Addressing Legacy Roads on the Mt. Hood National Forest

A Strategy to Reduce Adverse Hydrologic Impacts of Forest Roads on Aquatic Resources

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Glossary of Terms

[Note to reviewers: A glossary of terms may or may not be desired. After drafting the strategy; however, I realized there are several terms that we've adopted in our collective vocabulary on this particular topic and that a glossary for those unfamiliar to these discussions may be helpful.]

Collaboration (external) – working interactively with federal, state, or local governments; tribal governments; non-governmental organizations; and private citizens that show an interest in engaging in a particular natural resource issue that's relevant to the management of the national forest.

Decision-Makers – individuals in specific positions on the Mt. Hood National Forest delegated the authority to make decisions affecting or committing federal resources in compliance with the National Environmental Policy Act. Positions include the Forest Supervisor and the four District Rangers within their respective district boundaries.

Decision Tree – an assessment tool developed by the Forest Supervisor in consultation with the District Rangers and Staff Officers to systematically review each road on the Mt. Hood National Forest's transportation system to assess its potential adverse hydrologic impact on aquatic resources and its current and anticipated future administrative and public use.

Increment – a specific geographic area that represents several focus watersheds within a river basin identified in a temporal sequence to apply the Mt. Hood National Forest's strategy for addressing legacy roads to reduce adverse hydrologic impacts of system roads on aquatic resources.

Motor Vehicle Use Map – a national forest or ranger district map showing Forest Service system roads open to public travel.

NEPA – an acronym for the National Environmental Policy Act.

Road Decommissioning – the physical activity, typically done with heavy equipment (i.e., bull dozer or excavator), of berming or blocking a road to motorized vehicle access, removing culverts, reestablishing drainage features, de-compacting the road surface, and/or pulling back unstable fill-slopes to prepare a roadbed and its prism to restore natural drainage functions and reduce or minimize future erosion. When heavy equipment and earth-moving activity is needed to accomplish these objectives, it is referred to as ***Active*** road decommissioning. When it has been determined in the field by a watershed specialist that a road is grown over and already in a self-maintaining state without need for earth-moving activity, then it is referred to as ***Passive*** road decommissioning. In both cases, the road is removed from the Forest's transportation system and is no longer a capital asset.

Road Maintenance – a group of routine activities such as ditch and culvert cleaning, removal of road surface debris, brushing of roadside vegetation, repair of slumps and depressions, resurfacing of the road bed, replacing faded and deteriorating road signs, line painting, asphalt patching, etc.

Road Improvement or Upgrade – an activity whereby the roadbed or its prism is treated to maintain the life of the road and improve its physical integrity from failure (e.g., buttressing a road fill to prevent it from failing; replacing a culvert at a stream crossing with one that's larger to accommodate larger storm flows; or surfacing a native surface roadbed with crushed aggregate or pit run rock to minimize surface erosion and gullying).

Road Prism – the entire cross-sectional area of a road where natural ground was disturbed (excavated or filled) when it was constructed or re-constructed; generally the area from the top of the cut-slope to the bottom of the fill-slope for roads constructed on a sloping contour.

Stakeholders – federal, state, or local government agencies; tribal governments; non-governmental organizations; private industry; or private citizens interested in a particular natural resource management issue.

I. Introduction

This strategy is intended to guide planning and implementation of road-related restoration activities aimed at reducing adverse hydrologic impacts to aquatic resources on the Mt. Hood National Forest. Beginning in fiscal year 2008, a multi-year, incremental approach was initiated using a system of priority river basins and focus watersheds to address road-related restoration needs in alignment with the region's aquatic restoration strategy. Specific river basins and watersheds are prioritized to implement the associated workload in manageable increments over a multi-year timeframe. These increments (i.e., geographically defined planning areas) are temporally sequenced at the Forest-level based on aquatic restoration priority in congruence with other current or anticipated natural resource planning efforts. The strategy herein focuses on identifying, planning, implementing, and monitoring actions with the primary focus to ameliorate road-related impacts on aquatic resources; particularly water quality and fish habitat – especially for Endangered Species Act-listed salmon, steelhead, and bull trout. Additional benefits are expected for a variety of terrestrial and riparian-dependent wildlife species. The need for this strategy is brought about as a result of the Forest's extensive road system, constructed largely in the 1960s through 1980s for timber harvest access. Many existing roads have minimal or no current or anticipated future use. A substantial amount of backlog and future road maintenance needs exists due to declining Forest Service road maintenance budgets. There are currently over 3,400 miles of roads on the Forest's transportation system. The goals of this strategy are to:

"Plan and implement road-related activities to restore adverse hydrologic impacts; thereby improving water quality and fish habitat."

and

"Actively involve citizens, adjacent landowners, tribal governments, and other stakeholders through dialogue, collaboration, and NEPA planning."

We recognize the high degree of inherent controversy, both internally and externally, associated with addressing the restoration needs of the Forest's legacy road system. Some roads for which there are no identified near term needs (i.e., within the next 10 years) are likely to be proposed for closure and decommissioning to improve watershed health. Other roads for which there are management and public access needs identified are likely to remain on the transportation system – those posing threats to aquatic resources being identified for upgrade or restorative treatment while those without any apparent threats remaining as is on the transportation system. This strategy allows for planning and implementation of road-related

restoration activities in an open and transparent manner that fully engages the public and key stakeholders in a collaborative manner utilizing the best available, site-specific information and data.

Specific **objectives** of this strategy are to:

1. Review and assess all Forest Service roads at the watershed-scale to determine the long-term transportation system that meets our public and management needs, and that is in line with expected budgets.

2. Improve watershed health and restore water quality and fish habitat conditions where there are adverse hydrologic impacts associated with the transportation system through implementing restorative actions.

3. Improve habitat conditions for terrestrial and riparian-dependent wildlife species.

4. Actively engage the public, adjacent landowners, tribal governments, and other key stakeholders to identify issues, concerns, and opportunities for decision-makers (i.e., District Rangers and Forest Supervisor) throughout the planning process.

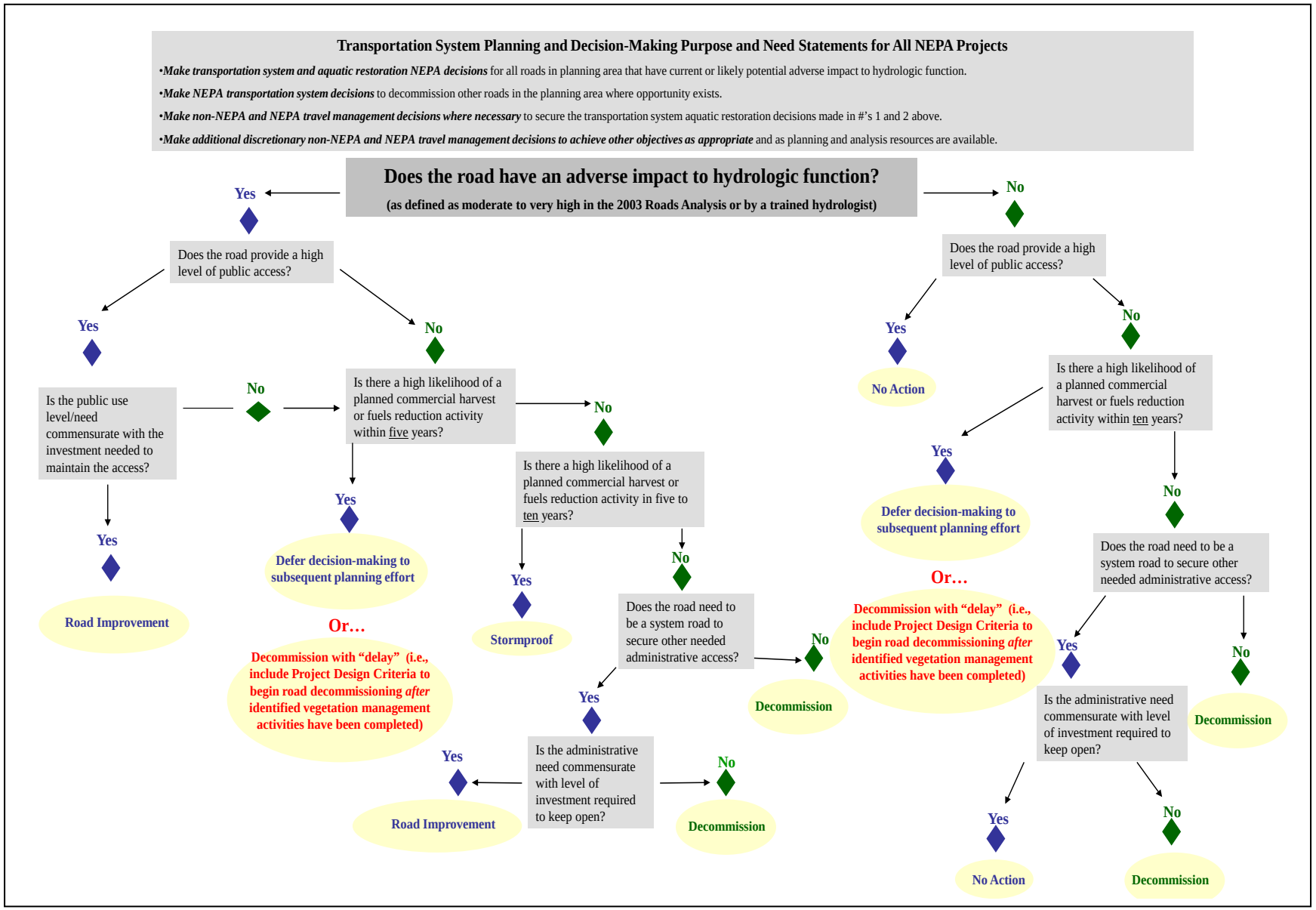
II. Planning and Public Involvement

This section describes four parts to the planning and public involvement component of the overall strategy. The first part focuses on the role of line officers in applying the Decision Tree. The second part outlines the role and importance of road condition inventories. The third part explains the NEPA planning and public involvement pieces. The fourth part describes the multi-year, incremental approach to reviewing the entire transportation system across the Forest within a six year timeframe.

Decision Tree

The Decision Tree is an assessment tool developed by the Forest Supervisor in consultation with the District Rangers and Staff Officers to systematically review each road on the Mt. Hood National Forest's transportation system to assess its potential adverse hydrologic impact on aquatic resources and its current and anticipated future administrative and public use. The Decision Tree is applied by the District Ranger, with assistance from staff as described below, who is most familiar with resource conditions and public/stakeholder interests for the roads on his/her own district. Figure 1 shows the Decision Tree, outlining the dichotomous structure of the assessment tool. Despite its title, the Decision Tree does not yield decisions for each system road within a specific increment per se. Rather, it results in a classification for each road from which to develop a specific agency proposed action by which to meet the overall goals and objectives of this strategy.

Figure 1. "Decision Tree."



Applying the Decision Tree to System Roads within a Specific Increment

The steps and expected outcomes are:

A. Identification of roads and road segments that may pose adverse hydrologic impacts to aquatic resources. This identification will take place by:

   i. Internal evaluation from engineering staff, watershed specialists, fisheries biologist, and other specialists at the forest and district levels familiar with on-the-ground road, geologic, watershed, and stream channel conditions.
   ii. Coordinated road condition surveys completed by trained student survey crews.
   iii. Information or data obtained from key stakeholders and the public during collaborative outreach and engagement.

B. A line officer review of all system roads, completed by applying the Decision Tree and informed by key specialists (land management planner, engineering transportation planner, watershed specialist, fisheries biologist, and vegetation management planner) and District Leadership Team (DLT) staff. The line officer review will:

   i. Apply the Decision Tree for each system road. Each system road will be placed into one of the following four categories:
      1. Category 1: Keep on the transportation system at its current maintenance level. [For this category of roads, no NEPA would be required.]
      2. Category 2: Keep on the transportation system and make necessary improvements or upgrades to address potential adverse hydrologic impacts. [This category may or may not require NEPA at a level greater than the agency's current categorical exclusion authorities under road maintenance, and would be determined on a site-specific basis.]
      3. Category 3: Keep on the transportation system, and close to public access by changing the road's maintenance level to 1, if not at this maintenance level already, and proposing any necessary action to prepare the road surface, prism, and drainage features to be self-maintaining, reduce potential for surface erosion or mass wasting, and preclude motorized vehicle access. [This category would require an environmental assessment since it may result in a decision to close the road to public access as well as involve heavy equipment work to prepare the road for a "self-maintaining" state.]
      4. Category 4: Take off the transportation system, close to public access, and undertake necessary heavy equipment work to prepare the road surface, prism, and drainage features to be self-maintaining, reduce potential for surface erosion or mass wasting, and preclude motorized vehicle access. [This category would require an environmental assessment since it may result in a decision to close the road to public

access as well as involve heavy equipment work to prepare the road for a "self-maintaining" state.]

ii. Be documented and provide rational, as necessary, for system roads that have current or anticipated administrative or public uses.
iii. Serve as the basis for developing an agency proposed action to close and decommission roads to initiate collaboration with key stakeholders and NEPA planning which includes public involvement.

Road Condition Inventories

In 2008, the Forest's Aquatics Program staff and Engineering staff worked together to develop a road condition inventory protocol in collaboration with external partners. Other published road condition survey protocols were examined. Common attributes of each protocol were identified. These parameters were then simplified to streamline and customize an inventory protocol that would meet the Forest's needs. The initial 2008 Forest protocol was pilot-tested in the Upper Clackamas River Watershed. The protocol was reviewed in 2009 and refined to clarify or eliminate vague parameters. Particular attention was given to eliminating unnecessary parameters, establishing a means to quantify those that were subjective, and further streamline the protocol to increase the survey rate in the field. In 2009, a 3-day training session was developed for five field crews, four from the Mt. Hood National Forest and one from the Columbia River Gorge National Scenic Area. The training involved in-class presentation and exercises as well as an outdoor testing of each crew's knowledge and proficiency on roads previously surveyed by experienced Forest staff.

The road condition inventories target only those roads identified by the line officer for closure to public access (Categories 3 and 4, from above). The objectives of the road condition survey are to:

a. Identify immediate threats that may cause imminent, catastrophic failure of the road prism (i.e., plugged culvert, eroding fill-slope, etc.) which could result in public safety concern or natural resource impacts.
b. Update the transportation system map and database to rectify discrepancies between on-the-ground roads and current map system information (i.e., GIS coverage location, road numbering, open/closed status, etc.).
c. Collect key information needed to conduct relevant environmental analyses consistent with NEPA to make long term decisions regarding the future road network consistent with current travel planning direction and guidance.
d. Collect pertinent information to be used for project prioritization and implementation (i.e., data necessary to prepare contracts and acquire permits).
e. Acquire important information to collaborate with interested partners engaged in road restoration project planning and implementation.

Version 1.0 of the Mt. Hood National Forest Road Condition Survey Manual was developed in June 2009. Engineering staff are responsible for hiring and overseeing summer crews and interns to complete road condition surveys. Together, the Engineering staff and Aquatics Program staff are responsible for coordinating and organizing the survey effort, training field crews, assuring data quality control procedures are established and followed, and reviewing and refining the protocol on a periodic basis.

Line officers are responsible for completing the Decision Tree for system roads in a specific increment no later than June of a given fiscal year, so that crews can complete road condition surveys during the field season of that year. Information and data obtained from the surveys will then be used in the fall of that year (September/October) to finalize a proposed agency action for that given increment and initiate the NEPA planning process and public involvement.

NEPA Planning – Environmental Analysis (includes Public Involvement)

NEPA projects with an outcome of making road-related decisions for system roads in Categories 3 & 4, above, will be completed in one of two ways:

1. Road Strategy-Focused NEPA Planning

The Staff Officer for Lands, Recreation, and Public Affairs is responsible for organizing and completing an environmental assessment for proposed road closures (Categories 3 and 4, above) in each increment. Applying "lessons learned" from past NEPA planning efforts undertaken across the Forest for Increments 1 and 2, the most efficient interdisciplinary team structure and planning process will be deployed to contain costs and ensure timelines are closely adhered to. A lead planner will be designated by the Staff Officer for Lands, Recreation, and Public Affairs to lead the interdisciplinary team, write the environmental assessment and related decision documents, and assure the NEPA planning process is completed and well documented. The Natural Resources Staff Officer and District Rangers will work together to identify critical IDT member skills and assign staff to most efficiently meet interdisciplinary team planning needs while taking into consideration other priority program of work.

2. Other Resource-Focused NEPA Planning

Other Resource-Focused NEPA planning (e.g., vegetation management and fuels management) for a specific area will also include road-related decisions within the planning area utilizing the Decision Tree procedure outlined above. Such resource-focused NEPA planning will be accomplished within a District or Zone, under the leadership and direction of a District Ranger using a District/Zone Interdisciplinary team. These accomplishments will be tracked at the Forest-level and resulting road restoration opportunities will be incorporated into funding requests to the regional office.

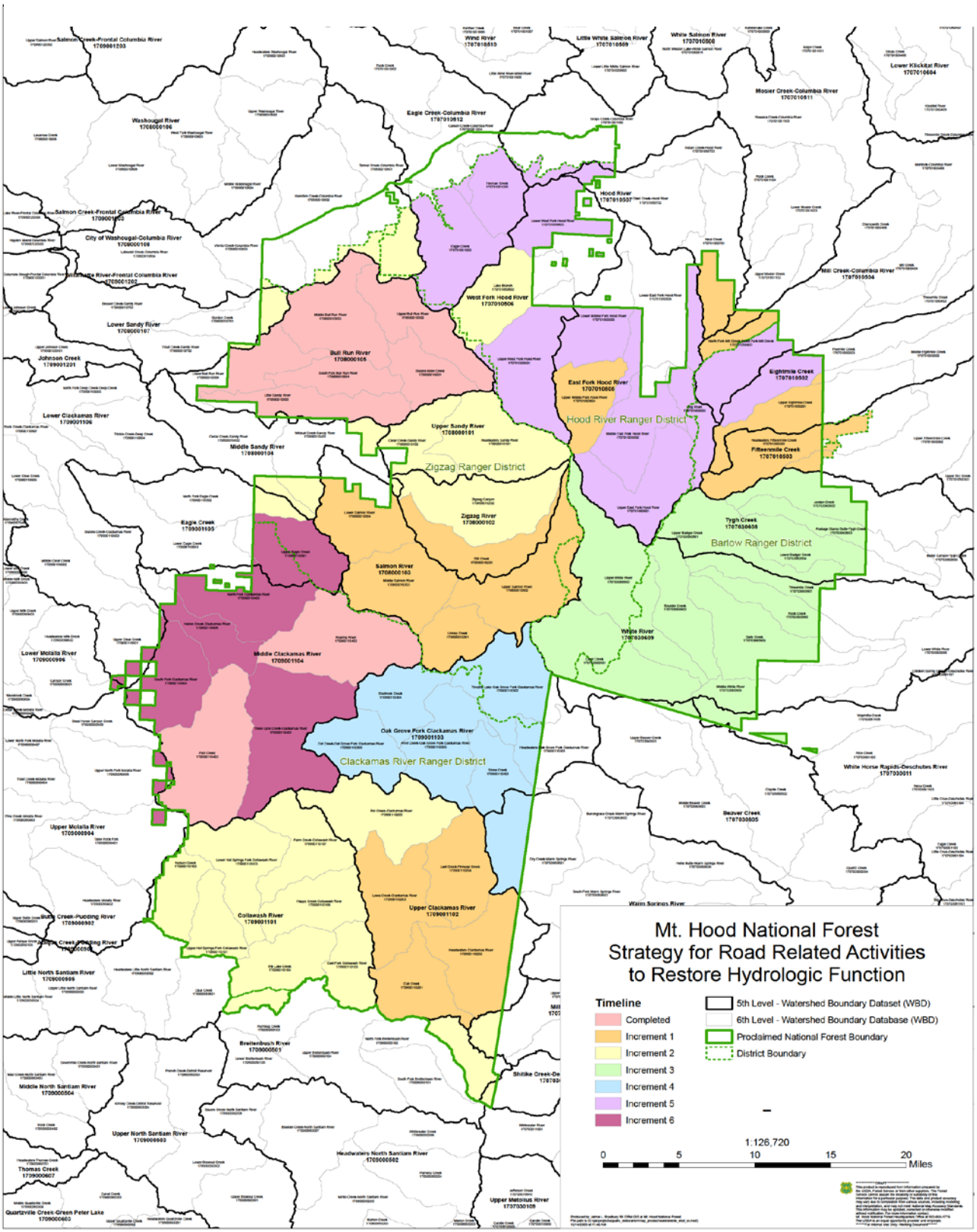
Road Improvement or Upgrade NEPA Planning

NEPA planning for road improvements or upgrades (Category 2, above), if needed, would be completed as soon as it is known that such projects are funded. In most cases, it is envisioned that a site-specific categorical exclusion will suffice to meet NEPA compliance requirements. This level of NEPA planning and documentation would be accomplished by the road managers/engineering staff with other resources support as needed.

Multi-Year Schedule

In order to effectively and efficiently apply the strategy described above for addressing legacy roads, focus watersheds within priority river basins were aggregated into planning areas that are reasonable in size and still retain a specific geographic context of a river basin's unique attributes. These geographic planning areas, referred to as Increments, were divided across the forest and are sequenced over a six-year period in which to complete the planning and public involvement phases (see Figure 2). At the time of development of this strategy, Forest staff has completed the planning and public involvement phases for Increments 1 and 2, and has already initiated Increment 3. It is anticipated at the beginning of the planning and public involvement phases for Increments 4, 5, and 6 that the Forest Leadership Team will review the proposed focus watersheds comprising each increment and make adjustments if needed, particularly to align with Other Resource-Focused NEPA Planning efforts and other priority work assigned.

Figure 2. Increment Map Showing Geographic Planning Areas for Completing the Planning and Public Involvement Phase of the Mt. Hood National Forest Legacy Roads Strategy.



III. Implementation

Each fiscal year, the Forest's Engineering staff and Aquatics Program staff will coordinate developing funding requests to the regional office through the Legacy Roads and other appropriate programs to acquire project funds to implement NEPA-ready road restoration activities. The two staff areas will develop and coordinate funding proposals in alignment with current regional office guidance and direction for such work. Road restoration activities will be pared with other watershed and fish habitat restoration work in focus watersheds in such a manner that strives to complete all high priority restoration actions identified in watershed action plans as part of the regional aquatic restoration strategy.

As funding is allocated to the Forest, the Engineering staff will be responsible for developing and administering contracts for completing road-related restoration activities. Aquatics Program staff will assist in contract preparation and inspection. The amount of road-related restoration workload each year will be dependent on the amount of requested project funds received by the regional office and other contributing external funds. An out-year projection of inventory, planning, implementation, and monitoring workload and funding need is presented in Appendix A.

IV. Monitoring

Each fiscal year, the Forest's Aquatics Program staff will develop and organize monitoring activities and workload for road-related restoration program of work commensurate with funds received. Monitoring activities may consist of:

- Field reviews and visual inspections to evaluate road treatment techniques and their effectiveness for restoring natural drainage and minimizing future erosion.
- Before and after photo documentation.
- Assisting regional office and Rocky Mountain Research Station initiative to intensively evaluate the effectiveness of road restoration treatments through quantitative data collection and GRAIP modeling.
- Short-term, project-level monitoring designed to address specific relevant issues pertaining to road restoration treatment techniques or their effectiveness (i.e., meeting water quality protection standards, implementation of cost-effective erosion control practices, etc.).

Aquatics Program staff, Engineering staff, NEPA planners, and line officers will participate in regular field reviews in order to apply "lesson learned" and improve/refine future project planning and implementation.

V. Roles & Coordination

Forest Supervisor – provide leadership, guidance, direction, and clarification as needed to district rangers and staff officers with regard to implementing this Forest-wide strategy.

District Ranger – provide leadership, guidance, direction, and clarification at the district-level with regard to implementing this Forest-wide strategy. Ensure engagement with the public and key stakeholders.

Forest Engineer – coordinate all aspects of this strategy involving Engineering staff resources. Ensure completion of all aspects relating to staffing and implementing road condition inventories, contract preparation, contract administration, and updating of transportation system data in INFRA database annually. Coordinate and communicate the implementation of this strategy with respective staff from the regional office as needed.

Natural Resources Staff Officer – coordinate all aspects of this strategy that involve staff from the following program areas: Aquatics, Invasive Species, and Native Plants. Ensure key staff from Forest Headquarters is engaged and providing direct leadership and support to all aspects of this strategy. Coordinate with district rangers, as needed, to ensure key natural resources staff is available to support implementation of this strategy; coordinating work involved with this strategy and other priority program of work delivery, identifying opportunities for sharing of staff resources across districts, etc. Coordinate and communicate the implementation of this strategy with respective staff from the regional office as needed.

Lands, Recreation, and Public Affairs Staff Officer – coordinate the Road-Strategy NEPA Planning component of this strategy. Ensure completion of an updated, annual motor vehicle use map (MVUM) for the public. Coordinate and communicate the implementation of this strategy with respective staff from the regional office as needed.

Forest-wide Legacy Roads Coordinator/FLT Liaison – serve as overall coordinator for implementation of this Forest-wide strategy. Coordinate various components of this strategy between staff areas and districts as needed. Identify issues as they arise, bringing them to the attention of the Forest Leadership Team for discussion and resolution. Provide updates as needed (at least twice per year) to the Forest Supervisor and Forest Leadership Team on the status of implementing this strategy.

APPENDIX A

Activity	2010	2011	2012	2013	2014	2015	2016
Inventory	Increment 3: White River & Tygh Creek on BRD & HRRD 636 miles ~$100k	Increment 4: Oak Grove Fork on CRRD 447 miles ~$100k	Increment 5: West Fork & East Fork Hood River & remaining areas of Hood River Basin on BRD & HRRD 347 miles $100k	Increment 6: North Fork & South Fork, Three Lynx, and Upper Eagle of the Lower Clackamas on CRRD 331 miles ~$100k			
Planning	Complete Increment 2 NEPA efforts for remaining portions of the Sandy River Basin on ZZRD & Collawash River on CRRD Initiate Increment 3: Develop proposed action by 6/1/10 to inform inventory effort on White River & Tygh Creek on BRD & HRRD 622 miles $120k	Complete Increment 3 NEPA efforts for White River & Tygh Creek on BRD & HRRD Initiate Increment 4: Develop proposed action by 6/1/10 to inform inventory effort on Oak Grove Fork on CRRD 636 miles $120k	Complete Increment 4 NEPA efforts for Oak Grove Fork on CRRD Initiate Increment 5: Develop proposed action by 6/1/10 to inform inventory effort on West Fork & East Fork Hood River & remaining Hood River Basin on BRD & HRRD 447 miles $120k	Complete Increment 5 NEPA efforts for West Fork & East Fork Hood River & remaining Hood River Basin on BRD & HRRD Initiate Increment 6: Develop proposed action by 6/1/10 to inform inventory effort on Lower Clackamas on CRRD 347 miles $120k	Complete Increment 6 NEPA efforts for North Fork & South Fork, Three Lynx, and Upper Eagle of the Lower Clackamas on CRRD 331 miles ~$100k		
Implementation	Increment 1 carryover contracts from FY09: Salmon River, Upper MFHR & Little Sandy. Increment 1 FY10 contracts: Still Creek (3 miles); Upper Clackamas (130.2 miles); Upper 8-Mile (9.0 miles), Misc. TS NEPA Roads submitted by Eastside (5.8 miles); Misc. Roads submitted by Westside (8.0 miles); Increment 2: Sandy River Basin on ZZRD (43 miles) 193 miles $1,814k	Increment 2 carryover contracts from FY10: Upper Clackamas on CRRD & Sandy River Basin on ZZRD. Increment 2 FY11 contracts: Collawash River on CRRD (150 miles) 150 miles $1,770k	Increment 2 carryover contracts from FY11: Collawash River on CRRD. Increment 3 FY12 contracts: White River & Tygh Creek on BRD & HRRD (150 miles) 150 miles $1,770k	Increment 3 carryover contracts from FY12: White River & Tygh Creek on BRD & HRRD. Increment 4 FY13 contracts: Oak Grove Fork on CRRD (150 miles) 150 miles $1,770k	Increment 4 carryover contracts from FY13: Oak Grover Fork on CRRD. Increment 5 FY14 contracts: West Fork & East Fork Hood River & remaining Hood River Basin on BRD & HRRD 150 miles $1,770k	Increment 5 carryover contracts from FY14: West Fork & East Fork Hood River & remaining Hood River Basin on BRD & HRRD . Increment 6 FY15 Contracts: North Fork & South Fork, Three Lynx & Upper Eagle of Lower Clackamas on CRRD. 150 miles $1,770k	Increment 6 carryover contracts from FY15: North Fork & South Fork, Three Lynx & Upper Eagle of Lower Clackamas on CRRD. $40k admin
Monitoring	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k	Implementation & BMP monitoring; coord. w/ RO effectiveness monitoring $40k

Deliverables of Implementing the Strategy

NOTE: the final products (deliverables) of implementing this strategy are the results of "decisions made," not the result of implementing the decisions.

- The Forest-wide "Increment Map" and annual updates/adjustments.
- NEPA documents (on Web-site).
- Database & GIS updates (INFRA and other databases??).
- Annual Motor Vehicle Use Map (MVUM) (available to public).
- Product of Decision Tree road decisions (what type of documentation is needed and where to 'store' – decisions made will show up on MVUM).
- Web-based database for roads inventory developed with collaborators (under consideration/development).

Process for Road restoration projects

1. Decisions using the Mt. Hood National Forest Decision Tree will contain documentation that places system roads into one of the following categories (Note: Decision Tree needs to be updated to include terrestrial objectives):
    a. Category 1: System roads to keep in system at current maintenance level – no NEPA required.
    b. Category 2: System roads to "upgrade, improve, or storm-proof" - may or may not require NEPA.
    c. Category 3: System roads to "close" (e.g., change to maintenance level 1) – requires NEPA.
    d. Category 4: System roads to decommission (e.g., remove from system) - requires NEPA.
2. Survey/Inventory road system to develop/refine a proposed action
3. Project Initiation Letter
4. Begin NEPA process. Include the NEPA checkpoints with Gary:
    a. Purpose and Need
    b. Proposed Action
    c. Issues and Alternatives
    d. Preferred Alternative/Decision
5. Update databases (Infra, Facts, GIS) and post NEPA document on website
6. Design projects
7. Develop prioritized list of projects and develop funding proposals
8. When funding is available, assemble contracts
9. Implement project, including contract administration
10. Monitor
11. Update MVUM after project implementation (remove roads that have been closed or decommissioned)