



MEMORANDUM

DATE: February 2, 2016

TO: Stephen Bernath, Chair,
Forest Practices Board

FROM: Marc Engel, Forest Practices Assistant Division Manager,
Policy and Services

SUBJECT: Board Motion request Proposal Initiation to address those Conservation Caucus issues not near resolution through the board manual stakeholder group and those needing either more science or rule making

A handwritten signature in blue ink, appearing to be 'ME', written over the 'FROM' line of the memorandum.

Please accept this proposal initiation (PI) request from Department of Natural Resources (DNR) acting as board staff to initiate Adaptive Management Program review, per Board motion, of the Conservation Caucus issues raised in their November 9, 2015 letter to the Board that are not near resolution through the board manual Qualified Expert stakeholder group and those needing either more science or rule making. With Board approval the Adaptive Management Program Administrator (AMPA) is asked to review this Proposal Initiation request per direction in the Adaptive Management Program (AMP) section in the Forest Practices Board Manual. With this request, the AMPA will make recommendations for Policy's consideration on how to accomplish each task and develop recommendations addressing unstable slopes for inclusion in the Policy recommendations to be presented to the Forest Practices Board (Board).

This proposal requests the AMPA to propose for Policy approval the:

- Development track(s) and timeline(s) for completion of the review of the unstable slopes elements for review listed in #2 below;
- When developed, these products will be included in the Policy recommendations to the Board for
 - Unstable slopes rule making and associated board manual guidance, and
 - Potential identification of additional research.

The following information is presented based on the requirements for a complete request for proposal initiation beginning on page M22-7 in Board Manual Section 22.

1. *The affected forest practices rule, guidance, or DNR product.*

WAC 222-10-030, "*SEPA policies for potentially unstable slopes and landforms*"

WAC 222-16-010, "*General Definitions*"

WAC 222-16-050, "**Classes of forest practices*"

WAC 222-20-010, "*Applications and notifications – Policy*"

WAC 222-12-090 (16) "*Guidelines for Evaluating Potentially Unstable Slopes and Landforms*"

Attachment B:

Potentially Unstable Slopes within Watershed Analysis Units (flow chart 1)

Potentially Unstable Slopes (flow chart 2)

2. *The urgency based on scientific uncertainty and resource risk.*

The Board, at their 10th November, 2015 regular meeting moved that those items within the Conservation Caucuses list of seven issues, as outlined in their 9th November letter and associated attachments to the Board, that are not near resolution through the board manual Qualified Expert group and may need either more science or rule making will be brought back to the Board at their February 2016 Board meeting as a proposal initiation for Adaptive Management Program review, see **Attachment A**. The proposal initiation with Board approval will be sent to the Adaptive Management Program Administrator to review and make recommendations to Policy for the appropriate AMP review and subsequent recommendations back to the Board.

The Conservation Caucus presented seven bullet points on page 3 of their November 9, 2015 letter to the Board outlining why they assert the guidance in Board Manual Section 16 "falls far short of what should be required for a board manual to implement the forest practices rules", see Attachment A. They based their assertions on the opinions of three professional geologists who collectively "contend the guidance in Board Manual Section 16 will not accurately identify landslides and will not require the type of geologic review necessary to protect public safety."

This proposal requests Board approval to initiate AMP review of the concerns in six of the seven items brought forward by the Conservation Caucus. The concerns raised in the first item, *Use of Heavily-Qualified, Weak Language*, are not included because they are inappropriate for an AMP review. The expressed concern in item (1) is the guidance in the November 2016 Board Manual Section 16 was weakened from the language originally provided by the expert panel in the November 2014 manual section with vague terms such as "could" instead of "should." The Board accepted the edits based on DNR staff recommendations when they approved the current version of Board Manual Section 16 at their November 2015 meeting, acknowledging the changes provided greater clarity, ensured the language did not imply a requirement where a rule requirement did not exist, and that they provided more effective transitions from one content area to another.

The elements of the proposal:

Policy requests the Adaptive Management Program Administrator (AMPA) to review this PI and make recommendations to Policy on how to conduct the review and make recommendations for each task based on the review steps for the AMPA to follow in Board manual Section 22, *Guidelines for Adaptive Management Program, Stage 1: Initiation and Screening of Proposals* (beginning on page M22-8). Following the steps in Stage 1, the AMPA will assemble and present a proposal review packet for Policy's review and approval (page M22-10). The packet shall include a summary of the proposals, recommendations of proposed tracks for adaptive management program development and proposed timelines for completion.

This proposal initiates Adaptive Management Program review in the form of six tasks containing questions for AMP review based on the concerns presented in items (2) – (7) as listed in the Conservation Caucus letter. The AMP is tasked with review and development of recommendations to bring back to the Board for consideration of potential changes to forest practices rules, board manual guidance, or DNR products.

(2) Non-glacial deep-seated landslides, concerns are contained in Attachment 4, memo authored by David Montgomery, dated November 9, 2015, to the Board outlining requested "Revisions to Guidelines for Evaluating Potentially Unstable Slopes"

Conservation Caucus concern

The Board Manual requires less geologic review and protection for deep-seated landslides on non-glacial soils.

Concerns expressed by David Montgomery

- All deep-seated landslides including "dormant" landslides and any associated groundwater for all deep-seated landslides should become rule identified landforms or be covered under the definition of Category E, thus triggering Class IV-special status (Montgomery letter, pages 3 and 5).
- Need guidance in manual for how to evaluate and assess reactivation potential for all dormant or relict deep-seated landslides and any associated groundwater as the result of forest practices (Montgomery letter, pages 3 and 5).
- The board manual should require estimating the potential increase or alteration in groundwater recharge from timber harvest and assessment of how this will potentially affect the stability of dormant landslides, especially sites that could pose a potential threat to public safety if reactivated (Montgomery letter, pages 5 and 6).

Concern expressed by Dan McShane

Part 6.2 should apply to all deep-seated landslides, not just glacial deep-seated landslides. (McShane letter, comments 2 and 6)

Where the BM16 addresses the identification and assessment of both glacial and non-glacial deep-seated landslides

- Sub-part 4.5 explains that active bedrock deep-seated landslides are an example of a category (E) landform and lists topographic, hydrologic, and vegetative indicators of potential slope instability.
- Part 5, Identifying Potential Unstable Slopes and Landforms, provides guidance on office and field assessments for all landforms, except sub-part 5.3 specifically addresses delineating groundwater recharge areas for glacial deep-seated landslides.
- As expressed in the first paragraph of Part 6, it provides guidance for analyses that qualified experts can consider for both glacial and non-glacial landslide assessments such as:
 - Landslide activity assessments;
 - Groundwater recharge assessments related to glacial and non-glacial deep-seated landslides; and
 - Runout assessments for rule-identified landforms in general.

In the case of runout assessments, introductory language specifies that “predictive methods for calculating deep-seated landslide runout are not discussed because they are still under development by the scientific community.”

Task 1 - Board Recommendations for AMP review

The Board directs the Adaptive Management Program to develop answers to the following questions and bring recommendations back to the Board:

1. Should all deep-seated landslides be added as rule identified landforms (RIL)? To determine, the Board requests existing Technical Writing and Implementation Group (TWIG) include deep-seated landslides for inclusion in the development of a CMER study to determine if there should be additional landforms added to the list of RILs found in WAC 222-16-050(1)(d)(A) – (E), Class IV-special.
2. Is further guidance is needed for evaluating and assessing reactivation potential for all dormant or relict deep-seated landslides and any associated groundwater? If yes, should an assessment be required?
3. Do non-glacial deep- seated landslides have associated groundwater recharge areas? If yes, should an assessment for influence on the deep- seated landslide from the groundwater recharge area be required?

(3) Deep-seated Landslide Reactivation (Reactivation), letter Attachment 4, memo authored by David Montgomery, dated November 9, 2015, to the Board outlining requested “Revisions to Guidelines for Evaluating Potentially Unstable Slopes”

Conservation Caucus concern

The Board Manual fails to adequately address the principle of landslide reactivation, that additional water generated by forest practices may have the potential to reactivate “relict distinct” or “relict indistinct” landslides that have lain dormant for decades or even centuries.

Background

The landslide activity assessment was part of the Phase I expert group's work in response to the Board's direction to review and amend guidance specific to identifying and delineating groundwater recharge areas. The Board approved Phase 1 on November 12, 2014.

Concerns expressed in the Conservation Caucus November 5, 2015 letter to the Board

In their letter Kara Whittaker and Chris Mendoza recommended: *Where the threat to public safety is moderate, high, or uncertain for a glacial deep-seated landslide of any "activity level", the landowner should quantitatively assess whether a potential increase in groundwater recharge from timber harvest will affect the stability of the landslide (Board Manual Parts 6.3-6.5). Because predictive models of deep-seated landslide runout are not yet readily available, it will also be necessary to describe qualitative methods for deep-seated landslide runout assessment in the Board Manual.*

Concern expressed by David Montgomery

The manual has inadequate consideration of the potential for forest practices to reactivate dormant landslides. It needs language to the effect that lack of evidence of active movement is not adequate evidence for dismissing the potential for reactivation. (Montgomery letter, page 3)

Where the BM16 addresses reactivation

Sub-parts 6.1 and 6.2 provide basic information to qualitatively assess landslide activity potential (from active to relict) in relation to risk to public safety and public resources. This is one of several "additional analyses" mentioned in Part 6 that qualified experts may consider when analyzing effects of forest practices in or around a deep-seated landslide and its associated groundwater recharge area.

Sub-part 6.2 lays out a decision process to assess potential reactivation as follows:

- If landslide is *relict* or *dormant/distinct* and reactivation potential is highly unlikely, additional analysis may not be needed.
- If landslide is *active/recent* or *dormant/distinct* and reactivation potential is low, a qualitative analysis of contributing factors is needed.
- If landslide is *active/recent* or *dormant/distinct* and reactivation potential is moderate or high, a qualitative assessment is needed, plus additional analyses such as assessing whether a potential increase in groundwater recharge from timber harvest will affect landslide stability.

Task 2 - Board Recommendations for AMP review

The Board directs the Adaptive Management Program to develop answers to the following questions and bring recommendations back to the Board:

1. Should a method to assess the degree of risk to public safety for glacial deep-seated landslides (low, moderate, high or uncertain) be developed? If yes, should the assessment be required in rule? Or provided as guidance in the manual?

2. Is there existing science available to assess the reactivation potential for dormant bedrock and glacial deep-seated landslides? If yes, should an assessment to determine the potential for further movement of dormant bedrock and glacial deep-seated landslides be developed and required?

***(4) (Ann) Weekes Landslide Screening Tool, title of document proposed for inclusion
Complex or composite rotational deep-seated landslide assessment***

Conservation Caucus concern

The Board Manual does not provide a precautionary screening technique which would enable forest stakeholders to accurately identify landslides and other potentially unstable landforms that may not appear on contemporary landslide maps.

Background

On June 10, 2015, Anne Weekes presented information to the stakeholder group on her work as an Environmental Scientist III, Landslide Hazard Mapping Project, King County Department Natural Resources that was related to applying a landslide screen for mapping complex deep-seated landslides in King County. Group members agreed that some of the material could be considered for inclusion in guidance in Board Manual 16.

The Conservation Caucus delivered draft material prepared by Ms. Weekes to be considered for inclusion by the stakeholder group via email on September 18, 2015. The late date of receipt by the group of this material entitled “Complex or composite rotational deep-seated landslides” did not allow time for the stakeholder group to fully discuss this material and therefore DNR did not include this material in the Board’s draft for consideration at the November 10, 2015 meeting.

Complex or composite rotational deep-seated landslide assessment document

The concerns and recommendations in this document:

- “Further research and analysis is necessary in order to identify those characteristics of large landslides that may predispose them to failure modes that include long rapid runout. Dormant slump features that exhibit no evidence of recent or ongoing movement are assumed to be less likely to become unstable again, but given the limited historical record (e.g. 100 years or less) and problems with assuming that past climate patterns will continue into the future, predictions of dormancy are difficult to make with confidence. Furthermore, evidence of rotational deep-seated slide movement alone does not provide information on the potential for composite instabilities. It is not documented how frequently single rotational slump failures become composite slides when unconsolidated deposits are reactivated by external factors such as precipitation, snowmelt, and earthquake.”
- “In Western Washington, the likelihood of composite failures in rotational deep-seated slides may increase in the future due to projections of a rise in the magnitude and duration of precipitation caused by atmospheric rivers and diminished mid-elevation

snow falling as rain during the winter months. In addition to atmospheric precipitation and overland flow, stream capture and interrupted groundwater flowpaths may also elevate pore pressures in the unconsolidated hummocky topography characteristic of large rotational slides. For this reason we need methods that will improve our ability to predict if the topographical signature of a rotational slide indicates a landform that is likely to fail as a composite slide, especially where multiple or secondary movements might evolve into rapid flows.”

Expected results

The Complex or composite rotational deep-seated landslides document is being reviewed by the board manual Qualified Expert stakeholder group. Some of the guidance in the document needs to be vetted by the Adaptive Management Program.

Task 3 - Board Recommendations for AMP review

The Board directs the Adaptive Management Program to develop answers to the following questions and bring recommendations back to the Board:

1. What is the likelihood of an increase in the future of composite failures in rotational deep-seated slides due to projections of a rise in the magnitude and duration of precipitation caused by atmospheric rivers and diminished mid-elevation snow falling as rain during the winter months?
2. What effect would an increase in atmospheric precipitation have on overland flow, stream capture and groundwater? What would this increased water have on the unconsolidated hummocky topography characteristics of large rotational slides?
3. Should a TWIG be formed to develop a study to identify those characteristics of large landslides that may predispose them to failure modes that include long rapid runout? And to develop methods to improve the ability to predict if the topographical signature of a rotational slide indicates a landform that is likely to fail as a composite slide?
4. Is there a need for a precautionary screening technique to identify landslides and other potentially unstable landforms that may not appear on contemporary landslide maps?

(5) Coarse Screen, title of document proposed for inclusion Shallow-rapid landslide coarse screen

Conservation Caucus concerns

The Board Manual does not include a screening analysis (the “Coarse Screen” developed by Paul Kennard) that would enable foresters and geologists to more accurately measure and evaluate potentially dangerous shallow-rapid landslides that may be destabilized by forest practices.

Background

March 18, 2015 marked the first group brainstorming session for developing guidance on how to identify slopes susceptible to shallow-rapid land sliding and estimate runout distances. In this and several subsequent meetings (April 1, April 15, August 19, and October 2) the group discussed the possibility of providing a simple “coarse” screening tool to help a general practitioner determine if there may be a landslide hazard, based on slope characteristics, in the area of a forest

practices proposal and make a rough calculation of whether a slope could initiate a landslide that could deliver to a public resource or threaten public safety. If so, the practitioner would be guided to seek a qualified expert's thorough analysis.

The group discussed that the Tolt Watershed Analysis provided such a tool for the Tolt River Basin (in the western slopes of the mid-Cascade Range), complete with a flow chart and accompanying text. Several hours-long discussions were devoted to how this type of screen could be fashioned appropriately for statewide guidance, and considered how to draw from other methods (i.e., methods from the Oregon Department of Forestry [ODF] and the University of British Columbia [UBCFLOW]) to make it useful for a variety of geographic areas.

This was an attractive concept to DNR and the stakeholder group members, given that graphic flow charts can be helpful in clarifying a technical document, especially if they are easy to follow and accompanied by a simply-stated description. The group worked diligently to create a product for statewide use that would not be perceived as a prescription for all sites. Ultimately, however, group members did not reach agreement on the specific runout distances to use, and how it could be structured for maximum readability.

What the Board manual contains

The new sub-part 6.6, as approved by the Board on November 10, 2015, contains general information about the influences of runout distances (slope gradients, confinement, volume, roughness, etc.) and lists a variety of scientifically-derived methods for analysts to consider when assessing a site. The Tolt, ODF, and UBC methods are 3 of the 11 methods included. **The appropriate method is left to the analyst who can best match it with the site under consideration.**

DNR reservations for including a coarse screen flow chart

The intent of developing a standardized coarse screening tool was to include a consistent system to help a general practitioner determine whether a qualified expert should investigate a site. The model under consideration is the screen in the Tolt Watershed Analysis which is specific to the soil types and precipitation regimes in the western slopes of the mid-Cascade Range.

Because the flow chart would contain specific parameters, DNR believes this screening method requires AMP review to assure it could be used for statewide application and questions:

- What runout distances should be used in the flow chart? (The higher the number, the more likely the general practitioner will tend to have a qualified expert analysis.)
- Could the coarse screen be perceived as prescriptive?
- If yes, could it potentially result in over- or underestimations resulting in inappropriately over- or underutilizing expert analysis?

Also, DNR is not convinced the flow chart is necessary and may confuse practitioners rather than help. The forest practices rules protect public resources via the riparian buffer rules upslope of public safety hazards. The rules also hold that if a landslide or resulting debris flow has the

potential to reach a public resource (i.e., stream), then the proposed forest practices activities in and around must be evaluated by a QE and either becomes a Class III if the landowner submits an FPA with a completed potentially unstable slopes form and a QE report or a Class IV-Special and requiring full QE assessment and geotechnical report regardless of downstream resources/public safety.

Concerns expressed by Paul Kennard (See Declaration of Paul Kennard, pages 5-11)

This is one of the tools (along with the Landslide Decision Pathway) that is “essential to carrying out the requirements of WAC 222-16-050(1)(d), and omitting (them) makes the Board Manual an incomplete technical advisory supplement to the steep and unstable slopes forest practices rules.” (Paul Kennard Declaration, page 3)

“Such a tool is highly necessary because it provides a consistent means by which individuals with a wide range of experience and education can accurately assess runoff risk.” (Paul Kennard Declaration, page 6)

Note: Compare the above statement with D. Montgomery’s concern that the manual, “...assigns geologic screening and assessment tasks to personnel who may not have requisite training to practices geology in the State of Washington.” (Montgomery letter, pages 1 and 7-9)

Existing Forest Practices rules regulating forest practices activities in and around potentially unstable slopes

The forest practices rules outline how FPAs with potentially unstable slopes “in and around” the proposed forest practices activities are to be classed, what geologic information is required with these applications, and the extent to which a qualified expert’s analysis must address the impacts to and mitigation measures to avoid influence from forest practices activities on potentially unstable slopes (complete rules are listed in issue 7 below):

- WAC 222-16-050
 - Necessitates requirement for additional information or a detailed environmental statement before approval of forest practices involving timber harvest, or construction of roads, landings, gravel pits, rock quarries, or spoil disposal areas, on potentially unstable slopes or landforms that have the potential to deliver sediment or debris to a public resource or that has the potential to threaten public safety, and which has been field verified by DNR.
 - Establishes rule identified potentially unstable slopes or landforms as:
 - (A) Inner gorges, convergent headwalls, or bedrock hollows with slopes steeper than thirty-five degrees (seventy percent);
 - (B) Toes of deep-seated landslides, with slopes steeper than thirty-three degrees (sixty-five percent);
 - (C) Groundwater recharge areas for glacial deep-seated landslides;
 - (D) Outer edges of meander bends along valley walls or high terraces of an unconfined meandering stream; or

- (E) Any areas containing features indicating the presence of potential slope instability which cumulatively indicate the presence of unstable slopes.
- The department will base its classification of the application or notification on professional knowledge of the area, information such as soils, geologic or hazard zonation maps and reports, review of approved watershed analysis mass wasting prescriptions, or other information provided by the applicant.
- **WAC 222-20-010 Where potentially unstable slopes or landforms are in or around the area of an application,**
 - DNR may require the landowner to provide additional information in order to classify the application appropriately;
 - DNR may require additional geologic information prepared by a qualified expert;
 - DNR may request that the qualified expert explain the methods the qualified expert used to evaluate the proposed harvest or construction activities with respect to the potentially unstable slopes or landforms.
- **WAC 222-08-030 *SEPA policies for potentially unstable slopes and landforms.**
 - FPAs with road construction activities or timber harvest on potentially unstable slopes or landforms must include the following additional information, prepared by a qualified expert:
 - A description of potentially unstable landforms in and around the application site and an analysis of
 - The likelihood that the proposed forest practices will cause movement on the potentially unstable slopes or landforms, or contribute to further movement of a potentially unstable slope or landform;
 - The likelihood of delivery of sediment or debris to any public resources, or in a manner that would threaten public safety; and
 - Any possible mitigation for the identified hazards and risks.
 - DNR must evaluate of whether the proposed forest practices activities
 - Are likely to increase the probability of a mass movement on or near the site;
 - Would deliver sediment or debris to a public resource or would deliver sediment or debris in a manner that would threaten public safety; and
 - If such movement and delivery are likely to cause significant adverse impacts.
 - DNR will evaluate the proposal, using appropriate expertise and in consultation with other affected agencies and Indian tribes.
 - Specific mitigation measures or conditions must be designed to avoid accelerating rates and magnitudes of mass wasting that could deliver sediment or debris to a public resource or could deliver sediment or debris in a manner that would threaten public safety.

Task 4 - Board Recommendations for AMP review

The Board directs the Adaptive Management Program to develop answers to the following questions and bring recommendations back to the Board:

1. Is there a need to include a shallow- rapid landslide coarse screen for general practitioners or Qualified Experts?
2. If yes, how prescriptive is the proposed shallow- rapid coarse screen based on the Tolt Watershed? Is it appropriate for guidance? For rule?
3. Should a TWIG be formed to develop a study to determine what runout distances should be used in a shallow- rapid landslide coarse screen flow chart designed for application in all geographic and geomorphic areas to be used statewide?
4. If a shallow- rapid landslide coarse screen is developed, should the Board consider establishing an acceptable level of risk? If yes, could it potentially result in over- or underestimations resulting in inappropriately over- or underutilizing expert analysis? On the latter point, Paul Kennard has scoped a possible study design, a “runout-risk evaluation tool” that may be suitable for Adaptive Management Program study. See Paul Kennard Declaration, pages 9-11.

(6) Run-Out Path Analysis, title of document proposed for inclusion Methods for Deep-seated Landslide Runout Assessment

Conservation Caucus concerns

The Board Manual does not include a runout assessment method specifically for deep-seated landslides.

Concerns expressed in the proposed Methods for Deep-seated Landslide Runout Assessment

The document recommends:

- “To better understand the potential for future failure and rapid movement, analyses of past landslide mechanics, stratigraphy, and chronology, and forecasts of climate change and river channel migration may be essential”; and
- “Where public safety may be impacted, it is most appropriate to apply a precautionary principle, and a more conservative (further) runout distance should be assumed.”

Concerns expressed by David Montgomery

“While physically-based predictive models for runout of deep-seated landslides are still under development, qualitative and empirical methods are available for estimating deep-seated landslide runout, yet these are not mentioned in the proposed Board Manual. Field practitioners should at least be directed to examine the extent of past landslide deposits in comparable geologic materials in the vicinity as an indicator of potential future runout distances.”

(Montgomery letter, page 7)

Background

Throughout the discussions the Qualified Expert board manual group recognized that there are no scientifically-derived predictive methods for deep- seated landslide runout (timing, triggering factors, distance). Therefore, with lack of such methods, the Board Manual did not provide one.

Conservation Caucus member Kara Whittaker presented a draft deep-seated landslide runout

assessment tool in August and early September 2015. Some discussion was devoted to this product at the August 19 and September 2 meetings, but no specific group editing or agreement took place in those meetings. The latest version the group saw (Sept. 9, 2015 version) included a “D-Claw” numeric model for deep-seated landslide runout. The group did not have enough time to discuss its content or the appropriateness of including it in the manual by the final (Oct. 2) group meeting.

What the Board Manual contains

The manual covers identifying past deep-seated landslide features, including historic deposits using LiDAR and other screening tools (Parts 2.3, 4.5, 5 and 5.1.4). This provides a general practitioner with the information needed to determine whether a qualified expert’s investigation is needed. The qualified expert determines risk on a site-by-site basis and is required to assess the likelihood of future movement in the analysis.

Task 5 - Board Recommendations for AMP review

The Adaptive Management Program must develop answers to the following questions and bring recommendations back to the Board:

1. Do scientifically-derived methods exist for predicting the potential for deep-seated landslide failure?
 - a. If yes, is it appropriate to incorporate additional guidance in the manual? What guidance and for whom – the general practitioner, the qualified expert, or both?
 - b. If no, is it appropriate to incorporate any additional guidance in the manual? What guidance and for whom; the general practitioner, the qualified expert, or both?
2. Given the level of review and the required analyses and protection criteria listed in the rules, where public safety may be impacted is there a need to develop an additional precautionary runout principle, including a more conservative (further) runout distance, for deep-seated landslides?

(7) Landslide Risk Flow Chart, title of document proposed for inclusion Landslide Risk Decision Pathway

Conservation Caucus concern

The Board Manual does not provide guidance on a repeatable, defensible decision making process for landslide assessment and FPA review.

Background

In comments to the Forest Practices Board on November 12, 2014 regarding Board Manual 16, Chris Mendoza suggested that a risk matrix “...be developed to ensure the best available science is used in assessing the potential risk of unstable landforms to public resources and public safety.” (Forest Practices Board November 12, 2014 meeting minutes)

During the board manual Phase 2 work, in June, July, and August 2015, the Conservation Caucus drafted several versions of this product for the stakeholder group to review and discuss. The Conservation Caucus believed it could be used for field practitioners, qualified experts, and DNR

to determine the appropriate methods for assessing the presence of rule-identified landforms, and regulatory requirements for forest practices proposed on or near potentially unstable slopes or landforms. It contains a description, flow chart, methodologies and their limitations, and how levels of certainty impact FPA classifications. At the September 2, 2015 group meeting, DNR suggested the Conservation and Landowner caucuses work together to amend the risk matrix and provide the stakeholder group their draft. Consensus could not be reached.

Concerns expressed in the proposed Landslide Risk Decision Pathway

The document expressed concerns and recommends:

- Development of the decision pathway to provide a framework to help field practitioners, QE and DNR determine the appropriate methods for assessing the presence of RILs.
- “Is it appropriate to apply the precautionary principle to landslide hazard assessment because in the face of scientific uncertainty, land management decisions that err on the side of caution will best protect the environment and public well-being.” “The overarching purpose of the decision pathway is to enable more effective and precautionary risk management.”
- “Because scientific certainty is not defined by rule, DNR is ultimately responsible for determining whether or not the information submitted with a FPA provides sufficient certainty that a RIL is either present or absent.”
- “Delivery/threat assessment may be limited to coarse methods if they result in high certainty, otherwise more technical methods should also be utilized. If delivery/threat is unlikely (low likelihood with high certainty), then the feature is not considered a RIL and the FPA may be classified as a Class III. If there is high or moderate delivery/threat potential or uncertainty is high or moderate, then the feature is treated as a RIL.”
- “If forest practices are avoided or adequate mitigation measures are applied such that movement due to forest practices is unlikely then the FPA may be classified as a Class III.”

Concerns expressed by David Montgomery

The board manual assigns geologic screening and assessment tasks to personnel who may not have requisite training to practice geology in the State of Washington (Montgomery letter, page 1).

Concerns expressed by P. Kennard

There is no repeatable, defensible decision making process consistent with a precautionary approach to the landslide assessment.

- Objective and repeatable decision-making tools are essential to consistent and accurate application of forest practices rules.
- Frequently, decisions are justified solely as “professional judgment” without additional justification.

(Paul Kennard Declaration, (pages 4 and 5)

DNR's opinion

Even though the Conservation Caucus brought forward revisions, this product never arrived at something appropriate for guidance. DNR and other group members felt it was too prescriptive and rule-like, i.e., what are the levels of certainty and where would the cut-off point be between Class III and Class IV-special applications?

The qualified expert determines risk on a site-by-site basis. The forest practices rules call for an analysis by a qualified expert where a forest practice on a potentially rule-identified landform has the potential to deliver to a public resource or threaten public safety. The qualified expert determines the likelihood of delivery (WAC 222-10-030). It is at the discretion of the qualified expert to determine the appropriate methods of investigation and the potential for delivery.

Also, DNR is not convinced Landslide Assessment Decision Pathway is necessary and may confuse practitioners rather than help. The forest practices rules definition of a Rule Identified Landform does not depend on a certainty rating based on the likelihood that the failure of an unstable landform would threaten public safety. The rules in WAC 222-16-050(1)(d)(i)(A) – (E) define Rule Identified Landforms with certainty, they do not make certain features a RIL under some circumstances and not a RIL under other circumstances. The rules require, with no uncertainty, that when road construction activities or timber harvest are proposed on any of the RILs then a QE assessment and geotechnical report is required. Each landform is unique and the methods used for the analysis and the assessment conclusion is left to the qualified expert. DNR's decision is based on the qualified expert's conclusion and case-by-case evaluation of submitted materials and therefore cannot be a 'repeatable' process. A decision pathway, if not consistent with current rule, may provide faulty assurances to field practitioners and misrepresents the scrutiny required for qualified expert's assessment.

The forest practices rules outline the decision pathway for FPAs with potentially unstable slopes "in and around" the proposed forest practices activities to determine the classification of the application, what geologic information is required with these applications, and the extent to which a qualified expert's analysis must address the impacts to and mitigation measures to avoid influence from forest practices activities on potentially unstable slopes, the complete unstable slopes rules are listed below:

Existing Forest Practices rules regulating forest practices activities in and around potentially unstable slopes

WAC 222-16-050 (1)"Class IV-special." Except as provided in WAC 222-16-051, application to conduct forest practices involving the following circumstances requires an environmental checklist in compliance with the State Environmental Policy Act (SEPA), and SEPA guidelines, as they have been determined to have potential for a substantial impact on the environment. It may be determined that additional information or a detailed environmental statement is required before these forest practices may be approved.

*(d) Timber harvest, or construction of roads, landings, gravel pits, rock quarries, or spoil disposal areas, on potentially unstable slopes or landforms described in (d)(i) of this subsection that has the potential to deliver sediment or debris to a public resource or that has the potential to

threaten public safety, and which has been field verified by the department (see WAC 222-10-030 SEPA policies for potentially unstable slopes and landforms).

(i) For the purpose of this rule, potentially unstable slopes or landforms are one of the following: (See board manual section 16 for more descriptive definitions.)

(A) Inner gorges, convergent headwalls, or bedrock hollows with slopes steeper than thirty-five degrees (seventy percent):

(B) Toes of deep-seated landslides, with slopes steeper than thirty-three degrees (sixty-five percent):

(C) Groundwater recharge areas for glacial deep-seated landslides;

(D) Outer edges of meander bends along valley walls or high terraces of an unconfined meandering stream; or

(E) Any areas containing features indicating the presence of potential slope instability which cumulatively indicate the presence of unstable slopes.

(ii) The department will base its classification of the application or notification on professional knowledge of the area, information such as soils, geologic or hazard zonation maps and reports, review of approved watershed analysis mass wasting prescriptions according to WAC 222-22-090(6) or other information provided by the applicant.

WAC 222-20-010 (9) Where potentially unstable slopes or landforms are in or around the area of an application, the department may require the landowner to provide additional information in order to classify the application appropriately. If necessary, the department may require additional geologic information prepared by a qualified expert. The department may request that the qualified expert explain the methods the qualified expert used to evaluate the proposed harvest or construction activities with respect to the potentially unstable slopes or landforms. Nothing in this subsection is intended to require a geotechnical report if the geologic information provided is sufficient to appropriately classify the application.

WAC 222-08-030 *SEPA policies for potentially unstable slopes and landforms.

In addition to SEPA policies established elsewhere in this chapter, the following policies apply to forest practices described in WAC 222-16-050 (1)(d) relating to construction or harvest on potentially unstable slopes or landforms.

(1) In order to determine whether such forest practices are likely to have a probable significant adverse impact, and therefore require an environmental impact statement, the applicant must submit the following additional information, prepared by a qualified expert as defined in subsection (5) of this section. The qualified expert must describe the potentially unstable landforms in and around the application site and analyze:

(a) The likelihood that the proposed forest practices will cause movement on the potentially unstable slopes or landforms, or contribute to further movement of a potentially unstable slope or landform;

(b) The likelihood of delivery of sediment or debris to any public resources, or in a manner that would threaten public safety; and

(c) Any possible mitigation for the identified hazards and risks.

(2) The department's threshold determination will include an evaluation of whether the proposed forest practices:

- (a) Are likely to increase the probability of a mass movement on or near the site;
- (b) Would deliver sediment or debris to a public resource or would deliver sediment or debris in a manner that would threaten public safety; and

(c) Such movement and delivery are likely to cause significant adverse impacts.

If the department determines that (a), (b) and (c) of this subsection are likely to occur, then the forest practice is likely to have a probable significant adverse impact.

(3) The department will evaluate the proposal, using appropriate expertise and in consultation with other affected agencies and Indian tribes.

(4) Specific mitigation measures or conditions must be designed to avoid accelerating rates and magnitudes of mass wasting that could deliver sediment or debris to a public resource or could deliver sediment or debris in a manner that would threaten public safety.

(5) Qualified expert for the purposes of this section, reanalysis of watershed analysis mass wasting prescriptions under WAC 222-22-030, and preparation of required geologic information under WAC 222-20-010(9), means a person licensed under chapter 18.220 RCW as either an engineering geologist or as a hydrogeologist (if the site warrants hydrologist expertise), with at least three years of field experience in the evaluation of relevant problems in forested lands.

(a) "Qualified expert" is defined in WAC 222-10-030.

(b) "Potentially unstable slopes or landforms" are those listed in WAC 222-16-050 (1)(d)(i)(A) through (E).

Task 6 - Board Recommendations for AMP review

The Adaptive Management Program must develop answers to the following questions and bring recommendations back to the Board:

1. Do the existing forest practices rules, forest practices application review process flow charts (Attachment B), and Board Manual Section 16 provide a landslide hazard risk decision pathway? Based on the previous review, is there a need for a landslide hazard risk decision pathway? If the decision is to develop a landslide hazard risk decision pathway should a precautionary risk management principle be added to the decision pathway?
2. Should the definition of Rule Identified Landforms be amended to include a certainty rating based on the likelihood that a failure of the feature would threaten public safety? Or a certainty rating based on threats to public resources or public safety? If yes, how would the threat potential and the levels of certainty be defined?

3. *Any outstanding TFW, FFR, or Policy agreements supporting the proposal.*

Forests & Fish Report and Statute

The Washington State Legislature found that the 1999 Salmon Recovery Act and the resulting Forests and Fish Rules "...taken as a whole, constitute a comprehensive and coordinated program to provide substantial and sufficient contributions to salmon recovery and water quality enhancement in areas impacted by forest practices..." (RCW 77.85.180(2)). It also recognized that federal and state agencies, tribes, county representatives, and private timberland owners have spent considerable effort and time to develop the Forests and Fish Report (RCW 76.09.055), and authorized the development of forest practices rules based on the analyses and conclusions of the Forests and Fish Report. The rules include the development of an adaptive management program

to: . . . make adjustments as quickly as possible to forest practices that are not achieving the resources objectives . . . (and) shall incorporate the best available science and information, include protocols and standards, regular monitoring, a scientific and peer review process, and provide recommendations to the board on proposed changes to forest practices rules to meet timber industry viability and salmon recovery. (RCW 76.09.370(7)).

The Forests and Fish Report called for a forest practices Adaptive Management Program in Appendix L. The AMP is designed to meet the goals and objectives for water quality and fish habitat within the jurisdiction of the Forest Practices Program.

Board Manual Section 22. Guidelines for Adaptive Management Program

This manual fulfills the objectives outlined in Appendix L of the Forests and Fish Report. It provides a technical advisory supplement to the Forest Practices act and rules and provides guidance to the AMP. The process to request an AMP review and subsequent preparation of recommendations to present to the Board for potential rules changes is found in Part 3.1 Stage 1: Initiation and Screening of Proposals.

4. How the results of the proposal could address Adaptive Management Program key questions and resource objectives or other rule, guidance, or DNR product.

This proposal follows the Adaptive Management Program goals expressed in FFR Appendix L, *Adaptive Management*, and embraces the Policy and science based process to develop recommendations for rule change to present to the Board. FFR called for the establishment of:

- A science-based adaptive management program to monitor the relationships and evaluate the effectiveness of rules and guidance toward achieving the target forest conditions and processes;
- Forest Practices Board adopted rules and guidance designating the required elements of an adaptive management process;
- Forest Practices Board set priorities for action as guided by information developed through the adaptive management process; and
- TFW (Policy) recommendations to the (Board) are to be accompanied by formal petitions for rulemaking and guidance.

5. Available literature, data and other information supporting the proposal.

The Board adopted forest practices rules protecting aquatic resources consistent with the recommendations contained in the forests and fish report. The following information lists the intent and direction from the Legislature to the Forest Practices Board through the Forest Practices Act (Chapter 76.09 RCW).

Forest Practices Act, Chapter 76.09 RCW

RCW 76.09.010 Legislative Finding and Declaration

- (1) The legislature hereby finds and declares that the forest land resources are among the most valuable of all resources in the state; that a viable forest products industry is of prime importance to the state's economy; that it is in the public interest for public and private commercial forest lands to be managed consistent with sound policies of natural resource protection; that coincident with maintenance of a viable forest products industry, it is important to afford protection to forest soils, fisheries, wildlife, water quantity and quality, air quality, recreation, and scenic beauty.
- (2) The legislature further finds and declares it to be in the public interest of this state to create and maintain through the adoption of this chapter a comprehensive statewide system of laws and forest practices rules which will achieve the following purposes and policies:
- (a) Afford protection to, promote, foster and encourage timber growth, and require such minimum reforestation of commercial tree species on forest lands as will reasonably utilize the timber growing capacity of the soil following current timber harvest;
 - (b) Afford protection to forest soils and public resources by utilizing all reasonable methods of technology in conducting forest practices;
 - (c) Recognize both the public and private interest in the profitable growing and harvesting of timber;
 - (d) Promote efficiency by permitting maximum operating freedom consistent with the other purposes and policies stated herein;
 - (e) Provide for regulation of forest practices so as to avoid unnecessary duplication in such rules;
 - (f) Provide for interagency input and intergovernmental and tribal coordination and cooperation;
 - (g) Achieve compliance with all applicable requirements of federal and state law with respect to nonpoint sources of water pollution from forest practices;
 - (h) To consider reasonable land use planning goals and concepts contained in local comprehensive plans and zoning regulations;
 - (i) Foster cooperation among managers of public resources, forest landowners, Indian tribes and the citizens of the state;
 - (j) Develop a watershed analysis system that addresses the cumulative effect of forest practices on, at a minimum, the public resources of fish, water, and public capital improvements of the state and its political subdivisions; and
 - (k) Assist forest landowners in accessing market capital and financing for the ecosystem services provided to the public as a result of the protection of public resources.
- (3) The legislature further finds and declares that it is also in the public interest of the state to encourage forest landowners to undertake corrective and remedial action to reduce the impact of mass earth movements and fluvial processes.
- (4) The legislature further finds and declares that it is in the public interest that the applicants for state forest practices permits should assist in paying for the cost of review and permitting necessary for the environmental protection of these resources.

RCW 76.09.370 Findings – Forests and Fish Report

(1) The legislature finds that the process that produced the forests and fish report was instigated by the forest practices board, the report is the product of considerable negotiations between several diverse interest groups, and the report has the support of key federal agencies. When adopting permanent rules under this section, the forest practices board is strongly encouraged to follow the recommendations of the forests and fish report, but may include other alternatives for protection of aquatic resources. If the forest practices board chooses to adopt rules under this section that are not consistent with the recommendations contained in the forests and fish report, the board must notify the appropriate legislative committees of the proposed deviations, the reasons for the proposed deviations, and whether the parties to the forests and fish report still support the agreement. The board shall defer final adoption of such rules for sixty days of the legislative session to allow for the opportunity for additional public involvement and legislative oversight.

(2) The forest practices board shall follow the regular rules adoption process contained in the administrative procedure act, chapter 34.05 RCW, when adopting permanent rules pertaining to forest practices and the protection of aquatic resources except as limited by subsection (1) of this section. The permanent rules must accomplish the policies stated in RCW 76.09.010 without jeopardizing the economic viability of the forest products industry.

(3) The rules adopted under this section should be as specific as reasonably possible while also allowing an applicant to propose alternate plans in response to site-specific physical features. Alternate plans should provide protection to public resources at least equal in overall effectiveness by alternate means.

(4) Rule making under subsection (2) of this section shall be completed by June 30, 2001.

(5) The board should consider coordinating any environmental review process under chapter 43.21C RCW relating to the adoption of rules under subsection (2) of this section with any review of a related proposal under the national environmental policy act (42 U.S.C. Sec. 4321, et seq.).

(6) After the board has adopted permanent rules under subsection (2) of this section, changes to those rules and any new rules covering aquatic resources may be adopted by the board but only if the changes or new rules are consistent with recommendations resulting from the scientifically based adaptive management process established by a rule of the board. Any new rules or changes under this subsection need not be based upon the recommendations of the adaptive management process if: (a) The board is required to adopt or modify rules by the final order of any court having jurisdiction thereof; or (b) future state legislation directs the board to adopt or modify the rules.

(7) In adopting permanent rules, the board shall incorporate the scientific-based adaptive management process described in the forests and fish report which will be used to determine the effectiveness of the new forest practices rules in aiding the state's salmon recovery effort. The purpose of an adaptive management process is to make adjustments as quickly as possible to forest practices that are not achieving the resource objectives. The adaptive management process shall incorporate the best available science and information, include protocols and standards, regular monitoring, a scientific and peer review process, and provide recommendations to the board on proposed changes to forest practices rules to meet timber industry viability and salmon recovery.

WAC 222-10-030 *SEPA policies for potentially unstable slopes and landforms.

In addition to SEPA policies established elsewhere in this chapter, the following policies apply to forest practices described in WAC 222-16-050 (1)(d) relating to construction or harvest on potentially unstable slopes or landforms.

(1) In order to determine whether such forest practices are likely to have a probable significant adverse impact, and therefore require an environmental impact statement, the applicant must submit the following additional information, prepared by a qualified expert as defined in subsection (5) of this section. The qualified expert must describe the potentially unstable landforms in and around the application site and analyze:

(a) The likelihood that the proposed forest practices will cause movement on the potentially unstable slopes or landforms, or contribute to further movement of a potentially unstable slope or landform;

(b) The likelihood of delivery of sediment or debris to any public resources, or in a manner that would threaten public safety; and

(c) Any possible mitigation for the identified hazards and risks.

(2) The department's threshold determination will include an evaluation of whether the proposed forest practices:

(a) Are likely to increase the probability of a mass movement on or near the site;

(b) Would deliver sediment or debris to a public resource or would deliver sediment or debris in a manner that would threaten public safety; and

(c) Such movement and delivery are likely to cause significant adverse impacts.

If the department determines that (a), (b) and (c) of this subsection are likely to occur, then the forest practice is likely to have a probable significant adverse impact.

(3) The department will evaluate the proposal, using appropriate expertise and in consultation with other affected agencies and Indian tribes.

(4) Specific mitigation measures or conditions must be designed to avoid accelerating rates and magnitudes of mass wasting that could deliver sediment or debris to a public resource or could deliver sediment or debris in a manner that would threaten public safety.

(5) Qualified expert for the purposes of this section, reanalysis of watershed analysis mass wasting prescriptions under WAC 222-22-030, and preparation of required geologic information under WAC 222-20-010(9), means a person licensed under chapter 18.220 RCW as either an engineering geologist or as a hydrogeologist (if the site warrants hydrologist expertise), with at least three years of field experience in the evaluation of relevant problems in forested lands.

WAC 222-16-010 *General definitions.

Unless otherwise required by context, as used in these rules:

"Bedrock hollows" (colluvium-filled bedrock hollows, or hollows; also referred to as zero-order basins, swales, or bedrock depressions) means landforms that are commonly spoon-shaped areas of convergent topography within unchanneled valleys on hillslopes. (See board manual section 16 for identification criteria.)

"Debris" means woody vegetative residue less than 3 cubic feet in size resulting from forest practices activities which would reasonably be expected to cause significant damage to a public resource.

"Deep-seated landslides" means landslides in which most of the area of the slide plane or zone lies below the maximum rooting depth of forest trees, to depths of tens to hundreds of feet. (See board manual section 16 for identification criteria.)

"Inner gorges" means canyons created by a combination of the downcutting action of a stream and mass movement on the slope walls; they commonly show evidence of recent movement, such as obvious landslides, vertical tracks of disturbance vegetation, or areas that are concave in contour and/or profile. (See board manual section 16 for identification criteria.)

"Threaten public safety" means to increase the risk to the public at large from snow avalanches, identified in consultation with the department of transportation or a local government, or landslides or debris torrents caused or triggered by forest practices.

WAC 222-16-050 *Classes of forest practices.

There are four classes of forest practices created by the act. All forest practices (including those in Classes I and II) on nonfederal forest lands must be conducted in accordance with the forest practices rules. The department determines the classification of each forest practices proposal.

(1) **"Class IV-special."** Except as provided in WAC 222-16-051, application to conduct forest practices involving the following circumstances requires an environmental checklist in compliance with the State Environmental Policy Act (SEPA), and SEPA guidelines, as they have been determined to have potential for a substantial impact on the environment. It may be determined that additional information or a detailed environmental statement is required before these forest practices may be approved.

***(a)** Aerial application of pesticides in a manner identified as having the potential for a substantial impact on the environment under WAC 222-16-070 or ground application of a pesticide within a Type A or B wetland.

(b) Specific forest practices listed in WAC 222-16-080 on lands designated as critical habitat (state) of threatened or endangered species.

(c) Harvesting, road construction, aerial application of pesticides and site preparation on all lands within the boundaries of any national park, state park, or any park of a local governmental entity, except harvest of less than five thousand board feet within any developed park recreation area and park managed salvage of merchantable forest products.

***(d)** Timber harvest, or construction of roads, landings, gravel pits, rock quarries, or spoil disposal areas, on potentially unstable slopes or landforms described in (d)(i) of this subsection that has the potential to deliver sediment or debris to a public resource or that has the potential to threaten public safety, and which has been field verified by the department (see WAC 222-10-030 SEPA policies for potentially unstable slopes and landforms).

(i) For the purpose of this rule, potentially unstable slopes or landforms are one of the following: (See board manual section 16 for more descriptive definitions.)

(A) Inner gorges, convergent headwalls, or bedrock hollows with slopes steeper than thirty-five degrees (seventy percent);

(B) Toes of deep-seated landslides, with slopes steeper than thirty-three degrees (sixty-five percent);

(C) Groundwater recharge areas for glacial deep-seated landslides;

(D) Outer edges of meander bends along valley walls or high terraces of an unconfined meandering stream; or

(E) Any areas containing features indicating the presence of potential slope instability which cumulatively indicate the presence of unstable slopes.

(ii) The department will base its classification of the application or notification on professional knowledge of the area, information such as soils, geologic or hazard zonation maps and reports, review of approved watershed analysis mass wasting prescriptions according to WAC 222-22-090(6) or other information provided by the applicant.

(iii) An application would not be classified as Class IV-special for potentially unstable slopes or landforms under this subsection if:

(A) The proposed forest practice is located within a watershed administrative unit (WAU) that is subject to an approved watershed analysis;

(B) The forest practices are to be conducted in accordance with approved prescriptions from the watershed analysis; and

(C) The applicable prescriptions are specific to the site or situation, as opposed to a prescription that calls for additional analysis. The need for an expert to determine whether the site contains specific landforms will not be considered "additional analysis," as long as specific prescriptions are established for such landforms.

*(e) Timber harvest, in a WAU not subject to an approved watershed analysis under chapter 222-22 WAC, construction of roads, landings, rock quarries, gravel pits, borrow pits, and spoil disposal areas on snow avalanche slopes within those areas designated by the department, in consultation with department of transportation and local government, as high avalanche hazard where there is the potential to deliver sediment or debris to a public resource, or the potential to threaten public safety.

(f) Timber harvest or construction of roads, landings, rock quarries, gravel pits, borrow pits, and spoil disposal areas on the following except in (f)(iv) of this subsection:

(i) Archaeological sites or historic archaeological resources as defined in RCW 27.53.030; or

(ii) Historic sites eligible for listing on the National Register of Historic Places or the Washington Heritage Register as determined by the Washington state department of archaeology and historic preservation; or

(iii) Sites containing evidence of Native American cairns, graves, or glyptic records as provided for in chapters 27.44 and 27.53 RCW. The department of archaeology and historic preservation shall consult with affected Indian tribes in identifying such sites.

(iv) A forest practice would not be classified as Class IV-special under this subsection if:

(A) Cultural resources management strategies from an approved watershed analysis conducted under chapter 222-22 WAC are part of the proposed forest practices, and the landowner states this in the application; or

(B) A management plan agreed to by the landowner, the affected Indian tribe, and the department of archaeology and historic preservation is part of the proposed application, and the landowner states this in the application.

*(g) Forest practices subject to an approved watershed analysis conducted under chapter 222-22 WAC in an area of resource sensitivity identified in that analysis which deviates from the prescriptions (which may include an alternate plan).

*(h) Filling or draining of more than 0.5 acre of a wetland.

(2) "**Class IV-general.**" Applications involving the following circumstances are Class IV-general forest practices unless they are listed in Class IV-special. Forest practices applications

classified Class IV-general are subject to the SEPA review process described in subsection (1) of this section.

* (a) Forest practices (other than those in Class I) on lands that are being converted to another use;

(b) Forest practices that would otherwise be Class III, but are taking place on lands that are not to be reforested because of likelihood of future conversion to urban development (see WAC [222-16-060](#) and [222-34-050](#)); or

(c) Where the regulatory authority for forest practices has not been transferred from the department to the local governmental entity pursuant to RCW [76.09.240\(1\)](#), forest practices involving timber harvesting or road construction on lands that are contained within urban growth areas, designated pursuant to chapter [36.70A](#) RCW, except where the forest landowner provides one of the following:

(i) A written statement of intent signed by the forest landowner not to convert to a use other than commercial timber operations for ten years. This statement must be accompanied by either a written forest management plan acceptable to the department or documentation that the land is enrolled under the provisions of chapter [84.33](#) or [84.34](#) RCW; or

(ii) A conversion option harvest plan approved by the local governmental entity and submitted to the department as part of the application.

Upon receipt of an application, the department will determine the lead agency for purposes of compliance with SEPA pursuant to WAC [197-11-924](#) and [197-11-938\(4\)](#) and RCW [43.21C.037\(2\)](#). Such applications are subject to a thirty-day period for approval unless the lead agency determines a detailed statement under RCW [43.21C.030\(2\)\(c\)](#) is required. Upon receipt, if the department determines the application is for a proposal that will require a permit from a local governmental entity acting under the powers enumerated in RCW [76.09.240](#), the department shall notify the applicable local governmental entity under WAC [197-11-924](#) that the department has determined according to WAC [197-11-938\(4\)](#) that the local governmental entity is the lead agency for purposes of compliance with the SEPA.

(3) "Class I." Operations that have been determined to have no direct potential for damaging a public resource are Class I forest practices. When the conditions listed in Class IV-special are not present, these operations may be commenced without notification or application.

(a) Culture and harvest of Christmas trees and seedlings.

* (b) Road maintenance except: Replacement of bridges and culverts across Type S, F or flowing Type Np Waters; or movement of material that has a direct potential for entering Type S, F or flowing Type Np Waters or Type A or B Wetlands.

* (c) Construction of landings less than one acre in size, if not within a shoreline area of a Type S Water, the riparian management zone of a Type F Water, the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

* (d) Construction of less than six hundred feet of road on a sideslope of forty percent or less if the limits of construction are not within the shoreline area of a Type S Water, the riparian management zone of a Type F Water, the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

* (e) Installation or removal of a portable water crossing structure where such installation does not take place within the shoreline area of a Type S Water and does not involve disturbance of the beds or banks of any waters.

* (f) Initial installation and replacement of relief culverts and other drainage control facilities not requiring an application.

(g) Rocking an existing road.

(h) Loading and hauling timber from landings or decks.

(i) Precommercial thinning and pruning, if not within the CRGNSA special management area.

(j) Tree planting and seeding.

(k) Cutting and/or removal of less than five thousand board feet of timber (including live, dead and down material) for personal use (i.e., firewood, fence posts, etc.) in any twelve-month period, if not within the CRGNSA special management area.

(l) Emergency fire control and suppression.

(m) Slash burning pursuant to a burning permit (RCW 76.04.205).

* (n) Other slash control and site preparation not involving either off-road use of tractors on slopes exceeding forty percent or off-road use of tractors within the shorelines of a Type S Water, the riparian management zone of any Type F Water, or the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

* (o) Ground application of chemicals, if not within the CRGNSA special management area. See WAC 222-38-020 and 222-38-030.

* (p) Aerial application of chemicals (except insecticides), outside of the CRGNSA special management area when applied to not more than forty contiguous acres if the application is part of a combined or cooperative project with another landowner and where the application does not take place within one hundred feet of lands used for farming, or within two hundred feet of a residence, unless such farmland or residence is owned by the forest landowner. Provisions of chapter 222-38 WAC shall apply.

(q) Forestry research studies and evaluation tests by an established research organization.

* (r) Any of the following if none of the operation or limits of construction takes place within the shoreline area of a Type S Water or the riparian management zone of a Type F Water, the bankfull width of a Type Np Water or flowing Type Ns Water, or within the CRGNSA special management area and the operation does not involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent:

(i) Any forest practices within the boundaries of existing golf courses.

(ii) Any forest practices within the boundaries of existing cemeteries which are approved by the cemetery board.

(iii) Any forest practices involving a single landowner where contiguous ownership is less than two acres in size.

(4) "Class II." Certain forest practices have been determined to have a less than ordinary potential to damage a public resource and may be conducted as Class II forest practices: Provided, that no forest practice enumerated below may be conducted as a Class II forest practice if the operation is within a "shorelines of the state," or involves owner of perpetual timber rights subject to RCW 76.09.067 (other than renewals). Such forest practices require an application. No forest practice enumerated below may be conducted as a Class II forest practice if it takes place on lands that are being converted to another use. Unless the conditions described in (f) or (g) of this subsection are met, no forest practice enumerated below involving timber harvest or road construction may be conducted as a Class II if it takes place within urban growth areas designated

pursuant to chapter 36.70A RCW. Such forest practices require a Class IV application. Class II forest practices are the following:

(a) Renewal of a prior Class II notification where no change in the nature and extent of the forest practices is required under rules effective at the time of renewal.

(b) Renewal of a previously approved Class III or IV forest practices application where:

(i) No modification of the uncompleted operation or of a forest practices hydraulic project design is proposed;

(ii) No notices to comply, stop work orders or other enforcement actions are outstanding with respect to the prior application;

(iii) No change in the nature and extent of the forest practice is required under rules effective at the time of renewal; and

(iv) The application is not a multiyear permit that is located within an area subject to reanalysis of a watershed analysis under WAC 222-22-090(6).

* (c) Any of the following if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone, within a wetland, or within the CRGNSA special management area:

(i) Construction of advance fire trails.

(ii) Opening a new pit of, or extending an existing pit by, less than one acre.

* (d) Salvage of logging residue if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone or within a wetland; and if none of the operations involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent.

* (e) Any of the following if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone, within a wetland, or within the CRGNSA special management area, and if none of the operations involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent, and if none of the operations are located on lands with a likelihood of future conversion (see WAC 222-16-060):

(i) West of the Cascade summit, partial cutting of forty percent or less of the live timber volume.

(ii) East of the Cascade summit, partial cutting of five thousand board feet per acre or less.

(iii) Salvage of dead, down, or dying timber if less than forty percent of the total timber volume is removed in any twelve-month period.

(iv) Any harvest on less than forty acres.

(v) Construction of six hundred or more feet of road, provided that the department shall be notified at least two business days before commencement of the construction.

* (f) Forest practices involving timber harvesting or road construction listed in (a) through (e) of this subsection within urban growth areas (UGAs) designated pursuant to chapter 36.70A RCW, if the landowner provides one of the following:

(i) A written statement of intent signed by the forest landowner not to convert to a use other than commercial timber operations for ten years. This statement must be accompanied by either a written forest management plan acceptable to the department, or documentation that the land is

enrolled under the provisions of chapter 84.33 or 84.34 RCW; or

(ii) A conversion option harvest plan approved by the local governmental entity and submitted to the department as part of the application.

*(g) Forest practices listed in (a) through (e) of this subsection within UGAs, and where the regulatory authority for forest practices has been transferred to the local governmental entity pursuant to RCW 76.09.240(1), may nonetheless be Class II forest practices and regulated by the department if:

(i) The forest practice is on a landowner's ownership of contiguous forest land equal to or greater than twenty acres; and

(ii) The landowner provides documentation described in (f)(i) or (ii) of this subsection.

(5) "**Class III.**" Forest practices not listed under Classes IV, I or II above are Class III forest practices. Among Class III forest practices are the following:

*(a) Forest practices hydraulic projects except where classed as Class I, II, and IV forest practices.

*(b) Those within the shorelines of the state other than those in a Class I forest practice.

*(c) Aerial application of insecticides, except where classified as a Class IV forest practice.

*(d) Aerial application of chemicals (except insecticides), except where classified as Class I or IV forest practices.

*(e) Harvest or salvage of timber except where classed as Class I, II or IV forest practices.

*(f) All road construction except as listed in Classes I, II and IV forest practices.

(g) Opening of new pits or extensions of existing pits over one acre.

*(h) Road maintenance involving:

(i) Replacement of bridges or culverts across Type S, F or flowing Type Np Waters; or

(ii) Movement of material that has a direct potential for entering Type S, F or flowing Type Np Waters or Type A or B Wetlands.

(i) Operations involving owner of perpetual timber rights subject to RCW 76.09.067.

(j) Site preparation or slash abatement not listed in Classes I or IV forest practices.

(k) Harvesting, road construction, site preparation or aerial application of pesticides on lands which contain cultural, historic or archaeological resources which, at the time the application or notification is filed, have been identified to the department as being of interest to an affected Indian tribe.

(l) Harvesting exceeding nineteen acres in a designated difficult regeneration area.

(m) Utilization of an alternate plan. See WAC 222-12-040.

*(n) Any filling of wetlands, except where classified as Class IV forest practices.

*(o) Multiyear permits.

*(p) Small forest landowner long-term applications that are not classified Class IV-special or Class IV-general, or renewals of previously approved Class III or IV long-term applications.

*(q) Forest practices involving timber harvest or road construction listed in (a) through (p) of this subsection within urban growth areas (UGAs) designated pursuant to chapter 36.70A RCW, if the landowner provides documentation described in subsection (4)(f)(i) or (ii) of this section.

*(r) Forest practices listed in (a) through (p) of this subsection within UGAs, and where the regulatory authority for forest practices has been transferred to the local governmental entity pursuant to RCW 76.09.240(1), may nonetheless be Class III forest practices and regulated by the department if:

(i) The forest practice is on a landowner's ownership of contiguous forest land equal to or greater than twenty acres; and

(ii) The landowner provides documentation described in subsection (4)(f)(i) or (ii) of this section.

(s) Removal of beaver structures from culverts on forest roads.

WAC 222-20-010 Applications and notifications—Policy.

(1) **No Class II, III or IV forest practices** shall be commenced or continued unless the department has received a notification for Class II forest practices, or approved an application for Class III or IV forest practices pursuant to the act. Where the time limit for the department to act on the application has expired, and none of the conditions in WAC 222-20-020(1) exist, the operation may commence. (NOTE: OTHER LAWS AND RULES AND/OR PERMIT REQUIREMENTS MAY APPLY. SEE CHAPTER 222-50 WAC.)

(2) **The department shall** prescribe the form and contents of notifications and applications. The department shall specify the information required for a notification, and the information required for the department to approve or disapprove an application.

(3) **Except as provided in subsection (4) of this section, applications and notifications** shall be signed by the landowner, the timber owner, and the operator if the operator is known at the time the application is submitted.

(4) In lieu of a landowner's signature, where the timber rights have been transferred by deed to a perpetual owner who is different from the forest landowner, the owner of perpetual timber rights may sign a forest practices application or notification for operations not converting to another use and the statement of intent not to convert for a set period of time. The holder of perpetual timber rights shall serve the signed forest practices application or notification and the signed statement of intent on the forest landowner. The forest practices application shall not be considered complete until the holder of perpetual timber rights has submitted evidence acceptable to the department that such service has occurred.

(5) **Where an application** for a conversion is not signed by the landowner, the department shall not approve the application. Applications and notifications for the development or maintenance of utility rights of way shall not be considered to be conversions.

(6) **Transfer of the approved application or notification** to a new landowner, timber owner or operator requires written notice by the former landowner or timber owner to the department and should include the original application or notification number. This written notice shall be in a form acceptable to the department and shall contain an affirmation signed by the new landowner, timber owner, or operator, as applicable, that he/she agrees to be bound by all conditions on the approved application or notification. In the case of a transfer of an application previously approved without the landowner's signature, the new timber owner or operator must submit a bond securing compliance with the requirements of the forest practices rules as determined necessary by the department. If an application or notification indicates that the landowner or timber owner is also the operator, or an operator signed the application, no notice need be given regarding any change in subcontractors or similar independent contractors working under the supervision of the operator of record.

(7) **The landowner or timber owner must provide notice of hiring or change of operator** to the department within forty-eight hours of the change. The department shall promptly notify

the landowner if the operator is subject to a notice of intent to disapprove under WAC 222-46-070. Once notified, the landowner will not permit the operator, who is subject to a notice of intent to disapprove, to conduct the forest practices specified in the application or notification, or any other forest practices until such notice of intent to disapprove is removed by the department.

(8) **Applications and notifications**, if complete, will be considered officially received on the date and time shown on any registered or certified mail receipt, or the written receipt given at the time of personal delivery, or at the time of receipt by general mail delivery. The department will immediately provide a dated receipt to the applicant. Applications or notifications that are not complete, or are inaccurate will not be considered officially received until the applicant furnishes the necessary information to complete the application.

(a) A review statement from the U.S. Forest Service that evaluates compliance of the forest practices with the Columbia River Gorge National Scenic Area Act (CRGNSA) special management area guidelines is necessary information for an application or notification within the CRGNSA special management area. The review statement requirement shall be waived if the applicant can demonstrate the U.S. Forest Service received a complete plan application and failed to act within forty-five days.

(b) A complete environmental checklist (WAC 197-11-315) is necessary information for all Class IV applications.

(c) A local governmental entity clearing and/or grading permit is necessary information for all Class IV applications on lands that will be converted to a use other than commercial timber operations if the local governmental entity has jurisdiction and has an ordinance requiring such permit.

(d) A checklist road maintenance and abandonment plan is necessary information for all small forest landowners' applications or notifications for timber harvest (including salvage), unless exempt under WAC 222-24-0511, or unless the application is a small forest landowner long-term application which requires a roads assessment.

(9) **Where potentially unstable slopes or landforms are in or around the area of an application**, the department may require the landowner to provide additional information in order to classify the application appropriately. If necessary, the department may require additional geologic information prepared by a qualified expert. The department may request that the qualified expert explain the methods the qualified expert used to evaluate the proposed harvest or construction activities with respect to the potentially unstable slopes or landforms. Nothing in this subsection is intended to require a geotechnical report if the geologic information provided is sufficient to appropriately classify the application.

(a) "Qualified expert" is defined in WAC 222-10-030.

(b) "Potentially unstable slopes or landforms" are those listed in WAC 222-16-050
(1)(d)(i)(A) through (E).

(10) **Financial assurances** may be required by the department prior to the approval of any future forest practices application or notification to an operator or landowner under the provisions of WAC 222-46-090.