DRAFT Forest Road Management Approach

Mid Coast Implementation-Ready Total Maximum Daily Load: Forest Roads Desired Outcomes, Reporting & Planning Metrics, and Management Measures

This document describes the goals and requirements for reducing sediment pollution from forest roads in the Mid-Coast basin under the Oregon Department of Environmental Quality's (DEQ's) Implementation-Ready Total Maximum Daily Load (IR-TMDL) for the basin. This document was crafted with input from the Oregon Department of Forestry (ODF).

The Oregon Forest Practices Act (ORS Chapter 527) was created in 1971. Related Oregon Administrative Rules (OAR Chapter 629) have been revised over time to reflect increasing scientific knowledge and social expectations. Revisions to the Road Construction and Maintenance administrative rules over time have reduced negative impacts to water quality. Forest roads built consistent with the current OAR Chapter 629, Division 623, "Forest Roads-Road Construction and Maintenance Rules" are considered protective of water quality.

Concern has been raised about roads built prior to current FPA standards ("legacy" roads). Roads constructed using Forest Practices Act (FPA) rules and guidance in place since 1984 are likely hydrologically disconnected to the greatest degree possible and have acceptable levels of risk that crossing and road prism failures would impact water quality. Drainage- and wet weather hauling-related changes to those rules in 2003 give further assurance that current FPA rules are likely protective when implemented. Road age, however, does not directly result in poor water quality, nor is the age, reconstruction or maintenance history of a given road likely to be readily available. The intent of the IR-TMDL management measures is to reduce the risk levels from roads that were constructed using methods or in locations that may be problematic for water quality.

This IR-TMDL document does not address road maintenance required per the FPA. If landowners and other parties responsible for roads are not complying with the road maintenance rules, then ODF's current compliance and enforcement authorities should address that problem. This program describes measures to identify roads that are considered at risk of delivering sediment or turbidity to waters of the state (WOS), bring the road network to a level of performance that is consistent with current construction practices, and reduce and prevent water quality impacts. This will have the additional benefit of having a more resilient road network that will be less expensive for landowners to maintain and repair and less likely to be severely damaged by large storms. Forest operations also utilize the public road network (primarily county and federal roads). The public road system may also be a source of excess sediment to waters of the state, and will be subject to evaluation and corrective measures under the IR-TMDL.

It is the intent of DEQ that previous efforts to improve road performance, stability, and hydrologic disconnection will be accounted for and that landowners will be given credit for past, present, and future voluntary actions under the Oregon Plan for Salmon and Watersheds (Oregon Plan), third-party forest certification systems, planning programs such as the Stewardship Plan program, or Stewardship Agreements with ODF or other documented landowner efforts.

2014-919500013083

TMDL Goals & Objectives

Water Quality Goals

- An efficient and beneficial forest road network that is located, designed, constructed, maintained or vacated in a manner that provides the maximum practical protection to maintain water quality.
- No more than 10% increase in turbidity due to forest roads at relevant compliance point, e.g. downstream of crossing structures or due to road-related landslides (Turbidity Standard: OAR 340-041-0036).
- No impairment of aquatic life and drinking water use due to anthropogenic sedimentation (Biocriteria, Potability of Drinking Water, and Sediment narrative standards: OARs 340-041-0011, 340-041-0007(11), and 340-041-0007 (12), respectively).

Forest Roads Goals

- No exceedance of water quality standards due to forest roads or forestry operations on public roads.
- Hydrologically disconnected road network (to the maximum extent possible) using available BMPs and good design principles.

Forest Road Objective(s)

- Entire road network should meet current Forest Practices Act requirements and guidelines as the means of achieving water quality goals for sediment.
- Road maintenance operations are performed as needed including regular inspections and storm patrols, thereby meeting FPA requirements.
- Any pre-FPA roads and problem road segments are known by landowner with potential problems identified.
- Owner/operator has a road management plan, including the inventory and assessment metrics below.

DRAFT

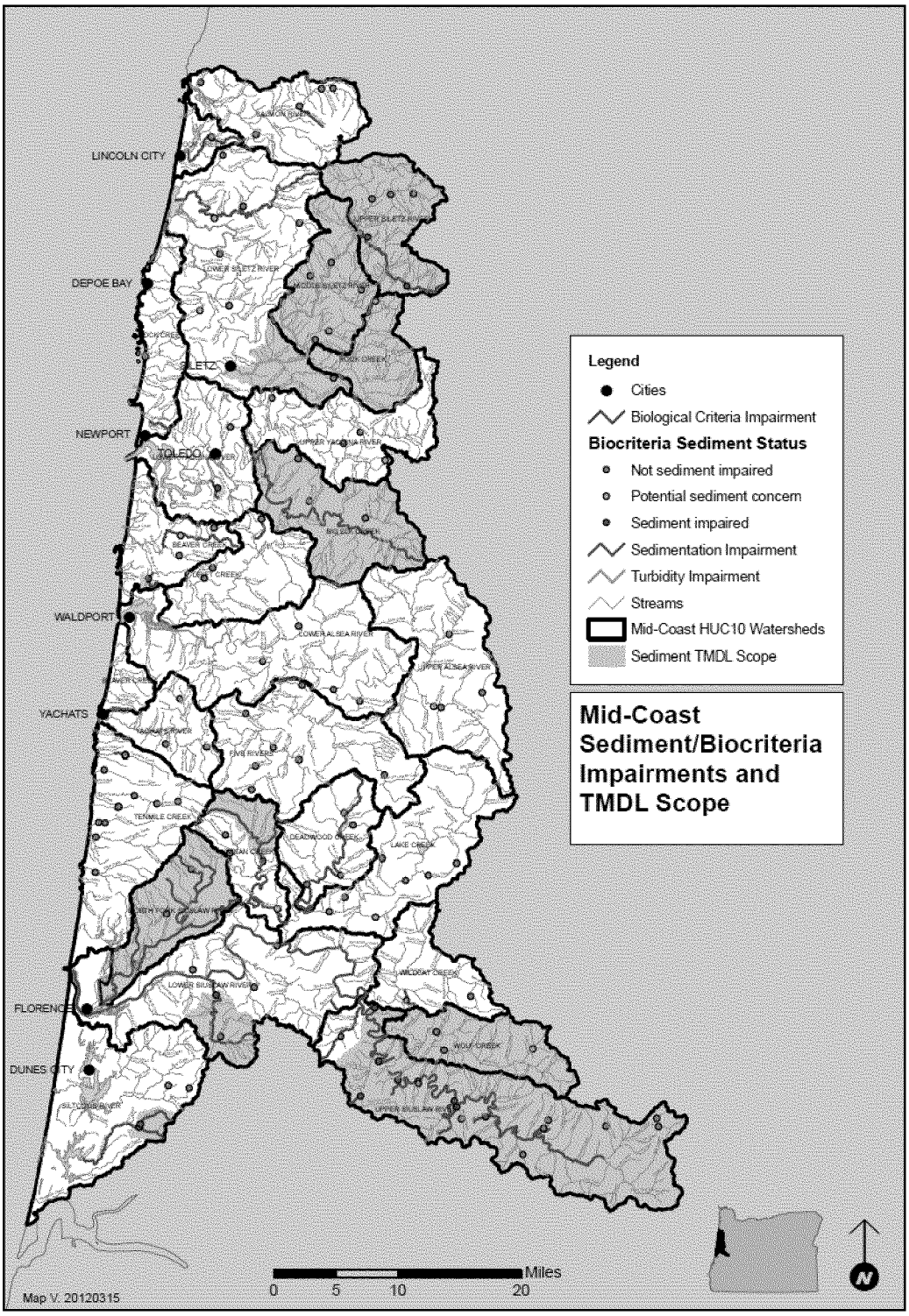
2014-919500013083

Geographical Scope of IR-TMDL

The sediment portion of the Implementation-Ready Total Maximum Daily Load (IR-TMDL) load allocations and management measures apply to the areas identified on the 2010 303(d) list. These areas are shown on the attached map. The requirements of the IR-TMDL for sediment do not apply to the remainder of the Mid-Coast basin, but DEQ encourages implementation basin-wide.

DRAFT

2014-919500013083



OBJECTIVES:

1. **Develop a working definition of the "universe" of roads, based on FPA definitions, literature and other sources;**

Concerns have been raised about "legacy" roads and the risk of sediment delivery to waters of the state they present. The road types described below attempt to make a linkage between the concept of "legacy" roads, forest road best management practices in place at the time of road construction and the characteristics that may put them at risk of sediment delivery. For the purposes of this document, "legacy" roads are those that were not constructed to current Forest Practices Act standards (Type 1 roads). Ultimately, the risk of sediment delivery will be based on an age-independent set of characteristics described in Section 2 of this document.

Road Types (provided by Oregon Department of Forestry)

1. ***Roads built to current standards***. These are roads which have been constructed per the standards of the major, road-related revisions to the FPA in 1984. Those revisions required full bench design and end-hauling of excavated material. Revisions in 1994 required design for 50 year flood events and fish passage for new crossing structures; wet-weather hauling and drainage-related rule revisions occurred in 2003. These roads include both active and inactive roads being used for forest management either for active logging operations or for other forest management related activities. This set of roads may include roads constructed prior to 1984, but were either constructed or updated to meet those modern standards.

   This set of roads does not include vacated roads which have been intentionally and properly stabilized for permanent drainage and slope stability. If it is not stabilized, it is not a vacated road, and falls under the maintenance requirement for an inactive road.

   "Modern FPA Roads" are built to modern BMPs which when properly built and maintained are recognized to be protective of waterways.

DRAFT

2. ***Roads built prior to 1984.*** These are roads which were first constructed using older rules that were not adequately protective of surface waters (between 1971 and 1984). These have some elements of water-protecting modern road design (BMP's) but not as many as are contained in FPA rules since 1984. Issues on these roads are frequently related to the practice of side-casting excavated material onto steep slopes instead of end-hauling to a stable location.

3. ***Pre FPA roads and skid trails***. These are roads, or in many cases cat-built skid trails, which were INITIALLY used for forest management prior to any regulatory framework to oversee them. There are two types:
   a. Skid trails/roads which fell out of use for forest management purposes prior to the FPA in 1971. Most were built to allow tractor or skidder yarding rather than as roads accessible to truck traffic and generally pre-date the FPA harvesting rules. These were therefore steeper, narrower, involved little sidecast, were never meant to be permanent, and usually cannot be identified in modern aerial photography. They are usually vegetated like the surrounding forested area and have a thick layer of duff/soil over the old grade. They have mostly returned to a sediment neutral situation where areas of old fills that were unstable have long since failed and revegetated. To properly vacate these roads as per current FPA rules, tree-cutting and near complete rebuilding would be required to gain access to a limited number of troubled spots, followed by deconstruction after access is gained. This would create more sediment entrainment to surface water than is actually mitigated.
   b. Roads which continued to be used after the FPA came into force in 1971. While some of these roads have since been properly vacated and are no longer are used for forest

2014-919500013083

management, others span the gap between the first FPA rules and the current FPA rules and may have had various upgrades. If they have had upgrades, those upgrades are not sufficient to advance them to the type 1 roads (see above definition). Some of these would not be built today given the modern FPA standards but continue to be used for forest management and should be upgraded to current standards at that time. They may still have risks such as oversteepened sidecast construction following upgrades.

2. Develop a set of criteria to determine which roads/segments have potential to deliver sediment to streams, based on the characteristics of roads and road segments.

Risk Criteria for Sediment Delivery

This section explains how forest road landowners and road managers can make an informed decision as to the recognition of the problem spots on their forest management roads. Most landowners/road managers will already have a very good idea of where they could improve their road system to reduce the risk of sediment delivery to waterways. Most have observed their roadways during storm events and will know under what storm events they are likely to have a problem, and what steps can be taken to improve the situation.

Chronic/Frequent Sediment Delivery

- There are two general principles to determining the likelihood a road will chronically or frequently deliver sediment to a waterbody. Those are ***hydrologic connectivity*** (ability to deliver sediment to surface waters) and ***total disturbed road area*** (generation of sediment). Both are addressed in the lists of factors below.
    - **Hydrologic connectivity:** If a road is hydrologically connected, then water which runs off of part of the road prism will enter surface waters. For example, if a ditchline drains a section of road and the water which runs in the ditch flows into a stream, then that section of roadway is hydrologically connected. However, if there is a culvert which diverts the ditch water under the road and onto the forest floor where it can filter into the soil, then that section of road is not hydrologically connected and sediment cannot be delivered to the waterbody.
    - **Total disturbed road area:** This is the area of the whole road prism – cut slope, ditch, road and fill. If a road is newly constructed and vegetation has not reestablished itself on the cuts and fills, then it will have more risk to create sediment than an older road whose fills are vegetated like the surrounding forest. If a road has a raveling section along a portion of cutslope which never revegetates, then this section is likely to have sediment running in the ditchline during rainfall and must be hydrologically disconnected from nearby waterbodies.
- A road segment with high sediment delivery potential must have both sediment generation and delivery to surface waters. If there is high sediment generation but none of the sediment can get to surface waters, then it is of little concern for water quality protection.

Episodic Sediment Delivery

- Episodic delivery of large amounts of sediment from roads is generally due to failures of the

2014-919500013083

road prism or stream crossing structures. These failures can happen for a variety of reasons, such as steep sidecast fillslopes sliding or plugging of cross-drains or stream crossing culverts. Large storms and resulting runoff and streamflow increases can trigger these failures, dependant on circumstances. The two major contributing factors for episodic sediment delivery are **storm intensity** and the structure's **risk of failure** for a given storm intensity. Risk of failure is due to a combination of a structure's age, construction, damage from previous events, slope, stream power/gradient, etc.

Common Factors

- **Rainfall intensity:** Owners and road managers should also consider how well roads will perform during both smaller and larger rain events. A road must not deliver sediment to waterbodies during normal wet winter periods, or most major events, and culverts and crossing structures must also be able to handle normal wet weather periods without impact. Landowners are expected to have their road systems prepared for 50-year event storm intensities without major failures or sediment delivery to the stream network which would cause water quality standards to be exceeded.

    - **<u>Sediment Delivery Risk Factors:</u>**
        - Road proximity to surface waters
            - Amount of road area near or within riparian zone
        - Culverts/stream crossings
            - Type of crossing
            - Culvert fills
                - Depth
                - Armoring (insufficient to prevent erosion)
                - Organics in fills (logs, slash)
                - Log fills (log puncheons)
            - Culvert structure deterioration
            - Undersized culvert
        - Slope of area below road
        - Likelihood of slope failures reaching surface waters
        - Presence of springs/seeps
        - Cross-drains from road ditches
            - Cross-drain placement
            - Damaged drainage structures
            - Log drainage structures (puncheons)
        - Stream gradients

    - **<u>Generation of Sediment Factors:</u>**
        - Underlying erosive soil types/geology
        - Total road prism area
        - Type and condition of surface material
        - Condition of road grade (cracking)
        - Slope of road and surrounding area
        - Sloughing on cutslopes
        - Oversteepened fillslopes from sidecast construction

DRAFT

2014-919500013083

- Failure or likely failure of fills
- Potential of a culvert to become plugged and washout or divert water onto roadway
- Length of ditch without cross-drains (slope dependent)
    - Downcutting in ditches indicates need for more frequent cross-drains
- Anticipated use (i.e. light traffic vs. heavy machinery and frequent travel)

3. Rank these roads or segments according to risk of delivery (e.g., high, med, low), based on the characteristics and screening criteria developed.

This section explains how forest road landowners and road managers can make an informed decision as to the recognition and relative ranking of forest roads at risk of delivering sediment to waters of the state.

General Guidelines for the Ranking Process:

- Protecting fish-bearing streams and drinking water sources should accounted for during prioritization.
- The road segments and stream crossings that are the largest potential chronic sediment sources, likely to have the surface break down and deliver sediment during road use, or are most likely to catastrophically fail need to be the top priorities when landowners are doing road work in a particular area. These may not necessarily be the first activity, but high risk segments/features must be corrected as part of that project, i.e. not delayed, and project areas should be prioritized based on the largest potential sediment sources.
- This ranking should not include basic maintenance, but rather focus on roads or road segments constructed or located in a manner that puts them at higher risk of sediment delivery to waters of the state. The actual method by which a road system or location is ranked for risk of sediment delivery is not dictated here. However, the general principles and guidelines outlined here and in the references at the end of this section should be considered in the prioritization.

4. Develop inventory and assessment reporting metrics needed to establish pre-Oregon Plan baseline and current situation. Outline potential implementation approaches in the MidCoast Basin in an adaptive management context. (Comment: This is not likely to be known prior to completion of TMDL, therefore need TMDL to reference BMP menu – see #5).

Private Industrial Forestlands:

Inventory & Assessment Metrics

- Submit inventory of and schedule for legacy and other road improvements/obliteration under DEQ's regulatory IR-TMDL authority as described above. This could include an original survey and summary created for the Oregon Plan with accompanying accomplishment report if detail is sufficient. As feasible, links to accomplishments reported to OWRI could be included. Reporting should include the following metrics:

1. Total Road Miles in the Active/Inactive Road Network

2. Stream Crossings
    a. Number of crossings—w/ substantial risk of fill failure, stream diversion, or other

2014-919500013083

catastrophic sediment delivery due to culvert size, crossing construction, or other issues [need ID protocol]

b. Number of crossings—w/ substantial risk of sediment delivery due to potential connectivity, but without current sediment delivery [need ID protocol]

3. High Priority Road Locations (may be associated with Category 2 or 3b roads, see above):
   a. Riparian/waterbody adjacent roads (in wetlands/floodplains/channels/RMAs)
      i. Number of problem road locations (with estimated length for each location) and total road miles in this situation
      ii. Number of locations and road miles needing additional BMPs and improvements [need ID protocol]
      iii. Number of locations and road miles that need to be vacated [need ID protocol]

   b. Slopes with substantial sidecast construction which is steeper than the natural slope, excessive cutslope heights (generally over 15ft [OAR 629-625-0320(1)(b)(B)], but depends on situation), or fills with logs/organic debris.
      i. Number of problem road locations (with estimated length for each location) and total road miles in this situation
      ii. Number of locations and road miles needing additional BMPs and improvements [need ID protocol]
      iii. Number of locations and road miles that need to be vacated [need ID protocol]

DRAFT

   c. High landslide hazard locations where rock is likely to be highly sheared or otherwise unstable so that it is not possible to excavate a stable cutslope.
      i. Number of problem road locations (with estimated length for each location) and total road miles in this situation
      ii. Number of locations and road miles needing additional BMPs and improvements [need ID protocol]
      iii. Number of locations and road miles that need to be vacated [need ID protocol]

   d. Locations cutting through the toe of deep-seated landslide deposits (particularly active or recently active) and where a reactivated landslide would likely enter waters of the state.
      i. Number of problem road locations (with estimated length for each location) and total road miles in this situation
      ii. Number of locations and road miles needing additional BMPs and improvements [need ID protocol]
      iii. Number of locations and road miles that need to be vacated [need ID protocol]

   e. Extremely dissected, steep slopes where it is not possible to fit the road to the topography with full bench end haul construction.
      i. Number of problem road locations (with estimated length for each location) and total road miles in this situation
      ii. Number of locations and road miles needing additional BMPs and

2014-919500013083

improvements [need ID protocol]

iii. Number of locations and road miles that need to be vacated [need ID protocol]

f. Cross drain/ditch relief culverts creating risk to road prism and/or water quality (potential for failure/plugging, bad location (onto oversteepened soils, headwalls,), log puncheons, etc.)

i. Number of problem road locations (with estimated length for each location) and total road miles in this situation

ii. Number of locations and road miles needing additional BMPs and improvements [need ID protocol]

iii. Number of locations and road miles that need to be vacated [need ID protocol]

4. Qualitative assessment of roads in Category 3a (see above), particularly crossing fills or road segments at high risk of failure

i. If in or near a harvest operation, encourage remediation as a harvest BMP

- Oregon Plan for Salmon and Watersheds:
  - Inventories can be used. Updates may be needed to capture newer risks.
  - Problems/risks identified and remedied under the Oregon Plan may be included in the inventory, even if work is already completed, and then counted towards meeting milestones.
- Third-party certifications such as FSC may be sufficient to meet road inventory requirements.

DRAFT

Improvement and Removal Plan

- Describes how landowner will structure their road management program to meet the required milestones (see Table 1 below).
- Allows landowner to prioritize based on harvest and road maintenance schedules to implement the needed road improvements and vacating operations in an economically efficient fashion in addition to prioritizing based on highest risk.
- Oregon Plan or third-party certification-related documentation may be acceptable if detail is sufficient.
- Include details of how spatial, temporal, and risk-based prioritization will be done (see "Risk Criteria for Sediment Delivery" section above).
- Include basic outline of how work will be structured to ensure that milestones are met.
- Does not need to detail every individual improvement that will be done.

Reporting Progress

- Submit Progress Report to DEQ every two years.
- A consistent, electronic submission format will be needed for the Biennial Progress Report.
  - Landowner can do work in house or use a consultant.
  - Will be similar enough to OWRI that submissions will work for both OWRI reporting and IR-TMDL reporting.
  - Submission of certification audits/reports on metrics relevant to roads and water quality (FSC) may be sufficient.
- Progress Report will use the same metrics as the Inventory & Assessment.

2014-919500013083

- Progress Report gives a basic summary of accomplishments in the two-years since the previous Progress Report, the cumulative progress, and what remains to be accomplished in each category.
- New problems identified can be added to Inventory and work done will apply towards milestones (i.e. if problems are found and immediately fixed, the landowner can add them to the inventory and use the work done towards meeting milestones).

Table 1: Timeline & Milestones

Calendar Year	TMDL Year	Action Milestone
2013	0	TMDL Approved
2015	2	Inventory & Assessment Completed; Start Road Work
2017	4	Improvement & Removal Plan Approved
2019	6	-
2021	8	25% of Plan Work Completed
2023	10	-
2025	12	50% of Plan Work Completed
2027	14	-
2029	16	75% of Plan Work Completed
2031	18	-
2033	20	100% of Plan Work Completed

DRAFT

Family (Private Nonindustrial) Forestlands

- Survey roads for outstanding problems, immanent damage, and do regular storm patrols.
- USFS/ ODF Stewardship plans (the Roads & Access section), Oregon Tree Farm System certification and plans, Oregon Plan road inventories, or planning and reporting for sustainability certifications such as FSC can be used for the purposes of this IR-TMDL.
- Needs and opportunities as reported through the above planning processes will likely include elements of both "legacy" road placement and construction as well as smaller-scale road upgrades. With approval from USDA Forest Service, ODF may be able to target cost-share funds for development of land management plans to the Mid-Coast TMDL. This effort could be further incentivized by targeting reported road improvement opportunities for DEQ, OWEB, or other grants for implementation.
- Immediate or near-term (water quality impact likely to occur within the next 5 years) water quality risks must be remedied as quickly as possible.
- When harvest and hauling operations are scheduled and will make use of all or part of the road system, those parts to be used must be evaluated, problem locations must be identified (see Table 2 below), and repairs, reconstruction, or vacation (as necessary) must be done as part of the operation.

2014-919500013083

Monitoring/Evaluation

- ODF will report annually on notification inspections with road construction/reconstruction activities.
- Status and trend monitoring of hydrologic connection of the road network, locations at risk of catastrophic failure, and compliance with road rules can be done through ODF's Sustainable Forest Management Indicators. Indicators D.c (forest road risks to soil and water resources) and A.c (compliance with forestry regulations) are relevant to forest roads issues. Moving forward now on Indicator D.c is vitally important to creating baseline data for future analysis of TMDL load allocations and management measures. Supporting, initiating, and reporting on these two indicators every 5 years is needed to create regional (and statewide) status and trend data for forest road conditions and rule compliance. Using ODF's Indicator process would avoid wasteful duplication of effort and allow other TMDL effectiveness monitoring resources to be used elsewhere. DEQ will assist with the study design, evaluation, and interpretation of these two indicators.
- DEQ will monitor water quality and biological communities to track TMDL effectiveness and improvements in water quality and ensure water quality standards are met and beneficial uses are being supported.

5. For those roads/road segments reported as having potential sediment delivery, identify BMPs to be used resolve the issue (wide range of outcomes, DEQ can provide list of BMPs, transportation management to vacation/obliteration).

DRAFT

Prioritization

Operational

Water quality risk

Technical References

EPA Guidance (US Environmental Protection Agency)
http://www.epa.gov/owow/NPS/MMGI/Chapter3/ch3-2c.html &
http://www.epa.gov/owow/NPS/MMGI/Chapter3/ch3-2d.html

Forest Engineering Road Manual
http://egov.oregon.gov/ODF/STATE_FORESTS/docs/management/roads_manual/ForestRoadsManualCombined.pdf

Forest Road Management Guidebook (Oregon Department of Forestry)
Available from ODF

Illustrated Forest Practices Manual (Oregon Forest Resources Institute)
http://www.oregonforests.org/assets/uploads//OR_For_Protect_Laws_2011.pdf

Managing Woodland Roads: A Field Handbook (Oregon State University/OSU Extension)

2014-919500013083

Available from Oregon State University Extension

ODF Guidance for Division 625 (Road rules)
http://www.ohcs.oregon.gov/ODF/privateforests/docs/guidance/OARDiv625.pdf

ODF Technical Notes 7, 8, & 9 (Oregon Department of Forestry)
http://egov.oregon.gov/ODF/privateforests/TechReportsNumerical.shtml#monitoring

Oregon Plan Guidance (Oregon Department of Forestry)
http://www.oregon.gov/ODF/privateforests/docs/Oregon_Plan_PFguide.pdf

Oregon Forest Stewardship Planning Guidelines (OSU/ODF/Oregon Tree Farm System/OFRI)
http://www.oregon.gov/ODF/privateforests/docs/StewardshipPlanGuidelines.pdf?ga=t

US Forest Service GRAIP model
http://www.fs.fed.us/rm/boise/AWAE/briefing/Luce_FocusOnGRAIP.pdf

http://www.fs.fed.us/rm/boise/publications/misc/LuceRoadInventoryWatershedAnalysis.pdf

http://www.ohcs.oregon.gov/ODF/privateforests/MonitoringForestRoads.shtml

Washington Board Manual Section 3 (Washington State Department of Natural Resources)
http://www.dnr.wa.gov/Publications/fp_board_manual_section03.pdf

DRAFT

2014-919500013083

BACKGROUND - ISSUES AND APPROACHES

EPA/NOAA raised the issue of "legacy" roads in the CZARA/CNPCP documentation (1998, 2004) as an outstanding "measure" and one basis that they have not fully approved Oregon's CNPCP Program. EPA/NOAA have since provided additional information to clarify their concerns with forest roads and natural resource protection, in relation to the approval of Oregon's CNPCP Program.

For purposes of this evaluation, "legacy" roads is proposed to be defined as: *those roads/segments constructed before the effective date of the Oregon FPA (1972)*. (See section below "Does age matter?")

Pre-1972 roads were not subject to construction or maintenance standards and no specific requirements for abandonment or "vacating" roads was in place prior to 1972. Following 1972, a series of revisions to the FPA and associated roads construction and maintenance rules were enacted (see table 1. & associated narrative below) that make defining the effective age or date of a road/segment a moving target and thus an unreliable indicator of either condition or negative effects on soil and water.

Does age matter? Why Oregon's (ODF-DEQ) PENDING approach addresses the issues raised by EPA/NOAA in CNPCP documentation between 1998 and present.

DRAFT

Following numerous discussions and clarifications, it is apparent that **the primary concern EPA/NOAA concerns Private Forest roads (i.e., both FPA regulated and those pre-FPA) that have a <u>potential</u> to deliver sediment to streams and thereby pose a risk of negative impacts to natural resources, including water quality, aquatic life and other beneficial uses**. Oregon's (ODF-DEQ) PENDING approach addresses roads of various age categories, and is not limited to so-called "legacy" roads referred to in the CZARA/CNPCP documentation (1998, 2004).

Based on ODF-DEQ discussions thus far, we conclude that age is both difficult to determine and may be of little value in assessing road characteristics, with a few exceptions. Since a large proportion of private industrial forest roads were constructed to one standard, then re-constructed to newer standards, and possibly later maintained/upgraded to current or newer standards, the applicable BMPs and characteristics of the road/segment have probably changed multiple times since construction. What is of primary interest in the current characteristics of the road/segment. General classification of road/segment in relation to water quality and beneficial use protection is best done by characteristics, all or most of which are identified in existing documentation (see below).

Roads <u>both</u> constructed & abandoned pre-FPA (not active since 1972) should be defined as a separate category, to the extent that these roads/segments can be identified, since they are not under ODF jurisdiction. However, a large proportion of the road miles in this category may have mature vegetation growing on them and are thus inaccessible for either assessment or use of current "vacating" practices

2014-919500013083

to ensure that they are not a source of sediment. These roads or segments were generally replaced by more current roads to access harvest units after 1972 (Mills paper; P. Daugherty pers comm).
Screening Approach: The Draft Forest Road Management Approach will use a screening approach to determine whether private forest roads have a potential to deliver sediment to streams, based on characteristics of roads/segments. The screens are taken from various sources of published information, primarily from the Oregon Dept of Forestry.

Characteristics of roads/segments. The first screen is road segment location, a defining characteristic that affects proximity of the road to waterbodies at various places along its length and whether a segment is located in a higher risk location (identified below)_____.

In Technical Note Number 7, ODF identifies the following characteristics of poorly located roads/segments: The key here is to reduce or eliminate roads in the following locations:

- where fill is placed in stream channels
- in riparian management areas
- crossing wetlands
- on high landslide hazard locations, especially when rock is weak
- cutting across the toe of old landslide deposits above streams
- on steep slopes with easily eroded soils (granitics)

http://www.ohcs.oregon.gov/ODF/privateforests/docs/CriticalRoadLocationsFPTechNote7.pdf

DRAFT

The second bullet includes road segments that are along streams. Road segments with these six location characteristics are considered poorly sited and generally pose a higher risk of sediment delivery to streams than other road segments. Many roads/segments are on flat terrain or near ridge tops where they do not cross streams and thus have no potential to deliver sediment to streams or block fish passage.

Oregon's Draft Forest Road Management Approach with assessment of road characteristics, and associated potential to deliver sediment to streams, is a necessary step in establishing a "Program" to address one of the outstanding "additional measures for forestry" identified in the EPA/NOAA documentation on approval of Oregon's CNPCP.

Elements of Oregon's Draft Forest Road Management Approach have been developed under the FPA and Oregon Plan. The Forest Practices Act and rules does not provide regulatory authority for a road road inventory and risk assessment . The FPA does provide authority for the State Forester to take enforcement action where sediment is being deliverd to waters of the state through its road rules (Division 625). Many practices were developed to meet FPA outcome-based requirements, follow guidance, or were voluntary measures completed under the auspices of the Oregon Plan.
Summary of gaps in current FPA according to EPA and NOAA:

- No specific road inventory and assessment requirement; no GIS based inventory.
- No required methodology when road inventory and/or assessment are conducted.
- No inventory & tracking of Oregon Plan voluntary actions at a geographic specific level.

2014-919500013083

Both the need and the value of a comprehensive road inventory and assessment/tracking program was also identified by ODF in the ***Oregon Indicator of Sustainable Forest Management D.c. : Forest road risks to soil and water resources*** http://www.oregon.gov/ODF/indicators/indicatorDc.shtml

Significant private and public (OWEB) expenditures have been made to upgrade the road network on land under private industrial ownership under the Oregon Plan (OR PLAN reporting _____). EPA/NOAA (2004) recognized this investment has played an important role in improving road conditions and fish passage, but repeatedly expressed that it is inadequate to meet CNPCP measures because it is not an enforceable "Program" and because it does not provide a verifiable reporting and monitoring component that would show that the management actions being reported are actually resulting in improvements.

SOLUTIONS

Several solutions have been discussed to satisfy EPA/NOAA concerns, including:

1. Adoption of a forest practices rule system equivalent to that in Washington's Forest and Fish Law (Road Maintenance and Abandonment Plans (RMAPs)).

2. Development of an Oregon Program that contains verifiable forest roads inventory, monitoring and reporting components showing that the management actions being reported result in meeting standards and necessary improvements to protect resources.

3. Management requirements akin to NW Forest Plan (NWFP) on US Forest Service lands.

Oregon (ODF-DEQ) has concluded that the best solution is to: develop an Oregon Program, building on existing efforts and addressing gaps. The starting point would be to: Develop a draft screening approach to determine which roads subject to the FPA have a potential to deliver sediment to streams, based on characteristics of roads/segments. Rank these according to risk of delivery (e.g., high, med, low) using specific areas of the MidCoast Basin*. This assessment may be combined with information from other assessments conducted by ODF on state-managed forestlands within three watersheds (Miami, Upper Nehalem, and Wilson).

NOTE: Similar monitoring was planned as part of the Oregon Plan for Salmon and Watersheds - Road Hazard Identification and Risk Reduction project, but has yet to be implemented.

***OWEB Region 2 (primarily South Coast)**: History of well-designed and executed road surveys and studies (TA grants) and road upgrades or decommissioning conducted (restoration grants). Similar road assessment activities have not been proposed or conducted in OWEB Region 1, including the MidCoast Basin, with exception of rapid road survey protocol proposed by this indicator is limited to state-managed forestlands within three watersheds (Miami, Upper Nehalem, and Wilson) and federal efforts in the Siuslaw NF. None of those were OWEB-funded projects.

2014-919500013083

There may be a variety of reasons for this, including physical constraints and socio-economic factors. The MidCoast Basin has some complex ownership patterns (see map), including multiple private timber ownership interspersed with other ownership, although this situation is not unique to the Oregon Coast Range. Also, some private forest landowners may believe that their management actions to date are in compliance with FPA and therefore it is not necessary to do anything else. Also, long-term studies of the effects of multiple forestry activities are being conducted in North Coast area (Wilson-Trask).

DEQ is working with USFS- Siuslaw NF and others to determine whether a modified GRAIP method is viable and would produce results that would be adequate to perform the classification of road system for risk of sediment delivery and provide a relative ranking of for prioritization of road segments for upgrades or decommissioning by landowners. The purpose of the modified approach would be to address more road miles at a reduced cost, given that a full GRAIP assessment and analysis is both comprehensive and highly resource intensive.

DEFINITIONS

Excerpt from *Forest Practices Advisory Committee on Salmon and Watersheds*, Section B; FPA Standards and Rules: http://www.oregon.gov/ODF/privateforests/docs/RptSecB.pdf

See also the State Forests Road Manual (2006) APPENDIX 6. ROAD TERMINOLOGY (Mainline, connector, Spur, etc): http://www.ohcs.oregon.gov/ODF/STATE_FORESTS/roadsmanual.shtml
http://www.ohcs.oregon.gov/ODF/STATE_FORESTS/docs/management/roads_manual/RMAppendix6.pdf

DRAFT

For the purposes of this issue paper, the following definitions will apply. A "road" normally refers to truck (sometimes called "haul") roads. Skid roads or trails (used by tracked or wheeled skidding machines to move logs from the stump to the landing) are only addressed in relation to ground-based harvesting on steep slopes in this issue paper. The Forest Practices Rules recognize three types of roads:

1. **Active**: Roads used for removing commercial forest products (regardless of the year constructed).

2. **Inactive**: Roads used for forest management purposes other than log hauling (regardless of the year constructed).

3. **Vacated**: Roads that have been purposely "put to bed", stabilized, and are impassible.

Current road maintenance rules (see Attachment A) require **maintenance** of both "active" and "inactive" roads. The term **"legacy" road** is not defined in the administrative rules. It is widely used in the public dialogue regarding forest road issues and has a different meaning depending on when and where it is used. ODF considers "legacy" roads to be synonymous with "abandoned" roads. Regardless of when a road was built, if it has been used for hauling logs or forest management since 1972, it is subject to regulation under the Forest Practices Act. The term "older" road is also used sometimes. The administrative rules continually evolve in response to changes in scientific knowledge; since the creation of the 1973 administrative rules, **major revisions to the road rules occurred in 1978, 1983, and 1994**. ODF considers "old" roads to be those built prior to the 1983 rule changes (i.e., roads built before end-

2014-919500013083

hauling of material excavated from the road prism on steep slopes).

Road maintenance is required on all active and inactive roads. Regardless of when a road was constructed, if the road has been used as part of an **active operation after 1972**, it is subject to all maintenance requirements within the current rules.

Abandoned roads constructed prior to 1972 and not used for forest management since that time are not subject to Forest Practices regulatory authority. All roads in use since 1972 must either be maintained or vacated by the operator.

The department estimates that the majority of existing forest roads were constructed prior to 1983 (prior to rule changes which improved construction practices on steep slopes).

Increased turbidity can be associated with the use of roads during rainy or thawing periods (Bilby et al., 1989; Reid and Dunne, 1984). Currently, the wet-weather hauling rules direct operators to stop hauling when high levels of sediment begin to enter streams.

FPAC… V. Evaluation of Measures and Rules - Voluntary Measures

…To this end, many private landowners and State Forests have been implementing the Road Hazard Identification and Risk Reduction Project since 1997. Thousands of miles of roads have been inspected and repaired as part of this project (Oregon Plan Report, 2005). However, there is no record of how many total voluntary improvements were being considered by landowners or the summary record of completed actions. Implementation checks on reported actions were also not conducted by a third-party.

DRAFT

http://www.oregon.gov/ODF/privateforests/docs/RptSecB.pdf

Oregon Indicator of Sustainable Forest Management D.c. ; Forest road risks to soil and water resources

http://www.oregon.gov/ODF/indicators/indicatorDc.shtml

2014-919500013083

ATTACHMENTS

Statement from Keith Mills during Human Health criteria sub-group for Nonpoint Sources

DRAFT

2014-919500013083

Keith Mills

Legacy Roads Discussion for June 30 Non-NPDES Meeting

Comments on Legacy Roads

There is no definition of a "legacy" road in the Forest Practices Act or regulations. The Forest Practices has definitions for three types of roads: Active, Inactive and Vacated. Based on legal advice and department guidance any road used for forest management access since the effective date of the Forest Practices Act in 1971 falls into one of these categories. Active and Inactive roads must be maintained as needed to protect water quality as per the nine Sections (BMP's) under OAR 629-625-0600. A vacated road must be stabilized for permanent drainage and slope stability. If it is not stabilized, it is not a vacated road, and falls under the maintenance requirement for an inactive road.

A former road that has not been used for forest management access since 1971 will be covered with trees and other vegetation, have fills which were washed out by the many high flows over the last 40 years, and based on ODF state forests road surveys actually be less connected to streams (less of a risk of chronic erosion) than active or inactive roads. They may still have locations at risk of landslides. However, to access and repair these roads requires clearcutting the trees on the road prism, reconstruction of washed out sections, and then removal of these reconstructed sections. All of these activities will increase chronic erosion for the sake of reducing episodic erosion.

There may be a different understanding of legacy roads on Federal lands (BLM and especially USFS). On these lands, road maintenance budgets have been greatly reduced, and so legacy roads may be considered roads they no longer maintain, but most have been used since 1971. DEQ has designated both federal agencies as Designated Management Agents (DMA's) for water quality, and needs to ensure these agencies are addressing the road issue on federal lands. There may be an incorrect assumption that private and state forest roads are neglected like those on federal lands.

The Oregon Board of Forestry has adopted indicators of sustainable forestry, including a water quality indicator for forest roads for all forest land ownerships. To date, adequate resources have not been provided for this indicator. Despite the lack of dedicated resources, ODF is still working to implement this indicator over next winter on north and central coast forestlands. The extent of road systems, their connectivity to streams, and restrictions on fish passage are the metrics for this sustainable indicator. Hydrologic connectivity and disturbed road area provide the best indicators of chronic sediment delivery from roads.