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REGION

R6 Guidance for Preparing a Travel Analysis Report



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R6 Guidance for Preparing a Travel Analysis Report

US Forest Service, Pacific Northwest Region (Region 6)

04/09/2013

1. Introduction

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 FY15. This *Travel Analysis* must be documented in a travel analysis report, and is an important first step in meeting those sections of Subpart A of the 2005 Travel Management Rule that require each unit of the National Forest System (NFS) to:

- 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 and which therefore should be scheduled for decommissioning or considered for other uses.

By completing this work, the FS expects to identify opportunities for making changes toward a more appropriately-sized and environmentally-sustainable transportation system that is responsive to ecological, economic, and social concerns. The WO stated that the NFS road system of the future must continue to provide needed access for recreation and resource management, as well as support watershed restoration and resource protection to sustain healthy ecosystems.

2. Purpose

The purpose of this guidance document is to outline how the Pacific Northwest Region (Region 6) intends to complete the analysis of the current road system and how the outcomes of the process will be used and integrated with other programs and initiatives. Specifically:

- The issues and background that need to be addressed
- The policy and definition of a minimum road system
- The uses and benefits of travel analysis
- The process to be used and expected outcomes
- Integrating the analysis with other large-scale assessments
- Funding authorities and
- Regional Office oversight and coordination

3. Background

Issues

The Forest Service road system in Region 6 is vast. It comprises 91,000 miles of road, most of which was built between the 1950s and 1990s to primarily support timber management. Since that time, however,



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needs for and uses of the system have shifted dramatically as timber harvest on national forests in the Region has declined considerably and other uses, such as recreation, including the increase in use of all terrain vehicles, have grown. Significant reductions in funding to maintain the system have accompanied the reductions in harvest. At the same time, increased emphasis on ecological restoration and more regulatory and public scrutiny have substantially intensified expectations for reducing the ecological impacts of the road system.

Thus there are multiple issues that need to be addressed:

- the Region can no longer afford to properly maintain its road system at current operational maintenance levels;
- the existing system may not be aligned with current resource management objectives;
- some roads pose risks to the environment because they were built according to outdated design standards, have critical components that are nearing or have exceeded their design life, or have not received sufficient maintenance;
- climate change may increase the frequency and magnitude of storm events that cause significant road damage, with consequent effects on various ecosystems;
- the Region is unable to meet some key regulatory agreements for road management (e.g., Clean Water Act Memorandum of Agreement with Washington Department of Ecology); and
- the Region cannot ensure that all of its road investments are being focused on the highest priority roads.

Policy

In response to these and similar issues nation-wide, beginning with the 2001 Road Management Rule, regulations were established that require the responsible official on each NFS unit to “identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of NFS lands” (36 CFR 212.5).

The minimum road system is defined as the road system that:

- is needed to meet resource and other management objectives adopted in the relevant land and resource management plan;
- meets applicable statutory and regulatory requirements;
- reflects long-term funding expectations; and
- minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

Per the regulations at 36 CFR 212.5(b), the minimum road system is to be identified by the responsible official based on a process that is science-based and that, to the degree practicable, involves a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. Forest Service Manual 7712.4 directs responsible officials to use the Travel Analysis Process (TAP, formerly known as the Roads Analysis Process or RAP) as the science-based approach for identifying the National Forest road system.



These provisions from the original 2001 Road Management Rule are now incorporated in Subpart A of the 2005 Travel Management Rule, and are complemented by Subparts B and C. Subpart B requires each unit to: 1) designate a system of NFS roads, trails, and areas open to motor vehicle use, by class of vehicle and, if appropriate, by time of year; 2) publish a Motor Vehicle Use Map (MVUM) that describes the designated system; and 3) prohibit use of motor vehicles that is inconsistent with the designated system. Subpart C provides for the regulation of use by over-snow vehicles on NFS roads and trails and in designated areas.

4. Uses and Benefits of Travel Analysis

Travel analysis is not a decision-making process; it is an assessment of the existing condition of the current road system. It will be used to inform future decisions relating to administration of the forest transportation system and helps to identify proposals for changes to travel management direction (FSM 7712).

Specifically, once travel analysis is completed, it will be used to:

- inform future plan and project-level proposed actions, purpose and need statements, and future decisions pertaining to road construction, reconstruction, decommissioning, and maintenance;
- inform road investments at Regional, Forest, and District scales;
- inform delivery of National, Regional, and Forest restoration programs for multiple resources; and
- inform agency strategies to comply with regulatory requirements, including those associated with the Clean Water Act and the Endangered Species Act.

5. Travel Analysis Process

The responsible official will complete a Travel Analysis Report by the end of FY15. To ensure that future travel-management decisions are based on the consideration of environmental, social, and economic issues, in Region 6, Forests will follow the Travel Analysis Process (TAP) described in Forest Service Manual 7712 and Forest Service Handbook (FSH) 7709.55, Chapter 20. This process includes the following 6-steps: 1) setting up the analysis; 2) describing the situation; 3) identifying issues; 4) assessing benefits, problems, and risks; 5) describing opportunities and setting priorities; and 6) reporting. Travel Analysis considers access needs, environmental risks, and financial considerations, as described below. These issues will be analyzed in an integrated fashion to provide critical information for the identification of desired future National Forest road system.

General Characteristics

In Region 6, Travel Analysis associated with the Subpart A effort will:

- include all NFS roads, maintenance levels 1-5.
- be conducted at sub-basin (4th field HUC), watershed (5th field HUC), Ranger District, or other appropriate scales.
- build upon and incorporate, to the degree possible, the substantial amount of existing information and analysis, including completed Roads Analysis for all Level 3-5 roads in the Region, Roads Analysis for all Level 1-2 roads on six forests, and some watershed and project-scale Roads Analysis throughout the Region. The adequacy of these existing analyses and the relevance of any recommendations to this process will be determined by the responsible official.



- generally be based on existing data and modeling/analysis tools developed and applied in previous RAPs/TAPs. However, new or updated data and tools (e.g., Netmap) can be applied if needed to address important new issues or issues that were incompletely addressed in the past. Moreover, climate change risks can be incorporated into the analyses. Very limited additional field work is expected due to limited time and funding. Instead, this work is expected during watershed and project-level planning and implementation.
- be documented in a Travel Analysis Report, which should include:
 - information about the analysis
 - a list of key issues
 - a prioritized list of risks and benefits associated with changing the forest transportation system to meet desired conditions
 - a prioritized list of opportunities for addressing those risks and benefits
 - further reporting requirements identified in Step 6 of FSH 7709.55, Chapter 20 and the Regional checklist included as Appendix A.

The Washington Office directs units to use the information from the TAP to engage in NEPA analysis at the 6th field Hydrologic Unit Code (HUC) or larger to identify the minimum road system. There is no specified timeframe for completing the NEPA requirement. Although TAP findings cannot be implemented until they have been assessed using NEPA procedures, the Region is not suggesting that units engage in NEPA analysis solely for this purpose. You may integrate this analysis as a proposal, at the project scale, as part of a proposed action. The effects of implementing the minimum road system can then be evaluated. Projects can be aggregated or analyzed separately, over time at the discretion of the responsible official. Units should keep in mind regional advice about the need to avoid large scale projects with multiple purposes and needs.

As described below, Forests should integrate this work with other large-scale assessment and restoration efforts to the degree practicable.

Analysis of Access Needs and Environmental Risks

The National Forest transportation system of the future will be comprised of a set of roads and motorized trails that maximizes attainment of access needs, minimizes environmental risks, and reflects long-term funding expectations. The identification of this transportation system will be made following a NEPA analysis and formal decision making process. The Travel Analysis Process outlined in this guidance document will be used to inform the formal decision making that will occur through the NEPA process at some point in the future.

A primary component of Travel Analysis is defining the needs for each road on the forest and the associated risks that the road poses to the environment. Thus, one major outcome of step 4 of Travel Analysis will be categorization of each road segment using a value/risk/cost matrix such as that shown in Table 1. The specific analytical process and definitions for the rankings of H/M/L used in these matrices needs to be developed and documented at the local level, so that there is a clear and transparent logic track. Line Officers and forest staff will use this information to further evaluate the opportunities identified in future NEPA decisions.

Table 1. Conceptual example of a Road Value, Environmental Risk, and Cost Matrix. Different types of matrices may be appropriate in different locations.



Road Number	Need for Access (Value)					Environmental Risks				Relative Maintenance Cost
	Recreation	Forest Management	Permitted Uses	Other Ownerships	etc.	Watershed/Aquatics	Wildlife/Botany/ Invasives	Scenic/Spiritual/ Cultural	etc.	
XXXX X	H	H	H	H		L	M	L		L
YYYY Y	L	H	L	L		H	M	H		H
ZZZZZ	L	L	L	L		H	H	H		H

*H = High, M = Medium, L = Low

Each Forest needs to identify access needs and environmental risks. The elements considered should be specific to each Forest or area doing the analysis. Elements to consider are highlighted in Table 2 below. A Forest may choose from this list or add to this list as appropriate for their area.



Table 2: Some elements to consider in the Access Needs and Risk Assessment of the Travel Analysis Process:

Benefits (Primary Uses and Need for Access)	Risks (Environmental Concerns)
Public Uses:	Soils/Watershet/Aquatics:
Access to Developed Rec Sites	Landslide Potential
Access to Dispersed Rec Sites	Surface Erosion
Access for Dispersed Rec Uses	Floodplain Function
Access to and between Communities	Alteration of Surface Runoff Patterns
Access for Special Forest Products	Affects to listed Fish Species
Access for Tribal Uses	Affects to Wetlands
Administrative Uses:	Wildlife:
Access for Vegetation Management	Affects to wildlife migration patterns
Access for Range Management	Special Habitats
Access for Fire Prevention/Suppression	Fragmentation
Access for Lands / Minerals Mgmt	Threatened & Endangered Species
Access for Heritage Resources	Snags
Private Uses:	Botany / Invasives:
Access to Private Inholdings	Special Habitats
Access to Special Use Sites	Threatened & Endangered Species
	Noxious Weeds

The line officer should determine the scope, scale and depth of evaluating both access and environmental risks based on local conditions. This can be done for the Forest as a whole to set forest-wide context or area by area. Decisions should be documented in the Travel Analysis Report. Resource specific examples of how to complete the environmental risk portion of the assessment were included in the Forest training webinars (source: O/NFS/RO6/Collaboration/TravelAnalysisReport2015/Assessment Info/RO/Presentations).

Financial Analysis

In addition to the road-by-road analysis of access and environmental risks, Travel Analysis must include a broad-scale (e.g., Forest, District or Zone-wide) evaluation of the general affordability of the road system. The purpose of this analysis is to ensure that the National Forest road system “reflects long-term funding expectations” per the regulations at 36 CFR 212.5. Since this term was not specifically defined, the Region has operationally defined it to mean that “average annual funding” is reasonably in balance with the “average annual cost of routine road maintenance.”¹

¹ “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 ARRA and 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” means 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).



An acceptable process for conducting this analysis is as follows:

- In order to get a general sense of the degree to which changes in the road system may be needed to reflect long-term funding expectations, forests should compare current average annual funding with average annual needs for routine annual maintenance of the road system. This analysis should be completed by using average maintenance costs for roads assigned to different maintenance levels and standards, and the amount of roads in each of those classes. This should be done at first for the existing road system based on current operational maintenance levels. If the total cost of annual maintenance work for the existing transportation system exceeds the average annual funding capacity of the forest, then identify several general scenarios for either reducing the size of the transportation system and/or changing the composition of maintenance levels and standards to a more affordable state. Iterate through total cost calculations of a variety of scenarios to identify a mix of roads and road standards where long-term annual maintenance needs would be reasonably in balance with long-term funding expectations. The outcome of this initial financial analysis should be used to set context for the IDT in critically examining the level of road system changes needed across the unit.
- A second iteration of the financial analysis should follow the integrated analysis (see next section) and will determine if the recommendations from the IDT are within the range of “average annual” financial capacity for the unit to maintain. If not, the IDT should cycle back through the integrated analysis looking for additional opportunities to align the road system with expected long-term funding for routine road maintenance work. The responsible official will determine how closely this match should be made for the analysis area.
- Investment costs to transition the current road system into the potential future National Forest road system would be identified, but would not be considered in the analysis, as much of these costs would need to come from sources outside of annual road maintenance funds.
- Deferred maintenance costs to return roads to their objective maintenance standard should also be identified, but may not directly be used in the cost comparison. Work items that can be accomplished within the annual maintenance program will be considered part of the annual maintenance work and part of the average unit costs (Items such as deferred brushing, deferred drainage maintenance, deferred sign maintenance, etc.), but large cost items such as surface replacements, bridge replacements, pavement overlays, culvert replacements, etc., will not be part of the analysis because they too would normally come from funding sources outside of annual road maintenance funds.

Integrating the Analysis

Identification of opportunities for changes to the existing transportation system to meet desired future conditions can be made through the Travel Analysis Process by integrating, at multiple spatial scales, the road-by-road access/risks analyses with the results of the programmatic-scale Financial Analysis (see Table 3 for an example). In some cases, the integration may be as simple as adding up all the rankings, especially if each ranking is given a numerical category. However, there will be cases where either the need for access or an environmental risk, overrides all the other values and risks and the IDT and the Line Officer must work together to resolve these conflicts to best characterize opportunities. In general, roads that are categorized with high



environmental risks and maintenance costs and a low need for access should be identified for decommissioning or conversion to other uses. Those roads that need to remain due the need for access are then reviewed for necessary improvements or storage treatments. The process used to integrate and weigh different factors needs to be developed and documented locally.

Table 3. Conceptual example of a Road Value, Environmental Risk, and Cost Matrix with Management Recommendations for a National Forest Road System.

Road Number	Need for Access (Value)				Environmental Risk			Relative Maintenance Costs	National Forest Transportation System Management Opportunities
	Recreation	Timber	Watershed/Aquatics, Wildlife/Botany, Invasives	Permitted Uses	Watershed/Aquatics	Wildlife/Botany/ Invasives	Scenic/Spiritual/ Cultural		
XXXX X	H	H	L	H	L	M	L	L	Keep and maintain as ML 2 road.
YYYY Y	L	H	L	L	H	M	H	H	Place into ML1 status to reduce risks and maintenance costs. Not needed for >20 years for timber. Fire access can be provided as needed.
ZZZZZ	L	L	L	L	H	H	H	H	Decommission. Low value and high risk and costs.

6. Integration of Travel Analysis with large-scale assessment and restoration initiatives

The WO and Region 6 have recently developed and begun implementing several large-scale assessment and restoration initiatives. These initiatives can be integrated with identification of a National Forest road system, as described in the following sections. In addition, Travel Analysis for identification of the National Forest road system can be integrated with related work (e.g., State recreation, fish and wildlife, and water quality planning) being conducted by other agencies.



[National Watershed Condition Framework](#)

The *National Watershed Condition Framework (WCF)*², is a strategic management framework designed to improve the efficiency, efficacy, and accountability of the FS watershed restoration program. This program is focused primarily on the restoration of soil, water and aquatic resources. The framework consists of the following 6-steps:

- Step A: Assess and classify watershed condition;
- Step B: Identify “priority watersheds”³ for restoration;
- Step C: Develop Watershed Action Plans (WAP) for priority watersheds , which describe all “essential” restoration actions needed to maintain and restore key watershed conditions, processes, and functions;
- Step D: Implement essential projects defined in the WAP;
- Step E: Track and report accomplishments; and
- Step F: Monitor and verify watershed conditions.

Travel Analysis and the WCF can be integrated in several important ways. First, the watershed condition assessment (Step A) can be used to inform Travel Analysis. For example, one component of Travel Analysis is to identify road-related impacts and risks to the environment, including watershed condition. While Travel Analysis will necessarily focus on specific road impacts and risks (e.g., mass wasting, habitat fragmentation), the watershed assessment provides context for evaluating road impacts because it defines the overall health of FS watersheds as a function of many interacting factors (i.e., road condition, flow regimes, aquatic habitat and vegetation condition) the priority watersheds identified in the WCF can be used as one important factor for determining where to first conduct Travel Analysis, because the results can be used to inform the development and implementation of action plans (Steps C and D). Second, the road condition scores in the watershed assessment can provide context for conducting the finer-scale (i.e., road-by-road) risk assessments in Travel Analysis.,. Lastly, the overall prioritization of sub-watersheds that each Forest in Step B of the WCF can be used to guide the location of future NEPA analysis for ecological restoration in which recommendations from this Travel Analysis Process will be evaluated.

[Terrestrial Restoration and Conservation Strategy](#)

Region 6 recently developed a *Terrestrial Restoration and Conservation Strategy (TRACS)* which identifies priority watersheds,⁴ habitats, and species for conservation, restoration, and enhancement of terrestrial wildlife and plants. TRACS priority species and habitats can also be considered during the analysis process because: 1) many of these species and habitats may be impacted by roads; 2) access may be needed to conduct habitat restoration or enhancement activities; and 3) access may be needed to conduct inventories or monitoring of species or habitats. The overall prioritization of sub-watersheds identified in TRACS can

² This restoration framework is very similar to the approach that Region 6 has been implementing via the *R6 Aquatic Restoration Strategy (ARS)* since 2005. One key exception is that the national WCF focuses on 6th field scale watersheds, whereas the ARS was designed at the 5th field scale.

³ The new 6th field “priority watersheds” identified through the National WCF in Summer 2011 will complement the Region’s current set of 5th field “focus watersheds”, which were previously identified through the ARS.

⁴ Terrestrial priority watersheds identified through TRACS are not the same as the priority watersheds identified through the WCF and ARS.



be used to guide the location of future NEPA analysis for ecological restoration in which recommendations from this Travel Analysis Process will be evaluated.

[Terrestrial Condition Assessment](#)

The WO recently embarked upon an effort to develop a *Terrestrial Condition Assessment (TCA)*, which will be a 6-step restoration framework for terrestrial ecosystems that is analogous to the National WCF. Step A, assessment of terrestrial ecological integrity, will be comparable to the recently completed national watershed condition assessment and can be used in a similar manner once it is completed. Step B will involve the selection of “priority landscapes”. The overall prioritization of landscapes identified in TCA can be used to guide the location of future NEPA analysis for ecological restoration in which recommendations from this Travel Analysis Process will be evaluated.

[Legacy Roads and Trails and Collaborative Forest Landscape Restoration Program](#)

In recent years, the FS has increased emphasis on implementation of large-scale restoration programs. Two notable examples are the Legacy Roads and Trails Program and the *Collaborative Forest Landscape Restoration Program (CFLRP)*. *Once the National Forest road system is recommended and NEPA analysis is complete, both of these are avenues to fund those components of National Forest road system implementation that require large, capital investments on priority watersheds and landscapes.*

[Region 6 Recreation Capacity and Demand Analysis/Sense of Place Mapping](#)

This effort analyzed broad-scale socio-physical data derived from FS field observation, existing surveys, demand analysis, market studies, chamber of commerce data and more, to examine various spatial recreation values, issues and activities. Regional and sub-regional recreation contexts in the form of recreation niche/sense of place were developed for the Pacific Northwest.

Outputs included Regional recreation capacity and distribution data related to off-highway vehicle use, riparian-based recreation, and dispersed recreation management issues. An interactive geospatial recreation data tool allows field users to access and analyze broad-scale GIS data such as recreation values, activities, and conflicts for customized application in forest planning, programmatic analysis, or project planning. A companion study gives specialists a contextual overview of issues related to recreation supply and demand and can be integrated with other GIS resource layers.

This Regional effort is valuable to Travel Analysis as it emphasizes spatial mapping across landscapes; uses social science data as its under-pinning, is a scalable process that can be compiled at broad, moderate and fine scales, and includes supply, demand, capacity and distribution principles. This effort should be used to help identify access needs for recreation.

[Forest-Level Strategic Plans for Management of Landscape-scale Fires](#)

A number of Forests have developed, or are in the process of developing, a forest-wide plan for fuel breaks to facilitate the safe and cost-effective management of wildfires at the landscape scale. By using open roads, natural openings, past fires, and completed vegetation treatments, these forests have identified a network of safe locations that can be used to contain fires, potentially facilitating the use of fire to achieve land management objectives. Most Forests in the Region have also recently completed Invasive Weed EISs which should be used to inform the risks associated with roads spreading invasive weeds. The National Forest road system can incorporate these strategic plans, where they exist, and where the plans are still in development, identification of the National Forest road system can help inform these plans.



7. Funding Authorities

The Regional Board of Directors has determined that Travel Analysis planning is an on-going workload for Forests and should be included in their regular annual program of work. Appropriate budget line items to be included for this process include: CMRD, CMLG, WFHF, NFIM, NFTM, NFVW, NFWF, and NFRW. Forests should plan the mix of funds appropriate to their specific issues and benefiting functions.

8. Regional Office Oversight and Coordination

The Regional Office will provide guidance and oversight of this process in the following ways.

Regional Board of Directors

A Regional Board of Directors will:

1. provide strategic leadership and policy direction to the R6 Travel Analysis Process;
2. make recommendations to Regional Executives regarding major policy issues/positions;
3. oversee development and implementation of Travel Analysis;
 - o accelerate subpart B implementation;
4. ensure the integration of travel analysis among disciplines and within the various levels the organization;
5. facilitate communication & coordination between R6 leadership (RO Executives, RLT) and the Regional Implementation Team;
6. approve regional communication plan and authorize actions to move it forward;
7. approve annual program of work for the Regional Implementation Team.
8. be a clearing house of information
9. ensure that “appropriate” consistency is maintained between National, Regional, and Forest levels

This team is comprised of Regional Office Directors and Forest Line Officers including the following:

R6 Board of Directors:

<i>R.O. Directors</i>		<i>Forest Line Officers</i>	
<i>Name</i>	<i>Director of</i>	<i>Name</i>	<i>Unit</i>
Jeff Walter	Natural Resources	Jerry Ingersoll	SIU - Forest Supervisor
Jose Linares	Engineering	Alice Carlton	UMP - Forest Supervisor
Claire Lavendel	Rec/Lands/Minerals	John Allen	DES - Forest Supervisor
Ric Rine	Resource Planning	Clint Kyhl	OKW - Dep Forest Supervisor
Al Matecko	Public Affairs	Bill Gamble	WAW - District Ranger (La Grande)

Regional Implementation Team

A Regional Implementation Team will:



1. identify key policy issues and propose policy options & recommendations to the Board of Directors for consideration;
2. develop the regional guidance document(s);
3. provide technical assistance and support to field units;
4. track and report status of project implementation;
5. propose and implement annual programs of work to the Board;
6. identify and communicate funding needs and track their usage; and
7. review Forest Travel Analysis Reports for consistency, compliance with National and Regional policy and as a clearing house for information.

This team includes the following individuals:

- Co-leaders: Rick Collins (Engineering) and Karen Bennett (Soils)
- Team Members: Kathy Anderson (PAO), Tom Knappenberger (PAO), Bill Aney (FFAM), Michael Barger (Logging Engineer), Jim Capurso (Fisheries), Brad Cownover (LA), Jill Dufour (Planning), Kim Mellen-McLean (Wildlife), Charlie McKenna (Forest Engr-WIL), Brian Staab (Hydro), and Gail Throop (Rec).

[R6 – Check List of TAP Steps](#)

The Region has prepared a checklist of Items (Appendix A) that will assist the IDTs and Line Officers with ensuring that the various steps of the TAP process have been completed.



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