WASHINGTON STATE DEPARTMENT OF
Natural Resources

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Washington State Commissioner of Public Lands

MEMORANDUM

January 18, 2011

TO: Forest Practices Board

FROM: Jim Hotvedt, Adaptive Management Program Administrator

SUBJECT: Road Sub-Basin Scale Effectiveness Monitoring Final Report

The Washington Department of Natural Resources (WDNR) implemented new Forest Practice Rules for forest roads under WDNR jurisdiction in 2001. The 2001 road rules were developed in the wake of the Forests & Fish Report (FFR) and are designed to improve many aspects of the road network by reducing the occurrence of road related landslides and road surface erosion, disconnecting road drainage from the stream network and by eliminating barriers to fish passage.

The resource objectives for roads include sub-basin scale performance targets for surface sediment and water diversion to the stream network associated with forest roads. The resource objectives and performance targets for road hydrologic connectivity to the stream network and sediment input to streams are linked because runoff is required to transport sediment from roads to streams. By minimizing the delivery of sediment and excess water to streams, the road rules will help to protect water quality and aquatic resources.

The objectives of the Adaptive Management Program's Road Sub-Basin Scale Effectiveness Monitoring Program are:

- to determine if the road characteristics that affect road connection (road runoff) and sediment delivery to streams are improving through time as RMAP are implemented between 2001 and 2016; and
- to determine the extent to which roads on lands subject to WDNR forest practice rules meet the FFR performance targets.

The Road Sub-Basin Scale Effectiveness Monitoring (Road Sub-Basin) Study was designed to determine the degree to which forest roads under the jurisdiction of Washington Forest Practices Rules are meeting the *road surface erosion* and *hydrologic connectivity* resource objectives, in other words, to determine

- if road characteristics that affect runoff and sediment delivery to streams are improving through time (emphasis on trends) and
- the extent to which roads meet the FFR performance targets (emphasis on status relative to targets).

This monitoring study was set up to document road characteristics related to runoff and surface erosion from roads within randomly-selected four-square-mile sample units of forest land, which

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is why it is termed "sub-basin-scale". Sample units are planned to be re-surveyed two more times through the RMAP performance period to determine if road conditions are either meeting targets or improving with respect to surface erosion and hydrologic connectivity.

The Road Sub-Basin study final report summarizes results of the first sample event planned for the Road Sub-Basin Scale Effectiveness Monitoring Program, and provides the first look at the current status of forest roads. Based on the results from the study, a high percentage of roads in the sample units across the state were reported by local managers to either have RMAP work complete, or already be up to current road rule standards, with over half of the sample units reported to have at least 85 percent of road length meeting standards. An average of 11 percent of the road network was hydrologically connected and assumed to deliver water and sediment to streams or wetlands. Across the state, 62 percent of the sample units met the Forests & Fish Report (FFR) hydrology performance target (miles of delivering road/miles of stream) and 88 percent of the units met the FFR sediment performance target (tons of delivered sediment/year/miles of stream).

Statewide, no relationship was found between length of road delivering in a sample unit and percent of roads in the unit reported to be up to standards; however, a statistically significant decreasing relationship was found between sediment delivery in the sample unit and percent of roads in the unit reported to be up to standards. These findings suggest that, while there may be locations where there is higher hydrologic connectivity or sediment input from roads, many roads show decreasing sediment inputs as they are brought up to standards. This may reflect a general RMAP objective of prioritizing road maintenance on road sections with the highest need for maintenance/repairs.

Trends in road performance cannot be evaluated directly until after future revisits to the sample units. The final report contains a recommendation that the monitoring project continue with the next planned monitoring period (planned interval of 5 years) to evaluate the expectation that, in general, road conditions improve and that they meet the performance targets as they are brought up to FFR standards.

Independent Scientific Peer Reviewers were highly complimentary of the study. They believed it to be "ambitious and thoughtful" and that the design of the study was "clearly well thought out."

The Forests and Fish Policy committee will be assessing their response to the study results in their March meeting. You can expect to see a copy of the report when they send their recommendations to you.