



Institute for Natural Resources

Oregon State University, 234 Strand Agricultural Hall | Corvallis, Oregon 97331

Phone 541-737-9918 | Fax 541-737-1887 | <http://inr.oregonstate.edu>

21 March 2024

Dear Members of the AMPC,

Thank you for the document *Preliminary Research Questions for the Research Topic: Requirements of Baseline and Trend Monitoring of Road Rules* that we received on 8 February 2024. The purpose of this letter is to fulfill OAR 629-603-0200(4)(a) – responding to the AMPC within 45 days of the receipt of the research questions package.

Having read and discussed the roads research question package, we have determined that (1) in consultation with the AMPC, the IRST will refine the preliminary research questions listed in the abovementioned document into finalized research questions, and (2) develop scoping proposal(s) regarding how to address the finalized research questions by 31 December 2024.

Recognizing that this is our first foray into working within the Adaptive Management Program, we will keep the AMPC Coordinator up to date on our progress. Should at any time we need to reevaluate the submission deadline of the scoping proposal(s), we will give adequate notice to discuss this with the AMPC. Since this is also the first time that the AMPC has completed this stage of the AMP process, on the following page we have some initial questions regarding the roads research question package.

We look forward to working with you on this and in the long term. If you have any questions, please reach out to the IRST Housing Agency Technical Lead, Sean Gordon at Sean.Gordon@oregonstate.edu.

Sincerely,
Members of the IRST

Questions from the IRST to the AMPC about the roads questions package.

AMPC members: please ignore the highlighted section since you have already addressed these questions.

The "IRST questions" were submitted by individual IRST members for each of the roads research questions.

1. Baseline Report.

a. What are the baseline levels of hydrologic connectivity of roads prior to the implementation of the Oregon Forest Practices Act (OFPA) road rules¹⁰ effective Jan 1, 2024?

IRST questions and comments (AMPC responses (in green) per their April 8, 2024 meeting):

1. The first field sampling of roads will likely not occur for several years after the PFA road rules become effective. There may be ways to identify and account for road segments that were updated per the rules before first sampling, but if not, is the AMPC satisfied that the first sampling results may best be useful for a "baseline" status evaluation, against which future trends will be measured? Note that the first visit by Dube et al. (2010) occurred 5-7 years after rule implementation, and no effort was used to account for updates between implementation and first sampling.

The AMPC recognizes this limitation. The AMPC would encourage use of road segments that have not been changed since PFA implementation, and if not possible, changes following PFA implementation to be accounted for. The AMPC would be interested in how the IRST navigates this research consideration. One possible approach: A record is being kept of road work that is being done under the PFA road rules so it should be possible to oversample and exclude sites where work has been done before sampling.

2. Does the IRST have the latitude to use what we deem is best available science in developing the monitoring methods and strategy? For example, can the IRST replace the WARSEM model reported in methods used by Dube et al. (2010) with another model or approach that the IRST determines to be more scientifically appropriate or efficient for the specific monitoring questions to be answered?"

Yes to both questions. Decisions regarding methods are the purview of the IRST.

3. Will a report containing information like that found in Dube et al. (2010) be sufficient to meet the AMPC's expectations on hydrologic connectivity status?

Yes, with the caveat that the IRST needs to oversee development of a second, summary report written for the lay person per OAR 629-603-0200(6)(g).

b. How do these levels vary based on landowner type and East/West region?

IRST questions and comments:

1. Please identify the land ownership categories that you would like to be considered here.

This is clarified in the original document sent to the IRST, section B.5:

"Landowner classifications in the FPA (of which there are two, each with a different regulatory framework for roads) – 1) small forestland owners (RCA); 2) large forestland owners (FRIA)."

2. There may be other strata, such as parent geology, within the East and West georegions that may be important for discerning differences in status and trends of hydrologic connectivity. Would the AMPC like the IRST to explore these strata? Note that the difficulty of obtaining an adequate sample size and the cost of sampling may

increase with more strata.

The core question relates to the FPA-based landownership types and east/west geography and so these factors must be prioritized. The AMPC would caution against additional strata that would detract from the ability to address those factors with available capacity.

(Note: the AMPC is scheduled to finalize responses to the remaining questions in early May, 2024)

c. What other factors or variables within the regulatory framework of the FPA might be relevant?

IRST questions and comments:

1. Presence of undersized culverts, particularly below areas identified as having high potential to result in landslides, would likely be useful to document. The decision to assess undersized culverts depends, in part, on whether or not Biological Objective 1.4 is included as a focus of this work (see comment below regarding Objective 1.4). The AMPC cautions against additional strata that would detract from the ability to address those factors with available capacity, but documenting these occurrences could be useful. If other variables are included, they must relate directly to hydrologic connectivity. It is unclear how undersized culverts would have an impact on hydrologic connectivity. Given that this is a water quality and habitat risk, the data may be worth collecting if the IRST thinks it is relevant to hydrologic connectivity. If it would better be assessed as part of an episodic delivery study (e.g. as part of steep slope effectiveness monitoring), then it should not be a priority unless collecting in the hydrologic connection monitoring would aid future episodic delivery studies.

2. For the work in Washington, annual road use (traffic level) is an important variable in the sediment delivery estimates. Are landowners in Oregon required to report traffic levels broadly as part of the new rules, or are they expected to do so in areas sampled for this status and trends assessment? The rules do not require such reporting from landowners. Nothing has been determined for the status and trends assessment, and it is the IRST's purview to determine whether or not to ask landowners participating in studies to include such data collection.

There are many instances where the landowner who owns any given segment of a road does not have full control over the traffic it receives. If added traffic exists due to adjacent land management or public use, would it be the requirement of that given landowner to address it. Is it the other users' or landowners' responsibility? What would this data inform and what would it change?

2. Trend Monitoring.

What are the trends in these levels of hydrologic connectivity of roads over 5-year intervals? These trends should be assessed for the same variables in question 1.

IRST questions and comments:

1. The potential for hydrologic connectivity of roads may be fairly static because the location of the roads, characteristics of underlying lithology, hillslope angle, etc., are unlikely to change. Condition of the roads (surface, drainage, culvert flow passage) are likely conditions that can change in response to management action and have an effect on hydrologic connectivity. Please further clarify what the specific characteristics about roads that should be part of the baseline inventory described in question 1. The AMPC is looking for the scientific experts on the IRST to advise on what characteristics should be assessed, perhaps in a prioritized manner so as to inform funding decisions.

3. Determination of Rule Effectiveness.

Commented [WG1]: I see objectives 1.3 and 1.4 as both linked to culverts. Objective 1.3 states "Road runoff to streams is minimized." Undersized culverts may divert water to roads and have a significant effect. I think culvert condition should be included as a factor, if the IRST sees it as relevant. Therefore I suggest an answer more like: "The IRST's role in identifying factors includes using its expertise and best science to identify factors linked to road runoff and sediment delivery, including landslide potential. If the IRST sees undersized culverts as significant, the IRST should document that."

Commented [FT*O2]: Josh Seeds - recommended deleting this, and commented "This is not a stratum (design variable), but rather a risk factor."

Commented [FT*O3]: Julie Firman edit

Commented [FT*O4]: Amanda Sullivan-Astor edit

Commented [FT*O5]: Josh Seeds edit

Commented [WG6]: This answer makes sense to me.

Commented [TF7]: Amanda Sullivan-Astor edit

Commented [TF8]: This aspect seems out of scope of the questions, but that's a gray area. Looking for AMPC input on that.

Commented [WG9R8]: I agree with Terry's response. I see two ways of measuring connectivity levels and trends. One would be to measure water quality, i.e. directly measure the effect. That is likely impractical in many situations, especially in determining the cause of variation in sediment, etc. The second would be to assess conditions that create connectivity to streams, i.e. condition of surface, drainage, culvert flow. I think that the AMPC should assess these conditions. Therefore, Terry's response here makes sense to me.

Commented [TF10R8]: Amanda Sullivan-Astor comment: Condition seems like something that would be assessed in the baseline with the same variables being assessed in the trends.

Commented [TF11R8]: Julie Firman comment: If hydrologic connection exists it could be useful to know whether management action could address it or if conditions are constrained by immutable characteristics. If it is not to be consumptive of resources, this could be a useful thing to know.

Commented [TF12]: Amanda Sullivan-Astor comment: This seems to be the very thing we are asking the IRST to do. We are just the policy committee

In the long term, to what extent are road rules associated with hydrologic disconnection effective at achieving biological goals and objectives?

IRST questions and comments:

1. The Washington status and trends monitoring effort uses specific road hydrology and road sediment performance measures to describe status and ultimately trends. Importantly, specific targets are used to evaluate performance. Is the IRST free to select alternative targets or performance measures based on our assessment of best available science for determining rule effectiveness at achieving the HCP BGOs? The HCP that ODF will submit to the federal Services in June 2024 will have some of these metrics. It is unclear the extent to which the HCP will specify e.g., performance measures or targets, nor the federal Services' response to this information. Therefore, this question will be better addressed after the HCP is submitted to the Services, and the Services have provided initial feedback (likely in fall of 2024). That said, the IRST has the latitude to use what they deem is best available science in developing the performance measures within the guidelines outlined in the HCP. The AMPC is interested in learning what the IRST would choose as metrics and performance targets.

Other questions or comments the IRST has about the roads question package

1. The status and trends monitoring described in Dube et al. (2010) is not likely to inform the AMPC on effectiveness of road rules in meeting HCP Biological Goal "Clean", Objective 1.4 – "Roads are not a significant source of episodic sediment delivery to streams". Given the OAR definition of hydrologic disconnection, we assume that the AMPC understands that a question related to "hydrologic connectivity of roads" will not also address episodic sediment delivery. Please advise us if this is not the case. (I suggest the AMPC concur with removing Objective 1.4 from the focus of this work so that the work is both focused and easier to complete, but I'm not convinced I've got the correct understanding of what the AMPC wants) I concur. I think it is reasonable to remove Objective 1.4 because it is not the intent of the rules to armor all roads to the extent that significant episodic sediment delivery would not occur. The hydrologic disconnection is around normal wet weather and Oregon conditions. The AMPC concurs that episodic delivery from roads requires a different study design focused on sampling after weather events likely to trigger episodic delivery from steep slopes and road prisms, like Robison et al 1999.

Commented [WG13]: This makes sense to me; i.e. seeing what HCP says about measures or targets. The IRST should then develop, according to its sense of best science, detail about those HCP targets.

Commented [TF14]: Amanda Sullivan-Astor comment: agree

Commented [TF15]: Julie Firman edit

Commented [TF16]: Josh Seeds edit

Commented [FT*O17]: Note: "episodic sediment delivery" refers to landslides and debris torrents;

Commented [WG18R17]: However, Objective 1.4 states "Roads are not a significant source of episodic sediment delivery to streams," so it ties roads to landslides and debris torrents. I think IRST should assess whether new road rules are effective at lessening the extent to which roads are a cause of landslides and debris torrents.

Commented [TF19]: Julie Firman edit

Commented [TF20]: Amanda Sullivan-Astor edit

Commented [TF21]: Josh Seeds edit