3955	
Deer Creek	Lower Wallowa River	1	3,857	6	18.7	18.7	2.5	3.1	3.1			
		1W	543	1	1.5	1.5	1.5	1.8	1.8			
		3A	3,071	5	3.2	3.6	1.5	0.7	0.8	3071	3071	
	Upper Powder River	1	12,989	20	41.1	37.9	2.5	2.0	1.9	12989	12989	
		1W	1,007	2	3.4	2.5	1.5	2.1	1.6		1007	
Deer Creek-Imnaha River	Middle Imnaha River	3	12	0	0.0	0.0	1.5	0.0	0	12	12	
Devils Run Creek	Chesnimnus Creek	1	12,535	20	73.5	58.6	2.5	3.8	3			12535
Dry Camas Creek-Camas Creek	Upper Camas Creek	1	4,684	7	17.2	12.9	2.5	2.3	1.8	4684	4684	
		3	106	0	0.8	0.6	1.5	4.5	3.5	106	106	
East Fork Eagle Creek	Eagle Creek	1W	41	0	0.3	0.3	1.5	5.0	5	41	41	
		3A	2,362	4	1.2	1.1	1.5	0.3	0.3	2362	2362	
East Meacham Creek	Meacham Creek	1	526	1	0.7	0.4	2.5	0.8	0.5	526	526	
		1W	64	0	0.2	0.2	1.5	2.0	1.8	64	64	
		3A	30	0	0.1	0.1	1.5	2.1	2.1	30	30	
East Pine Creek	Pine Creek	1	8,172	13	30.8	30.5	2.5	2.4	2.4	8172	8172	
		1W	72	0	0.0	0.0	1.5	0.0	0	72	72	
		3	3,727	6	11.9	10.0	1.5	2.1	1.7			3727
		3A	2,218	3	7.6	7.6	1.5	2.2	2.2			
Ebell Creek	Sutton Creek-Powder River	1	353	1	1.3	1.3	2.5	2.4	2.4	353	353	
Elk Creek	Sutton Creek-Powder River	1	23	0	0.0	0.0	2.5	0.0	0	23	23	
		3	1,489	2	7.5	4.7	1.5	3.2	2			1489
		3A	2,930	5	6.7	5.6	1.5	1.5	1.2	2930	2930	

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	Upper Joseph Creek	1	9,046	14	45.7	31.4	2.5	3.2	2.2		9046	
		1W	667	1	3.4	3.0	1.5	3.3	2.9			667
Fish Creek-Pine Creek	Pine Creek	1	2,400	4	12.8	12.1	2.5	3.4	3.2			2400
		1W	946	1	2.1	1.5	1.5	1.4	1	946	946	
		3	1,661	3	7.7	3.1	1.5	3.0	1.2		1661	
		3A	273	0	0.7	0.1	1.5	1.5	0.2	273	273	
Goose Creek	Ruckles Creek-Powder River	1	9,437	15	40.2	36.2	2.5	2.7	2.5		9437	
		1W	2,976	5	11.8	11.8	1.5	2.5	2.5			
		3	5,151	8	11.7	10.6	1.5	1.5	1.3	5151	5151	
Gumboot Creek	Upper Imnaha River	1	237	0	2.4	2.6	2.5	6.6	6.9	237	237	
Hawley Gulch-Powder River	Upper Powder River	1	10,183	16	35.6	30.0	2.5	2.2	1.9	10183	10183	
		1W	453	1	0.6	0.6	1.5	0.8	0.8	453	453	
		3	129	0	0.1	0.0	1.5	0.4	0	129	129	
Hidaway Creek	Upper Camas Creek	1	153	0	0.1	0.1	2.5	0.3	0.3	153	153	
Higgins Reservoir-Camp Creek	Camp Creek	1	14,117	22	34.3	24.0	2.5	1.6	1.1	14117	14117	
		1W	7,304	11	22.5	22.0	1.5	2.0	1.9			7304
Immigrant Gulch-Powder River	Lower Powder River	3	481	1	3.3	1.8	1.5	4.4	2.4			481
Independence Creek-Burnt River	Big Creek-Burnt River	1	533	1	3.0	2.7	2.5	3.5	3.2			533
		1W	109	0	0.8	0.8	1.5	4.4	4.4	109	109	
		3	1,224	2	2.9	2.9	1.5	1.5	1.5	1224	1224	
Job Creek-Burnt River	South Fork Burnt River	1	842	1	5.0	3.4	2.5	3.8	2.6		842	
Johnson Creek	McKay Creek	1	3,403	5	19.5	6.7	2.5	3.7	1.3		3403	
Jordan Creek	Beaver Creek-Grande Ronde River	1	476	1	1.4	1.4	2.5	1.9	1.9	476	476	
		1W	2,104	3	4.4	4.5	1.5	1.3	1.4	2104	2104	
		3	2,390	4	1.8	1.8	1.5	0.5	0.5	2390	2390	
		3A	1,071	2	0.1	0.1	1.5	0.1	0.1	1071	1071	
Lake Creek-Powder River	Sutton Creek-Powder River	1	1,811	3	5.6	5.6	2.5	2.0	2	1811	1811	
		1W	2,601	4	6.6	6.1	1.5	1.6	1.5	2601	2601	
		3	4,452	7	9.2	7.4	1.5	1.3	1.1	4452	4452	
Lake Fork Creek	Pine Creek	1W	826	1	3.5	2.1	1.5	2.7	1.6		826	
		3A	4,819	8	0.5	0.0	1.5	0.1	0	4819	4819	
Lick Creek	Upper Big Sheep Creek	1	1,598	2	6.7	5.8	2.5	2.7	2.3		1598	
Limber Jim Creek	Upper Grande Ronde River	1	3,506	5	1.2	2.1	2.5	0.2	0.4	3506	3506	
		1W	1,436	2	2.4	3.3	1.5	1.1	1.5	1436	1436	
		3	3,210	5	6.2	7.3	1.5	1.2	1.4	3210	3210	
		3A	3,793	6	2.5	2.5	1.5	0.4	0.4	3793	3793	
Little Catherine Creek	Upper Catherine Creek	1	5,955	9	15.5	14.5	2.5	1.7	1.6	5955	5955	
		3	947	1	2.3	2.3	1.5	1.5	1.5	947	947	
Little Creek	Upper Catherine Creek	1	1,438	2	3.2	0.8	2.5	1.4	0.3	1438	1438	
		3	1,735	3	1.9	1.7	1.5	0.7	0.6	1735	1735	
Little Eagle Creek	Eagle Creek	1	6,463	10	25.3	21.7	2.5	2.5	2.1	6463	6463	
		3	1,397	2	4.0	4.0	1.5	1.8	1.8			
Little Fly Creek	Upper Grande Ronde River	1	10,538	16	22.1	11.4	2.5	1.3	0.7	10538	10538	
		1W	12	0	0.1	0.0	1.5	3.6	0	12	12	
Little Minam River	Minam River	1	512	1	0.6	0.5	2.5	0.7	0.6	512	512	
Lower Anthony Creek	North Powder River	1	7,820	12	9.6	13.1	2.5	0.8	1.1	7820	7820	
		3	705	1	4.9	4.9	1.5	4.4	4.4			

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Lower Bear Creek	Bear Creek	3A	91	0	1.7	1.7	1.5	12.2	12.2	91	91	
		1	4,740	7	26.6	25.7	2.5	3.6	3.5			4740
		1W	2,174	3	2.5	2.5	1.5	0.7	0.7	2174	2174	
		3A	3,313	5	1.1	1.1	1.5	0.2	0.2	3313	3313	
Lower Beaver Creek	Beaver Creek-Grande Ronde River	1	1,372	2	1.2	1.1	2.5	0.5	0.5	1372	1372	
		1W	200	0	0.0	0.0	1.5	0.0	0	200	200	
		3	8,604	13	9.2	9.2	1.5	0.7	0.7	8604	8604	
		3A	3,627	6	0.0	0.0	1.5	0.0	0	3627	3627	
Lower Big Creek	Big Creek	1	350	1	0.0	0.0	2.5	0.0	0	350	350	
		3	1,285	2	1.6	1.6	1.5	0.8	0.8	1285	1285	
	Big Creek-Burnt River	1	1,214	2	4.1	2.7	2.5	2.1	1.4	1214	1214	
		3	129	0	0.3	0.3	1.5	1.5	1.5	129	129	
Lower Camp Creek	Lower Big Sheep Creek	3	248	0	0.0	0.0	1.5	0.0	0	248	248	
Lower Chesnimnus Creek	Chesnimnus Creek	1	587	1	3.0	2.4	2.5	3.3	2.6		587	
		3	365	1	1.6	1.6	1.5	2.8	2.8			
Lower Courtney Creek	Mud Creek-Grande Ronde River	3	553	1	1.2	1.2	1.5	1.3	1.3	553	553	
Lower Crow Creek	Upper Joseph Creek	1	1,133	2	4.3	3.0	2.5	2.4	1.7	1133	1133	
		1W	1,419	2	2.4	2.4	1.5	1.1	1.1	1419	1419	
		3	80	0	0.0	0.0	1.5	0.0	0	80	80	
Lower Eagle Creek	Eagle Creek	1	3,384	5	16.5	14.2	2.5	3.1	2.7			3384
		3	6,530	10	15.2	8.6	1.5	1.5	0.8	6530	6530	
Lower Five Points Creek	Five Points Creek-Grande Ronde River	1	2,286	4	13.3	6.8	2.5	3.7	1.9		2286	
		1W	1,046	2	3.8	2.1	1.5	2.3	1.3		1046	
		3	8,259	13	23.3	10.6	1.5	1.8	0.8		8259	
Lower Fly Creek	Upper Grande Ronde River	1	436	1	2.1	2.0	2.5	3.1	2.9			436
		1W	2,019	3	5.4	5.4	1.5	1.7	1.7			
		3	5,295	8	7.7	6.3	1.5	0.9	0.8	5295	5295	
		3A	1,161	2	2.2	2.2	1.5	1.2	1.2	1161	1161	
Lower Granite Creek	Granite Creek	18	1,055	2	0.0	0.0	1.5	0.0	0	1055	1055	
Lower Grouse Creek	Middle Imnaha River	1	7,880	12	24.4	22.5	2.5	2.0	1.8	7880	7880	
		3	3,611	6	0.1	0.1	1.5	0.0	0	3611	3611	
Lower Little Sheep Creek-Big Sheep	Lower Big Sheep Creek	3	4,343	7	0.5	0.5	1.5	0.1	0.1	4343	4343	
Lower Lostine River	Lostine River	1	1,153	2	7.6	6.2	2.5	4.2	3.4			1153
Lower McCoy Creek	Meadow Creek	1	1,286	2	5.3	3.6	2.5	2.6	1.8	1286	1286	
		3	1,234	2	5.7	3.0	1.5	3.0	1.6		1234	
Lower Meadow Creek	Meadow Creek	1	1,127	2	3.2	2.3	2.5	1.8	1.3	1127	1127	
		3	10,122	16	34.3	17.9	1.5	2.2	1.1		10122	
Lower Minam River	Minam River	1	311	0	0.4	0.4	2.5	0.8	0.8	311	311	
		3A	1,627	3	1.6	2.0	1.5	0.6	0.8	1627	1627	
Lower Mud Creek	Mud Creek-Grande Ronde River	1	503	1	2.9	2.5	2.5	3.6	3.2			503
		3	3,375	5	0.0	0.0	1.5	0.0	0	3375	3375	
Lower North Fork Burnt River	North Fork Burnt River	1	1,861	3	7.4	5.7	2.5	2.5	2	1861	1861	
		1W	371	1	0.0	0.0	1.5	0.0	0	371	371	
		3	7,491	12	14.2	11.4	1.5	1.2	1	7491	7491	
		3A	242	0	1.9	1.9	1.5	4.9	4.9		242	
Lower North Pine Creek	Pine Creek	1	1,773	3	2.8	2.4	2.5	1.0	0.9	1773	1773	
		1W	2,379	4	7.2	5.6	1.5	1.9	1.5		2379	

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Lower North Powder River	North Powder River	3	1,774	3	7.4	5.0	1.5	2.7	1.8			1774
		1	44	0	0.0	0.0	2.5	0.0	0	44	44	
		3	17	0	0.0	0.0	1.5	0.0	0	17	17	
Lower Salmon Creek	Rock Creek-Powder River	3A	215	0	0.0	0.0	1.5	0.0	0	215	215	
Lower South Fork Burnt River	South Fork Burnt River	1	4,440	7	16.4	8.2	2.5	2.4	1.2	4440	4440	
Lower Swamp Creek	Upper Joseph Creek	1	6,263	10	24.6	16.4	2.5	2.5	1.7	6263	6263	
		3	8,487	13	3.8	0.9	1.5	0.3	0.1	8487	8487	
Marr Creek-Big Sheep Creek	Upper Big Sheep Creek	1	7,423	12	17.3	19.4	2.5	1.5	1.7	7423	7423	
		3	5,011	8	0.2	0.2	1.5	0.0	0	5011	5011	
McCully Creek	Upper Powder River	1	10,514	16	49.0	33.3	2.5	3.0	2		10514	
		18	13	0	0.0	0.0	1.5	1.0	1	13	13	
McMullen Slough	Pine Creek	1	1,732	3	9.3	6.2	2.5	3.4	2.3		1732	
		3	1,716	3	7.7	5.4	1.5	2.9	2			1716
Meadowbrook Creek-Grande Ronde	Upper Grande Ronde River	1	10,374	16	17.9	17.5	2.5	1.1	1.1	10374	10374	
		1W	750	1	1.3	1.2	1.5	1.1	1	750	750	
		3	613	1	1.2	1.2	1.5	1.3	1	613	613	
		3A	1,040	2	0.1	0.1	1.5	0.1	0.1	1040	1040	
Middle Big Creek	Big Creek	1	6,472	10	17.9	12.2	2.5	1.8	1.2	6472	6472	
		3	2,562	4	7.7	7.7	1.5	1.9	1.9			
Middle Chesnimnus Creek	Chesnimnus Creek	1	17,292	27	83.4	47.5	2.5	3.1	1.8		17292	
		1W	431	1	0.8	0.3	1.5	1.2	0.4	431	431	
Middle Fork Burnt River	North Fork Burnt River	1	10,272	16	30.5	30.5	2.5	1.9	1.9	10272	10272	
		1W	942	1	1.8	1.8	1.5	1.2	1.2	942	942	
Middle Meadow Creek	Meadow Creek	1	6,504	10	29.6	19.9	2.5	2.9	2		6504	
Middle Mud Creek	Mud Creek-Grande Ronde River	1	4,670	7	22.9	19.4	2.5	3.1	2.7			4670
		3	4,213	7	0.0	0.0	1.5	0.0	0	4213	4213	
Middle North Powder River	North Powder River	1	5,438	8	15.1	15.1	2.5	1.8	1.8	5438	5438	
		3	171	0	0.5	0.2	1.5	1.9	0.6	171	171	
Middle South Fork Burnt River	South Fork Burnt River	1	13,518	21	53.4	41.4	2.5	2.5	2	13518	13518	
Milk Creek-Catherine Creek	Upper Catherine Creek	1	4,094	6	16.7	16.5	2.5	2.6	2.6	4094	4094	
		3	682	1	0.9	0.9	1.5	0.8	0.8	682	682	
Mill Creek	Lower Catherine Creek	1	1,962	3	6.0	3.2	2.5	1.9	1.1	1962	1962	
		3	2,111	3	9.9	7.4	1.5	3.0	2.2			2111
Mill Creek-Burnt River	Clarks Creek-Burnt River	1	508	1	1.9	1.9	2.5	2.4	2.4	508	508	
		1W	1,980	3	2.8	2.8	1.5	0.9	0.9	1980	1980	
		3	3,447	5	6.6	6.1	1.5	1.2	1.1	3447	3447	
Muddy Creek	Rock Creek-Powder River	3A	915	1	0.6	0.6	1.5	0.4	0.4	915	915	
North Fork Catherine Creek	Upper Catherine Creek	1	9,274	14	17.6	14.3	2.5	1.2	1	9274	9274	
		3	1,971	3	4.6	4.5	1.5	1.5	1.5	1971	1971	
North Fork Clark Creek	Indian Creek-Grande Ronde River	1	3,229	5	9.1	5.2	2.5	1.8	1	3229	3229	
North Fork Meacham Creek	Meacham Creek	1	215	0	0.0	0.0	2.5	0.0	0	215	215	
North Willow Creek	Middle Willow Creek	1	672	1	0.9	0.9	2.5	0.9	0.9	672	672	
		1W	2,226	3	4.7	4.5	1.5	1.4	1.3	2226	2226	
Old Settlers Slough	Baldock Slough-Powder River	3	865	1	2.7	1.8	1.5	2.0	1.3		865	
		3A	2,445	4	9.7	7.4	1.5	2.5	1.9			2445
Paddy Creek-Eagle Creek	Eagle Creek	1	9,924	16	40.7	33.7	2.5	2.6	2.2	9924	9924	
		1W	1,157	2	4.7	4.2	1.5	2.6	2.3			1157

Appendix B: Forest Plan Open Road Density Summary for Existing Condition and Post-SRS

SUBWATERSHED NAME	WATERSHED NAME	MAS CODE	GIS Acres	Sq Miles (GIS Acres/640)	Existing Open Rd Miles in SUB/MAS	PostSRS Open Rd Miles SUB/MAS	Fplan ORDs	EC Fplan ORD Miles/Sq Miles	PostSRS FP ORDs MI/SqMi	Meet Existing FP ORD Acres	Meet PostSRS FP ORD	Reduced FP ORDs but not meet
		3	4,066	6	15.0	14.0	1.5	2.4	2.2			4066
		3A	21	0	0.0	0.0	1.5	0.0	0	21	21	
Patrick Creek-North Fork Burnt River	North Fork Burnt River	1	30	0	0.4	0.0	2.5	8.0	0	30	30	
		3	2,738	4	7.3	1.9	1.5	1.7	0.4			2738
		3A	5,329	8	14.9	7.3	1.5	1.8	0.9			5329
Pearson Creek	Birch Creek	1	82	0	0.3	0.2	2.5	2.2	1.6	82	82	
Peavine Creek	Chesnimnus Creek	1	15,115	24	93.1	54.5	2.5	3.9	2.3			15115
Peavine Creek-Joseph Creek	Lower Joseph Creek	1	5,820	9	18.8	9.8	2.5	2.1	1.1	5820	5820	
		3	3,804	6	1.3	1.0	1.5	0.2	0.2	3804	3804	
Pelican Creek	Five Points Creek-Grande Ronde River	1	542	1	3.3	0.9	2.5	3.9	1.1			542
		1W	3,562	6	17.8	9.1	1.5	3.2	1.6			3562
		3	4,401	7	21.4	9.2	1.5	3.1	1.3			4401
		3A	74	0	0.4	0.3	1.5	3.7	2.5	74	74	
Petticoat Creek-North Fork Burnt River	North Fork Burnt River	1	4,044	6	14.3	10.7	2.5	2.3	1.7	4044	4044	
		3	7,919	12	14.2	12.9	1.5	1.1	1	7919	7919	
		3A	744	1	3.0	3.0	1.5	2.6	2.6			
Pine Creek	Chesnimnus Creek	1W	29	0	0.0	0.0	1.5	0.0	0	29	29	
Pine Creek-Burnt River	Big Creek-Burnt River	3	850	1	4.0	2.4	1.5	3.0	1.8			850
		3A	96	0	0.3	0.1	1.5	1.7	0.8	96	96	
Rock Creek	Beaver Creek-Grande Ronde River	1	2,289	4	1.1	1.1	2.5	0.3	0.3	2289	2289	
		1W	1,191	2	0.9	0.9	1.5	0.5	0.5	1191	1191	
		3	2,342	4	5.8	5.8	1.5	1.6	1.6	2342	2342	
	Rock Creek-Powder River	3A	897	1	0.0	0.0	1.5	0.0	0	897	897	
Rush Creek-Joseph Creek	Lower Joseph Creek	1	2,008	3	13.1	9.7	2.5	4.2	3.1			2008
		3	3,596	6	5.3	3.2	1.5	0.9	0.6	3596	3596	
Salt Creek-Big Sheep Creek	Upper Big Sheep Creek	1	3,526	6	13.5	10.7	2.5	2.4	1.9	3526	3526	
Sheep Creek	Upper Grande Ronde River	1	11,189	17	39.6	29.7	2.5	2.3	1.7	11189	11189	
		18	14	0	0.0	0.0	1.5	0.0	0	14	14	
		1W	4,987	8	21.1	15.9	1.5	2.7	2			4987
		3	2,688	4	8.9	7.7	1.5	2.1	1.8			2688
		3A	100	0	0.0	0.0	1.5	0.0	0	100	100	
Silver Creek-Lostine River	Lostine River	1	177	0	1.4	1.4	2.5	5.2	5.2	177	177	
Snipe Creek-McKay Creek	McKay Creek	1	864	1	5.4	3.1	2.5	4.0	2.3			864
South Fork Catherine Creek	Upper Catherine Creek	1	10,951	17	31.7	24.5	2.5	1.9	1.4	10951	10951	
		3	219	0	0.0	0.0	1.5	0.0	0	219	219	
South Fork Willow Creek	Willow Creek	3	2,192	3	0.0	0.0	1.5	0.0	0	2192	2192	
		3A	505	1	2.4	2.2	1.5	3.0	2.8			505
Spring Branch-Wallowa River	Middle Wallowa River	1	299	0	1.0	1.0	2.5	2.1	2.1	299	299	
		1W	105	0	1.1	1.1	1.5	6.8	6.8	105	105	
Spring Creek	Beaver Creek-Grande Ronde River	1	22	0	0.0	0.0	2.5	0.0	0	22	22	
		1W	1,511	2	0.9	0.3	1.5	0.4	0.1	1511	1511	
		3	11,028	17	44.9	26.1	1.5	2.6	1.5			11028
	Upper Wallowa River	1	310	0	0.0	0.0	2.5	0.0	0	310	310	
Steer Creek-Big Sheep Creek	Upper Big Sheep Creek	1	977	2	0.3	0.3	2.5	0.2	0.2	977	977	
		3	14,022	22	0.1	0.1	1.5	0.0	0	14022	14022	
Stices Gulch-Powder River	Sutton Creek-Powder River	1	4,512	7	15.1	13.1	2.5	2.1	1.9	4512	4512	
		1W	1,838	3	3.5	2.9	1.5	1.2	1	1838	1838	

Appendix B: Forest Plan Open Road Density Summary for Existing Condition and Post-SRS

SUBWATERSHED NAME	WATERSHED NAME	MAS CODE	GIS Acres	Sq Miles (GIS Acres/640)	Existing Open Rd Miles in SUB/MAS	PostSRS Open Rd Miles SUB/MAS	Fplan ORDs	EC Fplan ORD Miles/Sq Miles	PostSRS FP ORDs Mi/SqMi	Meet Existing FP ORD Acres	Meet PostSRS FP ORD	Reduced FP ORDs but not meet
Sumac Creek-Joseph Creek	Upper Joseph Creek	3	220	0	1.0	0.9	1.5	2.9	2.5	220	220	
		1	3,453	5	22.0	19.6	2.5	4.1	3.6			3453
		3	6,169	10	11.9	11.2	1.5	1.2	1.2	6169	6169	
Summit Creek	Bridge Creek-Middle Fork John Day R	1	13	0	0.1	0.0	2.5	2.5	0	13	13	
Summit Creek-Imnaha River	Middle Imnaha River	1	37	0	0.0	0.0	2.5	0.0	0	37	37	
Sutton Creek	Sutton Creek-Powder River	1	1,713	3	4.4	3.9	2.5	1.6	1.5	1713	1713	
		1W	164	0	0.0	0.0	1.5	0.0	0	164	164	
		3	339	1	0.2	0.0	1.5	0.4	0	339	339	
Tanner Gulch-Grande Ronde River	Upper Grande Ronde River	1	572	1	3.6	3.6	2.5	4.0	4			
		3A	14,013	22	11.4	8.8	1.5	0.5	0.4	14013	14013	
Thorn Creek-Imnaha River	Lower Imnaha River	1	36	0	1.0	1.0	2.5	18.7	18.7	36	36	
Tope Creek	Mud Creek-Grande Ronde River	1	5,942	9	34.2	22.0	2.5	3.7	2.4		5942	
		3	3,418	5	0.6	0.3	1.5	0.1	0.1	3418	3418	
Trail Creek	Headwaters North Fork John Day Riv	1	18	0	0.3	0.3	2.5	9.1	9.1	18	18	
		3A	13	0	0.1	0.1	1.5	4.0	4	13	13	
Trout Creek	Headwaters North Fork John Day Riv	18	2,892	5	1.7	1.7	1.5	0.4	0.4	2892	2892	
	North Fork Burnt River	1	6,623	10	24.6	16.2	2.5	2.4	1.6	6623	6623	
		1W	1,600	2	6.3	1.3	1.5	2.5	0.5		1600	
		3	10,927	17	22.9	14.2	1.5	1.3	0.8	10927	10927	
Trout Creek-Minam River	Minam River	1	829	1	3.3	2.1	2.5	2.5	1.6	829	829	
		3A	39	0	0.0	0.0	1.5	0.0	0	39	39	
Tucker Creek-Powder River	Ruckles Creek-Powder River	1	366	1	2.5	1.3	2.5	4.3	2.3		366	
		3	1,218	2	3.9	3.9	1.5	2.1	2.1			
Tyee Creek-Big Sheep Creek	Upper Big Sheep Creek	1	11,511	18	27.8	26.4	2.5	1.5	1.5	11511	11511	
		3	332	1	0.1	0.1	1.5	0.1	0.1	332	332	
Union Creek-Powder River	Upper Powder River	1	6,128	10	14.9	15.8	2.5	1.6	1.6	6128	6128	
		1W	3,998	6	13.1	12.9	1.5	2.1	2.1			
		3	1,948	3	6.8	6.8	1.5	2.2	2.2			
		3A	11	0	0.1	0.0	1.5	6.7	0	11	11	
Upper Anthony Creek	North Powder River	1	11,194	17	16.8	17.4	2.5	1.0	1	11194	11194	
		3A	86	0	2.2	2.2	1.5	16.5	16.1	86	86	
Upper Beaver Creek	Beaver Creek-Grande Ronde River	1	30	0	0.4	0.4	2.5	8.6	8.6	30	30	
		3	281	0	0.8	0.8	1.5	1.9	1.9	281	281	
		3A	15,143	24	9.8	9.8	1.5	0.4	0.4	15143	15143	
Upper Big Creek	Big Creek	1	9,415	15	33.1	30.6	2.5	2.2	2.1	9415	9415	
		3	969	2	2.6	2.6	1.5	1.7	1.7			
	Big Creek-Burnt River	1	5,446	9	11.6	10.9	2.5	1.4	1.3	5446	5446	
		3	1,700	3	2.2	0.5	1.5	0.8	0.2	1700	1700	
Upper Chesnimus Creek	Chesnimus Creek	1	14,460	23	74.1	54.2	2.5	3.3	2.4		14460	
Upper Cottonwood Creek	Lower Joseph Creek	1	73	0	1.8	1.8	2.5	16.1	16	73	73	
Upper Courtney Creek	Mud Creek-Grande Ronde River	1	366	1	0.9	0.9	2.5	1.5	1.5	366	366	
		3	1,200	2	0.2	0.2	1.5	0.1	0.1	1200	1200	
Upper Dry Creek	Lower Wallowa River	1	266	0	3.4	1.0	2.5	8.3	2.4	266	266	
Upper Eagle Creek	Eagle Creek	1	915	1	0.0	0.0	2.5	0.0	0	915	915	
		3A	1,332	2	0.0	0.0	1.5	0.0	0	1332	1332	
Upper East Birch Creek	Birch Creek	1	188	0	0.7	0.1	2.5	2.3	0.4	188	188	
Upper Five Points Creek	Five Points Creek-Grande Ronde Riv	1	1,743	3	3.4	0.5	2.5	1.2	0.2	1743	1743	

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		3	345	1	0.4	0.2	1.5	0.7	0.4	345	345	
		3A	10,938	17	16.1	10.1	1.5	0.9	0.6	10938	10938	
Upper Fly Creek	Upper Grande Ronde River	1	8,257	13	31.4	27.7	2.5	2.4	2.1	8257	8257	
		3	2,050	3	9.5	8.2	1.5	3.0	2.5		2050	
Upper Granite Creek	Granite Creek	18	6,740	11	27.5	17.5	1.5	2.6	1.7			6740
Upper Grouse Creek	Middle Imnaha River	1	13,820	22	33.3	24.1	2.5	1.5	1.1	13820	13820	
		3	90	0	0.0	0.0	1.5	0.0	0	90	90	
Upper Indian Creek	Indian Creek-Grande Ronde River	1	8,124	13	30.1	10.4	2.5	2.4	0.8	8124	8124	
		1W	1,228	2	11.9	3.4	1.5	6.2	1.8			1228
		3	1,050	2	7.4	0.4	1.5	4.5	0.3		1050	
Upper Ladd Creek	Ladd Creek	1	2,355	4	11.9	10.8	2.5	3.2	2.9			2355
Upper Little Sheep Creek	Lower Big Sheep Creek	1	5,618	9	25.3	25.3	2.5	2.9	2.9			5618
Upper McCoy Creek	Meadow Creek	1	10,054	16	30.5	15.3	2.5	1.9	1	10054	10054	
		3	1,285	2	4.5	4.4	1.5	2.2	2.2			
Upper Meadow Creek	Meadow Creek	1	16,029	25	42.8	26.2	2.5	1.7	1	16029	16029	
Upper Mud Creek	Mud Creek-Grande Ronde River	1	9,168	14	39.8	31.5	2.5	2.8	2.2			
		3	448	1	0.0	0.0	1.5	0.0	0	448	448	
Upper North Fork Burnt River	North Fork Burnt River	1	9,380	15	51.4	23.6	2.5	3.5	1.6		9380	
		3	888	1	4.0	3.5	1.5	2.9	2.5			888
		3A	5,816	9	18.7	12.8	1.5	2.1	1.4		5816	
Upper North Pine Creek	Pine Creek	3A	16	0	0.0	0.0	1.5	0.8	0	16	16	
Upper North Powder River	North Powder River	1	1,358	2	0.0	0.0	2.5	0.0	0	1358	1358	
		3A	144	0	0.0	0.0	1.5	0.0	0	144	144	
Upper Pine Creek	Pine Creek	1	5,512	9	12.4	10.3	2.5	1.4	1.2	5512	5512	
		3	161	0	0.1	0.1	1.5	0.4	0.4	161	161	
		3A	678	1	0.0	0.0	1.5	0.0	0	678	678	
Upper Prairie Creek	Upper Wallowa River	1	390	1	0.0	0.0	2.5	0.0	0	390	390	
Upper Salmon Creek	Rock Creek-Powder River	3	1,114	2	5.4	5.3	1.5	3.1	3			1114
		3A	5,055	8	8.3	6.1	1.5	1.1	0.8	5055	5055	
Upper South Fork Burnt River	South Fork Burnt River	1	17,548	27	56.5	44.0	2.5	2.1	1.6	17548	17548	
Upper Willow Creek	Willow Creek	3	628	1	0.0	0.0	1.5	0.0	0	628	628	
		3A	311	0	0.4	0.4	1.5	0.8	0.8	311	311	
Upper Wolf Creek	Wolf Creek-Powder River	1	14,295	22	42.6	42.6	2.5	1.9	1.9	14295	14295	
		3	103	0	0.0	0.0	1.5	0.1	0.1	103	103	
		3A	26	0	0.7	0.7	1.5	18.3	18.3	26	26	
Wallupa Creek	Mud Creek-Grande Ronde River	3	76	0	0.0	0.0	1.5	0.0	0	76	76	
Warm Springs Creek-Grande Ronde	Upper Grande Ronde River	1	971	2	1.5	1.3	2.5	1.0	0.9	971	971	
		1W	1,740	3	4.1	4.1	1.5	1.5	1.5	1740	1740	
		3	14,347	22	30.8	28.1	1.5	1.4	1.3	14347	14347	
		3A	58	0	0.0	0.0	1.5	0.0	0	58	58	
Water Canyon-Wallowa River	Lower Wallowa River	1W	31	0	0.0	0.0	1.5	0.0	0	31	31	
West Eagle Creek	Eagle Creek	1	4,416	7	16.0	9.6	2.5	2.3	1.4	4416	4416	
West Fork Burnt River	North Fork Burnt River	1	5,711	9	15.6	13.6	2.5	1.7	1.5	5711	5711	
		3	2,922	5	7.0	6.5	1.5	1.5	1.4	2922	2922	
Whiskey Creek	Beaver Creek-Grande Ronde River	1W	555	1	0.0	0.1	1.5	0.0	0.1	555	555	
		3	2,113	3	3.6	3.6	1.5	1.1	1.1	2113	2113	
Wildcat Creek	Mud Creek-Grande Ronde River	1	8,249	13	46.7	26.5	2.5	3.6	2.1		8249	

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SUBWATERSHED NAME	WATERSHED NAME	MAS CODE	GIS Acres	Sq Miles (GIS Acres/640)	Existing Open Rd Miles in SUB/MAS	PostSRS Open Rd Miles SUB/MAS	Fplan ORDs	EC Fplan ORD Miles/Sq Miles	PostSRS FP ORDs Mi/SqMi	Meet Existing FP ORD Acres	Meet PostSRS FP ORD	Reduced FP ORDs but not meet
		3	3,149	5	0.2	0.2	1.5	0.0	0	3149	3149	
Willow Creek	Rock Creek-Powder River	3A	540	1	0.0	0.0	1.5	0.0	0	540	540	
Wright Slough-Grande Ronde River	Five Points Creek-Grande Ronde Rive	3	323	1	0.2	0.0	1.5	0.5	0	323	323	
		3A	343	1	2.0	1.8	1.5	3.7	3.3			343
			1,200,783							791,936	1,044,072	117,758
										66%	87%	10%

* Areas on the WAW NF without an MAS Classification are not represented

** Areas < 10 Acres are removed

Areas <1 square mile in size

Areas meeting Fplan ORD S&Gs

Areas above Fplan ORD S&Gs



Appendix C – Financial Analysis

Introduction

As mentioned in part 5. Opportunities of this TAR, part of the 2005 Travel Management Rule, at 36 CFR 212.5(b)(1), requires each national forest to identify the minimum road system that is needed to:

1. Meet resource and other management objectives adopted in the relevant land and resource management plan;
2. Meet applicable statutory and regulatory requirements;
3. *Reflect long-term funding expectations;*
4. Ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

The purpose of the Financial Analysis section of this report is to address bullet number 3 above, and identify opportunities for how the road system could be managed in the future to better reflect long-term funding expectations. This information will be used by the Responsible Official, along with other information regarding the risks and benefits of the road system, to strike the best balance between the four items above. The official decision and “identification” of what will constitute that future road system will be made following subsequent NEPA analyses at various scales.

Background

Forest Service road budgets have been steadily declining for the past 20 plus years. Region-wide, the amount of funding for road work including both appropriated funding and work contributed by commercial users is less than 20 percent of what it was 20 years ago. Appropriated road funds to the Pacific Northwest Region (Region 6) have been reduced 40% in the past 5 years alone. Current levels of funding for road work on the Wallowa -Whitman NF are shown in table 9 below.

Table 9. 5 year average road funding

BLI	Forest Operational Budget (X 1000)					5 Year Average	% to Rd Mtc	Average Mtc Budget
	2008	2009	2010	2011	2012			
CMRD	\$1,195	\$1,283	\$1,069	\$934	\$620	\$1,020	40%	\$408
CMLG	\$93	\$476	\$59	\$375	\$331	\$267	6%	\$16
CWF2	\$160	\$115	\$170	\$124	\$122	\$138	100%	\$138
Other FS	\$155	\$133	\$104	\$75	\$127	\$119	100%	\$119
Purchaser Mtc	\$198	\$80	\$347	\$212	\$141	\$196	100%	\$196
							Total:	\$876
5YR Ave Mtc Budget	Range							
	-20%	+20%						
\$876	\$701	\$1,052						

With funds being far below what is necessary to keep the road system properly maintained, many roads do not get the maintenance treatments they need on schedule and are falling into a severe state of disrepair.

Deferred Maintenance is defined as “maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period. When allowed to accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decrease in asset value”, (Financial Health - Common Definitions for Maintenance and Construction Terms, July 22, 1998).

Annual Maintenance is defined as “work performed to maintain serviceability, or repair failures during the year in which they occur. Includes preventive and/or cyclic maintenance performed in the year in which it is scheduled to occur”, (Financial Health - Common Definitions for Maintenance and Construction Terms, July 22, 1998).

Since 1999, the Forest Service has been tracking the amount of the deferred maintenance backlog. Table 10 shows what the accumulated totals are for deferred maintenance (DM) and the annual maintenance (AM) needs that would be required to keep the road system fully maintained to standard.

Table 10. R6 Annual and Deferred Maintenance Needs

National Forest	Road Miles	Total Maintenance Need	
		DM	AM
Deschutes	8,109	\$80,566,681	\$7,526,877
Fremont-Winema	12,548	\$133,971,908	\$13,642,507
Gifford Pinchot	4,103	\$53,330,891	\$5,312,486
Malheur	9,628	\$56,025,932	\$6,153,833
Mt. Baker-Snoqualmie	2,453	\$81,915,920	\$9,660,568
Mount Hood	2,881	\$51,813,990	\$4,896,610
Ochoco	3,253	\$33,260,537	\$3,313,734
Olympic	2,026	\$42,680,614	\$4,467,995
Rogue River-Siskiyou	5,288	\$111,614,953	\$11,581,995
Siuslaw	2,128	\$26,115,387	\$2,777,636
Umatilla	4,624	\$65,211,612	\$6,647,168
Umpqua	4,776	\$73,669,140	\$7,148,103
Wallowa-Whitman	9,119	\$64,279,905	\$6,808,709
Okanogan-Wenatchee	8,163	\$158,111,026	\$17,050,400
Willamette	6,542	\$90,942,456	\$8,838,067
Colville	4,309	\$37,336,065	\$4,306,765
Columbia River Gorge	99	\$1,454,584	\$121,557
	90,047	\$1,162,301,600	\$120,255,010

This chart shows that it would take approximately \$1.2 billion dollars to bring the entire road system in Region 6 back up to standard (all roads in a like new condition), and then it would take approximately \$120 million dollars per year to keep all roads perfectly maintained to standard. For the Wallowa-Whitman NF, it would take approximately \$64 million to bring their entire road system back up to standard, and about \$6.8 million per year to keep it that way. Please note that the unit costs used to arrive at the figures above are made up of national averages to restore and maintain the road system in a like

new condition. They also include the cyclical items necessary to replace gravel surfacing, pavement overlays, bridges/structures, and major culverts on schedule.

Using Regional unit costs, without the national burden rate, the current estimate for annual maintenance needs to keep the existing Wallowa-Whitman NF road system fully maintained to standard would be about \$3.9 million dollars per year. Table 10 shows that, on average, the Wallowa-Whitman only receives about \$876 thousand dollars per year, (including maintenance performed by commercial users), that can be applied toward road maintenance work. This is only about 22% of the funding necessary to address the estimated annual maintenance needs to fully maintain the road system.

Financial Analysis Process

The goal of the financial analysis step in the overall Travel Analysis Process is to identify opportunities to help move the road system to a more affordable state.

Based on the figures in the previous section, if the Wallowa-Whitman National Forest were to focus their currently available funds on a given set of roads to fully maintain to standard, they would only be able to maintain approximately 110 miles of roads if they were paved (at ML5), or about 180 miles of roads if they were gravel surfaced (at ML3), or about 400 miles of roads if they were only native surfaced (at ML3). That size of road system would not meet the needs of the forest or the public, and does not meet the requirements of the first two bullets in the opening paragraph of this section regarding the requirements of a minimum road system as it would not allow the forest to meet resource management objectives in the Forest Plan and would not allow the forest to meet statutory and regulatory requirements.

Given the enormous gap between available funding for road work and the cost to maintain the road system fully to standard, the Region recognized that it would not be possible to balance the size of the road system with the cost of maintaining all roads fully to standard and still be able to meet resource management needs or the needs of the public. Since the requirement to “reflect long-term funding expectations” was not defined in regulation or policy, Region 6 defined it in the *R6 Guidance for Preparing a Travel Analysis Report* document to mean that “average annual funding” is reasonably in balance with the “average annual cost of routine road maintenance”, where:

Average annual funding is defined as the average amount of funding available for each NFS unit for routine annual maintenance from appropriations, collection accounts, commercial users, cooperators, and other partners during the 2008-2012 timeframe, plus or minus 20%. It does not include funding from the American Recovery and Reinvestment Act (ARRA) or the Capital Improvement Program (CIP). Only the modest amounts specified for “routine maintenance” in Legacy Roads and Trails funding allocations are included.

Average annual cost of routine road maintenance is defined as the average yearly need for basic road maintenance. This includes log out, drainage maintenance, erosion control, blading, brushing, traffic signs, etc. It does not include cyclical replacement costs (such as bridge replacement every 50 years, asphalt overlays, etc.), which are covered by funding beyond the individual NFS unit budgets (e.g., Regional Capital Investment Program).

The Wallowa-Whitman National Forest utilized the *Region 6 Financial Analysis Template*, which is based on the definitions above, to perform the financial analysis. This template is an excel spreadsheet workbook that allows users to input budget information and calculate unit costs for a variety of road maintenance work activities for different maintenance intensities on different standards of road. This allows the user to compare the cost of maintaining the current system of roads with a variety of scenarios for different potential future road systems. The user is able to alter the overall size of the road system, the

composition of different maintenance standards, and the intensity or frequency of maintenance work on different types of roads.

Financial Analysis Steps:

1. Estimate 5 year average funding available for road maintenance work
2. Identify local Unit Rates used for routine annual road maintenance work
3. Use work item unit rates to build unit rates for different road standards and maintenance intensities
4. Calculate cost to maintain current road system at current maintenance intensity
5. Develop different scenarios for future road systems that show what size and composition of road networks can be maintained within range of average annual funds.

Results

Many combinations of road networks are possible that fall within the range of expected future road maintenance funds. The purpose of the following discussion is to show a range of these possible scenarios and discuss changes to the road system that would be necessary to achieve them.

Scenario 1: (Outcome of TAR Results)

The goal of the first scenario would be to illustrate what the effects would be on road maintenance costs if the results of this TAR were implemented on the forest. The purpose of doing this is to provide the best road conditions for forest visitors who travel in low-clearance passenger cars to visit developed recreation sites. Under this scenario, the road system would be adjusted to move toward objective maintenance levels which would increase the miles of maintenance level 3-5 roads. Since maintenance level 3-5 roads are more expensive to maintain, a consequence of doing this is that fewer roads would be able to be maintained for high clearance vehicle use, thus some of those would be left unmaintained and eventually would grow closed. The results of this scenario are summarized in Tables 11-12 and Figure 5 below.

Table 11. Comparison of existing and proposed annual maintenance needs

OPML	Current			Proposed		
	Miles	% of sys	Cost	Miles	% of sys	Cost
5	120	1%	\$560,080	120	2%	\$332,906
4	1	0%	\$918	1	0%	\$988
3	262	3%	\$205,987	505	6%	\$368,903
2	4,250	47%	\$578,582	3,061	39%	\$206,005
1	4,487	49%	\$6,581	4,167	53%	\$6,112
	9,119	100%	\$1,352,149	7,854	100%	\$914,914

Figure 5: Existing vs Proposed distribution of maintenance levels

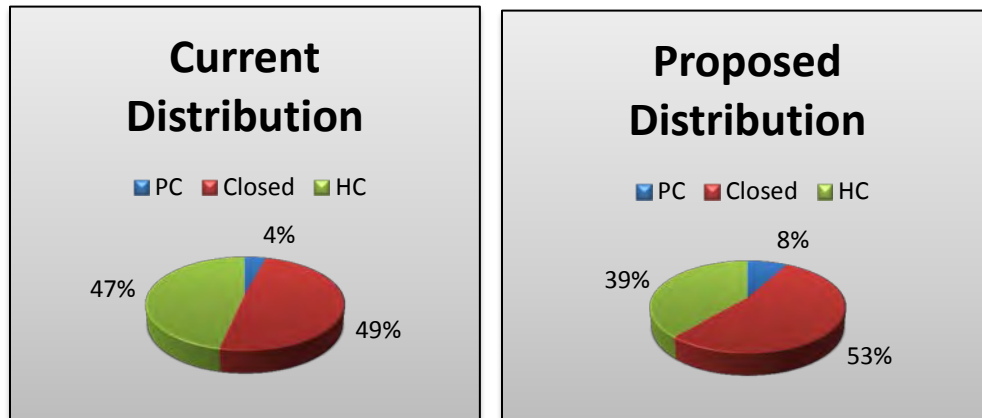


Table 12. Potential changes to road system based on Financial Analysis Scenario 1

Category	Road Miles		
	Before	After	Diff
Overall size of transportation system (open and closed roads)	9119	7854	-1265
Overall Open Road System (ML 2-5)	4633	3687	-946
Roads Maintained for Passenger Cars (ML 3-5)	383	626	243
Roads Maintained for High Clearance Vehicles only (ML2)	4250	3061	-1194
Closed Intermittent Service Project Roads (ML1)	4487	4167	-320

In this scenario, the amount of roads maintained for passenger car traffic would increase by 243 miles and the amount of roads maintained for high clearance vehicles would be reduced by 1,194 miles. There would be 946 miles less open roads available for public and administrative uses. The overall road system, (open and closed) would be 1,265 miles smaller than existing. These are the roads that were identified in the Travel Analysis Report as being “not likely needed for future use”, (i.e., these are the roads that will be evaluated in future NEPA analyses to determine if they should remain on the transportation system or if they should be decommissioned or converted to other uses). This scenario would result in a cost savings of approximately \$440 thousand dollars per year over existing.

Scenario 2: (Current Level of Passenger Car Roads)

The goal of this scenario would be to maintain the existing level of roads maintained for passenger car use on the forest. The purpose of doing this is to provide similar road conditions for forest visitors who travel in low-clearance passenger cars to visit developed recreation sites as currently exists. To achieve this, the operational maintenance level 3-5 roads would continue to be maintained similarly to current conditions, but fewer roads would be able to be maintained for high clearance vehicle use in order to reduce costs. Thus some high clearance roads would be left un-maintained and eventually closed. The results of this scenario are summarized in Tables 13-14 and Figure 6 below.

Table 13. Comparison of existing and proposed annual maintenance needs – Scenario 2

OPML	Current			Proposed		
	Miles	% of sys	Cost	Miles	% of sys	Cost
5	120	1%	\$560,080	120	2%	\$374,770
4	1	0%	\$918	1	0%	\$988
3	262	3%	\$205,987	262	3%	\$183,164
2	4,250	47%	\$578,582	3,286	42%	\$312,133
1	4,487	49%	\$6,581	4,185	53%	\$6,117
	9,119	100%	\$1,352,149	7,854	100%	\$883,389

Figure 6: Existing vs Proposed distribution of maintenance levels

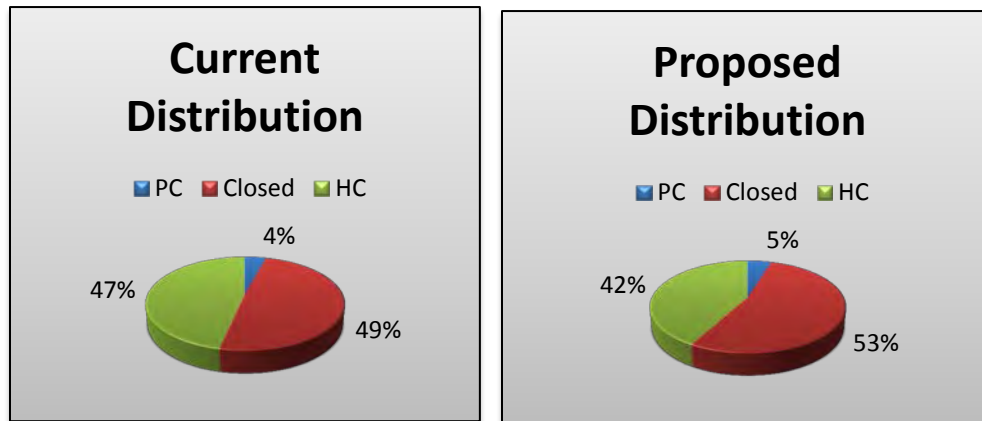


Table 14. Potential changes to road system based on Financial Analysis Scenario 2

Category	Road Miles		
	Before	After	Diff
Overall size of transportation system (open and closed roads)	9119	7854	-1265
Overall Open Road System (ML 2-5)	4633	3669	-964
Roads Maintained for Passenger Cars (ML 3-5)	383	383	0
Roads Maintained for High Clearance Vehicles only (ML2)	4250	3286	-964
Closed Intermittent Service Project Roads (ML1)	4487	4185	-702

In this scenario, the amount of roads maintained for passenger car traffic would remain the same and the amount of roads maintained for high clearance vehicles would be reduced by 964 miles. There would be 702 miles less open roads available for public and administrative uses. The overall road system, (open and closed) would be 1,265 miles smaller than existing. This scenario would result in a cost savings of approximately \$470 thousand dollars per year over existing.

Scenario 3: (Current Level of Open Roads / Paved Passenger Car Roads Revert to Gravel)

The goal of this scenario would be to keep the existing level roads maintained as open for both passenger car and high clearance vehicle use on the forest. The purpose of doing this would be to provide the ability for all forest visitors to continue to access the same roads as they are currently able to over the long-term. However, to achieve this, all roads would need to be maintained at a much lower standard than visitors are currently accustomed to. For example, all paved roads on the forest would need to revert to gravel

surfaces over the long-term. Other maintenance level 2 and 3 roads would receive less frequent maintenance and would become even rougher and harder to drive on than they currently are. The results of this scenario are summarized in Tables 15-16 and Figure 7 below.

Table 15. Comparison of existing and proposed annual maintenance needs Scenario 3

OPML	Current			Proposed		
	Miles	% of sys	Cost	Miles	% of sys	Cost
5	120	1%	\$560,080	0	0%	\$0
4	1	0%	\$918	121	2%	\$119,568
3	262	3%	\$205,987	262	3%	\$188,192
2	4,250	47%	\$578,582	4,250	54%	\$401,138
1	4,487	49%	\$6,581	3,221	41%	\$4,724
	9,119	100%	\$1,352,149	7,854	100%	\$713,623

Figure 7: Existing vs Proposed distribution of maintenance levels

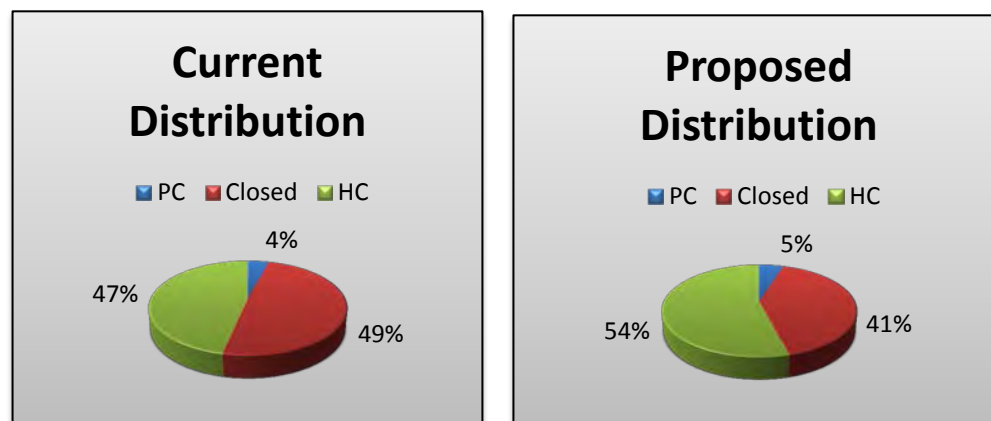


Table 16. Potential changes to road system based on Financial Analysis Scenario 3

Category	Road Miles		
	Before	After	Diff
Overall size of transportation system (open and closed roads)	9119	7854	-1265
Overall Open Road System (ML 2-5)	4633	4633	0
Roads Maintained for Passenger Cars (ML 3-5)	383	383	0
Roads Maintained for High Clearance Vehicles only (ML2)	4250	4250	0
Closed Intermittent Service Project Roads (ML1)	4487	3221	-1266

In this scenario, the amount of roads maintained for passenger car traffic and high clearance traffic would remain the same and the overall open road system would not change. However, in order to do this under future budget projections, the standard of the passenger car roads would need to be reduced significantly. In this scenario the 120 miles of ML5 roads which are currently paved, would revert to double lane gravel roads in over the long-term. The overall road system, (open and closed) would still be 1,265 miles smaller than existing as in previous scenarios. This option would result in a cost savings of approximately \$640 thousand dollars per year over existing.

The results of these scenarios show three examples of future road systems that reflect long-term funding expectations according to Region 6 guidelines. Many other scenarios are possible by adjusting road mileages across maintenance levels and adjusting maintenance intensities within maintenance levels.

These scenarios show that by using the Wallowa-Whitman National Forest's current road maintenance costs for routine annual maintenance items, the current cost of keeping up the existing road system would be about \$1.3 million dollars per year. By making some adjustments to the current road system in terms of reducing the total miles of roads on the system (decommissioning), closing some roads that are currently open, and changing the maintenance intensities on other roads, the overall costs can be reduced to somewhere between \$700 and \$900 thousand dollars per year. These amounts are within the 20% range of the 5 year average annual amount available as shown in Table 9.

Capital Investments

The section above only considers road maintenance needs and costs, but there are also costs associated with any proposed road decommissioning, road closures, and road improvements necessary to address risks and environmental concerns that are identified in the TAP report. These costs are not included in the balancing of road maintenance funds because funding for these activities is not appropriated along with the normal road maintenance funds used in the calculations. Funding for this type of work generally comes through other programs such as capital investment programs, Legacy Roads and Trails funding, Federal Highway programs, partnerships with outside groups and agencies, etc. But the scale of the need for these types of funds certainly needs addressed here. The estimated costs from the example above are:

Table 17. Estimated capital costs of improvement and decommissioning work

Category	Miles	Cost / Mile	Total Cost
Estimated Cost to put roads in storage	825	9,000	\$ 7,425,000
Estimated Cost to decommission roads	1,241	11,000	\$13,651,000
Estimated Cost for improvement work	1,145	25,200	\$28,854,000
Total			\$49,930,000

In the example(s) above, the cost to prepare the 825 miles of road for storage as ML 1 roads is estimated to be close to \$7.5 million dollars. The cost to decommission 1,241 miles of road would be about \$14 million and the cost perform a variety of road improvement work to mitigate concerns identified in the risk analysis of the TAP report would cost somewhere in the neighborhood of \$25 to \$30 million.

Conclusions

The results of the Financial Analysis show that the opportunities identified from the risk/benefit section of the Wallowa-Whitman NF Travel Analysis Report are in line with the R6 guidelines for identifying a future system of roads where "average annual funding" is reasonably in balance with the "average annual cost of routine road maintenance".

This balance addresses routine annual maintenance work needed to keep roads open and safe for use, and addresses critical resource concerns such as maintaining ditches and culverts for proper drainage. This work is accomplished by both the Forest Service, using appropriated road funds, and through commercial users who are required to maintain roads commensurate with their project uses.

Given the current trend in reduced funding for road maintenance work, and the enormous gap between current funding and need, it does not appear possible to identify a future road system where the entire cost

of annual maintenance work necessary to fully maintain the roads to standard would be in balance with available funding, (i.e., to include annual maintenance items and cyclic capital costs for replacement of gravel surfacing, pavements, structures, bridges, etc.). In the Pacific Northwest Region, the size of road system to meet that requirement would be less than 200 miles per National Forest and would not allow forests to meet resource management objectives in their Forest Plans or to meet statutory and regulatory requirements. Because we will not have enough funding available to keep all road surfacing materials and structures replaced on schedule, we can expect the deferred maintenance backlog to continue to grow, and we will continue to see a decline in the overall serviceability of our road system.

However, even though we can't alter the road system so much as to be fully affordable and sustainable within today's budget levels, we can certainly take steps to move it in a better direction. By utilizing the opportunities identified from the Wallowa-Whitman Travel Analysis Process, we can certainly move the Wallowa-Whitman NF road system to a much more affordable and sustainable state.

Recommendations

By utilizing the priorities identified in part 4 of this TAR, the forest can focus limited road maintenance resources, and any potential capital funds, to the most important roads necessary for management and enjoyment of the National Forest, and to the roads with the highest need for mitigation work associated with environmental risks. To do so, the Forest should consider the following:

- Focus available maintenance funding and resources on the highest priority roads identified in TAP report, (address issues related to user safety first, then on repair/prevention of resource issues)
- Focus any available capital funds toward improvement work on high use roads with high environmental risks identified in the TAP report
- Prioritize funding for roads to be closed or decommissioned based on those with the highest environmental risks identified in the TAP report
- Ensure that commercial users perform, or deposit funds, for road maintenance work commensurate with their use
- Seek additional funding for road maintenance through regular appropriations
- Seek new and additional funding sources for road maintenance and improvements through any available funding programs such as Capital Investment Programs, Legacy Roads and Trails, Forest Highway Programs, etc.
- Seek partnership opportunities to help leverage funds with outside sources
- Seek opportunities to transfer jurisdiction of FS roads to other agencies
- Continue to look for ways to reduce maintenance costs, and overhead costs related to Forest Service road programs, so as to direct more funds directly to road maintenance and improvement work

Figure 8 – Wildlife Areas of Concern



Table 18 – Wildlife Areas of Concern - These seventeen areas represent chronic elk damage on adjacent private lands, critical summer or winter range areas, and where user conflicts occur due to poor distribution of elk.

No.	Site Name – ODFW Dist.	Area (acres)	Remarks
1	Thomason Meadows – Wallowa District	31,255 acres (49 mi ²)	The area surrounding Thomason meadows contains a very high road density. Limiting public vehicle activity on these roads would greatly enhance elk use in the area by providing more security habitat. Currently public activity pushes elk, as many as 2000 in 2008, to private lands which lie to the south of Thomason meadows. When elk move to private lands the animals are no longer available to the public hunter. Regulation motor vehicle activity would improve quality of elk hunting on forest lands.
2	Horse Pasture - Wallowa District	17,775 acres (28 mi ²)	Horse Pasture/Allen Springs/Table Mountain: The forest contains good elk habitat in these ridge top areas. Roads that provide access out these ridges allow increased public activity, which move elk away from this habitat and on to Nez Perce and private lands to the north. Restricting vehicle activity in these areas would provide better elk security areas and improve quality of public hunting.
3	Davis/Swamp - Wallowa District	21,937 acres (34 mi ²)	These two drainages can provide good elk habitat and elk security areas if motorized vehicle activity is prevented. The area has been proposed for ATV use to include the Chico trail, Swamp and Davis Creeks which would result in reduced elk use in these drainages. Regulating motor vehicle use in these drainages would protect wildlife habitat, provide elk security areas, and improve public hunting opportunities.
4	Shadow Canyon - Wallowa District	8,797 acres (14 mi ²)	Road systems adjacent to Shadow Canyon are at very high densities. As a result, public activity pushes elk to dryer, less desirable canyon habitat, and often to private lands in lower Grouse Creek. This road system would benefit by being reduced to a density of 2.5 miles/sq. mile. Reducing motorized activity in the area would greatly improve elk security habitat and quality of hunting the area.
5	Salt Creek Summit - Wallowa District	21,210 acres (33 mi ²)	Habitat in this area is very open due to past wildfires and logging. High road density increases public activity particularly during the late summer and fall hunting seasons. Reducing road densities to 2.5 miles/sq. mile would improve hunting quality in the area by increasing the amount of security areas for big game. Elk would remain in the area longer utilizing the area as transition range when moving from summer to winter ranges. Currently motorized activity prevents this from happening.
6	Bear Creek - Wallowa District	9,661 acres (15 mi ²)	Roads in the area traverse steep timber dominated lands. Elk would utilize the timbered habitat during fall months, but are pushed out by vehicle activity during hunting seasons. Recommend closing side roads to vehicles during fall months to protect wildlife habitat and improve security areas for elk. Quality of public hunting would be improved.

No.	Site Name – ODFW Dist.	Area (acres)	Remarks
7	Catherine Creek - Union District	35,800 acres (56 mi ²)	Security habitat in South Fork Catherine Creek, Bottle and Camp Creek areas is compromised by OHV access. These are highly important summer range areas for elk. Elk distribution and meeting MOs in the Catherine Creek WMU remains a concern. Providing security habitat in these areas would improve elk distribution, improve quality of hunting, and help alleviate elk damage on private lands adjacent to the Forest. Close last 2-3 miles of 900 Road and provide security area in Bottle and Camp Creek drainages. This would complement the security areas to the south provided by the Bald Angel project to reduce fragmentation and encourage elk use in Buck Creek and the South Fork of Catherine Creek. This area has some excellent elk habitat and eliminating vehicle activity on the last couple of miles would greatly enhance elk use of summer range public land. It would also assist in eliminating through traffic on user made roads between the 900 and 7700 roads.
8	Bennett Peak - Baker District	11,019 acres (17 mi ²)	This area includes mid and high elevation areas adjacent to the Eagle Cap Wilderness. The area would provide excellent elk habitat but road densities are so high in many areas that elk do not have any security areas. While this area is adjacent to the wilderness, the adjacent wilderness is mostly too rocky and high in elevation to provide good elk habitat. In some areas ATVs are traveling cross-country or on trails to illegally access the wilderness.
9	Conundrum - Baker District	7,124 acres (11 mi ²)	This area includes mid and high elevation areas adjacent to the Eagle Cap Wilderness. The area would provide excellent elk habitat but road densities are so high in many areas that elk do not have any security areas. While this area is adjacent to the wilderness, the adjacent wilderness is mostly too rocky and high in elevation to provide good elk habitat. In some areas ATVs are traveling cross-country or on trails to illegally access the wilderness.
10	Five-Points Creek - Union District	29,676 acres (46 mi ²)	Upper basins that comprise the headwaters of Five-Points Creek are very important elk summer range and important to address elk damage in the vicinity of Mt. Glen. Providing high quality security habitat in this area will be critical with the displacement that is likely to occur from the Mount Emily Recreation Area. ODFW's position on Mt. Emily Recreation Area was based in part on the 5 Points drainage remaining roadless. Gate that accesses 3 Cabin Ridge should be closed year round to all motorized access as previously agreed to when that new road was constructed. This is a critical winter/transitional range for elk, and addresses elk damage on adjacent private lands.
11	Dark Canyon - Union District	6,924 acres (11 mi ²)	Chronic elk damage on adjacent private land and elk localizing on private land in lower Meadow Creek and lower McIntyre Creek (Baseline road) area. Elk are localizing on private land spring, summer and fall and do not utilize higher elevation public land. Reducing roads between McIntyre and Dark Canyon would allow

No.	Site Name – ODFW Dist.	Area (acres)	Remarks
			animals to better utilize public land in that area. This would be very similar to the Dry Beaver/Ladd Canyon project, but smaller in size. The Starkey Experimental enclosure has also limited elk's use of this portion of the Starkey WMU.
12	Meadow Creek – Union District	22,308 acres (35 mi ²)	Highly important summer range for elk. Recommend providing security habitat at least to the levels agreed to in the McMeadow EA. With the continuation of the Starkey Experimental enclosure, this area is important for elk outside of the fence. Alternatives 2, 5, and 6 provide a level of motor vehicle use that maintains some security habitat value in this area.
13	McCarty - Union District	16,274 acres (25 mi ²)	Highly important winter and spring transition range. Open forest and lack of hiding cover make access management critical in this area. Retain closure at least during winter period to avoid disturbance and re-distribution of elk off of public lands. ODFW recommends maintaining the Spring Creek Winter Range closure for the same reasons that make McCarty so important to wildlife.
14	Upper Grande Ronde - Union District	36,703 acres (57 mi ²)	Clear Creek, Tanner Gulch, Upper Grande Ronde River, Indiana Creek, and Meadowbrook Creek drainages represent critical summer range where additional security habitat would improve elk distribution and hunting/viewing opportunities. Highly important summer range habitat. Security habitat essential for retaining elk during the appropriate times of the year.
15	Elkhorn East Slope - Baker District	49,305 acres (77 mi ²)	Landowners north and east of the national forest boundary in this area receive damage from elk to irrigated crops from May – September. This area receives more elk damage than any other area in Baker County. Typically, 5 herds of elk (400+ elk) bed on private forest and move down into the fields at night. Reduction in road density will create larger security areas and encourage elk to stay on the national forest where they are not causing a problem and available for public hunting and viewing. High and mid-elevation portions of this area provide excellent elk habitat. The amount of elk security areas could be greatly increased by eliminating the use of motorized vehicles on hiking/horse trails (motorized use is primarily dirt bikes and "fat cats"). Specific trails are listed below: a) Elkhorn Crest Trail – trail travels along the high elevation, meadows used heavily by elk in the summer; motorized use primarily dirt bikes b) North Powder to Bourne – trail travels several miles from the North Powder River Road up and over the Elkhorn crest. The trail travels through some of the best elk habitat in the Elkhorn Mountains. ATVs have been traveling off of this trail and traveling through high elevation wet meadows to access Meadow and Lost Lake. c) Killamacue Lake Trail – trail travels approximately 3 miles to Killamacue Lake and received regular motorized use from dirt bikes. The trail travels through and around some incredible elk habitat. Above the trail is the Red Mountain burn which provided excellent elk habitat. USFS staff has worked with ODFW in the past to eliminate user created trails on Red Mountain. The trail has been obliterated and then illegally opened twice. Currently the private landowner below Red

No.	Site Name – ODFW Dist.	Area (acres)	Remarks
			Mountain has created a new trail and uses it to drive ATVs up Red Mountain. d) Pine Creek Trail – a road travels up Pine Creek to Pine Creek Reservoir. The road is used frequently by campers and hunters. The road turns into a rough trail after the reservoir and climbs through open sub-alpine habitat nearly to the crest of the Elkhorn Mountains. ATVs have also been “mud bogging” in the wet meadows at the west end of the reservoir. Motorized travel should only be allowed on the road to the reservoir to reduce resource damage and provide better security areas for elk. e) Trail 1632 should be closed to motorized use at the Summit Lake trailhead. This area is very important elk habitat. Once ATVs get into the higher portions of this area they access Meadow Lake, Lost Lake and many other important wet meadow areas that hold elk from spring through fall. Opportunity for malicious damage to wet areas increases with access to these areas.
16	Auburn - Baker District	10,348 acres (16 mi ²)	The private landowner south of this area has a resident herd of up to 400 elk from April to November. The landowner does not mind the elk but the public gets very angry that all of those elk are not available to public hunters. The ranch abuts USFS land which is heavily roaded. During hunting seasons, hunters “patrol” the national forest property boundaries hoping to see an elk cross onto national forest. This increased traffic surrounding the property just makes the problem worse. Decreased road density surround the ranch would provide a greater incentive for these elk to move up into the Elkhorn Mountains in the early summer.
17	Huckleberry – Baker District	7,112 acres (11 mi ²)	USFS land in the Huckleberry Mountain area has the potential to provide good elk habitat but road densities in the area limit the amount of elk security cover. The private land to the northeast of the national forest experience elk damage from 150+ elk to irrigated meadows from April through November each year. The landowners have an active elk hazing program and allow public hunting during the fall. Despite these efforts, the herd of 150+ elk hardly ever leave the private ground. Creation of elk security areas on the adjacent national forest will help keep elk on the national forest and out of this landowners irrigated lands.

Appendix E – Forest Plan Compliance

Forest Plan Compliance

WWNF Forest Plan transportation goals, objectives, standards and guidelines are identified below in *italics*. The degree to which the sustainable road system opportunities meet each of these items from the Forest Plan are discussed below them.

Transportation Goal – *To plan, design, operate and maintain a safe and economical transportation system providing efficient access for the movement of people and materials involved in the use and protection of the National Forest System lands. (Page 4-3)*

Forest Plan Compliance for Transportation Goal - The sustainable road system opportunities identified in this TAR provide for a transportation system that would meet the intent of the Forest Plan Transportation goal by providing adequate access for recreation, forest and rangeland management, and wildfire suppression activities. Reconstruction work being proposed to bring roads up to standards would improve the safety of the roads and reduce resource impacts. With roads brought up to standard, future maintenance would be reduced and easier to achieve; however, funding for the reconstruction work would be needed to meet objective maintenance levels.

Transportation Objectives – *The development, maintenance, and management of the Forest developed road system is to be continued as needed to respond to resource management objectives. Many road-related activities will occur in support of the timber management program, with additional activities undertaken to facilitate recreation use, Forest administration, and resource protection.*

An objective of the road system management on the WWNF is to have a mixture of all different levels of roads necessary to provide for the use and protection of the National Forest. Each on the National Forest Transportation System is guided by a written road management objective, which states the purpose and need for the road. This objective determines which level of road is appropriate. (Page 4-10 and 4-11).

Forest Plan Compliance for Transportation Objectives - The sustainable road system identified in this TAR provides a mixture of different management levels of roads and emphasizes opportunities for the protection of natural resources based on local, provincial, and regional restoration priority analyses. It also responds to short and long term vegetation and recreation management needs across the forest by considering public access to recreation areas, and access to acres for vegetation management activities in the future.

Desired Condition – *Most of the principal road system is completed. These roads will have paved or improved surfaces. A few may have State Highway designations. Most other roads are either visually inviting only to high clearance type vehicles used by the more seasoned forest traveler, or are closed or blocked to standard vehicle use. A total of 11,500 miles of road are expected to exist.*

Most traffic management is accomplished by physical barricades, rather than more restrictive measures such as promulgated closures. Promulgated closures will be used primarily to accomplish seasonal closures, or where total prohibition of traffic is essential to accomplishment of objectives. (Pg 4-15)

Forest Plan Compliance for Desired Condition - Given current National direction related to permissible activities within Inventoried Roadless Areas, the principal road system on the WWNF is essentially completed. Road surfaces generally match the maintenance level requirements with the exception of those roads identified for reconstruction in Appendix A. None of the roads have a State Highway designation and no opportunities for change to State Highway jurisdiction were identified. Currently, most traffic management is accomplished by physical barricades and promulgated closures to accomplish seasonal closure objectives; however, implementation of the Travel Management Rule will change this nationally once designated roads, trails, and areas are identified in a Motor Vehicle Use Map (MVUM).

Transportation System Standards and Guidelines -

1. **Planning and Development.** *Plan and develop the transportation system to serve long-term multiple resource needs rather than short-term individual project proposals.*
2. *Provide the minimum system necessary for the specific activities authorized under the management area direction.*
3. *Where appropriate, develop the system in stages as various resource activities occur.*

Forest Plan Compliance – These standards and guidelines (S&Gs 1-3) have been accomplished over the years resulting in the road system discussed in this TAR. The sustainable road system would meet these requirements as well to serve the long term resource needs.

4. *Design, construct, operate and maintain roads and trails of the Forest transportation system based on resource objectives and intended uses, considering safety, total cost of transportation, and impacts on the land.*
5. *All road designs and management actions will be based on specific road management objectives that document the need for and planned uses of a road. These objectives will state whether or not there is a need for the road to be open for use by the public or others between project activities.*
6. *Manage road and trail uses to protect resources, accommodate or restrict conflicting uses, provide reasonable safety, and prevent damage to the facilities Roads and trails may be made available for different user groups at different times, or otherwise restricted through the Forest Travel Management Plan Closed roads may be converted to other uses such as special purpose trails.*
7. **Protecting Water Quality.** *Protect water quality in all aspects of road and trail system management. Use practices which will avoid or minimize sediment production from new road construction and will correct existing sediment sources.*

Forest Plan Compliance – (S&Gs 4-7) The sustainable road system described in the TAR emphasized resource protection and restoration opportunities across the forest for natural and cultural resources focusing on priority watersheds and critical wildlife areas.

8. **Safety.** *Conform with Forest Service manuals and handbooks regarding adequacy and safety of the transportation system*
9. **Access Management.** *Accept or encourage access to historical dispersed recreation sites by standard vehicles when this is compatible with management area direction and overall road management objectives Some recreation traffic may be discouraged or eliminated on logging roads during timber hauling operations.*
10. *If a road is not at an adequate and safe standard for the traffic expected to use it, reconstruct the road or restrict traffic to a level for which the existing road is adequate.*
11. *Manage traffic as needed due to structural limitations of the road or limitations imposed by other resources. such as wildlife or recreation.*

Forest Plan Compliance – (S&Gs 8-11) – The reconstruction opportunities described in the sustainable road system are focused on improving the safety of the road system. SDRR recommendations would provide resource protection and enhance user safety. The mixed use study completed for the road system also provided an analysis of the risks associated with the road system for use by a variety of vehicle types and users.

12. *Trails and Helispots. Construct and maintain trails to provide a recreation experience as well as a transportation route. Provide trails to meet specific management objectives and to achieve prescribed difficulty levels.*
13. *Trails and helispots may be constructed in all management areas unless excluded or con. strained by management area direction.*
14. *Manage National Recreation Trails according to the direction in their individual management plans.*
15. *Emphasize trail retention, maintenance and improvement (and additions where there is a valid need) in Management Areas 4-11,13, 15 and 16.*
16. *Evaluate the need for trails within the other management areas and perpetuate, or move to a new location, those trails which will serve a continuing purpose and which appear likely to be used.*

Forest Plan Compliance – (S&Gs 12-16) - In general, current motorized trails are not analyzed for change in this TAP; however, they were considered during the analysis and in areas where the current system would be enhanced by the addition of roads as motorized trails to the system, 24 miles of roads were identified for potential conversion to trails.

17. *Total road density (closed and open roads) is not restricted except as stated in the standards and guidelines for soils*

The method used for calculating open road densities is an important factor. The average road density is calculated by dividing an area by the number of miles of open roads within that specific area. If the area is too large, the average becomes meaningless; conversely, if the area is too small, the resulting figures may not provide useful information. For the purpose of implementing this direction, open road density will normally be calculated on the basis of subwatersheds. The area of each Management Area contained in each subwatershed will be calculated, and the open roads within that management a real subwatershed will also be calculated to determine the open road density. The acreage and road mileage included in the calculation will include all acres (NF and private) within the major proclaimed boundaries of the National Forest, but will exclude private land acreage outside the major proclaimed boundaries. Islands of proclaimed National Forest which are outside the major proclaimed boundaries will be included in the calculations if they are still under National Forest management. Decisions to leave open road densities greater than the guidelines are expected be the exception rather than the rule.

18. *Implement open road density guidelines as opportunities arise. Normally this will be following a timber sale project, but may also include special projects aimed at reducing open road densities in key areas.*

19. *Analyze projects which will require construction of new roads or which require opening old roads, with the intent of meeting specific management area road density guidelines during the activity. If the analysis indicates that meeting these guidelines during project activity is important in meeting the resource management objectives, and if the project will require an open road density in excess of the guideline, then mitigation of the effects of adding open roads will take place where practical. Mitigation may include efforts such as closing other roads in the analysis area, scheduling projects and activities to minimize impacts, or managing timber sale activities so activity is limited to part of the sale at one time. The practicability of mitigation will be analyzed and decisions documented as part of the project decision.*

20. *Although the open road densities prescribed for each management area will normally be sufficient for management purposes, the guidelines are not intended to place restrictions on emergency uses such as wildfire control, search and rescue, etc*

Forest Plan Compliance – (S&Gs 17-20) – Of the 1,200,783 acres on the WWNF with forest plan open road density (ORD) standards and guidelines, 791,936 acres currently meet these standards. Implementation of the sustainable road system opportunities for change would result in 1,044,072 acres meeting these standards and 117,758 acres would not meet these standards but would have reduced densities from the existing condition and move these areas toward the standards. Implementation of the opportunities described in this TAR would result in compliance on 87% of the acres with ORD S&Gs and would move an additional 10% of the acres not meeting S&Gs toward ORD standards.

21. *All-Terrain and Off-Road Vehicles. Permit all-terrain vehicle (ATV) use and over-the-snow vehicle use on blocked or closed roads unless this use is found to be incompatible with resource management objectives. These types of uses are generally felt to be an acceptable form of*

recreation except where site specific analysis shows them to be incompatible due to resource management problems This determination will be made through the Forest Travel Management Plan

- 22. Forest Access and Travel Management Plan. A plan will be maintained identifying road, trail and off-road vehicle (ORV) restrictions for wildlife protection, recreation, and other purposes. This travel plan will be consistent with management direction for individual management areas and with other standards and guidelines herein (See also standards and guidelines for Recreation)*
- 23. Road Obliteration. Obliterate roads not needed for future management (as determined by resource management objectives) at the end of project use and return them to resource production based on management area direction. Complete obliteration of roads within ten years after termination of the contracts, leases or permits.*

Forest Plan Compliance – (S&Gs 21-23) – This analysis does not change how all-terrain and off-road vehicles may use blocked or closed roads; while it could be used to inform future travel management planning it does not make any travel management decisions. This analysis does identify roads where there are opportunities for obliteration (decommissioning) and returning the ground to resource production.

- 24. Reestablish vegetative cover on obliterated roads by natural processes, where possible, or supplement by such means as scarifying, ditching, contouring, and seeding.*
- 25. Special Areas. Manage the Joseph Canyon Roadless Area (as described in Appendix C of the FEIS) so as to retain an "essentially roadless" character.*
- 26. Block or close to standard vehicles all new roads constructed within the Upper Five Points Creek drainage following project completion. New logging roads will be closed to public use during all project activities Specific areas may be opened to the public for purposes of firewood removal for a period of 13 years following completion of a timber sale.*

Forest Plan Compliance – (S&Gs 24-26) – Opportunities for change identified within this analysis would retain roadless character in the Joseph Canyon Roadless Area. No new road construction is identified in this analysis.

Appendix F – Maps

- Maps of Opportunities for Change – Sustainable Road System – Template and Forest-wide Opportunities Map
- Wildland Urban Interface Map
- Federally Listed Fish Species Watersheds
- Map of ROW Acquisition Needs – Still Need

Figure 9 – Overview of Opportunities for Change to WWNF Transportation System

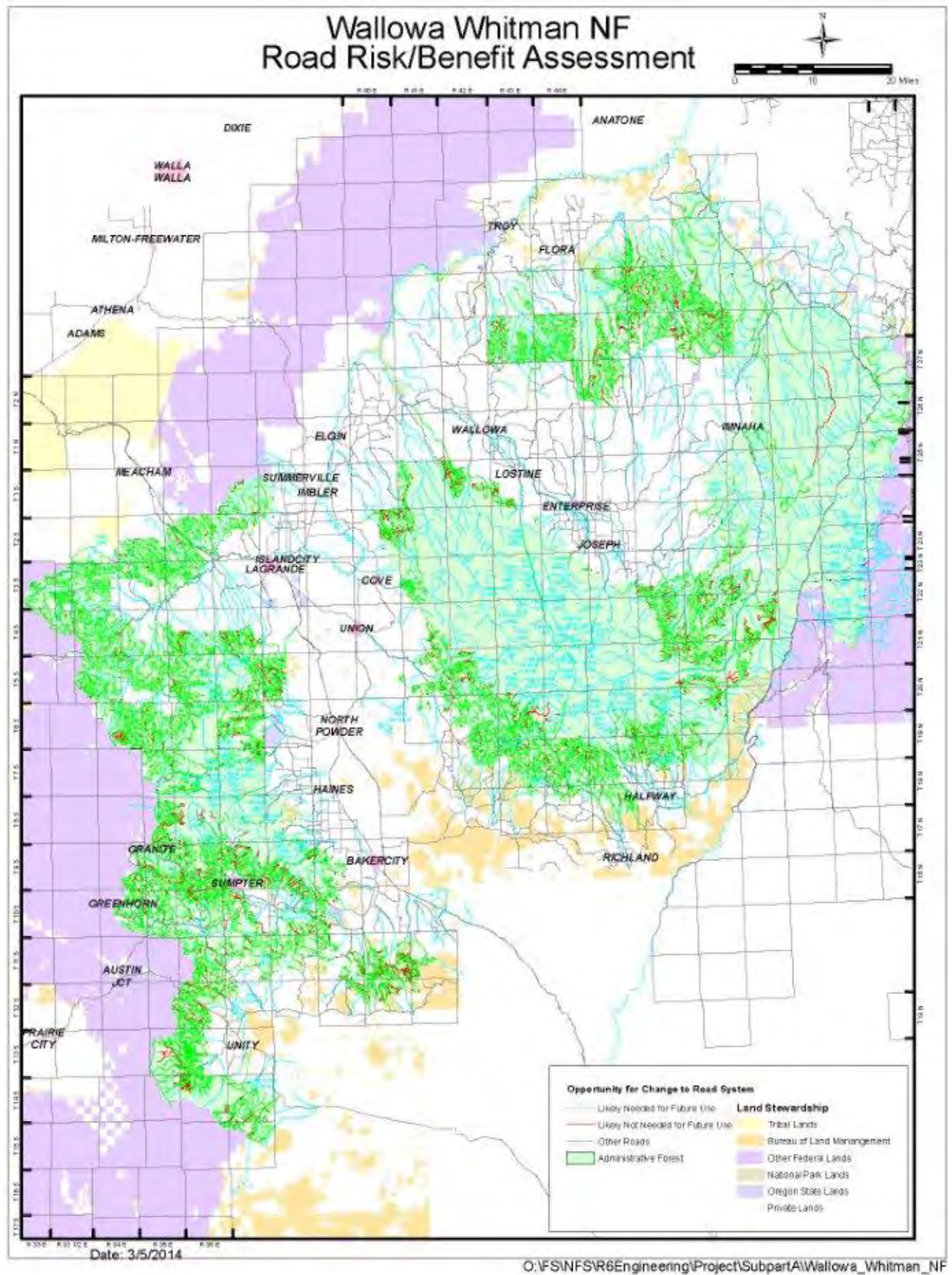


Figure 10 – Template for 19 full-sized SRS Opportunities for Change Maps

Figure 11 – Wildland Urban Interface Maps for WWNF – North Half

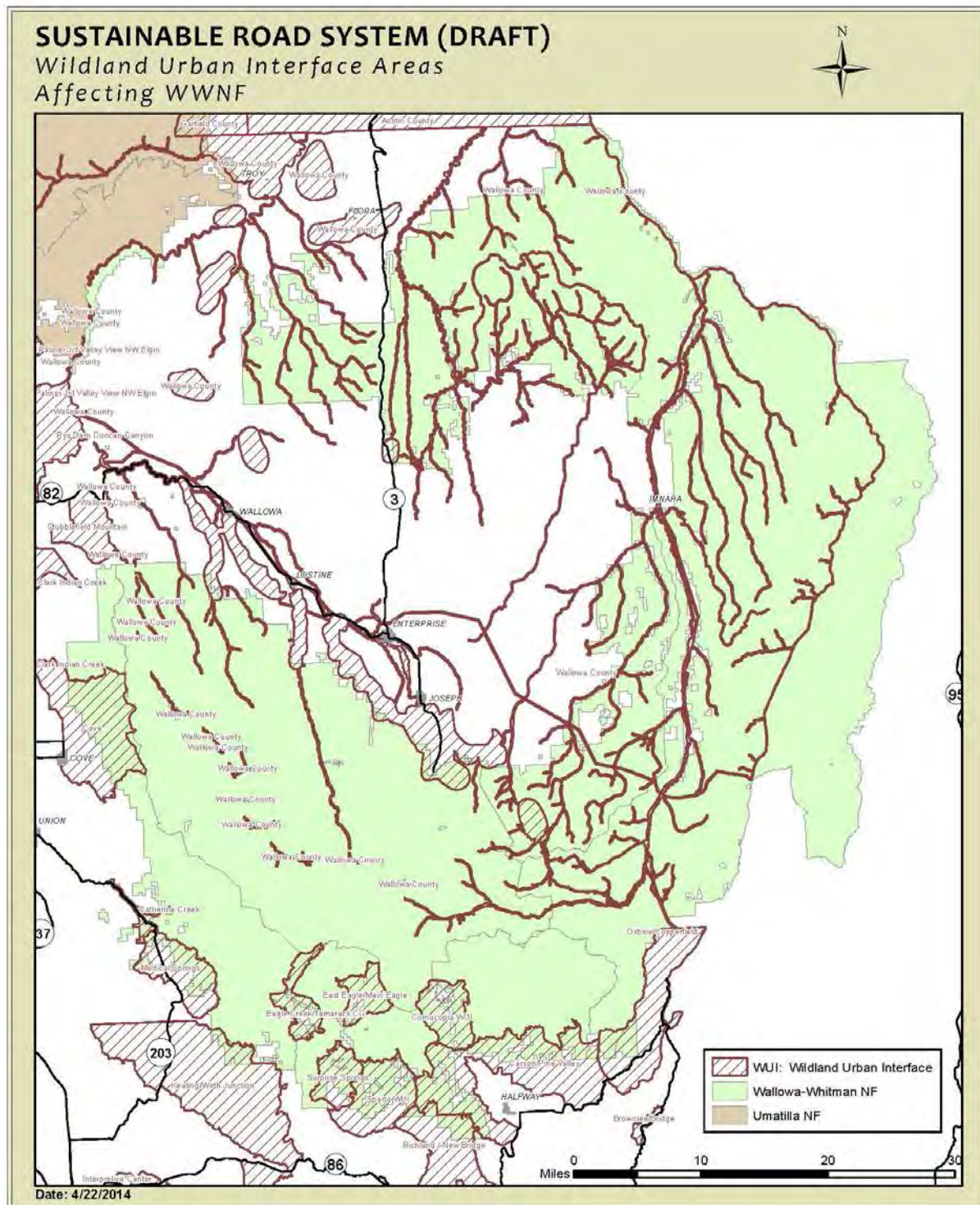


Figure 12 – Wildland Urban Interface Maps for WWNF – South Half

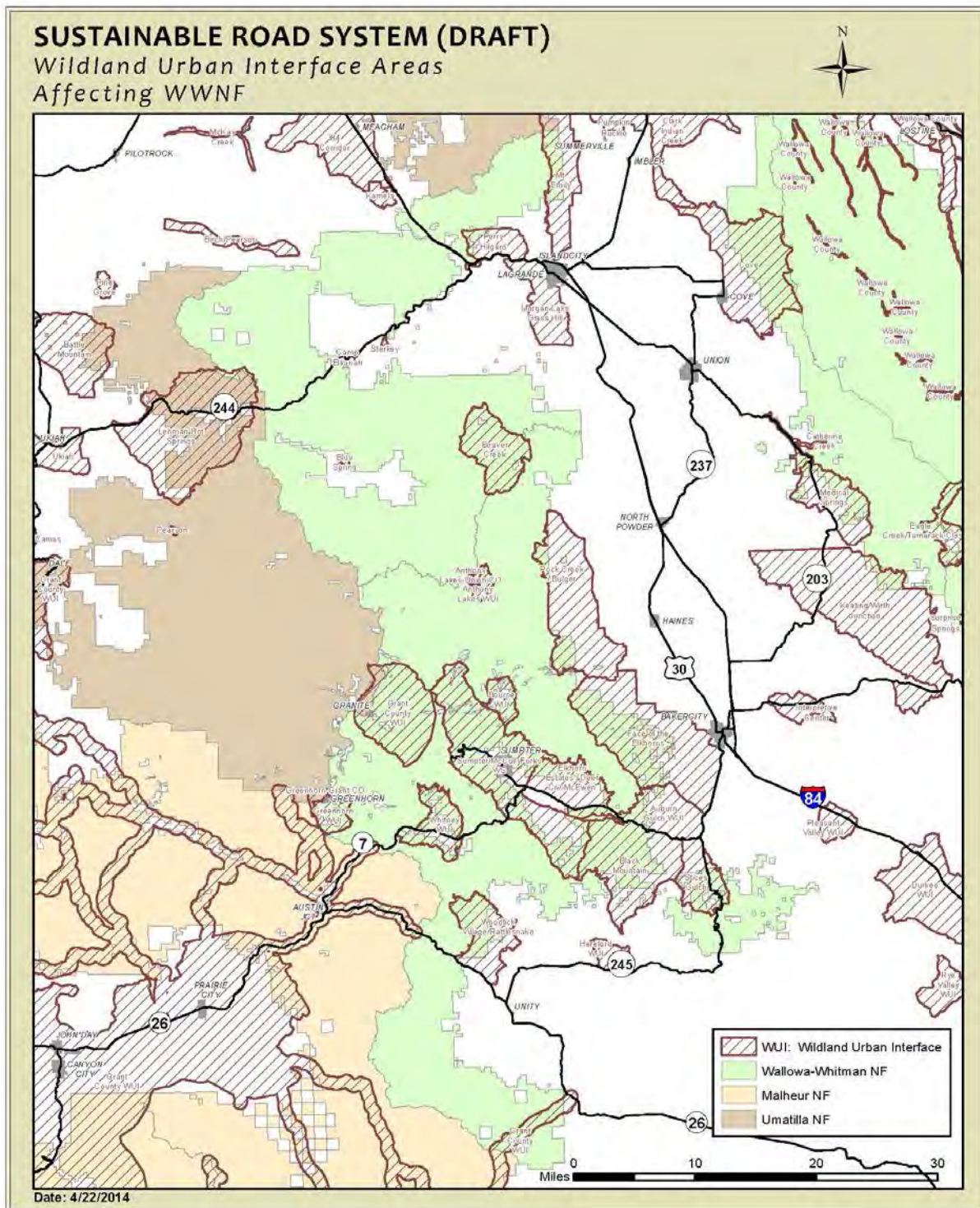


Figure 13 – Federally Listed Fish Species Watersheds on the WWNF

