

Central Tongass Project

Draft Environmental Impact Statement

Volume II: Appendices A - C



**Forest Service
Alaska Region**

**Tongass National Forest
Petersburg Ranger District and
Wrangell Ranger District**

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Cover Photo: Pats Creek Watershed Credit: Andrea Slusser

Central Tongass Project

Draft Environmental Impact Statement

Volume II: Appendices A - C

Appendix A - Implementation Plan and Activity Guides

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Appendix A – Implementation Plan and Activity Guides

Introduction

The Environmental Impact Statement (EIS) describes the purpose and need, alternatives and the effects of managing the Central Tongass project area. The Implementation Plan and Activity Guides are integral to the action alternatives, analysis of effects and provide the process for implementation of project activities.

As a landscape-level project, the Central Tongass EIS focuses on a range of activities over the entire project area for the 15-year life of the project. It discloses the direct, indirect and cumulative environmental impacts that could result from the action alternatives. The Implementation Plan and Activity Guides were developed to ensure proposed activities are implemented within the bounds of the analysis and the decision made in the Central Tongass Record of Decision. The activity guides describe the proposed activities, when they would be implemented based on existing and desired conditions, incorporate activity objectives and provide resource-specific design features, best management practices, site conditions, triggers and other resource-specific requirements.

This landscape-level approach allows for implementation of activities not bound by pre-determined treatments. The implementation framework below outlines methods to identify and review possible design options and their constraints, incorporate public involvement and confirm the anticipated effects are included and documented in this EIS.

Public workshops are a part of the implementation framework and will continue, as needed, over the life of the project as a place to discuss planned implementation strategies and gather public feedback. The intended outcome is a continuous feedback loop between the Forest Service and the public, prior to and after activity implementation.

In summary, the objectives of the Implementation Plan are to:

- verify the proposed activities are within the scope of the decision, and confirm the anticipated effects of implementation have been included and documented in the EIS and authorized in the Record of Decision (ROD);
- provide a process to keep the public informed and involved in activity location, timing, and design;
- ensure flexibility and be responsive to on-the-ground conditions, and/or new scientific information; and
- encourage communication between interdisciplinary team members, resource specialists, Forest Service line officers, tribes, the public and partners.

Implementation Framework

Completing the steps within the implementation framework (from identifying an activity to its final implementation) may take several months to a year, and at any given time several proposals may be under development (Figure 1).

Appendix A

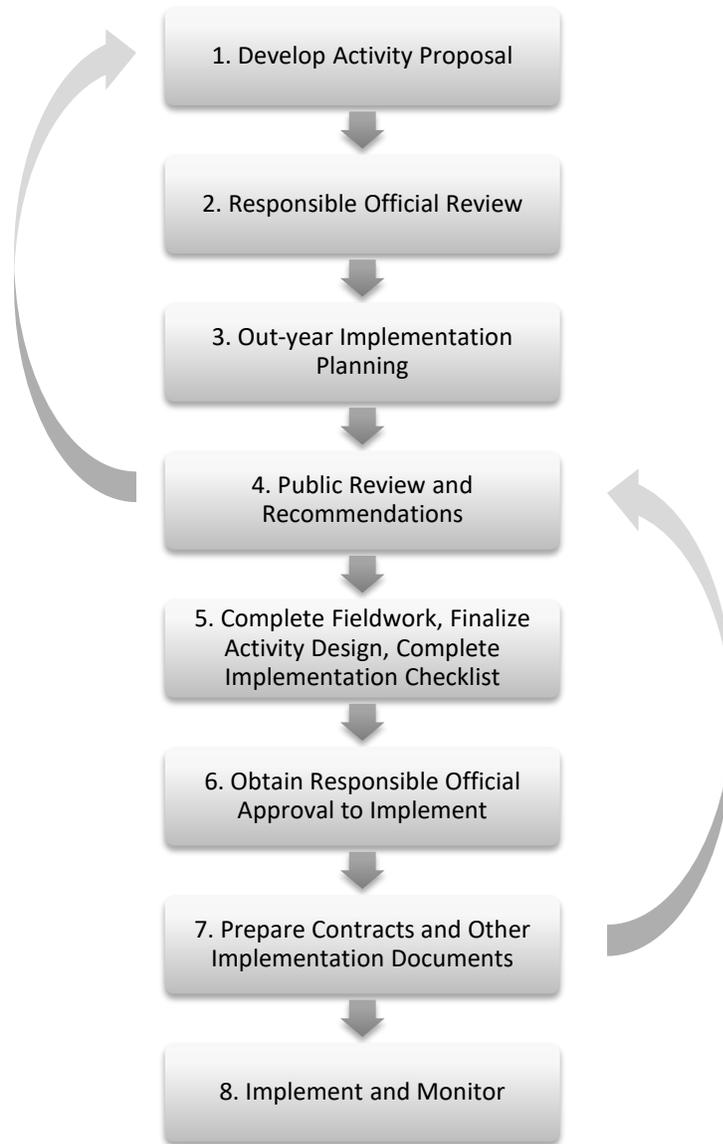


Figure 1. The 8 steps of the Central Tongass implementation framework, which outlines a method to identify and analyze activities and ensure consistency with the Central Tongass EIS and the 2016 Forest Plan.

Step 1) Develop Activity Proposal

Each year, activity proposals will be identified for implementation within the Central Tongass project area consistent with the Record of Decision. Proposals may be generated from tribal consultation, public input and previous out-year planning, or by Forest Service priorities. At this step, the activity is described in the Implementation Checklist and distributed to the NEPA coordinator and resource specialists to complete their initial review.

If the NEPA coordinator and resource specialists determine consistency with the Central Tongass ROD, the Forest Plan, and other federal laws and executive orders, then the proposal may move to Step 2 – Responsible Official Review.

Step 2) Responsible Official Review

The Responsible Official reviews the proposed activity and approves, or decides if modifications are needed.

If the proposed activity is approved, it is added to the Cumulative Implementation Tracking Form which lists the Selected Alternative maximums for each activity (acres, volume, road miles, miles of stream, etc.) and tracks activities implemented to date. The purpose of the review is to verify adherence to the Selected Alternative maximums and verify cumulative effects are within the scope of the analysis for the Selected Alternative and ROD.

Some activities are brought to the Forest Service by the public, such as interest in a microsale, salvage harvest or commercial firewood. These activities may skip Step 1 and begin here at Step 2 to provide a faster response. These activities must still meet the same internal review and process requirements as other activities. If an activity responding to a public request is authorized for implementation and completed prior to a public review period, it will be disclosed at the next public workshop (see Step 4).

Step 3) Out-year Implementation Planning

Out-year implementation planning is an internal Forest Service process. Discussion points and decisions will be documented in meeting notes and filed in the implementation record.

The purpose of out-year implementation planning is to build an integrated multi-year program of work and facilitate communication between activity leads to identify and coordinate workforce logistics, and on-site resources (heavy equipment, vehicles, seasonal workforce, mobilization costs and contractors). Out-year planning also helps decide which activities to package together during the contracting process.

The Responsible Official sets the date and location for the out-year planning meeting and invites participants such as the:

- Activity lead for each project,
- NEPA coordinator,
- Resource specialists responsible for review of the proposed activities, and/or compliance with requirements or design features for *Endangered Species Act* (ESA) consultation commitments,
- District Ranger from the lead unit, and
- Individuals responsible for activity implementation (for example, sale administrator for timber harvest; watershed crew lead for watershed restoration).

Tangible product of out-year planning:

- A Central Tongass Out-year Plan that includes a list and map of proposed activities approved by the Responsible Official. The Plan will include unit and road cards if timber harvest or road construction is proposed.
- Watershed Restoration Action Plans that describe essential restoration projects necessary to improve watershed condition.

Appendix A

- Invasive Plant Treatment Plan that identifies priority treatment areas necessary to control known infestations.

Implementation may take several years since it takes time to secure funding, acquire or amend permits or concurrences, easements, etc., conduct required field work, prepare and write contract packages, and receive bids when contracts are involved. For example, if an activity requires a timber sale contract or a public works contract package, the exercise must occur in a timeframe that ensures all supporting information is included in the contract.

Step 4) Public Review and Recommendations

The 30-day public review is a time for the public and interested parties to review and provide recommendations on the proposed activities and designs presented in the Central Tongass Out-year Plan and submit applicable peer-reviewed research or individual studies for interdisciplinary team consideration. A summary of comments and responses, and discussion points and decisions will be documented and included in the implementation record.

Following the review period, Forest Service personnel will host out-year workshops in each community within the project area for the public and collaborators to:

- Review new and previous year activity proposals and maps to provide feedback to the Forest Service;
- Evaluate and discuss the priority sequencing of activities, treatment prescriptions and integration of activities for funding;
- Evaluate and recommend changes on activities listed in the out-year plan;
- Submit activity proposals for the next out-year planning cycle.
- Discuss new research, studies, GIS tools, or monitoring results (such as from the annual BMP monitoring program) that may relate to the activity and result in adaptations.

The availability of the Out-year Plan, and workshop times and locations, will be advertised widely using outlets such as the project website; notices in the *Petersburg Pilot* and the *Wrangell Sentinel* and the *Ketchikan Daily News*; flyers on community bulletin boards within the project area; public notifications to the electronic and postal project mailing lists; and public service announcements on local radio stations.

In addition to engaging with the public, Forest Service personnel will continue tribal consultation throughout proposal development and implementation.

Step 5) Complete Fieldwork, Finalize Activity Design and Complete Implementation Checklist

After the public review meetings and tribal consultations, activity design may be adjusted. Once finalized, Forest Service resource specialists complete their section of the Implementation Checklist.

In the checklist, resource specialists consider the activities proposed for implementation (may include a field review) to determine consistency with the project level biological evaluation (BE) findings/determinations and ensure implementation will be within the bounds of the analysis and the Record of Decision, which includes accounting for cumulative effects. If activities are not

consistent with project-level BE findings and determinations, and the Central Tongass FEIS and ROD, additional NEPA may be necessary before implementation can occur.

At this time, formal consultations and permitting are concluded/completed as required by federal and state law with federally and non-federally recognized tribal organizations, and other federal agencies and state agencies such as: United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service, U.S. Army Corps of Engineers, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, Alaska Department of Fish and Game (ADF&G) and State Historic Preservation Office.

All field notes, reports, GIS queries, and formal consultation documentation are filed in the implementation record.

Step 6) Obtain Responsible Official Approval to Implement

The Responsible Official reviews the implementation checklist and provides a final consistency check. If all requirements have been met, the checklist is signed and attached to an approval letter, which approves implementation. The package becomes part of the implementation record. However, if the Responsible Official finds the anticipated effects outside of the Central Tongass analysis and Record of Decision, the checklist is returned to the activity lead for modifications.

Step 7) Prepare Contracts and Other Implementation Documents, as needed

Once proposals have secured funding and personnel, Forest Service resource specialists and the activity lead review and prepare designs and any contract documents needed prior to soliciting bids to implement the activity. This may include the contract, agreements, unit cards, road cards, activity maps, bid packages or other implementation instructions.

Step 8) Implement and Monitor the Activity

Implement the activity. File inspection reports, photos of implementation and the completed work in the implementation record. Follow the Forest Plan for any needed monitoring and include results in the implementation record. Present applicable summaries of the most recent Tongass Land Management Plan Monitoring and Evaluation Report at the next public workshop.

Appendix A

Activity Guides

The Activity Guides for the Central Tongass Project describe all activities potentially considered within the project area. Information about each activity includes what it usually accomplishes, how it is typically implemented, what constraints and resource-specific guidelines apply, and when it would be implemented. Supporting actions are contingent upon implementing the proposed activity and were considered in the effects analysis of the parent activity. Resource concerns are often mitigated by design criteria, as well as adherence to 2016 Tongass Land and Resource Management Plan (Forest Plan) direction and best management practices (BMP). All Forest Plan direction and best management practices will be implemented. All other applicable laws and regulations will be followed.

The Activity Guides are part of the design components of the Action Alternatives. Each guide represents an activity that was included in the environmental analysis. These activities may be necessary or desired to manage the project area over the next 15 years based on what is known from existing data or conditions. The list of activities includes those suggested in public comments, as well as ones necessary to meet Forest Plan objectives or are otherwise desirable. They are meant to be integrated with one another, to coordinate management opportunities across the landscape.

This section outlines 12 activities, each with its own Activity Guide. Activities are grouped into four broad categories: Watershed Restoration and Improvement, Recreation Management, Vegetation Management and Access Management. Two supporting actions (Soil Restoration, and Timber Stand Establishment – Planting and Interplanting) contingent on the 12 primary activities are also described. They are identified in the Integration Opportunities sections of the Activity Guides and further defined in the Supporting Actions section. The units of measure that define the upper limits of the action or activity, without regard to a specific location, for the life of the project. These maximums were used to analyze effects in this EIS; therefore, implementation may not exceed these limits.

Activity Guide Sections

Each activity guide includes seven subheadings to organize information about the proposed activity. For resource specialists, the design features form the parameters for their analysis in the Central Tongass EIS. Later, after the Responsible Official determines the Selected Alternative in the Record of Decision, the resource-specific and general Forest Plan direction for each activity ensures the resource protections considered in the EIS are part of implementation.

Activity Description

This section describes the ground-disturbing activity and identifies the objective(s) typically accomplished with implementation.

When Would We Implement this Activity?

The need to implement is considered by comparing the existing conditions with the desired conditions, and identifying what may trigger a need for change. In other words, conditions, rather than specific indicators, may lead to implementation.

This section includes a narrative description, as well as a graphic representation (decision tree), of if/then statements that may trigger a need for change, and possibly implementation of an activity. Conditions that warrant special consideration or constraints, or require additional management may also be identified. If a proposed activity falls outside the conditions within the decision tree, the proposal could be modified to meet the conditions; otherwise, additional NEPA analysis would be required.

Implementation Methods

This section describes how the activity is implemented to accomplish the objectives.

Equipment Used

This section lists the types of machinery, tools, or other equipment used to implement the activity.

Integration Opportunities

This section considers the potential for integrating an activity with others. Activities considered can be primary management activities (those with Activity Guides) or Supporting Actions.

Activities may be integrated based on costs, environmental effects, or other factors, and at times, they are interdependent and integration is required. For example, timber harvest can require temporary road construction, therefore temporary road construction is a related activity.

Supporting Actions occur only as needed and in conjunction with a primary activity. For example, planting or inter-planting tree seedlings in harvested stands where reforestation has been identified to meet desired future conditions.

Resource-specific Design Features

This section lists resource-specific design features which are a list of requirements designed to guide on-the-ground activities to achieve the desired conditions and avoid or minimize potential adverse impacts during implementation. Some design features are activity-specific.

Design features are based on laws, regulations, Forest Service Manual or Handbook policy, contract requirements, Forest Plan direction, and National Core and Alaska Region best management practices¹. Applying appropriate design features ensures consistency with the analysis completed in the EIS and demonstrates compliance with legal, policy and Forest Plan requirements. Design features are an integral component of all action alternatives, and when conditions dictate, their use is mandatory.

Resource specialists may modify design features if:

- there is a change in policy or management direction (for example, amendments to, or revision of, the Forest Plan, or the ESA list of threatened and endangered species), or

¹ Best management practices protect soils, water quality and watershed function. A list of the most relevant BMPs are cited within the Activity Guides and list in the aquatics section of the DEIS (Chapter 3).

Appendix A

- best available science information indicates a design feature should be modified or replaced to improve effectiveness.

Design Features Common to All Activities by Resource

This section describes resource-specific design features common to all activities. These are in addition to the activity-specific design features described in the activity guides.

Aquatics (Watershed and Fisheries)

Watershed and fisheries resources are grouped as “Aquatics” because both resources reference common water quality concerns, Forest Plan direction, regulations, and best management practices (BMPs).

The combination of several activities within a watershed can result in adverse cumulative watershed effects, leading to adverse changes to peak flow, water yield, or sediment delivery to streams. These water quality concerns are minimized through the protection and improvement of riparian management areas (RMA), by implementing stream category protections and mitigations, following BMPs, and following all applicable regulations and Forest Plan direction. Additional guidance related to road presence, past timber harvest and runoff regimes (based on scientific literature) will be provided by aquatics personnel to further minimize cumulative watershed effects.

Prior to any ground-disturbing activities, the following will be completed:

- Survey/map streams in the affected area by channel type and stream class using standards described in *Fish-Stream Identification & Stream Classification on the Tongass National Forest*² (USDA Forest Service & Alaska Department of Fish & Game, 2015). Update corporate streams data.
- Describe or display proximity of streams to known downstream fish habitat.
- Quantify number and type of new and/or reconstructed stream crossing locations on roads and trails.
- Identify riparian areas, any Reasonable Assuredness of Windthrow (RAW) buffer locations, and prescribe stream protections following Forest Plan management objectives and site-specific conditions.

Title 16 concurrence with ADF&G, Division of Habitat, is required prior to conducting any instream activities within or across all fish-bearing waterbodies. Certain activities such as fish culvert replacements on roads used for silviculture may be exempt from *Clean Water Act* permits (USEPA, Section 404(f)(1)). Consult the U.S. Army Corps of Engineers about permit requirements for activities in streams and wetlands. Section 7(a)(2) of the *Endangered Species Act* (ESA) requires consultation with NMFS, Protected Resources on activities that may affect a listed species.

² Protocol for surveying and mapping streams: https://usdagcc.sharepoint.com/sites/fs-tong-fwr/SiteAssets/SitePages/Home/FISH_STREAM_IDENTIFICATION_AND_STREAM_CLASSIFICATION_ON_THE_TONGASS_12152015.docx

The following design features should be applied to all activities:

1. Follow fish timing windows for in-channel construction activities as determined in consultation with the Alaska Department of Fish and Game, Division of Habitat as per the Title 16 Memorandum of Understanding (Alaska Region BMPs 14.6, 18.3; National BMP AqEco-2, Road-3).
2. Maintain, restore, or improve aquatic organism passage at all road and trail fish stream crossings (USDA Forest Service 2016a, p. 4-11). Fish stream crossing structures must be designed to meet current aquatic organism passage standards.
3. Identify and prioritize suitable design features for road segments causing, or with the potential to cause adverse effects to water quality and riparian resources (National BMPs Road-2, Road-4, Road-6, Road-7).
4. Adhere to Forest Plan direction for Fish, Soil & Water, and Riparian for stream and water quality protection. Identify and protect riparian areas and streams according to management objectives for the LUD in which the activity occurs (Alaska Region BMPs 12.6, 13.16; National BMP AqEco-4).
5. Develop erosion and sediment control plans for projects to minimize or mitigate erosion, sedimentation, and resulting water quality degradation prior to the initiation of construction and maintenance activities (Alaska Region BMP 14.5, 16.1; National BMP AqEco-2).
6. When off-road travel is necessary, use puncheon material to provide adequate bearing strength to prevent soil disturbance and rutting. De-compact and scatter puncheon trail material upon completion of the project (Alaska Region BMP 13.12).
7. Apply erosion control measures (silt fences, fiber rolls) during construction activities and native revegetation (mulching, native grass seeding, planting) in areas where detrimental soil disturbance or de-vegetation may result in the delivery of measurable levels of fine sediment to streams or other waterbodies (Alaska Region BMPs 12.3; 12.17; National Core BMP AqEco-2).
8. Establish hazardous material pollution prevention strategies and contingencies. Fuel gas powered equipment (chainsaws, generators, etc.) away from waterbodies in locations pre-approved by Forest Service personnel. Review equipment refueling plans prior to work commencement (Alaska Region BMPs 12.8, 12.9; National BMP Road-10).
9. Identify areas suitable for staging construction materials and equipment on sites near water prior to work commencement. Fueling, maintenance, and equipment storage would occur away from waterbodies in locations pre-approved by Forest Service personnel. Maintain a spill containment kit on site. (Alaska Region BMPs 12.8, 12.9, 14.14; National Core BMPs Road-9, Road-10, Fac-2, AqEco-2).
10. Identify requirements for further field surveys, whether special timing restrictions exist, key public contacts to be made, and maintain compliance to management updates as they occur (for example, commercially available timber in the RMA during the transition period as per 2016 Forest Plan direction).
11. Design activities and monitor implementation to minimize any potential adverse effects to aquatic resources. On lands other than NFS, consult with landowners and partner organizations/entities prior to project initiation.

Appendix A

Riparian Management Areas

Riparian management areas (RMA) encompass the zone of interaction between aquatic and terrestrial environments associated with stream, lakeshores, and floodplains. Considered areas of special concern to fish, other aquatic resources, and wildlife, the no-harvest stream buffer boundaries (see Stream Category Protections and Mitigations below) are defined by their extent. Riparian management areas are identified and delineated in areas where resources are extracted or ground disturbing activities occur.

Riparian management areas vary in width according to channel process group; stream value class; the extent of the floodplain, riparian vegetation or soils, and riparian associated wetland fens; and the location of side-slope breaks. At the forest level, a GIS model depicts the first approximation of RMA. At the site level, RMA is refined based on field observations.

Additionally, the *Tongass Timber Reform Act* (TTRA) requires, as a minimum, no commercial timber harvest within 100 feet horizontal distance on either side of Class I streams and Class II streams that flow directly into Class I streams. TTRA buffers are incorporated in RMAs.

Chapter 5 and Appendix D (RMA direction) of the Forest Plan allows for young-growth timber harvest within RMAs (outside of TTRA buffers) (USDA Forest Service 2016a). Harvest prescriptions within RMAs focus on facilitating a more-rapid recovery of late successional forest characteristics while also producing a commercial timber byproduct. Exhibit 2 of the Tongass Young Growth Management Strategy (2014) provides guidance on refining treatments in the RMA. Any modifications to no-harvest buffers, such as young-growth harvest, need to follow Forest Plan Appendix C (Watershed Analysis) and Appendix D (Riparian Management) (USDA Forest Service 2016a).

Process Groups and Channel Types

Nine basic fluvial process groups and one additional group for lakes and ponds are defined on the Tongass National Forest. Each process group includes a number of channel types that more precisely characterize a channel and help predict the probable responses to natural and human influences. The desired conditions, objectives, and management direction for each process group and channel type are described in Appendix D of the 2016 Forest Plan.

Stream Value Classes

The stream value class designations for Tongass National Forest are based primarily on presence or absence of anadromous and resident fish, and secondarily on stream morphology. The 2016 Forest Plan recognizes four stream classes based on the following criteria:

Class I: Streams and lakes with anadromous (migrating from the ocean) or adfluvial (migrating from lakes) fish or fish habitat, or high-quality resident fish waters, or habitat above fish migration barriers known to provide reasonable enhancement opportunities for anadromous fish.

Class II: Streams and lakes with resident fish or fish habitat – generally steep channels 6 to 25 percent or higher gradient – where no anadromous fish occur, and otherwise not meeting Class I criteria.

Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow, or transport sufficient sediment and debris, to have an immediate influence on downstream water quality or fish habitat capability. For streams less than 30 percent gradient, fish presence or absence is determined.

Class IV: Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capacity to directly influence downstream water quality or fish habitat capability. Class IV streams do not meet the criteria used to define Class I, II, or III streams. Class IV streams must have bankfull width of at least 0.3 meter (1 foot) over the majority of the stream segment. For perennial streams, with average channel gradients less than 30 percent, fish presence or absence is determined (resident fish presence indicates a Class II designation).

Botany

A qualified botanist/ecologist must conduct a pre-field review for each activity to determine if known populations or potential habitat is present for plants on the Forest Service Alaska Region Sensitive Species List (Goldstein et al. 2009) or for rare plants on the Tongass National Forest (Stensvold 2015). Any field surveys required shall be conducted at the appropriate time of the year by a qualified individual and at an appropriate intensity level (USDA Forest Service 2016a, PLA3, p. 4-40).

1. If sensitive plants are found, the botanist will evaluate and document the survey results for consistency with the determination of effects in the EIS for any sensitive taxa and/or their habitat found in the activity area. Mitigation actions may be required to be consistent with the May Affect determination for sensitive plants found in the activity area. (USDA Forest Service 2016a, PLA1.II, p. 4-39 and FSM 2670.22).
2. If rare plants or other botanical life forms of interest (for example, lichen, fungi, bryophytes or unique plant communities) are found during field surveys, the project botanist should prepare a resource report to document the potential effects to the species or their habitats, and provide any mitigation actions required to protect populations and meet the habitat requirements of the species (USDA Forest Service 2016a, Forest Plan Goals, pp. 2-3 and 2-4, PLA1.III, pp. 4-39 and 4-40).

If the Alaska Region Sensitive Species list is updated or transitioned to the Species of Conservation Concern list, then botany surveys and protection considerations will focus on the species identified in the most current list.

The list of rare plants for the Tongass National Forest is dynamic; plants may be dropped when found to be more abundant than previously thought, or plants may be added if newly discovered in the State or Forest. Plants may also be added or dropped as their taxonomic status changes. Generally, the rare plant list is based on the Alaska Center for Conservation Science rare plant ranking (S1, S2 and sometimes S3) combined with the known distribution of species and the professional opinions of Tongass botanists and ecologists. The most recent list will be used during implementation of any activity.

Heritage

The *National Historic Preservation Act* (NHPA) and NEPA require the Forest Service to consider the effects of federal actions on historic properties and cultural resources. We often coordinate compliance with these laws to identify resources that may be affected by project activities. The Section 106 process of the NHPA guides our work through research, field survey and consultation with Federally Recognized Alaska Native Tribes and Corporations, the Alaska State Historic Preservation Officer (SHPO) and stakeholders (which includes non-federally recognized tribes). The Alaska Region Forest Service has a programmatic agreement (PA) that offers a streamlined approach to Section 106 (USDA Forest Service 2017). The Heritage

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professional decides if an activity fits within the terms of the PA or whether standard Section 106 procedures apply.

The NHPA uses the term “undertaking” to define a project, activity, or program on federal land, funded with federal money or having federal involvement. To trigger the Section 106 process the undertaking must have the potential to affect a historic property. This planning document is a kind of activity that has no potential to affect historic properties and does not qualify as an “undertaking” for the purposes of Section 106. However, specific discrete activities that will be implemented as part of this project may qualify as undertakings and will be assessed on a case-by-case basis for Section 106 compliance. In carrying out Section 106 review for specific, discreet projects, the following procedures will be followed.

Field work will follow the inventory strategy outlined in the Tongass National Forest Predictive Model (USDA-FS 2017). The model identifies a high-probability zone for cultural resources and the programmatic agreement requires intensive review of these locations:

1. Natural resource areas such as current and paleo shorelines, streams, lakes, anadromous fish runs, karst landscapes, and raw material sources,
2. Areas associated with traditional practices or beliefs and/or identified through historic, ethnographic, or oral history and,
3. Land from mean lower low water in the intertidal area to 100 feet above mean high water or higher based on the archaeologist’s assessment. This includes state intertidal lands.

We also consider certain areas of low cultural resource probability and the built environment 50 years or older. The built environment can include buildings and structures associated with the forest product industry (roads, trails, bridges, MAFs, logging equipment/camps, etc.), the fur and fish processing industry (camps, canneries, fur farms, traps, etc.), and recreation facilities (trails, campsites, cabins, shelters, boardwalks, etc.).

The Forest Service policy is to avoid disturbing NRHP-eligible sites, including those treated as eligible under the terms of the PA. If unavoidable adverse effects occur at a historic property, the archaeologist will consult with the SHPO and potentially the Advisory Council on Historic Preservation to mitigate the effects through the development of a legally binding Memorandum of Agreement. If we find human remains, the Forest Service will comply with the most current state and federal protocols.

The following design features are common to all activities:

1. Archaeologists will review proposed activities and start the Section 106 process if the action qualifies as an undertaking and has the potential to cause effects to historic properties.
2. If during project implementation historic properties or cultural resources not recognized after completion of the Section 106 process are discovered, work will stop in the immediate vicinity until the Forest Service has made a reasonable effort to avoid, minimize or mitigate adverse effects.
3. If we discover archaeological human remains or funerary objects during implementation, work will stop immediately in the vicinity and State Human Remains protocols shall be initiated. If Native American remains are identified, government-to-government consultation between the Line Officer and the Federally Recognized Tribe/Corporation

shall be initiated in accordance with the *Native American Graves Protection and Repatriation Act* (NAGPRA). A 30-day period of work stoppage is required for NAGPRA consultation. Work in the immediate vicinity may not resume until authorized by a Line Officer.

4. We shall monitor certain activities to validate determinations of effect or protection measures. For example, if an archaeology site is near a proposed new road, the heritage professional, at their discretion, may need to be on-site when construction occurs to assure avoidance and protection.

Invasive Plants

Invasive plants are a broad category, generally defined as a species “whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal or plant health” (EO 13112).

Prior to implementation, a qualified botanist/ecologist will conduct an invasive species risk assessment for each activity to evaluate the potential for introduction or spread of invasive species and determine design measures necessary to minimize the risk of introduction or spread and ensure compliance with the Central Tongass Project EIS.

The risk assessment reviews the site and activity details to determine: the presence/absence of invasive plant species, nature of disturbance, management implications by site type, and potential vectors of invasive plant establishment or spread.

The *Guidance for the Invasive Plant Management Program, Tongass National Forest* (Krosse 2017, pp. 5-11) lists applicable Weed BMPs recommended to mitigate or control the introduction and spread of invasive species for all activities. Weed BMPs will be identified for each activity and documented in the activity risk assessment.

Activity 03: Invasive Treatments Activity Guide outlines invasive plant treatment methods. An activity treatment plan will be developed detailing the species, population locations and treatment methods proposed. Review of the plan by resource specialists will identify concerns and ensure that necessary project design features are included.

Karst

Prior to implementation a karst resource vulnerability assessment will be conducted for each activity to identify potential karst lands and areas of high vulnerability karst and the catchment areas contributing to them. The vulnerability assessment will identify site specific protection measures consistent with the *Federal Cave Resources Protection Act* (FCRPA) of 1988, 36 CFR Part 290, 36 CFR part 261, Forest Service Manuals 2356 and 2880, and the 2016 USDA Forest Service 2016a, Karst and Cave Resources, Forest Plan direction pp. 4-23 to 4-25, Standard S-YG-KC-02 p. 5-6, and Appendix H (USDA Forest Service 2016a).

A karst resource vulnerability assessment is a four-step process. It includes: identifying potential karst lands, inventory of the karst resources, delineating the karst hydrologic system and catchment area, and assessing the vulnerability of the karst terrane to the proposed activity. An area's vulnerability rating must be sensitive to potential surface management practices based on the extent to which epikarst has developed and the openness of the karst system. Karst vulnerability mapping recognizes the variability in karst terrain and uses the vulnerability concepts described here to assign a high, moderate, or low vulnerability rating to an area of karst

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terrain. The proposed ground disturbing activity is considered when determining mitigation or applying karst management guidelines.

Lands

Land ownership within the Tongass National Forest is complex, created under many Alaska specific land laws. Within the project area, there is varied land ownership. Several State of Alaska and *Alaska Native Claims Settlement Act* land selections are still pending adjunction by the USDI Bureau of Land Management. Prior to implementation of an activity within the project area, land status, ownership, and boundary lines must be verified.

Recreation

Recreation planners will work with other resource specialists to comply with best management practices and manage activity development to minimize impacts from recreation activities on local resources and non-recreation activities on recreation. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding integrated resource planning.

Prior to implementation of an activity within the project area, a recreation planner will consider impacts to Forest resources and reference standards and guidelines as defined in Chapters 3 and 4 of the Forest Plan. These standards and guidelines provide a general outline of allowable recreation facility and trail activities on NFS lands. Consider the recreation opportunity spectrum (ROS) setting of the activity area and develop a plan that recognizes ROS Standards and Guidelines, defined in Appendix I of the Forest Plan. Any proposed activities may result in a change of ROS classification, which is then reflected in the Forest-wide ROS inventory.

Scenery

Scenic integrity objectives (SIO) are developed for all locations on the forest, are specified in the Forest Plan, and will be identified for every proposed activity. Most activities will have SIOs specific to the LUDs in which the activity occurs. Young growth harvest and transportation activities have SIOs not tied specifically to LUDs.

Consult scenery specialists as early as possible to ensure the activity will be consistent with all the 2016 Forest Plan scenery components. Depending on the scale and location of the site-specific activity, the activity lead should plan 1 to 6 months for the scenery specialist to conduct a scenic analysis.

Silviculture

If the activity is expected to require the cutting or removal of live trees or vegetative disturbance, consult the district silviculturist to determine if a prescription is necessary.

When implementing activities in or adjacent to young-growth stands, consider treatments of adjacent young-growth stands to minimize re-entry costs and damage to residual trees.

Soils/Wetlands

Applicable federal, state and municipal laws, regulations, policies which govern the management of soils include: the National Nonpoint Source Policy (December 12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), the USDA Nonpoint Source Water Quality Policy (December 5, 1986), the *National Forest Management Act*, the *Multiple Use Sustained Yield Act*

of 1976, the Forest Service Manual 2554, Forest Service Soil and Water Conservation Handbook, and the 2016 Forest Plan (USDA Forest Service 2016a).

Central Tongass Project activity designs are heavily influenced by the soil resources. For instance, efforts to avoid slopes greater than 72 percent (as outlined in the Forest Plan) often determine the location of unit boundaries, temporary roads, and landings. All activities (trails, timber harvest, roads, etc.) planned for the Central Tongass Project will be located and designed to meet 33 CFR 323 guidelines and State-approved BMPs, National Core BMPs, and Alaska Region BMPs. Applicable soils direction is included in the 2016 Forest Plan (USDA Forest Service 2016a).

Applicable federal, state, and municipal laws, regulations, and policies which govern the management of wetlands include: The 2016 Forest Plan; Executive Order 11990: Protection of Wetlands; 40 CFR 230 Section 404; 33 CFR 323.3b; the *Clean Water Act* Section 404b; and US Corps of Engineers Wetlands Delineation Manual (1987).

The Forest Service is required by Executive Order 11990 and Section 404 of the *Clean Water Act* to preserve and enhance the natural and beneficial values of wetlands wherever practicable when carrying out its land management responsibilities. Executive Order 11990, and subsequent regulations, also require federal agencies to avoid new road construction on wetlands whenever there is a practicable, environmentally-preferred alternative.

Due to the extensive nature of wetlands in the Central Tongass project area, it would be impossible to avoid all wetlands during road planning and construction. Where a wetland cannot be avoided, the impacts would be minimized. Alaska Region BMP 12.5 provides guidance for wetland identification, evaluation and protection. If an activity proposed is not included in the 404 Silvicultural Exemption and fill is planned in wetlands, a wetland delineation will be conducted and a 404 permit will be obtained from the U.S. Army Corps of Engineers prior to implementation.

Timber and Other Forest Products

Promote the use of wood for its highest value product commensurate with present and anticipated supply and demand (USDA Forest Service, 2016a, p. 4-71). When cutting trees for an activity, require utilization and optimum feasible use of wood material consistent with Forest Plan direction. Stage merchantable material in areas conducive for salvage activities when possible, to allow for utilization.

Transportation

The management of National Forest System (NFS) roads is regulated through the Code of Federal Regulations, including 36 CFR parts 212, 251, 261 and 295. Manage and maintain roads to provide access for forest management, subsistence uses, and recreation, as well as public access to traditional use areas while protecting water, soil, fish, and wildlife resources (USDA Forest Service, 2016a, p. 5-14). Forest Plan goals and objectives for transportation include the development and management of roads to support resource management activities (Chapter 2). Land use designation-specific (LUD) Transportation Standards and Guidelines apply where activities are proposed within the project area and are found in Chapter 3 of the Forest Plan. Additionally, there are Forest Plan Standards and Guidelines for Transportation found in Chapter 4 (beginning on page 4-76). Included in Chapter 5 is additional direction on Young Growth, Renewable Energy, and Transportation Systems Corridors Direction suitability and standards for

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transportation. Manage and maintain roads to provide access for forest management, subsistence uses, and recreation, as well as public access to traditional use areas while protecting water, soil, fish and wildlife resources (p. 5-14 GL-TRAN-01).

Prior to implementation, activity leads will coordinate with the transportation planner to review existing road management objectives (RMOs) of designated NFS roads and where approved under Central Tongass project Appendix B. Road management objectives document the intended purpose of an individual road in providing access to implement projects within the Central Tongass project area, as well as decisions about applicable standards for the road. The Wrangell and Petersburg Ranger District ATMs (USDA Forest Service 2007 and 2009) provides direction on closing roads to motorized use, and the category, or methods of road closure. Administrative use of roads, trails, and areas not designated for motor vehicle use should be limited to what is required for administration and protection of FS lands.

Wilderness

Timing restrictions should be considered during project development to minimize the effect on solitude when activities such as vegetation management, recreation and road construction/reconstruction are proposed either adjacent to or in proximity to the Petersburg Creek – Duncan Salt Chuck, Tebenkof Bay, South Etolin and Stikine - LeConte Wilderness Areas.

Wildlife

Activities require an activity review by a qualified wildlife biologist and subsistence wildlife biologist to assess which specific design features apply to activity implementation, and to confirm the impacts to wildlife resources are consistent with the analysis completed for the Selected Alternative including for actual cumulative effects. Surveys will be completed if needed.

Wildlife Species Lists and Status Changes

As part of implementation, review species lists (for example, Threatened, Endangered, or Regional Forester Sensitive Species, management indicator species, etc.) to ensure any changes in listing status are acknowledged and addressed accordingly. Add or modify species or habitat protections, or adopt additional management recommendations.

Forest Plan Standards and Guidelines for wildlife, and the Standards and Guidelines applicable in any particular Land Use Designation (LUD), will be followed for all activities. Standards and guidelines in specific LUDs are located in Chapter 3 of the Forest Plan (USDA Forest Service 2016a). Standards and Guidelines as they pertain to wildlife are located on pages 4-85 to 4-97 of the Forest Plan. Content developed under the 2012 planning rule is contained in Chapter 5 of the Forest Plan.

Below is a summary of design features for project activities derived from Forest Plan Standards and Guidelines, and guidelines or direction from other pertinent law, regulation, or policies, for wildlife that will apply to Central Tongass activities. The summary of design features provided below a synopsis, and do not replace the full wording, additional explanation, and nuances of any applicable Forest Plan Standards and Guidelines, and other pertinent law, regulation, or policy.

Heron and Raptor Nest Protection

Provide for the protection of raptor (hawk and owl) nesting habitat and great blue heron rookeries. Conduct project-level inventories to identify heron rookeries and raptor nesting habitat using the most recent inventory protocols. Protect active rookeries and raptor nests. Active nests will be protected with a forested 600-foot windfirm buffer, where available. Road construction through the buffer is discouraged. Prevent disturbance during the active nesting season (generally March 1 to July 31). Protection measures for the site may be removed if the nest is inactive after 2 consecutive years of monitoring. Refer to Forest Plan Standard and Guideline WILD1 XIII (USDA Forest Service 2016a).

Bald Eagle

The *Bald and Golden Eagle Protection Act* provides for special management for eagles. Apply the National Bald Eagle Management Guidelines (2007 or most current) when working or authorizing activities near eagle nests, unless other criteria is determined through coordination with USFWS. The National Bald Eagle Management Guidelines establish minimum distance requirements based on categories of human activities, including for habitat modification and disturbance, and include other recommendations.

During the breeding season, avoid concentrations of noisy motorized watercraft, within 330 feet of eagle nests, except where eagles have demonstrated tolerance for such activity. Other motorized boat traffic passing within 330 feet of the nest should attempt to minimize trips and avoid stopping in the area where feasible, particularly where eagles are unaccustomed to boat traffic.

Consult with the USFWS on the need for an incidental take permit under the *Golden and Bald Eagle Protection Act* if bald eagle nests cannot be protected from loss or disturbance from project activities. Refer to Forest Plan Standards and Guidelines WILD1 VIII (USDA Forest Service 2016a, p. 4-88) and G-WILD-02 (USDA Forest Service 2016a, p. 5-15), and the National Bald Eagle Management Guidelines (USFWS 2007).

Northern Goshawk

Conduct inventories to determine the presence of nesting goshawks for proposed activities that affect goshawk habitat. Preserve nesting habitat around all goshawk nest sites. Maintain an area of not less than 100 acres of productive old-growth (POG) forest if it exists, or the largest diameter young-growth forest if sufficient POG is not adjacent to the nest. Permit no commercial timber harvest in the protective buffer. Existing roads may be maintained. New road construction is permitted if no other reasonable roading alternatives outside the mapped nesting habitat exist. Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15 to August 15. Seasonal restrictions are removed for active nests that become inactive or unsuccessful. Other management activities that maintain the integrity of the forest stand structure are consistent with the objectives for this area. Activities such as cabin, trail, or campground construction should be consistent if designed with minimal vegetative manipulation. Refer to Forest Plan Standard and Guideline WILD4 II A (USDA Forest Service 2016a, pp. 4-95 to 4-96).

American Peregrine Falcon

Provide for the protection and maintenance of habitats for migrating American peregrine falcons. Protect seabird rookeries and waterfowl concentration areas that provide important prey foraging

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habitat. Refer to Forest Plan Standards and Guidelines WILD4 II B (USDA Forest Service 2016a, p. 4-96).

Peale's Peregrine Falcon

Provide for the protection and maintenance of Peale's peregrine falcon habitat. Plan activities to avoid adverse impacts to the falcons and their habitats.

- Evaluate the effects of proposed activities within 2 miles of known falcon nests considering such items as human activities (aircraft, ground and water transportation, high noise levels, and permanent facilities) that could cause disturbance to nesting pairs and young during the nesting period April 15 to August 31; and activities or habitat alterations that could adversely affect prey availability.
- Within 15 miles of all known or historical nest sites, prohibit all use of herbicides and pesticides.

Refer to Forest Plan Standard and Guideline WILD4 II C (USDA Forest Service 2016a, p. 4-96).

Osprey

Maintain and improve osprey populations and habitat.

- Establish a minimum 330-foot radius habitat management zone around each existing osprey nest tree.
- Maintain the osprey nest zone even if the nest or nest tree becomes inactive.
- Provide trees suitable for use by osprey for nesting, feeding and perching.

Refer to Forest Plan Standard and Guideline WILD4 II E (USDA Forest Service 2016a, p. 4-96).

Seabird Colonies

Provide for the protection and maintenance of seabird (marine bird) colonies. Locate facilities and concentrated human activities requiring Forest Service approval as far from known seabird colonies as feasible to be consistent with the *Migratory Bird Treaty Act*. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:

- For aircraft flights on Forest Service authorized or approved activities, when weather ceilings permit avoid flying over seabird colonies, maintain a constant flight direction and airspeed and a minimum flight elevation of 1,500 feet for helicopters and fixed-winged aircraft; and
- Regulate human use to maintain a 250-meter (820-foot) no-disturbance distance from seabird colonies on upland habitats.

Refer to Forest Plan Standard and Guideline WILD1 XI (USDA Forest Service 2016a, p. 4-89).

Waterfowl and Shorebird Habitats

Maintain or enhance wetland habitats that receive significant use by waterfowl and shorebirds. "Significant" is relative, but generally relates to use of a specific area by tens or hundreds of individuals of one or more species.

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Identify during activity review, in cooperation with the ADF&G and the USFWS, wetlands that receive concentrated waterfowl or shorebird use during fall/winter/spring concentrations or include nesting, brood rearing, or molting habitats.

Locate facilities and concentrated human activities requiring Forest Service approval as far from known waterfowl or shorebird concentration and nesting areas as feasible.

Minimize disturbance of waterfowl by restricting, when feasible, development activities to periods when waterfowl are absent from the area.

During activity review, consider the need to rehabilitate waterfowl habitat following development activities if there is no feasible alternative to the habitat disturbance.

Maintain habitat capability in coastal wetlands and intertidal areas that are important migratory staging areas and fall/winter/spring concentration areas, and wetlands that are important nesting and brood-rearing habitats by avoiding, where feasible, all development activities that could fill wetlands, drain wetlands, or alter water levels resulting in loss of desirable vegetation, or direct loss of habitat.

Minimize human disturbance of habitats during important periods of the year (nesting and brood-rearing, molting, and winter) by managing human use (such as trails and off-highway vehicle use) in significant wetland areas. To reduce human disturbance, provide a minimum distance of 330 feet between human activities on the ground and significant areas being used by waterfowl.

Perform integrated logging system and transportation analysis to determine if other feasible routes avoiding areas where concentrated waterfowl use exists. If the need to restrict road access is identified during project interdisciplinary review, roads will be closed either seasonally or year-long to minimize adverse effects on waterfowl.

Cooperate with state and other federal agencies to develop sites for safe public viewing opportunities that do not adversely disturb wildlife.

Conduct activities to avoid or minimize disturbance to habitats within the forest, riparian, and estuarine areas that are important nesting, brooding, rearing, and molting areas for Vancouver Canada geese, sandhill cranes, or trumpeter swans.

Refer to Forest Plan Standard and Guideline WILD1 XII (USDA Forest Service 2016a, pp. 4-89 to 4-90).

Black Oystercatcher

Provide a minimum distance of 330 feet between on-the-ground human activities and black oystercatcher intertidal concentrations or nesting areas.

Avoid swamping of known black oystercatcher nesting areas with boat wakes during the nesting season (generally May to July 31) at times of high tides.

Refer to Forest Plan Standard and Guideline S-WILD-04 (USDA Forest Service 2016a, p. 5-15).

Trumpeter Swan

Provide for the protection and maintenance of trumpeter swan habitats.

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- Avoid disturbance, particularly during nesting, brood-rearing, and wintering periods, to prevent abandonment of their nests, brood-rearing areas, and winter habitats. As a general guideline, limit developments within ½ mile of wetlands used by nesting, brood-rearing, and wintering trumpeter swans. The District Ranger will take feasible measures to minimize disturbance.
- Avoid placement of overhead wires, fences, or other structures that could interfere with the flight paths of swans and cause injury or mortality.

Refer to Forest Plan Standard and Guideline WILD4 II D (USDA Forest Service 2016a, p. 4-96).

Marbled Murrelet

If nests are found during activity implementation, maintain a 600-foot, generally circular, radius of undisturbed forest habitat surrounding identified murrelet nests, where available. Minimize disturbance activities within this buffer during the nesting season (May 1 to August 15).

Maintain the buffer zone and monitor the site for nesting activity for not less than two nesting seasons after nest discovery. Maintain the buffer if the nest site is active during the monitoring period. Buffer protection may be removed if the site remains inactive for two consecutive nesting seasons.

Refer to Forest Plan Standard and Guideline WILD1 XVI (USDA Forest Service 2016a, p. 4-92.)

Kittlitz's Murrelet

Provide for the protection and maintenance of known Kittlitz's murrelet nesting habitats.

Refer to Forest Plan Standard and Guideline WILD4 II F (USDA Forest Service 2016a, p. 4-97).

Sitka Black-tailed Deer

Consider Sitka black-tailed deer habitat needs during planning and activity review. Ensure interdisciplinary involvement.

Refer to Forest Plan Standard and Guideline WILD1 VII (USDA Forest Service 2016a, p. 4-88).

Mountain Goat

Provide for the long-term productivity of mountain goat habitat and viability of mountain goat populations, both native and introduced. Locate facilities and concentrated human activities as far from important wintering and kidding habitat as feasible. Where feasible, locate facilities, camps, log transfer facilities, campgrounds, and other developments 1 mile or more from important wintering and kidding habitat. If the 1 mile or more distance cannot be achieved, mitigate possible adverse impacts by seasonally restricting or regulating human use and applying other design features.

Forest Service and all other authorized or approved aircraft flights (fixed wing and helicopter), including helicopter yarding of timber, should maintain a 1,500-foot vertical or horizontal clearance from traditional summer and kidding habitat and animals whenever feasible. Where feasible, flight paths should avoid known mountain goat kidding areas from May 15 through June 15. Where feasible, maintain mountain goat important winter habitat capability. During activity planning, use the most recent version of the interagency mountain goat habitat capability model, which shows the most important habitat to generally be productive old-growth forest within 1,300 feet of escape terrain (greater than 50 degree slope or cliff). Travel corridors used

by mountain goats between important seasonal sites should be identified and maintained, especially when they occur in forested areas.

Refer to Forest Plan Standard and Guideline WILD1 XV (USDA Forest Service 2016a, pp. 4-91 to 4-92).

Moose

During activity planning, inventory vegetative conditions in moose habitat areas to help identify short- and long-term changes in habitat conditions, and to assess the effects of various management activities. Plan habitat improvement projects using a variety of techniques such as silvicultural treatments, young-growth management activities, planting, and other vegetative manipulation techniques as appropriate. Coordinate other resource management activities to maintain or improve habitat conditions for moose. Where roads and human access are adversely affecting moose populations, incorporate this information into Travel Management planning objectives.

Refer to Forest Plan Standard and Guideline WILD1 XVII (USDA Forest Service 2016a, p. 4-92).

Bears

Implement strategies to prevent habituation of bears to human foods/garbage and reduce chances of human/bear incidents, in cooperation with other agencies. During activity planning, evaluate the need for additional protection of important brown bear foraging sites, including road use and road management. Consult with ADF&G to identify and manage important bear foraging and denning sites. Establish forested buffers, where available, of approximately 500 feet from the stream at sites, where, based upon the evaluation, additional protective measures are needed to provide cover among brown bears while feeding, or between brown bears and humans. This may be especially important on Class I anadromous fish streams within the Moderate Gradient/Mixed Control and Flood Plain Process Groups (see USDA Forest Service 2016a, Appendix D) where a large amount of bear feeding activity on salmon occurs. Consider the combination of bear foraging behavior, stream channel types, and adjacent landform to help identify probable important feeding sites.

Refer to Forest Plan Standard and Guideline WILD1 IX (USDA Forest Service 2016d, p. 4-88 to 4-89).

Wolves

Provide, where possible, sufficient deer habitat capability, first to maintain sustainable wolf populations and then to consider meeting estimated human deer harvest demands (refer to the Forest Plan Standard and Guideline for specifics relating to deer habitat capability). Design management activities to avoid abandonment of wolf dens. Maintain a 1,200-foot forested buffer, where available, around known active wolf dens. Road construction within the buffer is discouraged and alternative routes should be identified where feasible. No road construction is permitted within 600 feet of a den unless activity review indicates that local landform or other factors will alleviate potential adverse disturbance.

Refer to Forest Plan Standard and Guideline WILD1 XIV (USDA Forest Service 2016a, p. 4-91).

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Marten

Where marten mortality concerns have been identified through interagency analysis, cooperate with ADF&G to assist in managing marten mortality rates to within sustainable levels. Both access management and hunter/trapper harvest regulations administered by the ADF&G shall be considered.

Refer to Forest Plan Standard and Guideline WILD1 XVIII (USDA Forest Service 2016a, pp. 4-92 to 4-93).

Endemic Terrestrial Mammals

Use existing information on the distribution of endemic mammals to assess activity-level effects. If existing information is lacking, surveys for endemic mammals may be necessary prior to any activity that proposes to substantially alter vegetative cover (for example, road construction, timber harvest, etc.). Where distinct taxa are located, design activities to provide for their long-term persistence on the island. Consider habitat needs of endemic mammals in design of thinning treatments.

Refer to Forest Plan Standard and Guideline WILD1 XIX (USDA Forest Service 2016a, p.4-93).

Marine Mammals

Provide for the protection and maintenance of harbor seal, Steller sea lion, sea otter, and whale habitats. Ensure that activities funded, permitted, or authorized by the Forest Service are conducted in a manner consistent with the requirements, consultation, or advice received from the appropriate regulatory agency for the *Marine Mammal Protection Act* (MMPA) and *Endangered Species Act* (ESA), and National Marine Fisheries Service (NMFS) guidelines for approaching seals and sea lions, and whales, dolphins, and porpoise. Consult with the appropriate agency for identification of critical timing events and recommended avoidance distances to avoid disturbances.

Locate Forest Service authorized and approved facilities, and concentrated human activities as far from known marine mammal haul outs, rookeries, and known concentration areas, as feasible, to meet MMPA. The following distances are provided as general guidelines for maintaining habitats and reducing human disturbance:

1. Locate camps, LTFs, campgrounds, and other developments (where allowed by the LUD) at least 1 mile from known Stellar sea lion haul outs and rookeries (farther if the development is large);
2. Forest Service authorized or approved activities will not intentionally approach within 100 yards of a marine mammal, or otherwise intentionally disturb or displace any hauled-out animals;
3. Dispose of waste oil and fuels off site as regulated by the Alaska Department of Environmental Conservation.

More-specific design features follow that should be applied to all activities to protect marine mammals.

General Use

1. All MAFs and LTFs will be located at least 1 mile from known Steller sea lion haul out and rookeries.

Aircraft Operations

1. All flight operators shall comply with FAA restrictions.
2. Consistent with aircraft passenger safety, pilots shall avoid deliberate close overflights of marine mammals for the purpose of viewing. For fixed-winged aircraft and helicopters, 1,500 feet is the minimum distance for overflights or approaches. When on regular flight paths, incidental overflights are allowed. However, if the flight path is near designated critical habitat for Steller sea lions, the air zone extends to 3,000 feet above the designated major rookery or haulout measured vertically from sea level.
3. Hovering near, herding, harassing, or driving bears or other wildlife in any way is not allowed. If an animal, or group of animals, shows signs of disturbance, the aircraft is too close.
4. Forest Service operators/contractors will use flight paths that avoid known sensitive wildlife areas, including kidding and calving areas, dens, nest sites, haul-outs, rookeries, and seabird colonies, during critical time periods.
5. Consistent with aircraft and passenger safety, operators should establish routes that will provide regular and consistent aircraft operations, which will encourage habituation and minimal disturbance to wildlife.

Vessel Operations

1. Vessels will remain at least 100 yards from marine mammals and rookery/haul-outs.
2. Time spent observing individual(s) should be limited to 30 minutes.
3. Whales should not be encircled or trapped between boats, or between boats and shore.
4. If approached by a whale, put the engine in neutral and allow the whale to pass. Boat movement should be from the rear of a whale.
5. 'Taking' marine mammals protected under the *Marine Mammal Protection Act* is prohibited; taking includes harassing, or attempting any such activity (16 USC 1362). For example, if a boat approaches a known Steller sea lion haulout too closely and sea lions or seals leave the haulout and escape to the sea, the boat operator may be harassing the animals.
6. Waste oil and fuels will be managed in compliance with all state and federal regulations to prevent pollution impacts to marine mammals.

Anchor Lines and Mooring

To minimize the risk of harm to listed marine species from entanglement, the Forest Service agrees to implement the following design features:

1. Minimize the number of vertical lines in the water. The number of vertical lines will be limited to no more than 120.
2. Regularly maintain structures, keep lines secured, and keep lines under tension under all tidal conditions.
3. All gear, including buoys, shall be marked and maintained with the Forest Service or permittee's name and contact information. Markings shall be in a manner that will stand up to the elements over time.

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4. Seasonal gear shall be removed during the off season and stored on shore or on storage rafts to minimize the opportunity for potential entanglement.
5. Moorings and anchors will be inspected periodically by submersible remotely operated vehicles or by SCUBA divers, as conditions warrant.
6. If any listed species is observed entangled or otherwise interacting with the facility structures, the permittee (or staff) shall immediately report it to the NMFS Alaska 24 hour Stranding Hotline: 877-925-7773.

Species specific Restrictions

Stellar Sea Lions

For areas designated as critical habitat for Steller sea lions within the action area:

1. Forest service operations shall avoid approaching within 3,000 feet landward from the baseline or base point of each major rookery and major haul out within the action area.
2. Forest service operations shall avoid approaching within air zones 3,000 feet above the terrestrial zone of each major rookery and major haul out measured vertically from sea level within the action area.
3. Forest Service operations shall avoid approaching within aquatic zones 3,000 feet seaward in state and federally managed waters from the baseline or basepoint of each major rookery and major haul-out within the action area.

Humpback Whales

1. Avoid approaching marine mammals when another vessel is near.
2. Always leave marine mammals with an escape route.
3. When several vessels are in an area, communication between vessel operators may reduce the potential for disturbance.
4. Operate your vessel at slow, safe speed when near a humpback whale.
 - a. Do not approach a whale from the front and stay out of the “No head-on approach zone”.
 - b. When in transit stay as far as practicable from whales, when viewing whales start slowing speed at 1 mile and continue speed reduction until within 600 feet where operation should be at slow, no wake speeds.
 - c. If whale approaches vessel within 100 yards, put engines in neutral and do not re-engage propulsion until whale(s) are observed clear of harm’s way from your vessel.
 - d. When leaving the area motor slowly away from the animal(s).

Refer to Forest Plan Standard and Guideline WILD1 X (p. 4-89), WILD4 IA (pp. 4-94 to 4-95), and WILD4 IB (p. 4-95) (USDA Forest Service 2016a).

Activity Guides

Watershed Restoration and Improvement

Watershed restoration activities improve watershed condition, restore degraded habitats, provide long term protection to soil, aquatic, and riparian resources, and increase resiliency to extreme

events such as floods and droughts. Watershed restoration is guided by the national Watershed Condition Framework (USDA Forest Service 2011), focusing integrated suites of activities in Priority Watersheds. Proposed watershed restoration and improvement activities on all lands within the project area include: stream and floodplain restoration, fish habitat improvements, and invasive plant management. Aquatic organism passage (AOP) activities include replacing, removing, or improving stream crossing structures to restore access to habitat. Other road-related activities are also integral to improving watershed condition and resiliency. Road storage, decommissioning, and maintenance are discussed in the Access Management section under *Activity 12: Aquatic Organism Passage* and *Road Maintenance and Reconditioning*, respectively. Fish habitat restoration is given priority over improvement activities as per Forest Plan direction (USDA Forest Service 2016a, p. 4-13). These activities described in this section may also be conducted on non-NFS lands when authorized by landowners.

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Activity 01: Stream and Floodplain Restoration

Activity Description

Install wood or boulder structures using heavy equipment, helicopter, and/or hand tools to improve habitat complexity, floodplain connectivity, and flood resilience of impaired streams. Remove road fill and/or improve drainage across roads using heavy equipment and/or explosives to improve floodplain connectivity and resilience to floods, and minimize stream diversions. These activities would achieve channel process group objectives, support critical salmon life stages, increase flood resiliency and improve or restore aquatic habitat characteristics to better align with reference stream and lake conditions.

When would we implement this activity?

Degraded conditions along streams and within floodplains trigger the need for restoration in these areas. Degraded conditions are primarily a result of past management practices prior to the 1990 *Tongass Timber Reform Act* (TTRA) that included timber harvest and road building along fish streams and within floodplains, and “stream cleaning”. The practice of stream cleaning in the 1960s and 1970s removed wood from streams, under the mistaken belief salmon transiting to spawning grounds would benefit. Similarly, wood removal from streams occurred in conjunction with timber harvest to speed transport of logs from the stand. These activities created the need for restoration in some locations within the project area. Instream restoration activities would primarily occur in Class I (anadromous) or Class II (resident) fish streams with channel process groups identified as Floodplain (FP), Moderate gradient-Mixed containment (MM), or Alluvial Fan (AF). However, restoration could potentially occur within any channel process group according to need. Road-related restoration activities would be considered where roads are impacting floodplain or stream connectivity, diverting streams, or adversely impacting water quality.

Timber harvest also occurred adjacent to some lakes prior to the TTRA. These locations may also benefit from the addition of large wood to serve as cover for fish from predation, and in shallow ponds provide necessary shade to decrease solar input and maintain beneficial temperatures preferred by salmonids.

The Decision Tree below (Figure 2) provides a schematic of the pathways that commonly lead to a restoration action.

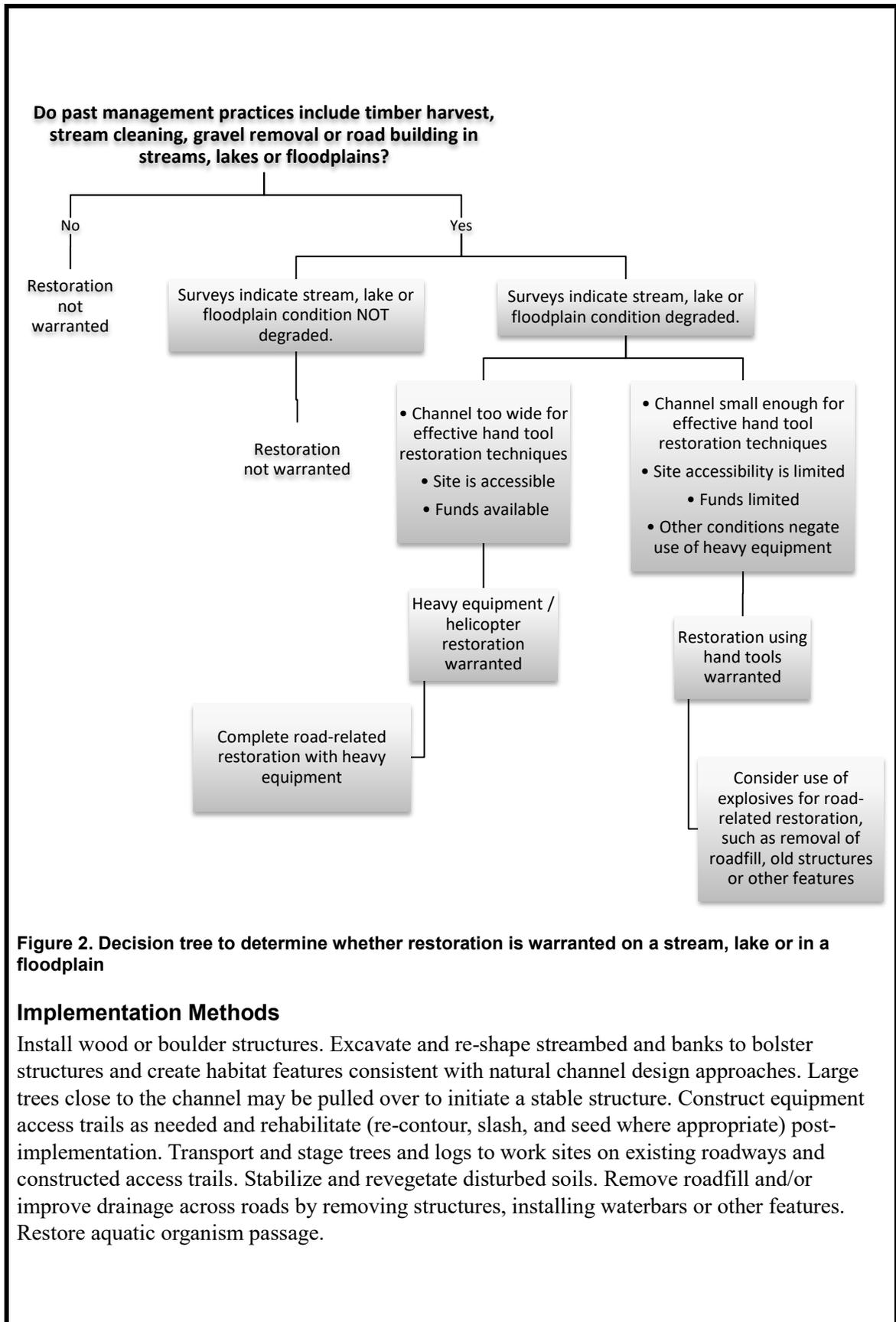


Figure 2. Decision tree to determine whether restoration is warranted on a stream, lake or in a floodplain

Implementation Methods

Install wood or boulder structures. Excavate and re-shape streambed and banks to bolster structures and create habitat features consistent with natural channel design approaches. Large trees close to the channel may be pulled over to initiate a stable structure. Construct equipment access trails as needed and rehabilitate (re-contour, slash, and seed where appropriate) post-implementation. Transport and stage trees and logs to work sites on existing roadways and constructed access trails. Stabilize and revegetate disturbed soils. Remove roadfill and/or improve drainage across roads by removing structures, installing waterbars or other features. Restore aquatic organism passage.

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Equipment Used

Heavy equipment including excavator, loader, skidder, bulldozer, dump truck, low boy, helicopter, ATV, chainsaws and other hand tools. Explosives could be used to remove road fill and improve drainage.

Integration Opportunities

Wood for instream placement (logs and trees with rootwads attached) could be sourced from old- and young-growth timber harvest, and road activities such as right-of-way clearing and log bridge decommissioning. Thinning riparian areas and the creation of wildlife gaps and travel corridors in young-growth stands could also contribute wood to nearby stream restoration activities. Equipment access and material staging to streams from roads could be coordinated with other road uses, followed by appropriate road maintenance, road closure (storage), or decommissioning as applicable, ensuring that aquatic organism passage is maintained or improved. Road designations and road-related treatments could be developed with interdisciplinary team to achieve restoration objectives as needed. Invasive plant treatments will be coordinated with restoration activities as needed. Integration could also occur through maintenance activities resulting from stochastic events such as landslides or blowdown events.

A trail may be created when implementing stream restoration activities that may attract forest visitors and potentially lead to the development of a recreation site.

Resource-specific Design Features for Stream and Floodplain Restoration Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Ensure that restoration is planned and implemented in watershed-scale context; complete Watershed Restoration Action Plans or otherwise ensure that restoration projects within a watershed are integrated to address roads and upland concerns as well as streams, floodplains, and riparian resources.
2. Review road and trail designation and conditions; minimize road-related damage to soil and aquatic resources and incorporate road maintenance, road storage, road decommissioning and AOP treatments to improve watershed condition as needed.
3. Review the specific restoration location(s) to ensure compliance with Forest Plan management guidelines for the particular LUD in which the activity occurs.
4. Conduct a pre-project meeting with the implementation crew and contractor(s) to review key design features.
5. Follow guidance established for harvesting trees with rootwads still attached (Landwehr 2009). Rehabilitate all harvest locations with slash following tree removal.
6. Maintain the minimum necessary clearing limits for accessing stream locations with heavy equipment or winch-drawn sled. Use cleared trees, brush, and logs as puncheon material to minimize soil disturbance and overall footprint (Alaska Region BMP 13.12).
7. Replace petroleum-based hydraulic fluid in heavy equipment and bar oil in chainsaws with vegetable-based oil to protect water quality while working within the stream channel. (BMPs 12.8; 12.9; National BMP AqEco-2).

8. Apply other BMPs as needed.

Invasive Plants

1. Include invasive species preventive measures in contract specifications (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance);
2. Follow Tongass National Forest Revegetation Guidelines (Krosse et al. 2018) where needed, using native seed or plant materials when possible;
3. Follow National Core BMP AqEco-1;
4. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, p. 4-22); and
5. Follow Tongass National Forest Weed BMPs - All Resources 1-6; Roads 7, 10; Soil and Watershed 22.

Karst

1. Identify areas of high vulnerability karst, catchment areas contributing to them and required protections.

Recreation

1. If the activity is located near any known recreation areas initiate a communication plan to alert recreation users who could be affected by the timing/location of the activities.
2. If the activity is in the vicinity of developed recreation assets, determine if mobilization of necessary equipment can be used for deferred maintenance needs.

Silviculture

1. A silvicultural prescription will generally be required when harvest of trees is necessary to source wood for instream work.
2. Individual trees harvested for this activity should be designated by a team consisting of a certified silviculturist, a soil scientist, and when in RMAs, an aquatics specialist.
3. General sideboards for site and tree selection and prescription development:
 - e. Source timber from non-development LUDs when feasible.
 - f. Use trees that are easily accessible from existing roads particularly trees growing on the cut bank or within 20 feet of the road surface.
 - g. High-value species and/or quality trees that may produce a valuable sawlog from suitable lands for timber harvest are generally not appropriate for the activity.
 - h. If harvest occurs in development LUDs, damage to the root and boles of adjacent trees must be avoided.
 - i. If trees are harvested beyond 20 feet from existing roads in development LUDs, plan for small group openings where machinery can work and not damage the residual stand.
 - j. If openings create a need for reforestation (consult silviculturist) ensure openings are tracked in the Forest's vegetation layers (Activity polygon and Covertype) and are monitored for reforestation.

Soils/Wetlands

1. Heavy machinery access points should be reviewed by a Tongass soil scientist upon implementation. Avoid non-forested wetland areas to prevent rutting. Slopes over 25

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percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Consult a soil scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. Heavy equipment requires the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. In some instances, the puncheon trail should be scattered upon completion. Minimize soil disturbance. Avoid creating ruts greater than 12 inches in depth. All exposed mineral soils should be slashed or grass seeded with a Tongass approved seed mix. Adhere to Alaska Region Soil Quality Standards.

2. A Tongass soil scientist will review all proposed rootwad extraction sites for suitability upon implementation. Adhere to Tongass Rootwad Harvest Guidelines.
3. In young-growth stands, a Tongass soil scientist will evaluate the stand for existing detrimental soil conditions to determine if existing conditions when combined with effects cumulative effects from the proposed activity may exceed R10 Soil Quality Standards, and to determine if soil restoration is needed to keep the stand within Soil Quality Standards.
4. Apply Alaska Region BMPs 12.5, 12.8, 12.17, 13.9, 14.5, and 14.20. Apply National Core BMPs AqEco-2, Road-2, Road-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8.

Timber and Other Forest Products

1. Target trees in non-development LUDs and attempt to avoid timber production LUDs to reduce the effect on the suitable timber base. Consult timber/silviculture for locations outside the RMA.
2. When obtaining trees with rootwads for restoration projects, attempt to avoid high-value trees and stands, or stands planned to be included in future commercial timber harvests.
3. Trees should be selected as close to restoration activities as is practical.

Transportation

1. Identify routes needed for commercial haul and maintain roads commensurate with their use where applicable.
2. Follow applicable travel regulations.
3. Use form FS-7700-0040 or obtain a letter of permission for use of the closed road. Use of closed roads needed for haul or equipment requires maintenance. Appropriate load rating permit may be necessary, if applicable, when crossing bridges on closed roads. Upon project completion return the road to their designated closed state.

Wilderness

1. No stream or floodplain restoration is authorized within designated Wilderness areas with this project.
2. The wilderness manager should be consulted if stream or floodplain restoration is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.

2. For bald eagle nests, follow the National Bald Eagle Guidelines: Avoid clear cutting or removal of overstory trees within 330 feet of the nest at any time. Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.

Wild, Scenic and Recreational Rivers

1. Permanent stream obstructions are not permitted within a wild river corridor. Discourage stream obstructions in scenic and recreational river corridors.
2. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
3. Undertake watershed improvements within 0.25 mile each side of a wild, scenic or recreational river only where the deteriorated soil or hydrologic conditions create a threat to ORVs.
4. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
5. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

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Activity 02: Fisheries Improvements

Activity Description

To sustain the diversity and production of fish and other freshwater organisms, the Forest Service proposes fisheries improvements such as fish pass construction, natural instream barrier modifications, and stocking. These practices increase access for spawning salmonids and benefit upland forests by providing marine-derived nutrients from spawning salmon. Another fisheries improvement activity is lake fertilization, which could increase sockeye salmon production. Per Forest Plan direction, priority is given to restoration projects over improvements.

When would we implement this activity?

- Fish pass construction and barrier modifications are contingent on a positive assessment of the benefit of providing passage of salmonids to upstream habitat versus the cost of construction, anticipated benefit to commercial, subsistence, and sport fishing communities, and the environmental risk in a particular location.
- Natural barrier modifications occur in locations where upstream migration of salmonids to a significant amount of quality upstream habitat is impeded. The same factors considered for fishpass construction are applied.
- Fish stocking may be used to “seed” or colonize newly opened habitat upstream of instream barrier modifications so salmonids can imprint on that stream’s chemical markers.

Fertilization could be implemented in lake ecosystems with natural sockeye runs that have low levels of nitrogen and phosphorus and where issues have been identified through the Cooperative Fisheries Planning process and/or other cooperative agreements. Extensive monitoring of the chemical, biological, and physical factors of a candidate lake as well as understanding present and past fishery dynamics and cost-benefit ratios make this a relatively expensive improvement technique. Project planning requirements include a feasibility analysis and assessments of historical abundance, assessment of all potential causes for decreased run sizes, assessment of the chemical, biological and physical factors affecting habitat capability and food-web structure. If all pre-project assessments and detailed pre-project fertilization monitoring show that lake fertilization would benefit sockeye salmon, then the required consistent and long-term monitoring following the start of lake fertilization activities would allow for proper evaluation of the success and/or failure of nutrient enrichment.

Two habitats will be considered for fisheries improvement projects: lake systems, and stream systems with natural barriers.

If sockeye salmon are present in lake systems, lake fertilization may be warranted if low concentrations of essential nutrients (nitrogen, phosphorous and potassium) that support the salmon’s primary food source (zooplankton) are detected.

Stream systems with natural fish migration barriers can limit salmon access to quality upstream habitat. These streams are candidates for fish habitat enhancement activities if the geology of the barrier is resilient or durable enough to withstand the effects of manual manipulation, such as blasting pools into the bedrock or installing a fish pass structure.

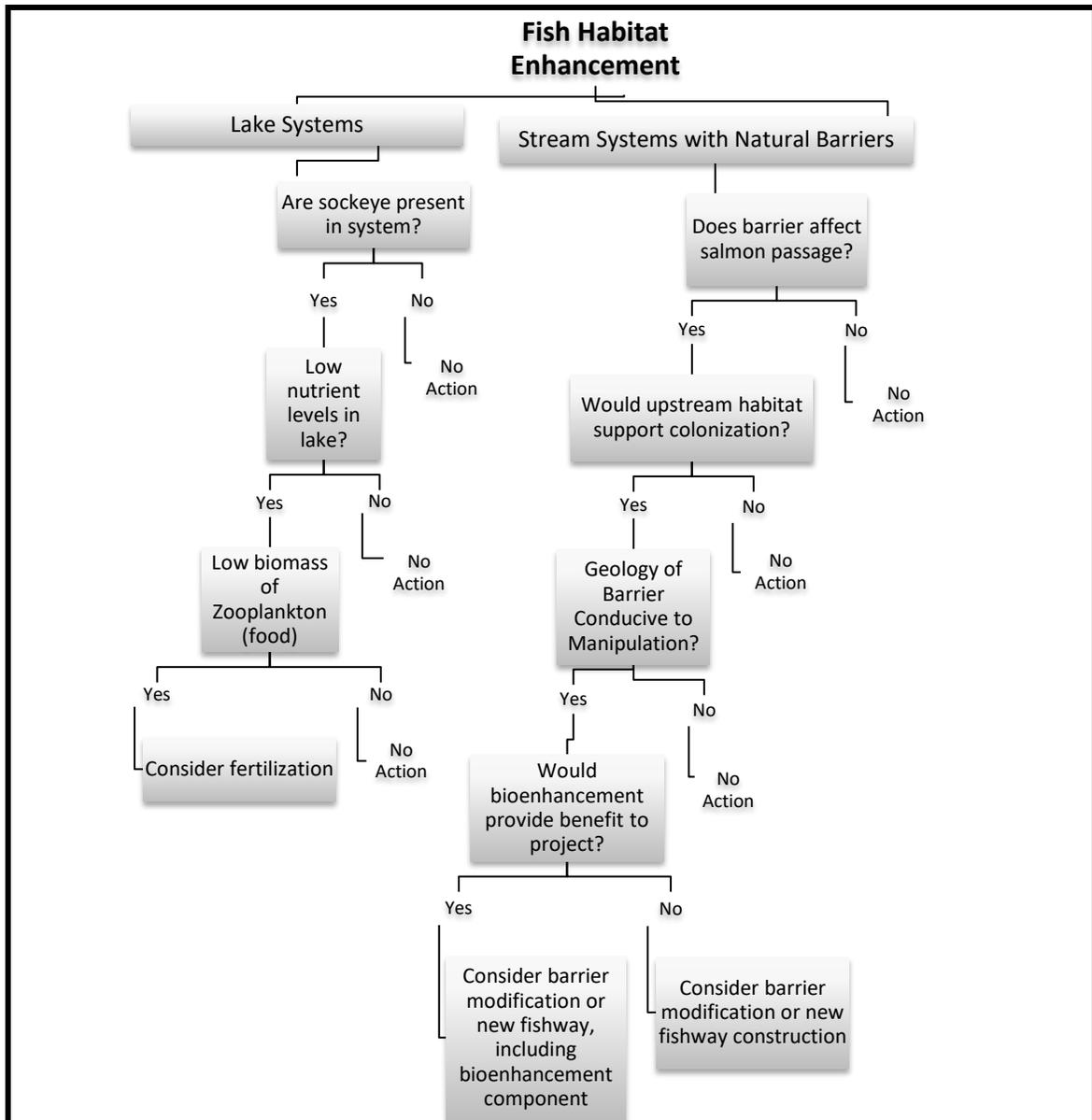


Figure 3. Decision tree to determine whether fisheries improvements are warranted

Implementation Methods

Construct and install an aluminum Alaska steep-pass or a concrete pool and weir fish pass. Create new jumping or resting pools in rock barriers by manually excavating or blasting. To stock a stream, transport and release young-of-year or smolt salmonids from a stream within the same or proximate watershed to the stream course, upstream of the modified barrier. Fertilize lakes by evenly distributing granular nutrient and fertilizer additions to the lake's surface.

Equipment Used

On the road system, heavy equipment is used to haul materials to the job site. Remote locations use a helicopter to transport the necessary material to construct an aluminum steep pass or a pool and weir structure. Barrier modification is completed using hand tools and/or explosives to

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create pools and loosen and remove overburden. Lake fertilization activities typically concentrate at inlet streams to disperse fertilizer, sometimes in pellet form.

Integration Opportunities

Road development for timber sales may increase access and allow for easier transport of materials/supplies to improvement sites.

Could integrate with any activity using heavy equipment if the activity site is accessible from the roadside. Could integrate with recreation activities for potential helicopter sling loads.

Resource-specific Design Features for Fisheries Improvement Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

Minimize potential adverse effects of this activity with these design features:

1. Review the specific enhancement location(s) to ensure compliance with Forest Plan management guidelines and ensure compliance with the design features prior to implementation. This review would identify requirements for further field surveys, whether special timing restrictions exist, key public contacts to be made, and would maintain compliance to management updates as they occur.
2. Put oil and fuel pollution prevention and contingencies in place. Fuel gas powered equipment (chainsaws, generators, etc.) away from waterbodies in locations pre-approved by Forest Service personnel. Review equipment refueling plans prior to work commencement (BMP 12.8; 12.9; National BMP Road-10).
3. Replace petroleum-based hydraulic fluid in heavy equipment and bar oil in chainsaws with vegetable-based oil to protect water quality while working within the stream. Maintain a spill containment kit on site (BMPs 12.8; 12.9; National BMP AqEco-2).
4. Remove soil, mud, and debris from the undercarriage and tracks of heavy equipment prior to entry into any waterbody to minimize sediment introduction.
5. Do not store, maintain or repair fuel-containing equipment within a waterbody or its floodplain (BMP 14.14; National BMP Road-9; Fac-2).
6. Develop Spill Prevention and Countermeasures (SPCC), spill response plans, erosion control plans, and emergency response plans according to project size and need.
7. Identify areas suitable for staging construction materials and equipment on site prior to implementation (BMP 12.8; 14.14; National BMP Fac-2).
8. Conduct a pre-project meeting with the implementation crew and contractor(s) to review key project design features.
9. At the point of entry, use cut trees, tree tops, or fabricated erosion control materials to “bridge” from stream bank to stream bed to minimize impact to stream banks.
10. Plan work during periods of low flow, and temporarily suspend work should stream flow increase substantially during operations.

11. In order to minimize cumulative effects to water quality, time operations such that the sediment generated from fishery enhancement work does not occur at the same time as other sediment-inducing activities contributing to the same stream network.
12. Apply other BMPs as needed.

Invasive Plants

1. See Invasive Plants in the Design Features Common to All Activities by Resource section.
2. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
3. Follow Tongass National Forest Revegetation Guidelines where needed, using native seed and plant materials when possible (Krosse et al. 2018; Weed BMP Soil and Watershed 22).
4. Follow National Core BMP AqEco-1.
5. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, p. 4-22).

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Recreation

1. If the project is located near any known recreation areas initiate a communication plan to alert recreation users who could be affected by the timing/location of the activities.
2. If the project is in the vicinity of developed recreation assets, determine if mobilization of necessary equipment can be used to address deferred maintenance needs.

Silviculture

1. A silvicultural prescription will not generally be required since few if any trees will be cut. If Individual trees are harvested for this activity they should be designated by a team consisting of a certified silviculturist, a soil scientist, and when in RMAs, an aquatics specialist.

Soils/Wetlands

1. With heavy machinery avoid non-forested wetland areas to prevent rutting. Slopes over 25 percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Use puncheon or a slash mattress to provide adequate bearing strength and prevent rutting from heavy equipment. In some instances, scatter the puncheon trail upon completion. Avoid creating ruts greater than 12 inches in depth.
2. A Tongass soil scientist will review proposed blasting areas. Design blasting operations to reduce the risk of mass failure on potentially unstable or saturated soils. Restrict blasting and/or excavating under saturated soil conditions if unstable soils are present. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances.
3. Minimize soil disturbance. All areas of exposed mineral soil should be slashed or grass seeded with a Tongass approved seed mix. Adhere to Alaska Region Soil Quality Standards.
4. Apply Alaska Region BMPs 12.5, 12.8, 12.17, 13.9, 14.5, and 14.20. Apply National Core BMPs AqEco-2, Road-4, Road-7, and Road-10.

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Transportation

1. Use form FS-7700-0040 or obtain a letter of permission for use of the closed road. Use of closed roads needed for haul or equipment requires maintenance. Appropriate load rating permit may be necessary, if applicable, when crossing bridges on closed roads. Upon project completion return the road to their designated closed state.
2. Identify routes needed for commercial haul and maintain roads commensurate with their use where applicable.

Wilderness

1. No stream fisheries improvements are authorized within designated Wilderness areas with this project.
2. The wilderness manager should be consulted if stream or floodplain restoration is directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wildlife

1. Wildlife design features as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.

Wild, Scenic and Recreational Rivers

1. Permanent stream obstructions are not permitted within a wild river corridor. Discourage stream obstructions in scenic and recreational river corridors.
2. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
3. Undertake watershed improvements within 0.25 mile each side of a wild, scenic or recreational river only where the deteriorated soil or hydrologic conditions create a threat to ORVs.
4. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
5. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Activity 03: Invasive Treatments**Activity Description**

This activity includes manual, mechanical and chemical invasive plant treatments on NFS lands, including Wilderness areas, as well as on lands of other ownership to reduce the 5,811 acres of recorded infestations. Lands of other ownership are included to allow for a comprehensive all-lands approach to weed management with a goal of enabling partnerships if funding becomes available through federal grants or other initiatives.

Infestations predominantly occur along human disturbance features (places such as rock pits, roads, trails, parking lots, and campgrounds) and are primary areas for treatments. However, smaller infestations, and therefore treatments, would occur in natural settings. The proposed activity includes treatment to emergent vegetation (plants rooted in water with foliage above the water surface) but does not include aquatic treatments (for example, *Elodea*).

The objective is to manage the Forest in a manner that reduces, minimizes, or eliminates the potential for introduction, establishment, and spread of invasive species, to lessen their impacts to the ecosystem.

When would we implement this activity?

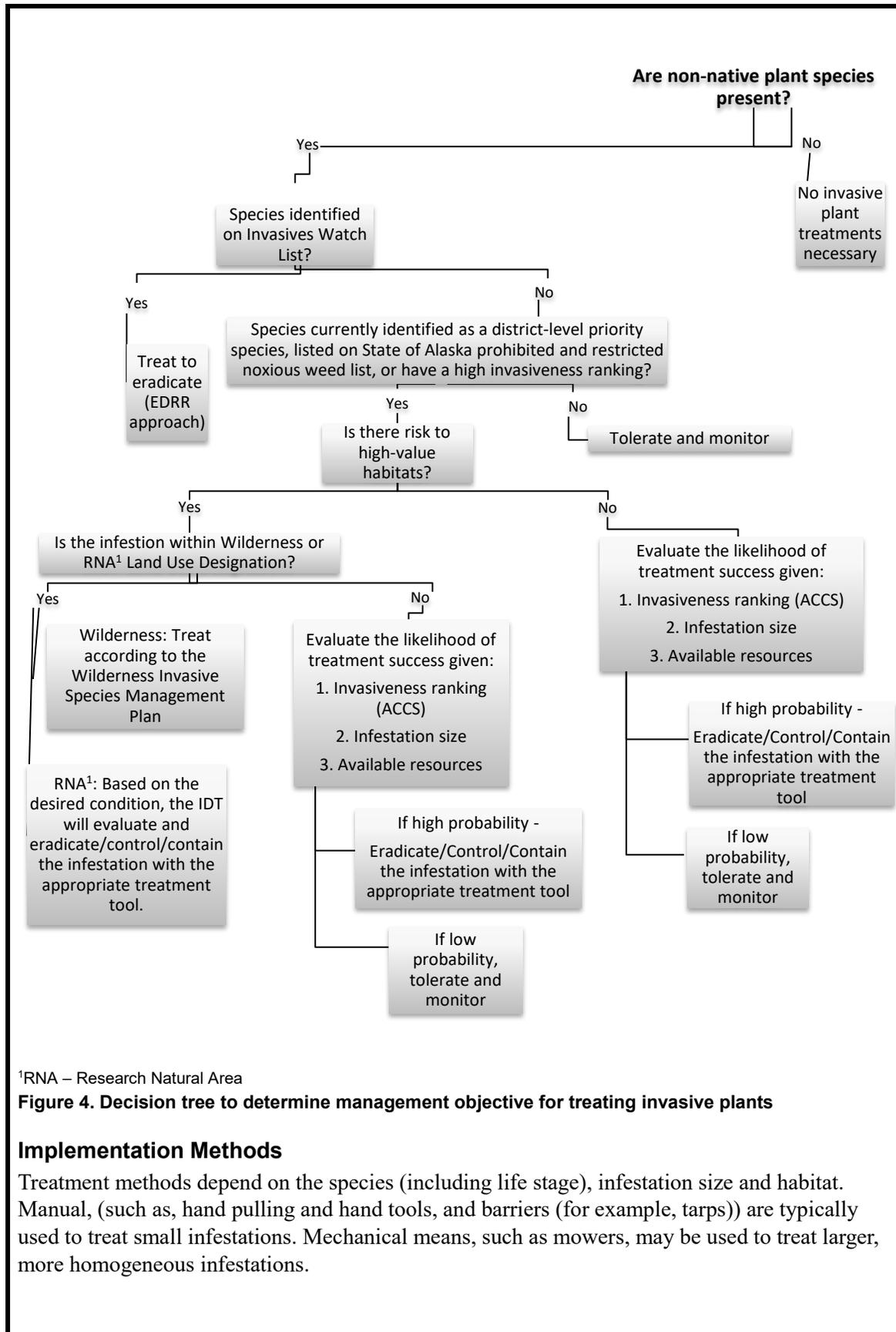
Several factors are used to evaluate whether to tolerate, control or eradicate an invasive plant infestation. If infestations are new, the treatment falls under the Early Detection Rapid Response approach. For known invasive species, the presence of vulnerable habitat or specific land use designations guide the decision to tolerate or treat based on:

1. The Alaska Center for Conservation Science ranking which considers the biology and the ecological impact of the species,
2. The size of the infestation, and
3. The likelihood of success given available resources.

Herbicide is the preferred treatment tool. Exceptions may include using manual or mechanical methods due to site-specific conditions and public concern.

Implementation will occur annually during the growing season; timing dependent on the plant species and life stage targeted.

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¹RNA – Research Natural Area

Figure 4. Decision tree to determine management objective for treating invasive plants

Implementation Methods

Treatment methods depend on the species (including life stage), infestation size and habitat. Manual, (such as, hand pulling and hand tools, and barriers (for example, tarps)) are typically used to treat small infestations. Mechanical means, such as mowers, may be used to treat larger, more homogeneous infestations.

Three herbicides considered for use:

1. An aquatic-approved formulation with **glyphosate** (non-selective herbicide, frequently used to target grasses and knotweed among others),
2. **aminopyralid** (selective herbicide used to target aster, legume and nightshade family plants among others), and
3. an aquatic-approved formulation with **imazapyr** (used in combination with glyphosate or as a stand-alone for specific species).

The application method for herbicides depends on the site being treated and the size of the infestation. Foliar spot treatment may be the preferred application method (often in conjunction with manual/mechanical pre-treatments). In other situations, such as rock pits or roads, broadcast spraying may be the preferred tool. Aerial spraying is not being considered.

Equipment Used

The tools appropriate for the job may include (but are not limited to): ATV or UTV with sprayer, truck and trailer with sprayer, backpack sprayer, hand sprayer, stem injector, brush, sponge or cloth wick, hand tools, mower, propane torch and tarps.

Integration Opportunities

Treatments can be integrated with almost any other activity that has invasive plant infestations on site, for example, road maintenance and reconditioning, riparian restoration activities, and almost any recreation activity.

Resource-specific Design Features for Invasive Treatments

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

The design features below minimize the potential impacts of herbicide use on aquatic resources. Design feature criteria are categorized according to subject. These criteria will be implemented as necessary according to the weed treatment plan updated annually.

1. Product Labels (Alaska Region BMP 15.2; National Core BMP Chem-2)
 - a. Use only aquatic formulations or low aquatic risk herbicides on saturated soils, or those with seasonally high water tables, where label restrictions allow.
2. Erosion Control (Alaska Region BMP 12.17; National Core BMP AqEco-2; USDA Forest Service 2018a, p. 4-61)
 - a. Apply erosion control measures (for example, silt fences) and native revegetation (for example, mulching, native grass seeding, planting) for manual treatment where detrimental soil disturbance or de-vegetation may result in the delivery of measurable levels of fine sediment (Krosse et al. 2018, Landwehr et al. 2012).
3. Buffers/Spray Distance to Water (Alaska Region BMP 15.5; National Core BMP Chem-3)
 - a. Aquatic-based formulations of all herbicides may be applied up to water's edge using hand application or spot spraying techniques. Aquatic-based formulations of glyphosate and imazapyr may also be used to treat emergent vegetation directly over water.

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- b. Begin application of herbicide products nearest to the aquatic habitat boundary and proceed away from the aquatic habitat; do not apply towards a waterbody.
 - c. Herbicide spray equipment would not be washed or rinsed within 150 feet of any waterbody, stream channel, or roadside ditch with flowing or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150 foot setback). All herbicide containers and rinse water will be disposed of in a manner that would not cause contamination of waters.
 - d. Mixing and loading of herbicide(s) would not occur within 150 feet from any waterbody, stream channel, or roadside ditch with flowing or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150 foot setback).
4. Public Water Sources (PWS) / Supplies (Alaska Region BMP 15.5; National Core BMP Chem-3)
- a. Before authorizing herbicide use within public water system source watersheds, consult with Alaska Department of Environmental Conservation (ADEC), the affected municipality, and/or the owner/operator of the water system.
 - b. Review the completed Source Water Assessment for the PWS watershed, available from ADEC prior to authorizing weed management activities in these watersheds.
 - c. Herbicide use within 1,000 feet of domestic wells or public water supplies will be coordinated with the water user, manager, or local Municipal Water board.
 - d. Minimum distance to surface waters is 200 feet for herbicide application within municipal watersheds.
 - e. All herbicide application, storage, chemical mixing, refilling and post-application equipment cleaning is completed at least 200 feet from domestic wells or public water sources, and in accordance to label guidance relative to water contamination. (BMP Chem-5)
 - f. All known unclassified (private) water sources will receive the same consultation given to public systems, as outlined above, prior to herbicide application if located within a PWS source watershed. If located outside a PWS source watershed, consultation will occur if herbicide application is proposed within 1,000 feet of surface waters of known unclassified water sources.
5. Identify Riparian Areas (Alaska Region BMP 15.5; National Core BMP Chem-3)
- a. Forest Service personnel will identify riparian areas according to methods outlined in the Tongass Riparian Management Area Standards and Guidelines prior to implementation of herbicide application. Forest Service specialists will work closely with herbicide applicators to ensure project design features are implemented.

Botany

1. A 100-foot buffer around sensitive plant populations will be placed if using broadcast methods.
2. When target is between 60 and 100 feet from a sensitive plant population, herbicide will only be applied by hand (wicking/wiping, or stem injection). However the District Ranger may allow use of herbicides within 60 feet of a sensitive occurrence (per Forest Plan

components) if deemed necessary to control an infestation that may pose a threat to that occurrence.

3. To reduce potential spray drift or run-off, herbicides will not be applied when average wind speeds exceed the maximum wind speed stated in the product labeling.
4. Herbicide treatments will be scheduled as practicable to reduce adverse impacts to nearby sensitive plants. For example, herbicides should be applied to an infestation of a late-growing weed species after sensitive or rare plants in the vicinity have entered dormancy, to minimize potential impacts due to spray drift or run-off.

Invasive Plants

1. Prepare an annual treatment plan for all sites where treatment is proposed. The plan should include the location, target species, herbicide, application method and rate, and project design features. The plan, along with efficacy reports from previous treatments, will be reviewed at Steps 1, 4 and 5 of the Implementation Framework.
2. Refer to spatial data for resource concerns, such as RMAs, public water supplies, rare plant locations, etc. prior to invasive plant treatment to ensure compliance with project design features.
3. A Pesticide Use Proposal (PUP) will be prepared for herbicide use. The PUP should be reviewed annually to determine if changes are warranted due to changes in the project. If it is determined that substantive changes are warranted, a new PUP will be prepared, reviewed, and approved. If no changes are warranted, the original PUP is sufficient for the life of the project and does not need to be rewritten (Forest Service Handbook 2109.14).
4. Only applicators certified by the State of Alaska, or those under the supervision of a certified applicator, will be allowed to apply herbicides [Forest Service Manual 2155.1 and 2155.2 (USDA Forest Service 1994b)].
5. Prior to herbicide application, herbicide labels will be reviewed to ensure directions regarding herbicide selection, tank mixing, and use of adjuvants, surfactants and other additives, are followed (Alaska Region Soil and Water Conservation Handbook BMP 15.4).
6. The herbicide application rate will follow label recommendation and will be applied at the minimal effective dosage that, when properly applied to the target species, will accomplish the resource management objectives.
7. Prior to herbicide application, calibrate sprayer to ensure herbicide is applied at the intended rate.
8. The Herbicide Transportation, Handling, and Emergency Spill Response Plan, Safety Data Sheets, and spill kit will be on-site when herbicide treatments occur. The plan will include reporting procedures, project safety planning, accidental spill clean-up methods, and information on the spill kit's contents and location as noted in FSM 2150 (USDA Forest Service 1994b), Pesticide-Use Management and Coordination and Handbook (FSH) 2109.14 (USDA Forest Service 1994a).
9. No more than daily use quantities of herbicides will be transported to the project site. The exception is for crews staging in remote locations. Under these circumstances, crews can bring sufficient quantities of herbicides for the planned duration of the field work (for example, enough herbicide for multiple days).

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10. Herbicides will be transported in a leak-proof container, and will be secured to prevent tipping during transport.
11. To reduce the potential for spills, impervious material, such as a bucket or plastic, will be placed beneath mixing areas to contain any spills associated with mixing/refilling.
12. This project will use only aquatically approved surfactants. This feature will eliminate potential impacts from adjuvants that have a risk of adverse effects to aquatic species.
13. Marker dyes will be used to mark where herbicides are applied to avoid over spraying.
14. To reduce potential spray drift, herbicides will not be applied when average wind speeds exceed the maximum wind speed stated on the product label. If a maximum average wind speed is not stated, herbicide application will be limited to times when wind speed is less than 7 mph (18 AAC 90.610, National Core BMP Chem-3).
15. Herbicides will not be applied immediately prior to, during, or immediately after a rain event at the treatment site (National Core BMP Chem-3).
16. Avoid or minimize drift by using appropriate application equipment (for instance, nozzles that produce 200 to 800 micron diameter droplets, which are less prone to drift), adding drift reduction agents or adjusting equipment settings, such as nozzle pressure).
17. When applying herbicide at developed recreation sites, post treatment information where clearly visible for at least 24 hours following treatment (Alaska DEC 18 AAC 90, Pesticide Control 2013).
18. Daily logs must be kept per State of Alaska law (Alaska DEC 18 AAC 90, 2013) to record location, herbicide, volume applied, volume of active ingredient applied per acre, method of application, calibration rate, and any additional comments. Log data will be recorded in the NRM database.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.
2. All hydrology and aquatic organism project design features will be applied to high and moderate karst systems for both surface and subsurface aquatic systems.

Recreation

1. If the activity is located near any known recreation areas initiate a communication plan to alert recreation users who could be affected by the timing/location of the weed treatments.

Silviculture

1. Review treatment plans with a certified silviculturist to determine if mitigation is necessary to avoid damage to non-target trees or vegetation.

Soils/Wetlands

1. Treatment plans are required to be reviewed by a Tongass soil scientist. The soil scientist will determine soil and wetland suitability for each type of herbicide prior to implementation. Use only aquatic formulations in wetlands.
2. Soil disturbance should be kept to a minimum. If an area greater than 100 square feet of mineral soil is exposed by pulling, erosion control measures should be implemented. If necessary, consult Tongass soil scientist to review and make mitigation recommendations.

3. Revegetation will follow current Tongass standards for seed mix outlined in the Guidance for Invasive Plant Management Program (USDA Forest Service 2017c).
4. Apply Alaska Region BMPs 12.4, 12.5, 12.9, 12.17, 14.8, 14.25, 15.1, 15.2, 15.4, and 15.5.
5. Apply National Core BMPs AqEco-2, Chem-1, Chem-2, Chem-3, Chem-4, Chem-5, Chem-6, Fac-6, Veg-2, and Veg-8.

Transportation

1. Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available and as a tool for broadcast spraying when needed. Follow applicable travel regulations. Use form FS-7700-0040 or obtain a letter of permission for use of the closed road.

Wilderness

1. Review annual treatment plans with the District Wilderness Manager to ensure Wilderness objectives will be met.
2. A Minimum Requirements Analysis has been completed and approved by the Regional Forester for herbicide treatment activities taking place within designated Wilderness areas. The Minimum Requirements Analysis concludes the activity can only be conducted when the principle objective is to protect or restore the Wilderness resource. The means of treatment used will be a professional judgement.
3. Any use of herbicides within Wilderness areas must be approved by the Regional Forester [FSM 2323.04c (USDA Forest Service 2007)] through a Pesticide Use Proposal.
4. No motorized equipment or mechanical transport will be used
5. Crew size will be kept to 12 people or fewer.
6. Crew camps, if needed, will be located in previously used campsites if available, and crews will follow Leave-No-Trace guidelines (www.Int.org).

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.
2. Within 15 miles of all known or historical Peale's peregrine falcon nest sites, prohibit all use of herbicides and pesticides. Refer to Forest Plan Standard and Guideline WILD4 II C, p. 4-96 (USDA Forest Service 2016a).

Wild, Scenic and Recreational Rivers

1. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV.
3. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Appendix A

Recreation Management

Proposed recreation management activities seek to provide opportunities and developments low in long-term maintenance costs that respond to traditional and emerging recreation trends on all lands within the project area based on the following core principles of Forest Service sustainable recreation Framework (USDA Forest Service 2010).

- Connect people with their natural and cultural heritage,
- Promote healthy lifestyles,
- Recognize interconnections of sustainability,
- Cultivate community engagement,
- Manage National Forest and Grasslands as part of a larger landscape, and
- Integrate recreation more deeply into Forest Service mission.

A facility or trail is **sustainable** when it is:

- Constructed or reconstructed to a safe standard appropriate for the type and amount of use desired in a given area;
- Improved, operated, or maintained cooperatively by the Forest Service, partners or contractors to an economical level; and
- Responsive to traditional and emerging social, economic, cultural, and ecological trends related to recreation and tourism.

Activity 04: Recreation Facilities

Activity Description

Proposed recreation facility activities include the construction, reconstruction, maintenance, improvement and decommissioning of:

- Cabins
- Shelters
- Picnic areas
- Campgrounds
- Dispersed camping sites
- Toilets
- Viewing areas
- Platforms

Appendix A

The goals and objectives of this activity include:

- Develop recreation facilities that meet the long-term needs of the public and can be maintained by ranger district staff;
- Improve or expand recreation opportunities on the Petersburg and Wrangell Ranger Districts to meet a range of recreation opportunities defined in the Forest Plan desired conditions;
- Provide shelter for both public safety and for public recreation; and
- Provide safe and well-designed public facilities that integrate into the environment, meet scenic guidelines, and protect surrounding resources, such as outhouse facilities to keep human waste contained and durable surfaces for vehicles and tents.

Boat launches are addressed under Access Management in Activity 13: Marine Access Facilities.

When would we implement this activity?

The following conditions and decision tree in Figure 5 below will be used to determine when a recreation facility activity would be considered for implementation in coordination with local communities and user groups.

- An existing recreation site or facility is in need of deferred maintenance.
- The facility or site receives regular use that is expected to continue at existing use levels or increase.
- A recreation site or facility is supported by known use and/or partnerships for long-term maintenance.
- Recreation site or facility development provides for the health and safety for all users.
- Potential for increased use levels or enhanced opportunities by modifying the existing facility or site to accommodate emerging visitor trends.
- Activity could mitigate resource damage from human use such as vegetation trampling, site hardening, soil erosion and litter.
- Move structure to a different location where it will have more recreation value.
- Recreation facilities may be removed or decommissioned if facility use is low, or costs to maintain a facility are not affordable.

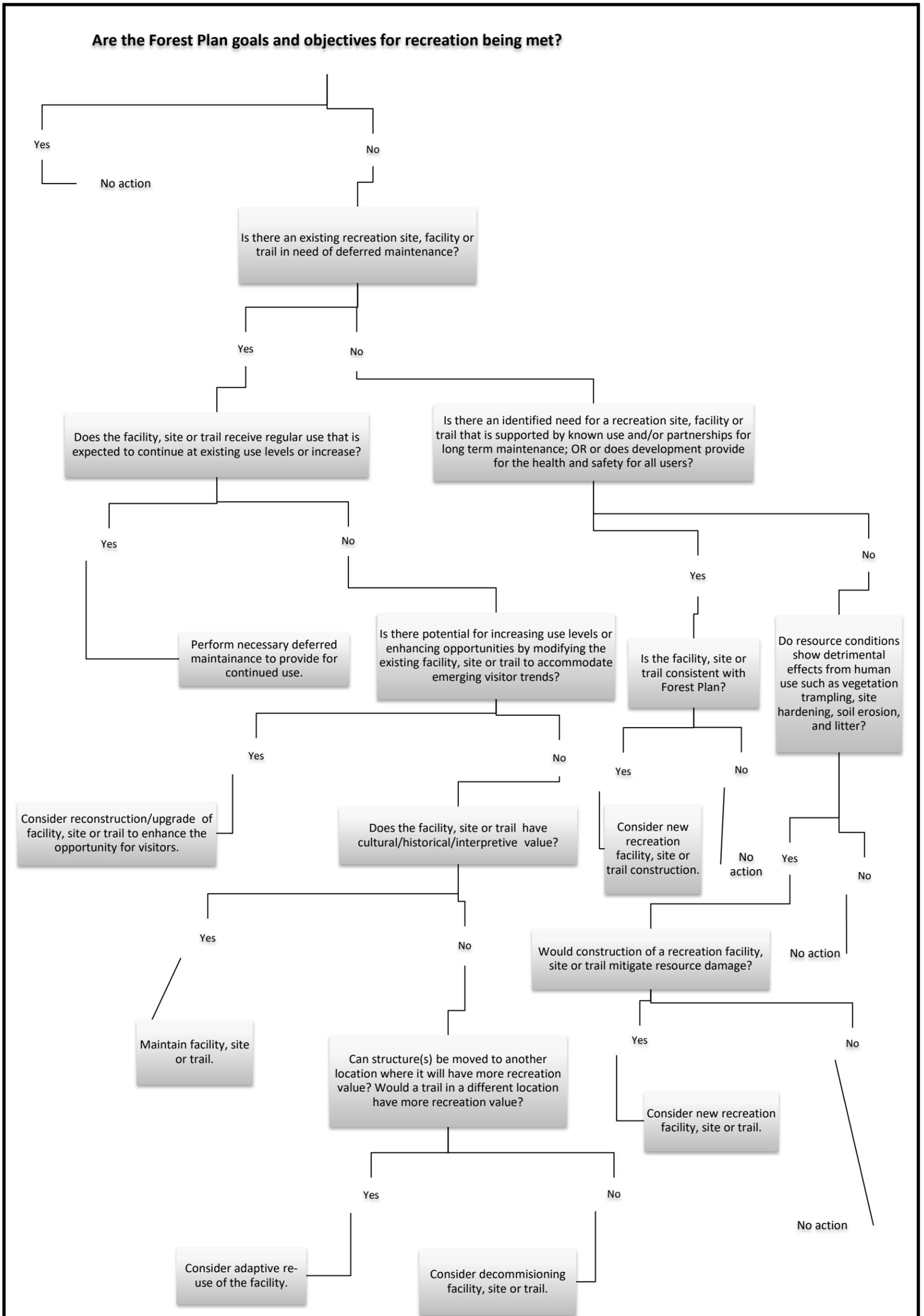


Figure 5. Decision tree - conditions within the project area that may trigger a recreation activity proposal to meet Forest Plan recreation goals and objectives

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Implementation Methods

Implementation methods will vary, depending on the type of activity needed. Common elements for typical recreation project activities include:

- Construction of cabins and shelters:
 - ◆ Site layout and preparation, select tree removal, grubbing, and leveling
 - ◆ Establishing structural foundation, which may include ground boring or excavation for concrete footings
 - ◆ Building the structure and associated roof, floors, walls, doors, and windows
- Decommission cabins, and their associated structures, can be completed through one of three methods:
 1. Disassemble and relocate structures;
 2. Relocate structures intact; and
 3. Initiate a controlled burn for on-site removal of the structure and its associated buildings.

The first two methods require an array of construction equipment, logistical coordination, and possibly airlift resources to facilitate the relocation process. The controlled burn method requires a burn plan and qualified fire personnel for burn management.

- Construction and reconstruction of picnic areas, viewing platforms, campground or dispersed campsites, and outhouses:
 - ◆ Layout and prepare site - select tree removal, grubbing, and leveling
 - ◆ Establish an internal road for site access and a parking area
 - ◆ Install signs and fire ring
 - ◆ Place picnic table
- Disassembling a structure can entail the removal of all doors, windows, and building accessories (for example, wood stove, heater), roof, walls, floors, and pulling concrete footings or slabs. Removing an outhouse vault or pit requires containment and removal of all black water waste. All components are staged and removed from the site either by ground equipment, such as a truck, or by helicopter lift.

All waste construction materials will be removed from the site and hauled away when construction activities are completed.

Equipment Used

Earth moving equipment (front-end loader, grader, backhoe, excavator, or “bobcat”) in conjunction with chainsaws and other power, pneumatic, and/or hand tools, dump truck, OHV with dump trailer, wheelbarrows, generators, compressors and crane.

Integration Opportunities

Cabin and three-sided shelter development may be integrated with the establishment of proposed sea kayak routes, boat launches, point-to-point island trails, and spur trails accessing median high tide for beach and kayak access. Cabins and shelters near the road system may be integrated with road activities and maintenance, and are easier and less expensive to access.

Appendix A

Development of new cabins and dispersed campsites may be integrated with improvements on existing sites, or associated with the Petersburg and Wrangell infrastructure improvements such as road paving, building or resurfacing that could create reasonable accessibility for campground access.

Felled timber may be sold or left on site as future firewood for the recreation site.

The construction of outhouses may coincide with the development of recreation structures (cabins or three-sided shelters), or select day-use facilities (picnic areas, boat launches, etc.) and may be integrated with the development of proposed sea kayak routes and point-to-point trails.

Resource-specific Design Features for Recreation Facility Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above and aim to minimize potential adverse effects of the proposed work.

Aquatics

1. Select site locations that avoid or minimize the potential for adverse effects to water quality and riparian resources (National Core BMP Rec-2).
2. Locate, inspect, and maintain outhouse facilities a minimum of 100 feet from all perennial lakes and streams to minimize the potential for soil and water contamination (Alaska Region BMP 12.15; National Core BMP Fac-4).
3. Monitor site conditions following construction to determine whether hardened surfaces near recreation sites are necessary to minimize water quality impacts (National Core BMP Plan-3; Rec-2).
4. Ensure construction and location of facilities located within municipal watersheds does not create a condition with a significant potential to cause or allow the pollution or contamination of a public water system (USDA Forest Service 2018a, p. 3-56).
5. Apply other BMPs as needed.

Botany

1. Identify sensitive and rare plant occurrences (species and locations) and any associated buffers or other protection measures required.
2. Identify high priority invasive plant infestations (species and locations) requiring treatment prior to or during implementation.
3. Identify rock quarries or other gravel/soil sources requiring weed free certification prior to use.
4. Identify any weed BMPs required and describe where they apply.
5. Describe any monitoring of rare or invasive plants required, including the monitoring time period.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance). Follow recommended Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22).

2. Follow weed BMPs if roads and heavy equipment are used for access Roads 1-13; Recreation, Wilderness, Roadless Areas 14-15; if restoration is required Soil and Watershed 22; if helicopters and planes are used Aviation Operations 26.
3. National Core BMPs Rec-2, Veg-8 (maintaining grounds) speak to minimizing disturbance [Veg-2 (erosion) and Veg-3 (aquatic) are condition-specific].
4. Develop a revegetation plan using approved plant species (USDA Forest Service 2016a, FAC3.I.F. p. 4-6) as well as weed BMP Soil and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Silviculture

1. Avoid cutting tree roots and damaging the boles of remaining trees to prevent future hazards.
2. Evaluate the location of existing hazard trees and address during site development.

Soils/Wetlands

1. Soil disturbance should be minimized to the extent practicable. Cover exposed mineral soil areas with slash or grass seed. Adhere to Alaska Region Soil Quality Standards.
2. Attain a Tongass soil scientist site review if blasting is considered. Design blasting operations to reduce the risk of mass failure on potentially unstable or saturated soils. Restrict blasting and/or excavating under saturated soil conditions. Incorporate erosion control and stabilization measures in project plans for all human induced disturbances.
3. Avoid locating outhouses in wetlands, poorly drained soils, or in areas with overland water flow.
4. A Tongass soil scientist will need to conduct an on-site field review of proposed cabin areas and campgrounds to determine the extent of proposed soil disturbance, potential landslide or erosion risk, and presence of wetlands prior to implementation. A wetland delineation may be required.
5. Heavy machinery should avoid slopes greater than 25 percent and avoid creating ruts greater than 12 inches in depth. It may be necessary to operate equipment on a puncheon mat.
6. Consult a Tongass soil scientist on all potential cabin decommissioning burn sites. By burning in low fire danger and on mineral soils, the risk of spreading the fire on the soil surface should be low. In areas of dry organic soils over rock, use a barrier between the duff layer and the fire while burning. In the event of ground disturbance and exposing mineral soils, use slash, native mosses, and Tongass-approved seed mix to rehabilitate the site to prevent erosion and sedimentation. Avoid disturbing and filling on wetlands. A Tongass soil scientist may be needed for site rehabilitation on sloping wetlands and burnt areas.
7. Apply Alaska Region BMPs 12.4, 12.5, 12.8, 12.9, 12.13, 12.15, 12.16, 12.17, 14.5, 14.6, 14.8, 14.11, 14.14, 14.25, 16.1, 16.4, 16.5, and 19.1. Apply National Core BMPs AqEco-2, Fac-1, Fac-2, Fac-4, Fac-5, Fac-10, Rec-1, Rec-2, Rec-3, Road-9, Veg-2, and Veg-8.

Appendix A

Transportation

1. Identify road access needs for recreation facilities requiring motor vehicle access.
2. Ensure road maintenance objectives are current and suitable for promoting anticipated traffic.
3. Identify routes needed for commercial haul where harvest is proposed and, where applicable, maintain roads commensurate with their use.

Wilderness

1. Recreation facility activities are not authorized within designated Wilderness areas with this project.

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.
2. For bald eagle nests, apply the National Bald Eagle Guidelines.

Table 1. National Bald Eagle Guidelines for constructing a one or more story building with an activity footprint greater than ½ acre

	If there is no similar activity with 1 mile of the nest	If there is similar activity closer than 1 mile from the nest
If the activity will be visible from the nest	660 feet. Landscape buffers are recommended.	660 feet, or as close as existing tolerated activity of similar scope. Landscape buffers are recommended.
If the activity will not be visible from the nest	Category A: 330 feet. Clearing, external construction, and landscaping between 330 feet and 660 feet should be done outside breeding season. Category B: 660 feet.	330 feet, or as close as existing tolerated activity of similar scope. Clearing, external construction and landscaping within 660 feet should be done outside breeding season.

Wild, Scenic and Recreational Rivers

1. For wild, scenic and recreational rivers, ensure any developed sites and associated access routes or facilities located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
3. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Activity 05: Trails

Activity Description

Activities include construction, reconstruction, improvement, decommissioning and maintenance of trails used for activities such as walking, hiking, biking, authorizing OHV use (less than 50 inches wide) and winter recreation (for example, snowmobile, snowshoe, and cross-country skiing). This activity also includes interpretive trails, spur trails for kayak and canoe water access, and trails built cooperatively on lands not managed by the Forest Service.

When would we implement this activity?

The following conditions and decision tree in Figure 5 will be used to determine when a recreation trail would be considered for implementation in coordination with local communities and user groups.

- An existing trail is in need of deferred maintenance.
- Actions are needed to remediate aquatic organism passage, minimize water quality impacts, or other resource impacts on existing trails (or roads that will be designated for OHV use or converted to trails).
- The trail receives regular use that is expected to continue at existing use levels or increase.
- A trail is supported by known use and/or partnerships for long term maintenance.
- Trail development provides for the health and safety for all users.
- Potential for increased use levels or enhanced opportunities by modifying the existing trail to accommodate emerging visitor trends.
- Activity could mitigate resource damage from human use such as vegetation trampling, site hardening, soil erosion, and litter.
- Move trail to a different location where it will have more recreation value.
- Trails may be removed or decommissioned if use is low, or maintenance costs are not affordable.

See the decision tree in Figure 5 for a visual representation of conditions that could lead to trail activities.

Implementation Methods

Trail construction may include the following actions, but are not limited to:

- Select tree removal
- Brushing and grubbing
- Boulder removal
- Installation of various trail surface types (punchon, fords, aggregate, boardwalk, step-and-run boardwalk, stairs)
- Installation of bridges
- Installation of drainage devices (culverts, ditches, side-slope excavation)

Appendix A

In most cases, slash, brush, felled timber, rocks, and disturbed soils will be used in trail construction or dispersed in the immediate vicinity to blend with local resources.

In cases of developed or structural tread there could be a need for excavation work to establish post foundations and abutments, and to cut and fill terrain to account for structural limitations.

Equipment Used

Heavy equipment (excavator, bull dozer, dump truck), small-scale earth moving equipment (“bobcat” with attachments, OHV with dump, etc.) in conjunction with chainsaws and other power, pneumatic, and/or hand tools and explosives.

Integration Opportunities

Development of trails may be integrated with the development of recreation facilities and structures, as well as with the establishment of sea kayak and canoe access points and routes, and boat launches. In addition, trails may be associated with improvements to the road network for public access to points of interest. Additional features of a trail may include installing interpretive signs at points of interest, informative signs that indicate the trailhead, and directional signs at trail junctions.

Additionally, recreation and trail opportunities may be integrated with other resource activities on the district, per 2016 Forest Plan REC2 (II) (USDA Forest Service 2016a). Examples include providing winter travel opportunities at higher elevation harvest areas, or identifying new trail segments in old- or young-growth stands in conjunction with non-recreation resource activities.

Resource-specific Design Features for Trail Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling soil erosion, erosion of trail surface materials, and water quality problems originating from construction, maintenance, and use of motorized and non-motorized trails. Develop an erosion control plan commensurate with proposal prior to implementation (Alaska Region BMP 14.5; National Core BMP Rec-4).
2. Inventory and assess stream crossings, apply measures to remediate aquatic organism passage and reduce or minimize impacts on aquatic resources as needed.
3. Fueling, maintenance, and equipment storage would occur away from waterbodies in locations pre-approved by Forest Service personnel (Alaska Region BMPs 12.8, 12.9; National Core BMPs Road-10, AqEco-2).
4. Use non-toxic, biodegradable fluids and oils in equipment and chainsaws when working in or near streams (Alaska Region BMP 12.8; National Core BMP AqEco-2).
5. Inspect and maintain trails to minimize adverse effects to water quality (National Core BMP Rec-4).

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).

2. Follow recommended Forest Plan Standards and Guidelines (USDA Forest Service 2016a, p. 4-22).
3. Follow Weed BMPs if roads and heavy equipment are used for access Roads 1-13; Recreation, Wilderness, Roadless Areas 14-15; if restoration is required Soil and Watershed 22; if helicopters and planes are used Aviation Operations 26.
4. National Core BMPs Rec-2, Veg-8 (maintaining grounds) speak to minimizing disturbance [Veg-2 (erosion) and Veg-3 (aquatic) are condition-specific].
5. Develop a revegetation plan using approved plant species (USDA Forest Service 2016a FAC3.I.F., p. 4-6), as well as Weed BMP Soil and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Silviculture

1. Avoid cutting tree roots and damaging the boles of remaining trees to prevent future hazards.
2. Evaluate location of existing hazard trees and address during site development.

Soils/Wetlands

1. Attain an on-site field review of proposed new trail by a Tongass soil scientist to estimate anticipated soil disturbance, landslide risk, and presence of wetlands prior to implementation. A wetland delineation may be required.
2. Decommission trails with slash, native mosses, and Tongass-approved seed mix at the site to prevent erosion and sedimentation.
3. Attain a Tongass soil scientist review of proposed blasting areas. Design blasting operations to reduce the risk of mass failure on potentially unstable or saturated soils. Restrict blasting and/or excavating under saturated soil conditions. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances.
4. Avoid using heavy machinery in non-forested wetland areas to prevent rutting. Slopes over 25 percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Require the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting when using heavy equipment. In some instances, the puncheon trail should be scattered upon completion. Avoid creating ruts greater than 12 inches in depth.
5. Apply Alaska Region BMPs 12.4, 12.5, 12.13, 12.17, 13.5, 13.9, 14.5, 14.7, 14.8, 14.25, 16.1, 16.4, and 16.5. Apply National Core BMPs AqEco-2, Rec-1, Rec-2, Rec-4, Rec-5, Rec-7, Road-9, and Veg-2.

Transportation

1. Where roads access trailheads, ensure road maintenance objectives are current and suitable for promoting anticipated traffic.
2. Review the route specific Central Tongass Travel Analysis (Appendix B). Closed NFS roads, or roads no longer needed and decommissioned where identified in travel analysis, may be designated as a NFS Trail and shown on the Motor Use Vehicle Map when

Appendix A

considering minimization criteria (FSM 7715.5). Before converting unneeded NFS roads to NFS trails or establishing coincidental NFS roads and NFS trails, consider:

- ◆ Whether the route would provide a recreation experience consistent with desired Trail Management Objectives (FSM 2353.12);
 - ◆ minimizing conflicts between motor vehicle use and existing or proposed recreation uses of NFS lands;
 - ◆ minimizing harassment of wildlife and significant disruption of wildlife habitats;
 - ◆ minimizing damage to soil, watershed, vegetation and other forest resources;
 - ◆ and minimizing the effects on public safety.
3. Follow requirements of 36 CFR 212 Subpart C for over-snow vehicle use.
 4. A decision to allow motorized mixed use on an NFS road must be informed by engineering analysis (FSH 7709.55, Chapter 30).
 5. If motorized access is appropriate, designate the class of vehicles and if appropriate, time of year for allowable use and show on MVUM if open to the public.

Wilderness

1. Trail construction and maintenance activities are not authorized within designated Wilderness areas with this project.
2. The wilderness manager should be consulted if trail construction and maintenance activities are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.
2. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): During the breeding season, do not authorize operation of off-road vehicles within 330 feet of the nest. In open areas, where there is increased visibility and exposure to noise, extend this distance to 660 feet.

Wild, Scenic and Recreational Rivers

1. Manage wild river corridors for Primitive and Semi-Primitive ROS settings and activities that emphasize existing opportunities.
2. For scenic and recreational river corridors, manage recreation settings and opportunities consistent with the management objectives of the associated LUD.
3. For wild, scenic and recreational rivers, ensure trails located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
4. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV.

5. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
6. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, p. 3-76 to 3-96).

Appendix A

Vegetation Management

Introduction

Vegetation management activities include: old-growth commercial harvest, young-growth commercial harvest, salvage of down and/or dying trees, and silvicultural intermediate treatments such as young-growth pre-commercial thinning for wildlife and fish habitat improvement and timber stand establishment (tree planting).

The resource-specific information below provides definitions, explanations, and specific direction that occur in one or more activities discussed in Activity Guides 06, 07 and 08.

Silvicultural Systems and Project Objectives

Silvicultural systems are used to manage, harvest, and re-establish stands of forest trees for the purpose of meeting identified objectives. No single silvicultural system can be used to achieve all the desired objectives across the landscape. Instead, a variety of treatments applied over a project area results in a mosaic of stands for different uses. Through the harvest of timber or other treatments, such as thinning or pruning, existing stands are altered to meet desired conditions over time.

The Forest Plan Standards and Guidelines and the Silvicultural Examination and Prescription Handbook (FSH 2409.26d) provide detailed information about the silvicultural systems used on the Tongass National Forest.

Silvicultural Prescriptions

Silvicultural prescriptions are prepared by a certified silviculturist to meet the objectives identified in the Forest Plan and by the interdisciplinary planning team according to the Selected Alternative. An interdisciplinary review will be conducted for each proposed activity where the Activity Guides indicate a prescription is necessary or a review is required.

Commercial treatments are designed to meet specific silvicultural objectives where the value of the trees harvested is at least equal to the cost of removal. Removal is accomplished by way of a timber sale or stewardship contract.

Pre-commercial treatments occur in stands where the purpose is stand improvement and not financial return and the cost of removing harvested trees exceeds the value. Silvicultural treatments in these stands are designed recognizing that the cut material is not usually removed from the site. If demand exists, material may be removed as a by-product where an IDT has determined that it is beneficial to do so considering site and stand factors. Pre-commercial treatments are typically accomplished by way of stand-alone service contracts or as the service portion of a stewardship contract.

Even-aged Management – Clearcut

Even-aged management is most often implemented using the clearcutting regeneration method. It is the most economical and feasible method to harvest timber in the project area.

Harvest of Young Growth Prior to Culmination of Mean Annual Increment (CMAI)

For young-growth stands, Forest Plan Standard S-YG-01 (USDA Forest Service 2016a, p. 5-3) allows harvesting prior to CMAI under the authority granted by Public Law (P.L.) 113–291, Sec. 3002, subsection (e)(4)(A) with the following limitations under subsection (e)(4)(B).

(e)(4)(B) LIMITATION.—Any sale of trees pursuant to the authority granted under subparagraph (e)(4)(A) shall not:

- (i) exceed 15,000 acres during the 10-year period beginning on the date of enactment [December 2014] of this Act, with an annual maximum of 3,000 acres sold;
- (ii) exceed a total of 50,000 acres, with an annual maximum of 5,000 acres sold after the first 10-year period;
- (iii) be advertised if the indicated rate is deficit (defined as the value of the timber is not sufficient to cover all logging and stumpage costs and provide a normal profit and risk allowance under the appraisal process of the Forest Service) when appraised using a residual value appraisal; or
- (iv) apply to land withdrawn under subsection (c)(2).

Reasonable Assurance of Windfirmness (RAW) Buffers

Reasonable assurance of windfirmness (RAW) buffers are applied to unit edges and stream and karst buffers with high exposure to southeast storm winds and are at risk from wind damage.

Legacy Standard and Guideline for Old-growth Stands

Value Comparison Units (VCUs) with 33 percent or more of the productive old growth harvested are subject to the Legacy Standard and Guideline (USDA Forest Service 2016a, p. 4-86). In Legacy VCUs, harvest units larger than 20 acres are required to leave 30 percent of the original unit opening size in legacy forest structure. Structure left inside of the unit for other resource concerns, excluding mapped TTRA buffers, can be counted towards the 30 percent retention requirement. Legacy placement occurs during implementation to meet multiple objectives.

Justification for Clearcutting

Clearcutting must be the optimum treatment to meet activity objectives per Forest Plan requirements (USDA Forest Service, 2016a, p. 4-68).

Size of Even-aged Openings

Regulations in the *National Forest Management Act* (NFMA) require that even-aged openings in the western hemlock-Sitka spruce forest type of Southeast Alaska should not exceed 100 acres unless exempted under specific conditions, defined on page 4-69 of the 2016 Forest Plan (USDA Forest Service 2016a). The size of even-aged harvest areas would generally be 100 acres or less.

Two-aged Management

This is a commercial treatment designed to produce timber products for sale in a way that mitigates the effects of the harvest on the landscape. Two-aged management would be implemented using the patch clearcut regeneration method.

Two-aged management results in stands with two distinct cohorts separated in age by more than 20 percent of the stand rotation age. This stand structure results naturally from stands completely regenerated after two distinct disturbance events. Two-aged harvest requires at least 15 percent of the original standing green tree basal area to remain after harvest. These trees can be grouped for operational and environmental concerns, or be evenly distributed across the stand.

The objective of this prescription is to maintain or create two-aged stand structure while maintaining most of the operational and economic feasibility of even-aged management. The

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retention level prescribed is often area based, and harvest openings would be located to balance other resource objectives with timber economics. Openings must also be planned so opportunities for the next harvest entry are not forfeited, and are adequate in size to promote natural regeneration of all species. Planting to promote certain species may be prescribed.

When harvesting young-growth stands prior to CMAI, Forest Plan Standard S-YG-01 (USDA Forest Service 2016a, p. 5-3) applies to two-aged management since this regeneration method is a form of even-aged management (FSM 2470, p. 19).

Uneven-aged Management

Uneven-aged management is a commercial treatment designed to create (young growth) or maintain (old growth) multi-aged or multi-layered stand structure. Most young-growth stands in the project area are currently even-aged resulting from previous clearcut harvest. Applying uneven-aged management to these stands is intended to create multi-aged stand structure. Old-growth stands tend to already exhibit uneven-aged structure to varying degrees. The objective of uneven-aged management is to maintain or create structural and understory vegetation diversity while retaining timber for viable and sustainable future entries. In young-growth stands, this prescription generally creates multiple age classes, and trees will be removed across all age groups either individually or in small groups or strips up to 2 acres in size. There is no final rotation age as in even-aged or two-aged systems, but instead regular, periodic entries are designed to maintain three or more distinct age classes in a reasonably well-dispersed manner across the stand. Consideration of CMAI prior to harvest does not apply to stands that will be managed as uneven-aged. The first harvest entry must be designed so that future entries are not physically or economically isolated and so that tree regeneration is not excessively damaged. Harvest openings must also be of sufficient size to allow regeneration of all species. This system requires more frequent entries than even-aged or two-aged management.

Uneven-aged management would be implemented using group selection or single tree selection prescriptions.

Uneven-aged Management in Old Growth

In old growth, healthy trees in the intermediate crown class are a priority for retention to promote economic future entries. Older trees with low timber value but high wildlife value are also a priority for retention. The canopy gaps and disturbance created by harvest promote new tree regeneration, including the less shade-tolerant species, such as yellow-cedar and spruce. Created openings also promote the growth of understory plants important for wildlife. The first harvest entry would remove up to 33 percent of the stand. Subsequent harvest entries would develop three or more distinct age classes. The timing of periodic entries is determined by several factors, including economics and resource objectives. The logging system for partial harvest prescriptions facilitates the removal of trees while retaining a majority of the trees.

Uneven-aged Management in Young Growth

In young-growth stands, trees selected for harvest are generally in groups up to 2 acres in size. The first harvest entry would remove up to 33 percent of the stand area by groups of trees. Subsequent harvest entries would develop three or more distinct age classes. The timing of harvest entries is contingent on the management objectives for the stand.

Intermediate Treatments and Related Silvicultural Activities

Intermediate treatments and other related silvicultural activities are intended to enhance growth, quality, vigor and species composition, and improve understory forb and shrub production between stand regeneration and prior to final harvest. Intermediate treatments include pre-commercial thinning and pruning. Thinning may include a variety of silvicultural activities or components, such as slash treatment, girdling, wildlife canopy gaps and/or maintaining untreated areas to meet an assortment of resource objectives. Stand objectives may include timber, riparian, and/or wildlife emphases.

Pre-commercial Thinning

Pre-commercial thinning is the selective cutting of young-growth trees in regenerated stands prior to trees reaching merchantable size. The goal is to meet a variety of management objectives by reducing tree densities in over-stocked stands to prevent stagnation and increase the growth of the remaining trees. Pre-commercial thinning activities ideally occur before the stand reaches the stem exclusion stage, approximately 15 to 25 years after stand initiation, depending on site productivity.

Following timber harvest, natural regeneration often results in more trees per acre than available growing space. As competition increases, this leads to decreased diameter growth and less disease resistance. Over-stocking also leads to shading out understory vegetation that may be valuable to some wildlife species. Thinning increases residual tree diameter growth and allows more sunlight into the stand, increasing understory shrub and forb growth.

By thinning young-growth stands before the stem exclusion stage begins, understory vegetation persists and the trees respond quickly. Pre-commercial thinning prescriptions would be developed on a site-specific basis utilizing variable spacing techniques, desirable tree characteristics, and species preferences. A combination of activities would be used to achieve site-specific objectives. As an example, girdling the larger diameter trees may be used instead of cutting trees. Girdling may also be used to recruit future snags. Other activities may include, but are not limited to, creating or maintaining wildlife gaps; creating or maintaining wildlife movement corridors; creating wildlife trees; pruning; or slash treatment.

Riparian Area Treatments

Riparian areas are important because they contribute large woody material to channels, shade stream banks for temperature control, regulate nutrient exchange, influence surface and groundwater hydrology, and maintain aquatic biodiversity. Pre-commercial thinning treatments can accelerate tree growth and development of riparian areas toward a more mature forest structure to more closely resemble the conditions of undisturbed riparian stands, following guidance from Exhibit 2 of the Tongass Young Growth Management Strategy (2014). In general, the pre-harvest condition of many riparian stands included fewer, larger, more widely spaced trees with a more diverse understory. Treatments that increase growth and stand diversity could also open up the canopy to allow understory re-development, which could benefit wildlife, as well as improve nutrient cycling along stream corridors. Thinning activities could occur in stands approximately 15 to 50 years old depending on stand location, site productivity, need for restoration, and management objectives. Most riparian prescriptions would include wider spacing of leave trees. In addition, the leave tree species of choice is Sitka spruce, followed by western hemlock. Red alder and cedar are usually ignored for spacing and left as a component of the stand to add species diversity.

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Wildlife Habitat Treatments in Young Growth

Young-growth stands can be dense with 3,000 or more trees per acre; whereas old-growth stands average around 200 trees per acre. Wildlife habitat enhancement treatments may be desired to put young-growth stands on a trajectory toward mature forest conditions that include increased structural diversity and understory forage. Treatments may include a combination of thinning, pruning, slash treatments, wildlife gaps, the creation of wildlife trees and no-cut corridors. The treatments are designed to improve deer winter range, develop and enhance the understory, increase stand decadence and features such as cavity nesting habitat for various species, and maintain travel corridors.

Girdling Young Growth

Girdling may be used when treating stands with larger diameter young growth trees to meet resource objectives. Girdling reduces the amount of thinning slash that can impede wildlife movement. In general, trees greater than 7 inches in diameter at breast height (4.5 feet above the ground) would be girdled. Girdling may also be used to recruit future snags.

Pruning Young Growth

Pruning may be used to increase the amount of light reaching the forest floor. Understory vegetation is enhanced by allowing more sunlight to reach the forest floor. Trees to be pruned should be the tallest with the largest crowns, and straightest stems that are free of physical, or mechanical damage, or damage from insects or disease.

Slash Treatments

Slash treatments may be used in stands where thinning treatments would create excessive slash or there is already a large amount of existing slash present. A variety of treatment methods (bucking to various lengths, de-limbing, lop and scatter, piling, etc.) may be used to remove, or redistribute slash that impedes wildlife movement.

Design Features Common to All Pre-commercial Thinning

Maintenance of Cedar

Both western redcedar and Alaska yellow-cedar occur as minor species in stands, yet are important ecologically and economically. The maintenance of yellow-cedar in young growth is important due to its decline across Southeast Alaska. Naturally regenerated cedar has difficulty competing against faster growing species like Sitka spruce and western hemlock. Cedar seedling survival can also be impacted by deer browsing. In stands where seedling mortality may be high due to deer browsing, non-lethal deterrents may be needed. To promote stand variability and structural diversity, pre-commercial thinning prescriptions may favor cedar trees over other species.

Streams in Young Growth

No-thin buffers may be left along Class I, II, and III streams to add spatial diversity and function as wildlife travel corridors depending on their position within the stand.

Salvage Harvest

Salvage harvest is limited to dead, down, dying, and damaged trees. Incidental cutting of other trees during salvage operations may occur to address access and safety concerns. Dead trees are defined as trees with no visible green foliage. Down trees are those trees that may have green foliage but have a compromised root system leaving the tree leaning at a 45 degree (or more) angle. Dying and damaged trees have 10 percent or less live foliage remaining in the crown and/or significant disease or decay expected to result in the falling or death of the tree within

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approximately 5 years. Evaluate individual trees or groups of trees proposed for salvage with the District silviculturist to determine if these requirements are met and if a silvicultural prescription is required.

Generally, salvage harvest opportunities allowed under this project will be small or micro-sales that consist of an individual tree or a stand of trees on suitable lands for timber production and will be included in the planned acreage and volume from this project. Catastrophic events such as blowdown and insect or disease outbreaks will be reviewed on a case-by-case basis to determine if salvage harvest is within the EIS effects analysis, and if it should be included as part of the planned volume from this project. The sale and utilization of trees that meet the conditions discussed above will receive high priority where it involves timber on suitable lands for timber production that is feasibly accessible for standard logging systems.

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Activity 06: Old-Growth Timber Harvest (Commercial)

Activity Description

This activity provides timber for sale to meet timber industry needs, contributes volume to the large and small timber sale programs, and regenerates a stand of timber by harvesting mature timber where growth is being offset or exceeded by decay.

The four types of old-growth silvicultural treatments considered for this project include:

- **Even-aged management (clearcut harvest)** - Harvest of old-growth trees that creates a new stand of trees composed of a single age class. This method of harvest minimizes the risk of post-harvest windthrow, promotes natural regeneration of desirable species, and minimizes defect and disease in future stands and is the most economic method of harvest.
- **Two-aged management** - Harvest of old-growth trees that creates a stand of trees with two distinct age classes. Prescribed primarily for increased scenery and wildlife benefit while maintaining as much of the operational and economic feasibility of even-aged management as possible.
- **Uneven-aged management (partial harvest)** - Harvest of old-growth trees that follows a planned sequence of harvest treatments designed to result in a stand with three or more distinct age classes. The harvest may be by individual tree or in groups of trees up to 2 acres removing up to 33 percent of the stand area. This treatment may be used to increase the diversity of young-growth age classes to address age class imbalances and favor wildlife.
- **Salvage harvest** - The removal of dead trees or trees damaged or dying because of injurious agents, rather than competition, to recover economic value that would otherwise be lost. The Forest Plan directs us to prioritize the sale and utilization of dead, blown-down and other deteriorating timber in LUDs where the harvest of timber is compatible with management objectives (USDA Forest Service 2016a, p. 4-70).

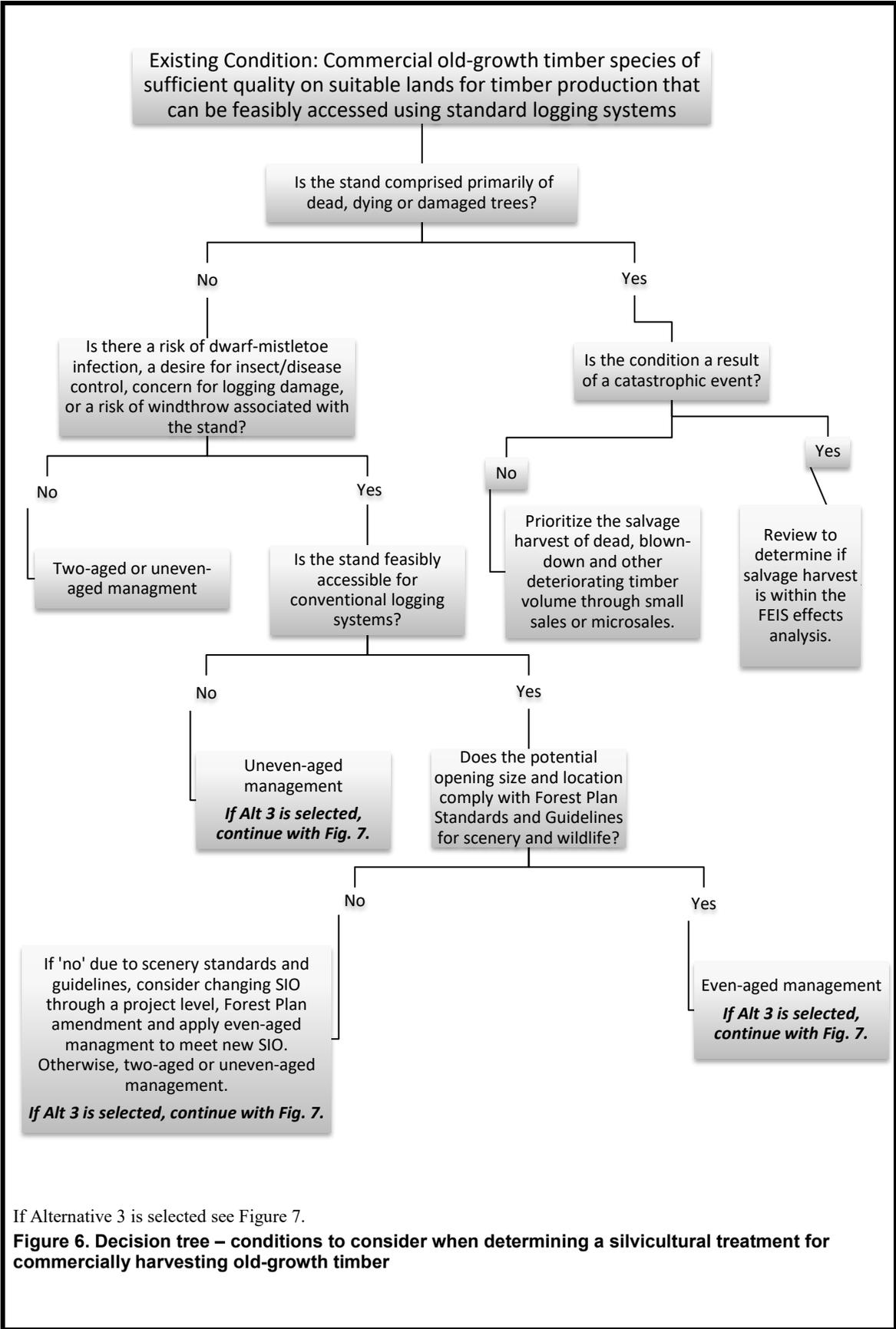
When would we implement this activity?

The commercial harvest of old-growth timber may occur if stands are:

- Determined suitable for timber harvest according to appendix A of the Forest Plan and through field survey results,
- Economically viable, and
- Accessible for standard logging systems.
- Analyzed in the gross unit pool.

Salvage harvest of old-growth trees may occur to recover value otherwise lost if trees are dead, damaged, or dying due to injurious agents.

When stands are not comprised of dead or down trees, harvest old-growth timber through even-aged management if there are concerns for insect and disease, windthrow, logging damage, or other factors affecting forest health. For the purpose of this assessment, this means a stand proposed for even-aged management must have a moderate or high windthrow risk, insect or disease rating, or a combination of the three. Otherwise, harvest old-growth timber using two-aged or uneven-aged management (partial harvest).



If Alternative 3 is selected see Figure 7.

Figure 6. Decision tree – conditions to consider when determining a silvicultural treatment for commercially harvesting old-growth timber

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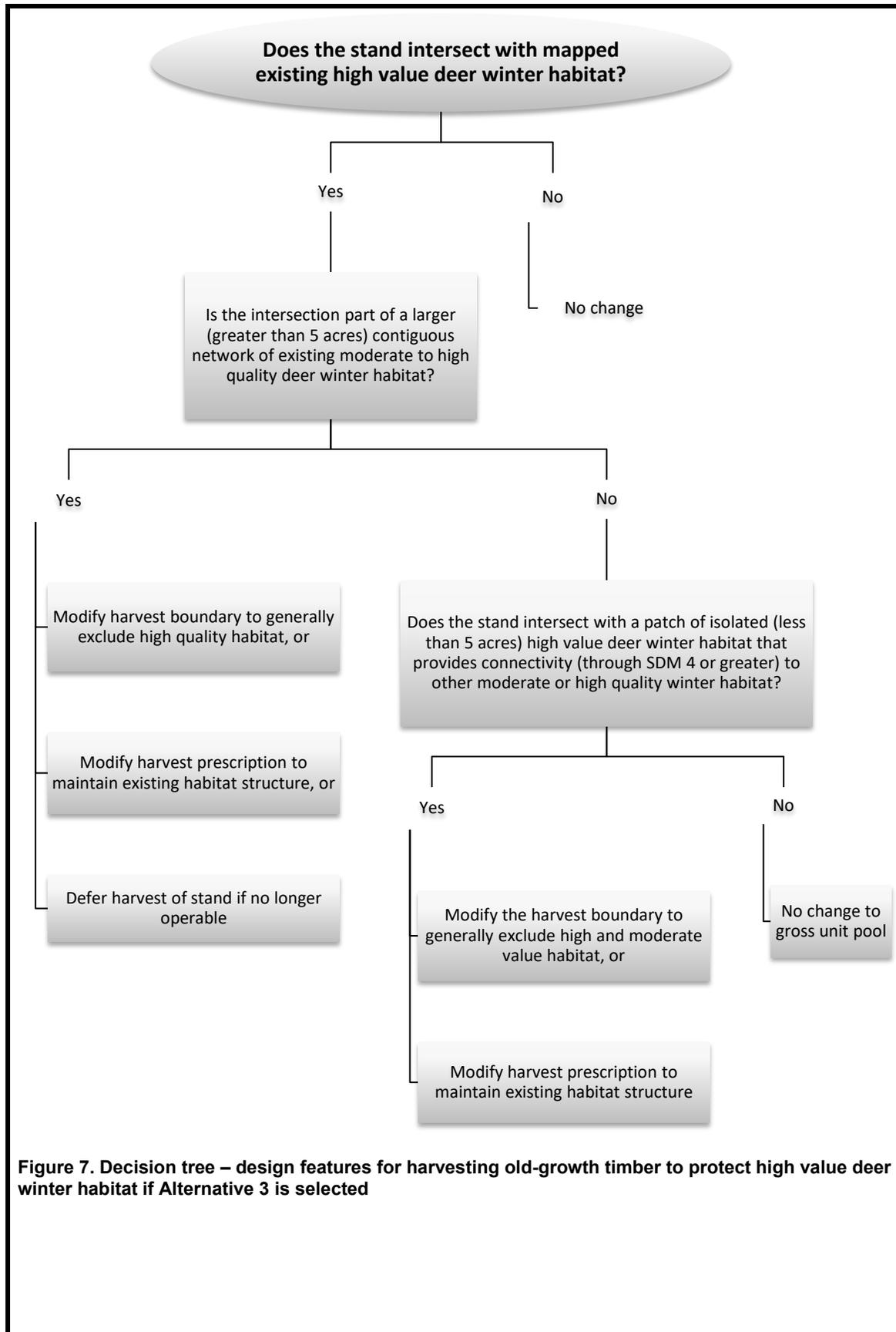


Figure 7. Decision tree – design features for harvesting old-growth timber to protect high value deer winter habitat if Alternative 3 is selected

Implementation Methods

Even-aged management – Clearcutting and clearcutting with reserves using cable or tracked shovel yarding systems.

Two-aged management – Patch clearcutting, clearcutting with reserves, seed tree with reserves, shelterwood with reserves using cable, tracked shovel or helicopter yarding.

Uneven-aged management – Single tree selection or group selection using cable, tracked shovel or helicopter yarding.

Salvage harvest – Limited to dead, down, dying and damaged trees.

Equipment Used

Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, excaliner, and tong thrower. Tracked shovel and helicopter are also common yarding systems. Chainsaws, log loaders and log trucks are used to facilitate the harvest activities. Barges and tugs are used in marine waters.

Integration Opportunities

Old-growth timber harvest may require road construction and normally requires road maintenance for safe and efficient haul. This creates an opportunity to coordinate with area or adjacent construction projects requiring heavy equipment. Harvest activities also offer an opportunity to leverage mobilization of heavy equipment so other roads important for subsistence use, recreation and other activities can be maintained.

Clearcut timber harvest results in some trees being cut that are non-merchantable as sawtimber; this creates an opportunity for it to be used for other purposes like personal use or commercial use firewood, biomass, or stream restoration material. Leaving a road open prior to decommissioning or closing for 3 to 5 years, where feasible to do so, would allow public access to firewood and biomass.

Road construction requires quarry development which creates an opportunity for personal use rock sources.

Resource-specific Design Features for Old-growth Timber Harvest Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Complete a risk assessment using field information, appropriate scientific literature, and metrics common to watershed analysis, commensurate with the scale of planned activities to assess the risk of degraded watershed conditions. Calculate cumulative timber harvest and road levels at the HUC 7 scale during activity planning to determine the risk of potential flow effects and water quality impacts. Factors that are considered to evaluate potential peak flow rate increases include watershed size (watersheds greater than 2,500 acres are less likely to experience detectable peak flow rate increases), recovery of snow interception capability in forest canopy of past harvest acres in the watershed, actual location of canopy openings in rain dominated or transient snow zones within the watershed, canopy opening size and silvicultural prescription (small openings and uneven-age harvest are less likely to accumulate snow), characteristics of stream network

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connections between canopy openings and alluvial stream reaches (stream density, size, gradients), presence of lakes and wetlands that could diminish peak flow rates, and characteristics of road network (efficiency of surface water transport from open canopy areas to streams). Additionally, the indirect effects of peak flow rate increases on downstream aquatic habitats will be considered, including proximity of moderate and low-gradient, alluvial reaches containing redds or spawning habitat (for example, FP, MM, and AF process groups) prone to scour and any intervening depositional streams that would lessen peak flow rate effects.

2. Where risk assessment results in moderate to high risk of fish habitat degradation resulting from peak flows, modify harvest and road characteristics listed above and described in the EIS, using professional judgement, to ensure that no adverse effects occur to aquatic resources.
3. Follow stream and riparian mapping and classification, describe stream protection. Note when circumstances require a stream course protection plan per timber sale contract provision - C5.51 STREAM COURSE PROTECTION.
4. Describe riparian no-harvest buffers, including site specific consideration of reasonable assurance of wind-firmness (RAW).
5. Hang flagging and resource tags on streams in/near potential timber harvest units.
6. Identify each Class I, II or III stream crossing on temporary roads, new NFS roads, and existing road that had drainage structures removed, describe channel dimensions and stability, structure type and size, fish passage and instream construction timing restrictions.
7. Include any mitigation critical to the success of temporary road decommissioning. Consider resource or safety risks related to delayed temporary road decommissioning or NFS road storage.
8. Apply other BMPs as needed.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
2. Any needed treatments for existing infestations should begin prior to ground disturbance.
3. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22, TRAN2.I.D p. 4-76).
4. Follow Weed BMPs Roads 7-13; Forest Management 17-18; Soils and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Recreation

1. If the project is located near any known recreation areas, initiate a communication plan to alert recreation users who could be affected by the timing/location of the activities.
2. If the project is in the vicinity of developed recreation facilities, determine if mobilization of necessary equipment can be used to address deferred maintenance needs.

3. If the activity area has infrequent or unestablished recreation use, determine if opportunities exist to enhance or establish recreation use by referring to Figure 5, the recreation facility decision tree.

Silviculture

1. A signed prescription by a certified silviculturist is required.

Soils/Wetlands

1. Upon implementation, a Tongass Soil Scientist review for harvest suitability is required if there are wetlands, landslides, and/or hollow topography present, ground-based equipment is proposed, or if units are located on slopes greater than 55 percent.
2. All proposed yarding activities should follow BMPs with a minimum of partial suspension to meet soil and wetland resource concerns. Some units may only be suitable under full suspension requirements.
3. The ground based operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving ground based yarding on slopes over 25 percent gradient. Consult a Soil Scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient. Avoid track slippage and creating ruts greater than 12 inches in depth.
4. Avoid locating roads on slopes greater than 67 percent or on slopes greater than 55 percent on glacial till soils. Temporary roads should be reviewed for suitability. When determining temporary road locations, wetlands should be avoided to the extent practicable.
5. Adhere to Alaska Region Soil Quality Standards.
6. Exposed mineral soil greater than 100 square feet in size should be either slashed or grass seeded with a Tongass-approved mix as mitigation.
7. Apply Alaska Region BMPs 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.6, 14.7, 14.8, and 14.12. Apply National Core BMPs Plan-2, AqEco-2, AqEco-4, Road-2, Road-3, Road-4, Road-6, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6.

Timber and Other Forest Products

1. Consider the most cost effective logging method available for each setting (generally in order of shovel, then cable, and finally helicopter).
2. All applicable permits requiring the use of LTF for log transfer will be obtained prior to implementation.

Transportation

1. Identify planned logging systems and road access for ground-based systems including temporary roads. Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber for harvest or restrict future access.
2. If needed, identify any constraints to meet specific objectives such as the use of helicopter logging to avoid road construction.
3. Landings will generally be constructed and used to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction,

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length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally will be 0.5 acre in size. Continuous roadside landings are also used.

4. Review Central Tongass Project road by road travel analysis for road management objectives of new roads, and revisions to existing NFS road management of specific routes. Road management objectives include the purpose of the proposed road along with the maintenance requirements, and future desired condition of the road when new NFS roads are needed to access harvest units. Revision to road management to allow OHV < 50 inches dictates the level of closure a road receives. If a road will be stored, and the allowed use is OHV width less than 50 inches, see the Transportation section in Activity 05: Trails and follow criteria to designate as Motorized Trail.
5. Temporary roads are not intended as part of the forest transportation system or necessary for long-term resource management. The construction of temporary roads will be considered when:
 - Construction is necessary to facilitate the yarding system.
 - The economic value of timber supports its construction.
 - Construction is viable within the Standards and Guidelines of the Forest Plan and adheres to all applicable BMPs.
6. Identify where existing quarries are located for road construction. New quarries will be developed as needed for construction purposes. Follow Standards and Guidelines and 2016 Forest Plan Chapter 4 –TRAN IV (USDA Forest Service 2016a). Quarry and Borrow Sites and cite Alaska Region BMPs: 12.17, 14.18. National BMPs: Min-5.
7. Identify road maintenance needs and where stored roads will need to be reconditioned for haul and cite applicable BMPs.
8. The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required when moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Wilderness

1. This activity is prohibited within designated Wilderness areas.
2. The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.
2. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Avoid clear cutting or removal of overstory trees within 330 feet of the nest at any time. Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including

nests attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.

Wild, Scenic and Recreational Rivers

1. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV.
3. Timber harvest will not occur in wild river corridors but may occur in scenic and recreational river corridors.
4. Discourage cutting within 100 feet of the river in scenic river corridors.
5. In recreational river corridors, ensure sufficient old growth is maintained to meet the size, spacing, composition and connectivity requirements of the Forest Plan Conservation Strategy.
6. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

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Activity 07: Young-Growth Timber Harvest (Commercial)

Activity Description

This activity is the harvest of young-growth timber stands (generally less than 150 years old) where growth may or may not have reached culmination of mean annual increment (CMAI). This activity is used to provide young-growth timber for sale to meet timber industry needs and can improve wildlife and riparian habitat in older stands while producing a commercial product.

The four types of young-growth silvicultural treatments considered for this project are:

- Even-aged young-growth timber harvest,
- Two-aged harvest,
- Uneven-aged harvest, and
- Salvage cutting.

When would we implement this activity?

The commercial harvest of young-growth timber may occur if stands are:

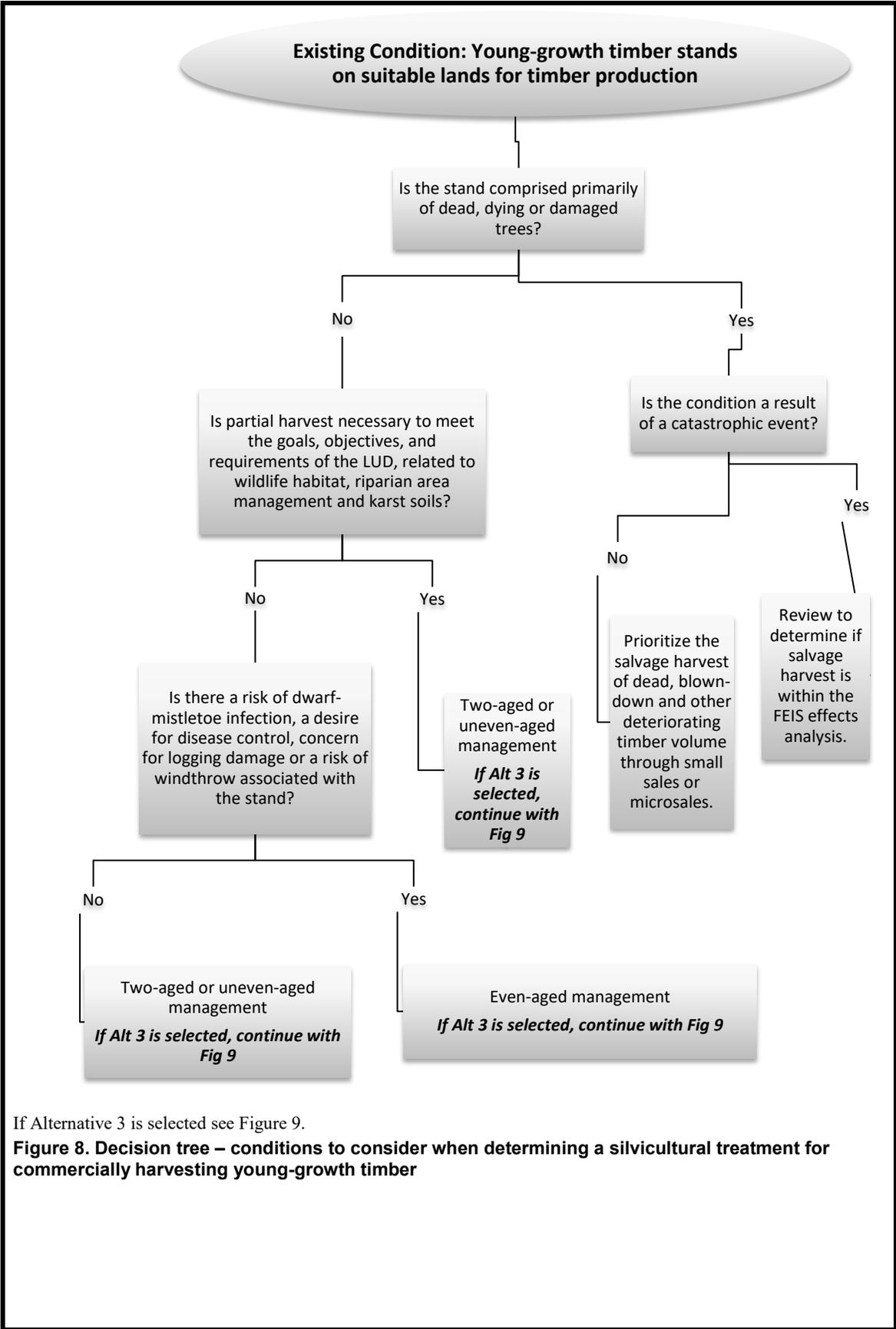
- Determined suitable for timber production according to Appendix A of the Forest Plan and through field survey results,
- Economically viable, and
- Accessible for standard logging systems.

Salvage harvest of young-growth stands may occur to recover value otherwise lost if trees are dead, damaged, or dying due to injurious agents.

When stands are not comprised of dead or down trees, harvest young-growth timber through even-aged management if

- There is a risk of dwarf-mistletoe infection, desire for disease control or a moderate-to-high risk of windthrow associated with the stand,
- The stand is feasibly accessible for conventional logging systems,
- It makes economic and logistical sense during sale planning,
- To help facilitate the transition to a young-growth based timber industry,
- The proposed harvest opening size and location is compatible with Forest Plan Standards and Guidelines where they apply to scenery, wildlife habitat, riparian area management and karst soils.

Otherwise, harvest young-growth timber through two-aged or uneven-aged management (partial harvest).



If Alternative 3 is selected see Figure 9.

Figure 8. Decision tree – conditions to consider when determining a silvicultural treatment for commercially harvesting young-growth timber

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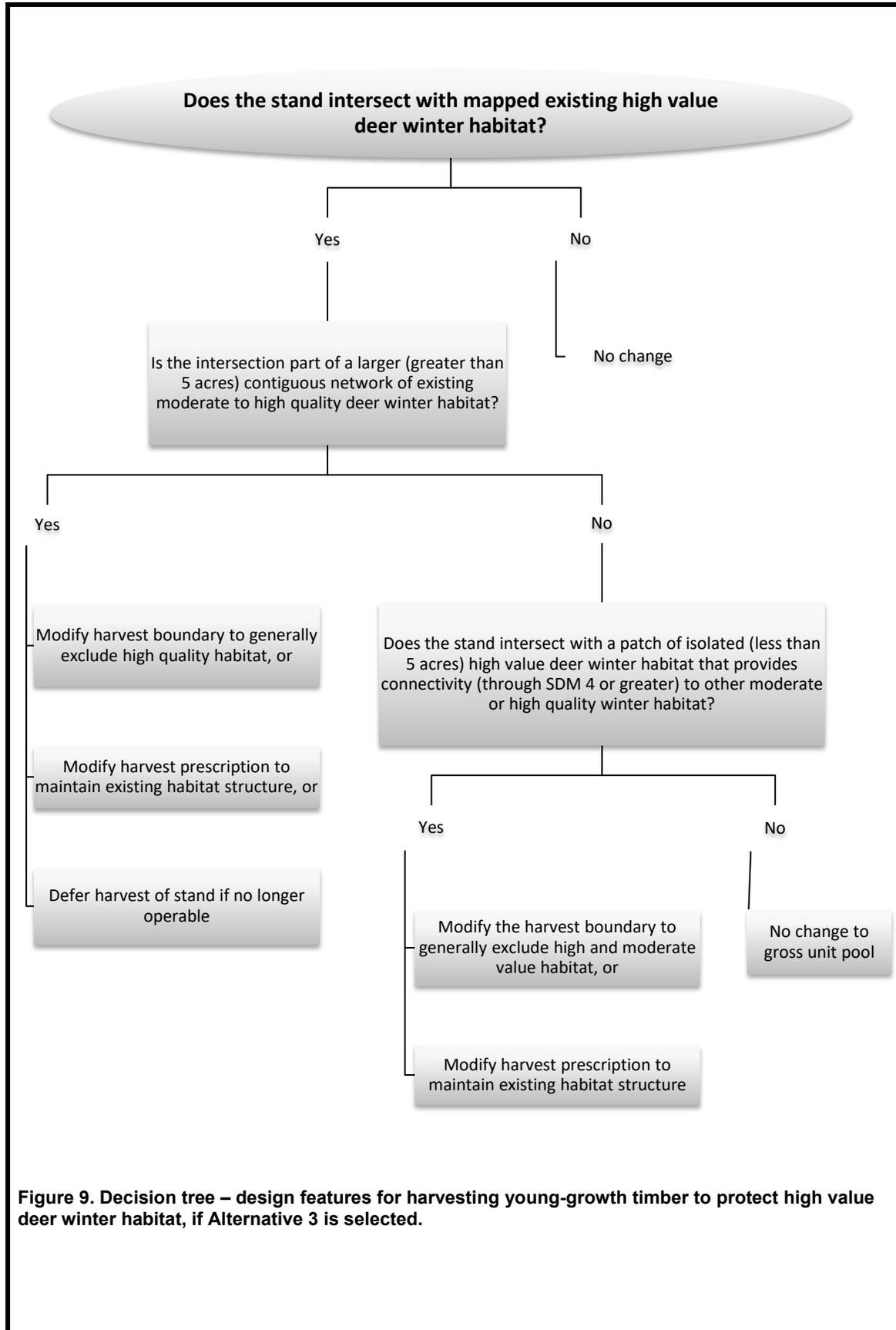


Figure 9. Decision tree – design features for harvesting young-growth timber to protect high value deer winter habitat, if Alternative 3 is selected.

Implementation Methods

Even-aged management - Clearcutting and clearcutting with reserves using cable or shovel yarding.

Two-aged management - Clearcutting with reserves, seed tree with reserves, shelterwood with reserves using cable, shovel or helicopter yarding.

Uneven-aged management - Single tree selection or group selection using cable, shovel or helicopter yarding.

Equipment Used

Common yarding systems include tower and cable yarding systems, skyline (standing, live, running), single span, multi-span, and excaliner. Tracked shovel and helicopter are also common yarding systems. Chainsaws, log loaders and log trucks are used to facilitate the harvest activities. Barges and tugs are used in marine waters.

Integration Opportunities

Young-growth harvests could be planned in the beach and estuary buffer when boat launches, kayak launches, shelters and other recreation development projects occur. Young-growth uneven-aged management areas may provide material and equipment for stream restoration. Group selection harvest may be suitable for harvesting trees with root wads attached.

Young-growth timber harvest may require road construction and normally requires road maintenance for safe and efficient haul. This creates an opportunity to coordinate with area or adjacent road needs including red pipe replacement. Harvest activities also offer an opportunity to leverage mobilization of heavy equipment so other roads important for subsistence use and other activities can be maintained.

Landings may be constructed as part of the transportation system and used to facilitate the yarding and loading of harvested timber for transportation. Landings generally are about ½ acre in size. Clearcut timber harvest results in some trees being cut that are non-merchantable as sawtimber; this creates an opportunity for other purposes like personal use or commercial use firewood, biomass, or stream restoration material.

Road construction requires quarry development which creates an opportunity for personal use rock sources. Leaving a road open prior to decommissioning or closing for 3-5 years, where feasible to do so, would allow public access to firewood and biomass.

Resource-specific Design Features for Young-growth Timber Harvest Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Follow design features above for Activity 06: Old Growth Timber Harvest.
2. Determine if project occurs in one of the Tongass 77 VCUs listed in the Forest Plan on page 5-4. Conduct an “internal scientific review in collaboration with a forest collaborative and other stakeholders to determine likely impacts to fish and wildlife habitat”.
3. Commercial harvest within the Riparian Management Area (RMA) may occur as per 2016 Forest Plan direction, with treatment prescriptions guided by Exhibit 2 of the Tongass

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Young Growth Management Strategy (2014). Management strategies for young growth stands in riparian areas focus on facilitating a more rapid recovery of the late successional forest characteristics of the stand, while also producing a commercial timber byproduct. Limitations addressing maximum size opening, removal amounts, treatment type, and time limits are explained in the Forest Plan (USDA Forest Service 2016a, p. 5-7). Importantly, harvest may only occur outside TTRA no-harvest 100-foot buffer for fish streams and Class I and II lake margins, and treatments are expected to achieve stream process group objectives.

4. Develop RMA harvest prescriptions in consultation with aquatics personnel on a site-by-site basis.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
2. Any needed treatments for existing infestations should begin prior to ground disturbance.
3. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22, TRAN2.I.D p. 4-76).
4. Follow Weed BMPs Roads 7-13; Forest Management 17-18; Soils and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Recreation

1. If the activity is in the vicinity of known recreation areas, initiate communication plan to alert recreation users who could be affected by the timing/location of the activities.
2. If the activity is in the vicinity of developed recreation facilities, determine if equipment can be mobilized for deferred maintenance needs.
3. If the activity area has infrequent or unestablished recreation use, determine if opportunities exist to enhance or establish recreation use by referring to the recreation management decision tree (Figure 5).

Silviculture

1. A signed prescription by a certified silviculturist is required.

Soils/Wetlands

1. Prior to implementation, a Tongass soil scientist will evaluate existing detrimental soil conditions in each stand per Alaska Region Soil Quality Standards.
2. An on-site slope stability review may be required.
3. To minimize additional wetland or soil disturbance, try to utilize existing temp roads, heavy machinery trails, landings, and yarding corridors.
4. For ground-based yarding follow all BMPs. Ground-based yarding requires the use of puncheon or a slash mattress to provide adequate bearing strength and prevent rutting. Avoid leaving dense puncheon slash, creating ruts greater than 12 inches, and operating in non-forested areas. In some instances, scatter the puncheon trail upon completion. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture

conditions. Use care when approving ground-based yarding on slopes over 25 percent gradient. Consult a soil scientist for any ground-based equipment operations proposed on slopes over 35 percent gradient.

5. A minimum of partial suspension is required for yarding operations. Adhere to Alaska Region Soil Quality Standards.
6. Apply Alaska Region BMPs 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8. Apply National Core BMPs Plan-2, AqEco-2, AqEco-4, Road-2, Road-5, Veg-1, Veg-2, Veg-4, Veg-5, and Veg-6.

Timber and Other Forest Products

1. Consider the most cost effective logging method available for each setting (generally in order of shovel, then cable, and finally helicopter).
2. All applicable permits will be obtained prior to implementation for harvest that requires equipment access and/or removal of material across areas below mean high tide.

Transportation

1. Identify planned logging systems and road access for ground-based systems including temporary roads. Ensure access for entry for future timber harvest and other management activities during harvest unit planning, as well as the planning of road locations so as not to isolate suitable timber for harvest or restrict future access.
2. Young-growth timber harvest may require new access or rerouting the old road to conform to Forest Plan Standard and Guidelines.
3. If needed, identify any constraints to meet specific objectives such as the use of helicopter logging to avoid road construction.
4. Landings will generally be constructed and used to facilitate the yarding and loading of harvested timber for transportation. The location and size of landings are dependent on: the yarding system used, direction of yard (uphill or downhill), road type and traffic direction, length of logs, loading and processing of logs, number of sorts, hot or cold decking, and daily production. Landings generally are estimated to be about 0.5 acres in size but may need to be larger. Continuous roadside landings are also used.
5. Temporary roads are not intended as part of the forest transportation system or necessary for long-term resource management. The construction of temporary roads will be considered when:
 - construction is necessary to facilitate the yarding system
 - the economic value of timber supports its construction
 - construction is viable within the Standards and Guidelines of the Forest Plan and adheres to all applicable BMPs.
6. Review Central Tongass Project road by road Travel Analysis for road management objectives of new roads, and revisions to existing NFS road management of specific routes. Road management objectives include the purpose of the proposed road along with the maintenance requirements, and future desired condition when new NFS roads are needed to access harvest units. Revision to road management to allow OHV less than 50 inches wide dictates the level of closure a road receives. If a road will be stored, and the

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allowed use is OHV width less than 50 inches, see the Transportation section in *Activity 05: Trails* and follow criteria to designate as Motorized Trail.

7. Identify where rock quarries are located for road construction. New quarries will be developed as needed for construction purposes. Follow Standards and Guidelines and Chapter 4 –TRAN IV (USDA Forest Service 2016a). Quarry and Borrow Sites and cite Alaska Region BMPs: 12.17, 14.18. National BMPs: Min-5.
8. Identify road maintenance needs or where stored roads will need to be reconditioned.
9. The transport of harvested timber from isolated islands in Southeast Alaska requires both land and water routes to reach processing facilities. Log Transfer Facilities are required when moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Wilderness

1. This activity is prohibited within designated Wilderness areas.
2. The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.
2. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Avoid clear cutting or removal of overstory trees within 330 feet of a nest at any time. Avoid timber harvesting operations, including road construction, and chain saw and yarding operations, during the breeding season within 660 feet of a nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.
3. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Selective thinning and other silviculture management practices designed to conserve or enhance habitat should be undertaken outside the breeding season.
4. The following treatments are from the report - Interagency Wolf Habitat Management Program: Recommendations for Game Management Unit 2 for deer habitat (R10-MB-822). These recommendations correspond to 2016 Forest Plan direction, as noted.

Commercial Young Growth in Areas where Succession towards Old-Growth Conditions is identified as a Dual Objective (that is, Old-Growth Habitat LUD, and Beach and Estuary Fringe and Riparian Management Areas outside of *Tongass Timber Reform Act* buffers that are within development and Old-Growth Habitat LUDs):

- a. Design treatments that progress stands towards old-growth conditions to benefit deer in the long-term. The long-term habitat objective for deer includes a rich understory of forb, shrub, and lichen forage species combined with snow interception, from a heterogeneously- structured canopy mosaic with occasional small gaps and side-lighting. (Forest Plan WILD2.1A; WILD2.A2b; DC-YG-03; DC-YG-WILD-01)

- b. Design treatments that provide understory deer forage and reduce effects of stem exclusion and slash to foster short-term habitat for deer, when such treatments can be done without compromising continued succession towards old-growth conditions that support long-term habitat for deer. Treatments could include variable-density thinning, thinning to favor dominant trees, creating small gaps and narrow openings, and pruning in areas with prior young-age thinning or adjacent to gaps. (Forest Plan WILD2.1A,ALL)
- c. Avoid creating gaps and opening widths that are likely to result in a subsequent flush of conifer recruits and lose gap function that promotes understory forage; design gaps to be about 70 feet wide, adjusting as appropriate based on canopy height. (Forest Plan WILD2.1A; DC-YG-WILD-02)
- d. Incorporate leave strips of intact canopy, especially along ridgelines, to promote elevational movements during severe winters and minimize distance between deer movement and foraging opportunities across the landscape. (Forest Plan WILD2.1A; WILD2.A2b, DC-YG-WILD-01)

Wild, Scenic and Recreational Rivers

1. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors but may occur in scenic or recreational rivers.
3. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Appendix A

Activity 08: Silvicultural Intermediate Treatments (Pre-commercial)

Activity Description

This activity is the silvicultural treatment of young-growth stands to achieve various management objectives such as promoting timber production, altering wildlife habitats and patterns of use, or improving riparian area health. Depending on the existing stand characteristics, site conditions, and management objectives, treatment of a stand may include various combinations of the following activities: pre-commercial thinning at variable densities; creating or maintaining wildlife gaps; creating or maintaining wildlife movement corridors; creating wildlife trees; girdling; pruning; or slash treatment.

Pre-commercial thinning

Selective cutting or girdling of young-growth trees in regenerated stands to a pre-determined density, spacing, and species composition. Depending on the management objectives in a young-growth stand, thinning can promote timber production, improve wildlife habitat and patterns of use, or improve riparian area conditions. Thinning may utilize a variety of spacings to produce variable densities post-treatment. Changing the tree density and spacing can improve tree growth and vigor, promote targeted tree species and trees with certain characteristics, increase stand heterogeneity, or maintain or improve understory forb and shrub production. For wildlife corridors, areas can be left untreated or lightly treated within a treated stand (where thinning would otherwise create abundant slash) to facilitate wildlife movement and provide connection between habitats.

Riparian thinning

Selective cutting of young-growth trees in Riparian Management Areas (RMA) in stands harvested prior to the 1990 *Tongass Timber Reform Act* (TTRA). Riparian thinning is used to accelerate tree growth and development of young-growth riparian areas toward a more mature forest structure that more closely resembles the conditions of undisturbed riparian stands. In general, the pre-harvest condition of many riparian stands includes fewer, larger, more widely-spaced trees with a more diverse understory.

Wildlife gaps

Openings created in the forest canopy, usually as a thinning component but larger than those created with standard thinnings, to increase stand heterogeneity. Considerations include stand structural stage, tree size, tree spacing, position on the landscape and the impacts of slash on wildlife movement and understory growth. Gaps increase understory cover, forb biomass and shrub growth. The size and number of gaps to create are determined by objectives based on the existing site condition and stand characteristics.

Wildlife trees

Trees killed or damaged by various methods such as girdling, blasting, or fungal inoculation to improve wildlife habitat characteristics in a young-growth stand. Snags or trees with damage (broken top) or decay increase stand decadence and features such as cavity-nesting habitat for various species.

Wildlife corridors

Areas left unthinned or lightly thinned within a treated stand (where thinning would otherwise create excessive slash) to facilitate wildlife movement and provide connection between habitats.

Girdling

A strip of bark and cambium layer are cut away from the circumference of a tree trunk that results in a dead standing tree. Girdling can achieve the same results as pre-commercial thinning but without an immediate influx of excessive slash. Girdling is also a technique to produce wildlife trees.

Pruning

Limbs are removed on the lower bole of all or a portion of trees in a young-growth stand. The purpose of pruning is to increase the amount of light reaching the ground to promote understory vegetation health and vigor. Pruning is typically used in conjunction with pre-commercial thinning and other silvicultural prescriptions such as gaps and slash treatment.

Slash treatment

Removal or redistribution of small diameter woody material created during pre-commercial thinning. Treatments may include bucking, limbing, mastication or chipping. Treating slash facilitates wildlife movement, and increases ground-contact and surface area of slash to speed decomposition.

When would we implement this activity?

Prescribe silvicultural treatments and associated activities to achieve the desired number of trees per acre, distribution and species composition to meet the objectives when

- Young-growth stands are approaching or have reached the stem-exclusion stage of stand development (generally around age 20 to 30 depending on site productivity) and are reasonably accessible;
- Young-growth stands have not attained, or will not attain within the next 15 years, volumes of economically viable timber on lands suitable for timber production; and
- There is a desire to:
 - ◆ Improve the growth rate, quality, vigor and composition to maintain or improve timber production or habitat for wildlife;
 - ◆ Maintain or increase understory bio-diversity;
 - ◆ Accelerate forest succession to achieve old-growth forest structural features;
 - ◆ Maintain the hydrologic function of the karst landscape;
 - ◆ Support a wide range of natural resource employment opportunities within Southeast Alaska’s communities; or
 - ◆ Accelerate a transition to primarily young-growth harvest.

Riparian thinning activities could occur in stands between 15 to 50 years old. The time of treatment depends on the need for restoration and management objectives.

Wildlife gaps would be created in non-development LUDs, where long-term understory production is desirable.

Wildlife trees would be created, as needed, in areas unsuitable for timber production (2016 Forest Plan, Appendix A) and in areas at risk of providing insufficient cavity-nesting habitat.

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Girdling and pruning are likely a one-time treatment that could occur alone or with other young-growth treatments in stands that have reached the stem-exclusion stage. Girdling may be used when a stand is older, and larger cut trees would create excessive slash.

Slash treatments may be prescribed to facilitate wildlife movement and enhance decomposition.

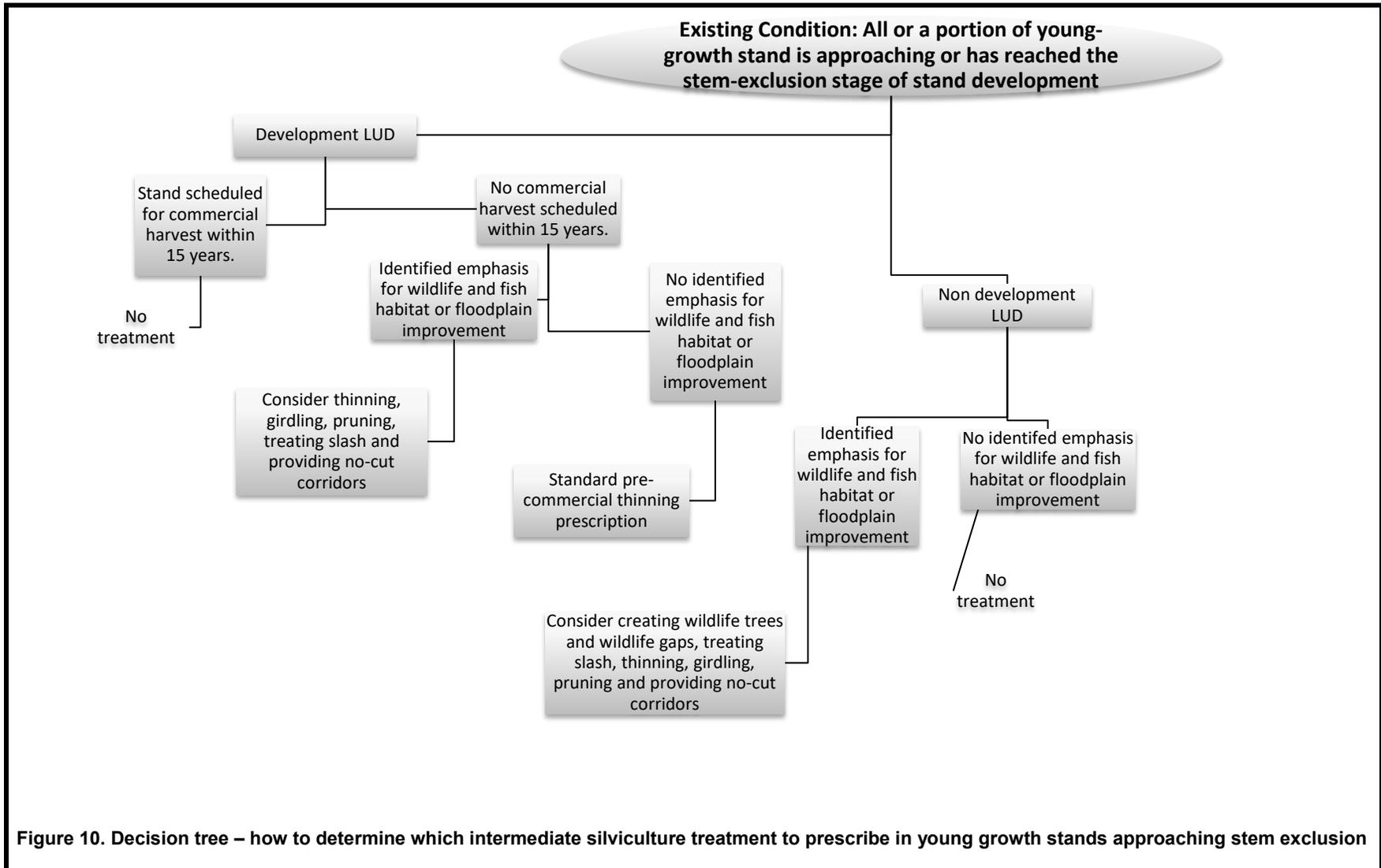


Figure 10. Decision tree – how to determine which intermediate silviculture treatment to prescribe in young growth stands approaching stem exclusion

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Implementation Methods

Pre-commercial thinning - Includes thinning from below, mechanical thinning, crown thinning, free thinning, variable density thinning, traditional girdling or slab girdling.

Riparian thinning - Remove trees from the lower crown classes to favor those in the upper crown classes (thinning from below); thinning includes single tree selection, group selection and variable density thinning.

Pruning - Remove limbs on the lower bole, up to 17 feet from the ground, on a portion of trees in a young-growth stand.

Slash treatment - Limb and buck the largest diameter logs to a determined length to allow the largest wood pieces to touch the ground to aid in faster decomposition rates.

Wildlife gaps - Felling of trees to opening sizes determined from site condition and stand characteristics. Generally these openings are approximately 1/20 to 1/10 acre in size.

Wildlife corridors - Leave uncut strips of trees, clear wildlife trails and/or treat slash to facilitate wildlife movement and provide connection between habitats, especially for elevational movements from alpine to beach during deep snow accumulation.

Wildlife trees - Blast, inoculate with a fungus, girdle or inject herbicide into a tree to kill or deform it to create wildlife habitat.

Equipment Used

Pre-commercial thinning – Hand crews with chainsaws

Riparian thinning - Hand crews with chainsaws and mechanical equipment

Girdling and pruning - Chainsaws or other specialized hand tools

Wildlife gaps and corridors - Hand crews with chainsaws, tracked shovel, helicopter, and cable yarding systems

Wildlife trees - Chainsaw, explosives and native fungal inoculants

Treatment Assumptions

Pre-commercial treatment prescriptions would be developed using variable spacing techniques, desirable tree characteristics, and species preferences. A combination of treatments would be used to achieve activity objectives. By treating young-growth stands before the stem exclusion stage begins, understory vegetation persists and the trees respond quickly.

The pre-commercial thinning window is considered 15-30 years old, with stands less than 15 not old enough to express the best genotypic and phenotypic trees and stands greater than 30 having the potential for large slash loading.

Integration Opportunities

A combination of treatments will be used to achieve activity objectives. Individual stand objectives may include timber, riparian, and/or wildlife emphases, pre-commercial thinning.

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Riparian thinning may be integrated with Stream and Floodplain Restoration activities (Activity 01). Integration may also include harvesting rootwad trees for instream restoration.

Commercial timber or personal use wood resulting from this activity should be made available for sale or for use, if it is feasible and consistent with Forest Plan direction.

Resource-specific Design Features for Silvicultural Intermediate Treatments

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Develop thinning prescriptions in consultation with aquatics personnel on fish-bearing Floodplain (FP), Alluvial Fan (AF), Moderate Gradient-Mixed Containment (MM) and Glacial Outwash (GO) channels to maximize potential benefits to the riparian management area on these streams.

Botany

1. With all thinning or other slash creating activities, woody material should be bucked small enough to allow the largest wood pieces to touch the ground to aid in faster wood fungi colonialization and decomposition rates. This recommendation is multi-purpose – to create wildlife travel ways, as well as conditions that allow more light to reach the forest floor, which encourages vascular plant growth (Forest Monitoring Plan Biodiversity #5).

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
2. Any needed treatments for existing infestations should begin prior to ground disturbance.
3. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22, and TRAN2.I.D p. 4-76).
4. Follow Weed BMPs Roads 7-13; Forest Management 17-18; Soils and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Recreation

1. If the activity is in the vicinity of known recreation areas, initiate communication plan to alert recreation users to the timing/location of the activities.
2. If the activity is in the vicinity of developed recreation facilities, determine if equipment can be mobilized for deferred maintenance needs.

Silviculture

1. A signed prescription by a Certified Silviculturist is required.
2. Pre-commercial thinning: Survey stands prior to developing a prescription to determine if the stand is a good investment. In general, productive stands in an overstocked state will be prioritized for thinning. Prioritize treatments on lands with the highest productivity where harvest operability and access is favorable to minimize costs.

3. Develop wildlife thinning prescriptions on a site-specific basis. Consider using variable spacing techniques, selected treatments (pruning, girdling, etc.), selection criteria based on desirable characteristics or traits, and species preferences. Target residual density to promote or retain understory vegetation development, or acceleration of old-growth stand structure. Include other treatment elements (slash control, wildlife travel corridors, wildlife gaps, pruning, and girdling) when beneficial to meet wildlife objectives.

Soils/Wetlands

1. To minimize erosion and maintain soil productivity, buffer existing landslides within a thinning unit with a 50 foot buffer around the headwall to maintain root stability.
2. Prior to implementation, attain a Tongass Soil Scientist review for soil stability for all proposed areas using mechanized equipment.
3. All heavy machinery (including ground-based yarding) is required to operate on puncheon material and should not operate on slopes greater than 25 percent. Consult a Soil Scientist if ground-based activities are proposed on slopes over 35 percent gradient. Avoid creating ruts greater than 12 inches and operating in non-forested areas. Scatter the puncheon trail upon completion. Slopes over 25 percent gradient may not be suitable for shovel yarding under some soil moisture conditions.
4. Dense slash and woody debris accumulations are not permitted.
5. Avoid locating temporary roads on slopes greater than 67 percent.
6. Minimize soil disturbance. Adhere to Alaska Region Soil Quality Standards.
7. A Tongass soil scientist will need to evaluate the stand for existing detrimental soil conditions.
8. An on-site slope stability review may be required by a Tongass soil scientist upon implementation to determine landslide and erosion potential.
9. To minimize additional wetland or soil disturbance, try to utilize existing temp roads, heavy machinery trails, landings, and yarding corridors where possible.
10. A minimum of partial suspension is required for yarding operations. Adhere to Alaska Region Soil Quality Standards.
11. Apply Alaska Region BMPs 12.5, 12.17, 13.2, 13.5, 13.9, 13.10, 14.2, 14.5, 14.7, and 14.8. Apply National Core BMPs Plan-2, AqEco-2, AqEco-4, Fire-2, Road-2, Road-3, Road-5, Road-6, Road-9, Road-10, Veg-2, Veg-4, Veg-6, and Veg-8.

Transportation

1. Access to thinning units is generally available on existing open roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Identify road access needs and follow applicable travel regulations, and approve temporary use of closed roads by OHVs on a case-by-case basis. Use form FS-7700-0040 or obtain a letter of permission for use of the closed road.

Wilderness

1. This activity is prohibited within designated Wilderness areas.

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2. The wilderness manager should be consulted if treatment areas are directly adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character, such as the implementation of timing restrictions, will be considered.

Wildlife

1. Apply wildlife design features as determined through the wildlife specialist review in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.
2. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Selective thinning and other silviculture management practices designed to conserve or enhance habitat, including burning slash close to the nest tree, should be undertaken outside the breeding season. Prevent scorching or burning the nest tree.
3. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Avoid chain saw operations within 660 feet of a nest during the breeding season. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.
4. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.
5. The following treatments from the Interagency Wolf Habitat Management Program: Recommendations for Game Management Unit 2 for deer habitat (R10-MB-822). These recommendations correspond to 2016 Forest Plan direction.
 - a. Young-aged Young Growth (16 to 25 years) in All Areas:
 - ◆ Aim to treat all young-aged young growth, prioritizing as needed based on factors such as stand readiness, slash impacts, deer winter range, and landscapes dominated by untreated young growth or devoid of understory forage (Forest Plan WILD2).
 - ◆ Emphasize multiple smaller treatments spread across even-age landscapes and staggered in time, to provide a variety of stand and patch ages (Forest Plan WILD2, I2b).
 - ◆ Incorporate leave strips that provide elevational movement corridors for deer (Forest Plan WILD1, VI.A; DC-YG-WILD-02).
 - ◆ Maintain or enhance connectivity between higher and lower elevations, aiming to connect the full elevational span of alpine to beach habitat (Forest Plan DC-YG-BEACH-01).
 - ◆ Evaluate current and historic migration and movement routes and identify terrain features and habitat connectivity, possibly with interagency involvement, that are most likely to allow elevational movements by deer during severe winters, and prioritize leave strips in these areas. In absence of more definitive information, establish leave strips at about 400-foot spacing (Forest Plan WILD1.IA; WILD1.VI A2; WILD2.IB).
 - ◆ Consider a variety of treatment combinations including variable-spaced thinning, girdling, pruning, small-gap creation, and slash treatments, with the goal of creating

deer forage and movement corridors in close proximity, increasing heterogeneity of habitat to address needs of deer across young-growth landscapes, and avoiding the creation of a secondary conifer- recruitment flush (Forest Plan WILD2.IA2).

- ◆ Favor yellow-cedar and redcedar for retention over hemlock and spruce that have no winter forage value for deer. Retain, and consider planting, red alder to allow longer retention of understory forage (Forest Plan TIM2.IC; TIM6.IA; SCENE3.IC).
- b. Older Non-Commercial Young Growth (26 to 60 years) in All Areas:
- ◆ To avoid effects of heavy slash accumulations on deer mobility, generally avoid treating older young growth non-commercial stands except where older young-growth forests are exhibiting stem exclusion across large portions of the landscape. In these areas, consider thinning, creating small gaps, pruning, girdling, and a combination of these treatments to provide forage for deer on a sustainable basis through time and elevational movement corridors across the landscape (Forest Plan WILD2.IA2c; WILD2.IA3b).
 - ◆ Thinning treatments should favor dominant trees to maintain snow interception capacity of the overstory, and incorporate unthinned travel corridors to facilitate elevational movements by deer (Forest Plan TIM2.IC; WILD1.VIA2).
 - ◆ For gap treatments, encourage understory recruitment and growth by considering a) pruning along the edges of gaps to maximize side-lighting into adjacent forest, b) siting gaps on remnant understory vegetation, c) mixing (mulching or tilling) the duff and topsoil layers to stimulate microbial activity and help release nutrients, d) planting target understory forage plants, and e) designing gap sizes to about 70 feet diameter, with slight variation from this depending on tree sizes, to avoid creating a secondary recruitment flush of conifers that would shade out understory forage and to help the openings function as gaps (Forest Plan WILD2.IA3b; DC-YG-02).
 - ◆ Older stands thinned or gapped non-commercially should include treatments to reduce or abate effects of slash on deer mobility. Slash treatment options could include bucking, chipping, burning, trail cutting, windrowing, smashing with heavy equipment, moving/piling (for example, out of gaps), and looking for ways to use the logs elsewhere (Forest Plan WILD2.IA3b).

Wild, Scenic and Recreational Rivers

1. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Timber harvest will not occur in wild river corridors but may occur in scenic or recreational rivers.
3. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

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Access Management

Access management activities include new National Forest System (NFS) road construction and reconstruction, and temporary road construction. Access management also includes aquatic organism passage and marine facility construction, reconstruction, and maintenance of marine access facilities, such as log transfer facilities, docks, mooring buoys, boat ramps and boat launches.

Except for a few administrative sites and campgrounds, most existing NFS roads within the project area are single lane, constructed with blasted quarry rock, and designed for off-highway vehicles. Typical roads built for forest management are 14 feet wide with a rough rock surface. Existing arterial or collector roads built to provide primary access to NFS lands for passenger cars and commercial haulers are normally 16 feet wide and may have a smooth crushed-rock surface.

NFS roads are constructed to provide access to NFS lands and are included in the Forest Development Transportation Plan (see Transportation Standards and Guidelines in Chapter 4 of the 2016 Forest Plan). Temporary roads are authorized by contract, permit, lease, or emergency operation. They are not necessary for long-term resource management and therefore are not intended to be part of the Forest transportation system. These roads are decommissioned after their use.

The objectives of managing the Forest transportation system and motor vehicle use on NFS roads, on NFS trails, and in areas on NFS lands are:

1. To provide access in a fiscally responsible manner to NFS lands for administration, protection, use, and enjoyment of NFS lands and resources consistent with the Forest Plan.
2. To manage the Forest transportation system, including motor vehicle use and Over Snow Vehicles (OSV) use on NFS roads and NFS trails and in areas on NFS lands, within the environmental capabilities of the land.
3. To provide a range of recreation opportunities on NFS lands and to minimize conflicts among uses of NFS lands.
4. To manage the Forest transportation system to address user safety and convenience and efficiency of operations in an environmentally responsible manner and, where needed, to restore ecosystems along NFS roads and NFS trails designated for motor vehicle use or OSV use under 36 CFR Part 212, Subpart B or C, within the limits of current and anticipated funding levels.
5. To coordinate travel planning and analysis on NFS lands with federal, state, borough, and other local governmental entities and tribal governments and to allow the public to participate in the designation of NFS roads, NFS trails, and areas on NFS lands for motor vehicle use or OSV use.
6. To designate those NFS roads, NFS trails, and areas on NFS lands that are open to motor vehicle use or OSV use.
7. To make appropriate use of transit and intermodal transportation systems when they best meet the need for transportation to NFS destinations in a sustainable and environmentally acceptable manner.

A Motor Vehicle Use Map (MVUM) displays designated NFS open roads for public use, although seasonal or emergency closures can occur for safety, wildlife protection, or other reasons. Additional information on Maintenance Levels and Travel Management Strategies is described in *Appendix B - Travel Analysis*.

Construction drawings and specifications provide the administration framework of road construction, reconstruction, and maintenance.

Quarry Development

Quarry development provides a rock source for construction and maintenance of roads and facilities requiring rock to stabilize and provide a solid base for construction. Generally rock quarry development occurs for every 1 to 2 miles of road constructed (source GIS) and on average encompass about ½ acre per mile of road.

Quarries in the project area occur adjacent to roads and provides a source of rock for a period of years. Where possible, quarries are sized to support future maintenance and construction activities. When rock sources are developed within an economical zone around private land or communities, extra rock can be maintained for issuance under non-commercial mineral material permits. Follow Forest Plan Standards and Guidelines and Chapter 4 –TRAN IV (USDA Forest Service 2016a). Quarry and Borrow Sites and cite Alaska Region BMPs: 12.17, 14.18. National BMPs: Min-5.

Road Maintenance

The Forest Plan outlines LUD goals, objectives, and desired conditions related to road management. Forest Plan Standards and Guidelines and Forest Plan Chapter 4 –TRANS6 provides guidance on Maintenance Levels, Conditions, and Inspections. Maintenance Level defines the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria. Additional information on road management is described in *Appendix B - Travel Analysis*.

Road maintenance includes the repair or upkeep of a road necessary to perpetuate the road and provide for its safe use. Roads and drainage systems normally deteriorate because of traffic, weather, and age. Road maintenance of existing NFS roads is an ongoing process that occurs on a periodic basis, annual or cyclic depending on need. Road maintenance is not intended to substantially improve conditions above those originally constructed. Opening a stored road is normally considered maintenance. Maintenance of existing NFS roads is an ongoing process that occurs on a periodic basis.

Emergency repairs may be required due to storms or other catastrophic events such as flooding or landslides. Custodial maintenance can be performed on closed roads to prevent damage to adjacent resources and to perpetuate the road for future resource management needs.

Periodic inventory and assessment of road conditions are used to determine maintenance needs. Maintenance needs may include surface rock replacement, culvert repair and replacement, bridge replacement, slide removal, reestablishing ditches, shoulders and roadbeds, removal of vegetation from the road surface and roadside brushing, and other items that contribute to the preservation of the existing road.

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These tasks are performed to keep the roads in the safe and useful condition for which they were designed. Control of road use and operations and appropriate maintenance can protect road investment and soil, water quality, and riparian resources.

Road Closure

Roads identified as needed for the use and management of NFS lands within the project area can be placed in closure, roads are physically blocked or disguised by not brushing the road, between intermittent uses for periods exceeding 1 year where designated. Closing a road can include some or all of the following methods and vary by road: removal of drainage structures and bridges, including demolition with explosives, construction of water bars, rolling dips, and other necessary measures to protect resources. This is typically a long-term condition. In addition, roads may also be administratively closed if they are not placed on the MVUM. This type of closure could prohibit motor vehicle traffic seasonally or year-round. The decision to close a road is based on future needs including consideration for: travel safety, recreation, subsistence, forest management, resource concerns, and available road maintenance funding.

A road placed in closure is reduced to the lowest road management level or Maintenance Level (ML) 1 status. Planned road deterioration may occur at this level. See *Appendix B - Travel Analysis* for more information on Maintenance Level. The Central Tongass Travel Analysis displays the road-specific information recommendations for closure of proposed routes and where recommendations for revising current road management could occur. Road Management Objectives guide all existing roads in the project area (see PRD and WRD Access Travel Management Plans for more information on road designations and road closure treatments).

While closed, perform basic custodial maintenance to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level.

Road closures (maintained at level 1) are closed to vehicular traffic but may be available and suitable for non-motorized uses and motorized uses when designated as a NFS Trail (motorized trail). See *Appendix B - Travel Analysis* for road-specific information recommending use of OHVs less than 50 inches in width on closed roads. See the Transportation section in *Activity Guide 05 - Trails* for criteria.

Combining road closure activities within a small geographic area with other work requiring the use of road construction equipment provides cost savings in mobilization and implementation.

Road Decommissioning

Road decommissioning occurs on unauthorized roads and temporary roads, and any NFS roads no longer needed for the use and management of NFS lands. Roads identified for decommissioning may be converted to motorized trails (OHVs less than 50 inches wide) or non-motorized trails where appropriate.

Reference *Appendix B - Travel Analysis* for road-specific information to convert planned decommissioned road to motorized trail. All constructed temporary road is decommissioned after their period of use. Decommissioning of NFS road within the project area is ongoing and occurs as part of past decisions where designated on existing NFS roads. See *Appendix B - Travel Analysis* for miles of existing road designated for decommissioning.

On existing NFS roads where decommissioning is the current designation, road decommissioning includes a variety of treatments to block the road, revegetate the road surface, restore surface drainage, remove crossing structures and fills, mitigate road surface compaction, re-establish drainage ways, remove unstable road embankments, and re-contour the surface to restore natural slopes. One or more treatments are applied to decommission the road depending on resource objectives and cost. Road fill may be removed from streams, floodplains, and wetlands to restore natural flow patterns and ecological function.

Combining decommissioning activities within a small geographic area with other work requiring the use of road construction equipment provides cost savings in mobilization and implementation.

Appendix A

Activity 09: NFS Road Construction and Reconstruction

Activity Description

New National Forest System (NFS) roads are additions to the existing Forest transportation system. NFS roads provide long-term and future access onto NFS lands previously not accessible by motorized vehicles for a range of public and administrative activities including but not limited to: resource management, recreation access, subsistence food gathering, firewood and other forest products, and traditional and cultural uses. Although these roads are mostly open for public and administrative use, some seasonal closures may occur.

NFS roads are considered permanent and maintained as such, although some may be placed in a closed condition between intermittent use that does not allow motorized traffic. See the *Recreation* section and follow criteria for closure of roads for suitability as a Motorized Trail where identified in the Central Tongass Travel Analysis (Appendix B).

Reconstruction improves a road above its originally constructed level of service. This action rebuilds a road to expand the capacity or otherwise upgrade it to serve different traffic needs from those originally intended.

The design features of a NFS road and the management criteria to construct or reconstruct a road is determined through the Central Tongass travel analysis (Appendix B) and based on anticipated use prior to implementation. A Motor Vehicle Use Map (MVUM) displays designated NFS open roads for public use, although seasonal or emergency closures can occur for safety, wildlife protection, or other reasons.

When would we implement this activity?

See Appendix B – Travel Analysis for road-specific information on where NFS road construction and reconstruction may occur. NFS road construction occurs when vehicular access is needed for long-term and future management and access of NFS lands generally for timber harvest (Figure 11). Constructed NFS roads can be closed between use cycles. See Appendix B - Travel Analysis for recommended route-by-route closure of proposed roads.

Proposed roads not needed for long-term management, are constructed as a temporary road. More information on temporary road is found in the Activity 11 guide.

Road reconstruction occurs when a road is upgraded above that which it was originally constructed reflective of a number of factors, such as speed, travel time, traffic interruptions, freedom to maneuver, safety, driver comfort, convenience, and operating cost. Conditions triggering NFS road reconstruction include proposals to change the vehicle class, and road standards for example, from a road designed for log truck traffic with lower travel speed, to a road designed for passenger vehicles by a prudent driver. Proposals for road reconstruction occurs on mainline roads to improve travel safety. Updates to the MVUM provide type of vehicle allowed (Figure 11).

Implementation Methods

Typically an excavator is used to construct a road by clearing stumps, rock, and other material to establish a pioneer road following a planned route. An overlay of blasted quarry rock is spread with a bulldozer. New quarries are developed as needed along construction routes and rock hauled in dump trucks to the construction site. A new quarry site is stripped of vegetation and overburden to expose rock. Rock drills produce holes to pack with explosives and detonate to

produce useable material. In existing quarries, material can be developed without blasting by “ripping” exposed rock with an excavator where site conditions allow. Ditches, culverts and bridges are installed for drainage and stream crossing requirements.

The method of road reconstruction is highly variable and dependent on existing road conditions. Road widening may be appropriate to improve operating efficiency and improve safety. Road reconstruction requires crushed rock developed from quarries and hauled in dump trucks to the reconstruction site. Reconstruction work may also entail clearing vegetation from the roadway, removing berms and other vehicular blockages, installing/reinstalling drainage structures (ditches, culverts and bridges).

Equipment Used

Heavy equipment (excavators, loaders, bull dozers, rock drills, dump trucks, graders, and rock crushers) and chainsaw. Support vehicles for equipment maintenance and refueling.

Integration Opportunities

Integration with other activities in the vicinity requiring heavy machinery will offset the cost of mobilization. Rock quarries developed for road construction or reconstruction provides material for road, trail and facility maintenance and construction projects, and personal use.

Resource-specific Design Features for NFS Road Construction and Reconstruction

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Consider existing and proposed road network at the HUC 7 scale to evaluate potential peak flow rate increases resulting from cumulative harvest and road level (See Activity 06 and 07).
2. Where risk assessment results in moderate-to-high risk of fish habitat degradation resulting from peak flows, modify harvest and road characteristics (See Activity 06 and 07), using professional judgement, as described in the EIS, to ensure no adverse effects occur to aquatic resources.
3. Identify Class I, II or III stream crossing locations, describe channel dimensions and stability, structure type and size, fish passage requirements and instream construction timing restrictions.
4. Identify crossings considered high risk and describe design features for minimizing risk. Note when circumstances require the development of a stream course protection plan (within TTRA buffer) consistent with timber sale contract provision - C5.51 STREAM COURSE PROTECTION (National Core BMPs Road-2, Road-7).
5. Design stream crossings for proper drainage to avoid increases in sediment delivery to streams. Provide for adequate passage of water, bedload and wood debris by sizing culverts according to field-based flow indicators such as active channel bed dimensions and bankfull elevation (Alaska Region BMP 14.17; National Core BMPs Road-2, Road-7).
6. Fuel, maintain, and store equipment away from waterbodies in locations pre-approved by Forest Service personnel (Alaska Region BMPs 12.8, 12.9; National Core BMPs Road-10, AqEco-2).

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7. Develop Spill Prevention and Countermeasures (SPCC), spill response plans, erosion control plans, and emergency response plans according to project size and need (Alaska Region BMPs 12.9, 14.5).
8. Heavy equipment intended for use within an active stream channel must be power-washed prior to mobilization onto NFS land. Remove soil, mud, and debris from the excavator undercarriage and tracks prior to each new stream entry into active streams (Alaska Region BMP 14.14).
9. Plan work during periods of low flow, and temporarily suspend work should stream flow increase substantially during operations (Alaska Region BMPs 14.6, 14.14).
10. Include any mitigation critical to success of post-sale road storage or decommissioning.
11. Apply other BMPs as needed.

Botany

1. Follow National Core BMP Roads-2.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
2. Coordinate with District botanist/ecologist to ensure that treatments are occurring prior to road maintenance or reconstruction, as well as to adjust brushing schedules to prevent spreading seed when possible.
3. Follow Tongass National Forest Revegetation Guidelines where needed, using native seed when possible.
4. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22, and TRAN2.I.D p. 4-76)
5. Follow Weed BMPs Roads 7-14; Forest Management 17-18; Soils and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Recreation

1. If the project is in the vicinity of a known recreation area, initiate a communication plan to alert recreation users of the timing/location of the activities.
2. If the project is in the vicinity of developed recreation facilities, determine if mobilized equipment can be used in deferred maintenance needs.
3. If the activity area has infrequent or unestablished recreation use, determine if opportunities exist to enhance or establish recreation use by referring to the recreation management decision tree (Figure 5).

Soils/Wetlands

1. Avoid locating roads on wetlands to the extent practicable. Use overlay construction where possible and install extra cross drains to avoid altering surface and subsurface flow.
2. Avoid locating roads on slopes greater than 67 percent and on glacial till soil greater than 55 percent in order to minimize mass failures. Proposed roads located on slopes over 55

percent need a Tongass Soil Scientist review for stability and risks to downstream resources.

3. Blasting operations should be designed to reduce the risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. New rock quarry developments should avoid wetlands. To minimize soil erosion, clear off any overburden on the cut face of the quarry pit.
4. All areas of mineral soil exposed during construction activities shall be grass seeded and fertilized. Implement erosion control measures in accordance with contract specifications and applicable BMPs. Minimize soil disturbance.
5. Adhere to Alaska Region Soil Quality Standards.
6. Apply Alaska Region BMPs 12.5, 12.8, 12.10, 12.17, 13.9, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, 14.18, 14.20, 14.22, and 14.25. Apply National Core BMPs AqEco-2, Fac-1, Fac-2, Fac-8, Min-5, Min-6, Road-1, Road-2, Road-3, Road-4, Road-5, Road-7, Road-10, Veg-2, Veg-3, and Veg-4.

Transportation

1. Specific road construction and reconstruction activities are implemented through contract specifications and guidance of Best Management Practices (BMPs). Standard construction specifications and Forest Service special project contract specifications for each individual project are used for construction activities. Construction drawings are developed as needed for specific work items.
2. Review Central Tongass travel analysis for proposed road specific information designating the class of vehicles and, if appropriate, time of year for allowable use and show on MVUM if open to the public.
3. Road maintenance is required to keep roads at required working levels throughout the use period. NFS roads may be stored during periods when access is not needed.
4. Alaska Region BMPs: 12.17, 13.11, 14.2, 14.3, 14.5, 14.6, 14.7, 14.8, 14.9, 14.10, 14.12, 14.17, 14.18, 14.19, 14.20 and 14.24.

Wilderness

1. This activity is prohibited within designated Wilderness areas.
2. Consult with the wilderness manager if road reconstruction is adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wildlife

1. Apply wildlife design features, as determined through the wildlife specialist review in adherence with Forest Plan direction and other official guidance, direction, law, regulation, and policy.
2. All LTF/MAF construction or reconstruction shall be consistent with the *Marine Mammal Protection Act* and NMFS mitigation measures (see *Design Features Common to All Activities*).

Wild, Scenic and Recreational Rivers

1. No roads are allowed or will be reconstructed in wild river corridors.

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2. For scenic river corridors, reconstructed roads should not be evident to a traveler on the river, except for short segments or at occasional bridge crossings.
3. In recreational river corridors, reconstructed roads may parallel the river bank and be conspicuous when viewed from the river.
4. For both scenic and recreational rivers, ensure reconstructed roads located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
5. For reconstructed roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs.
6. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV.
7. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
8. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Activity 10: Temporary Road Construction

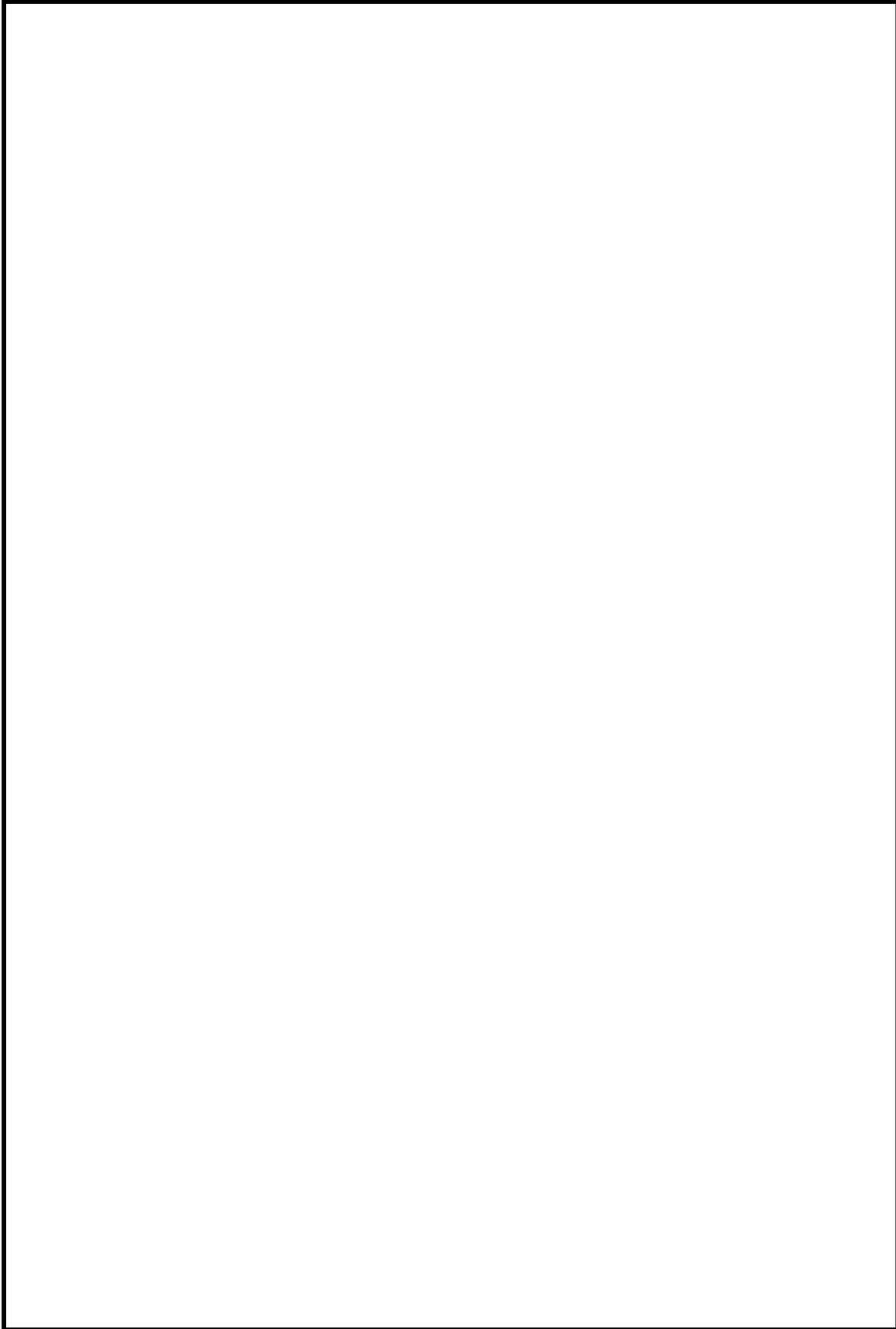
Activity Description

Temporary roads are not intended to be part of the National Forest transportation system and are not necessary for long-term resource management. They are not included in a Forest transportation atlas. Temporary roads are authorized by contract, permit, lease, or other written authorization. These roads are decommissioned after their designated use period is over.

When would we implement this activity?

These roads are intended to provide short-term access for activities within National Forest System (NFS) lands.

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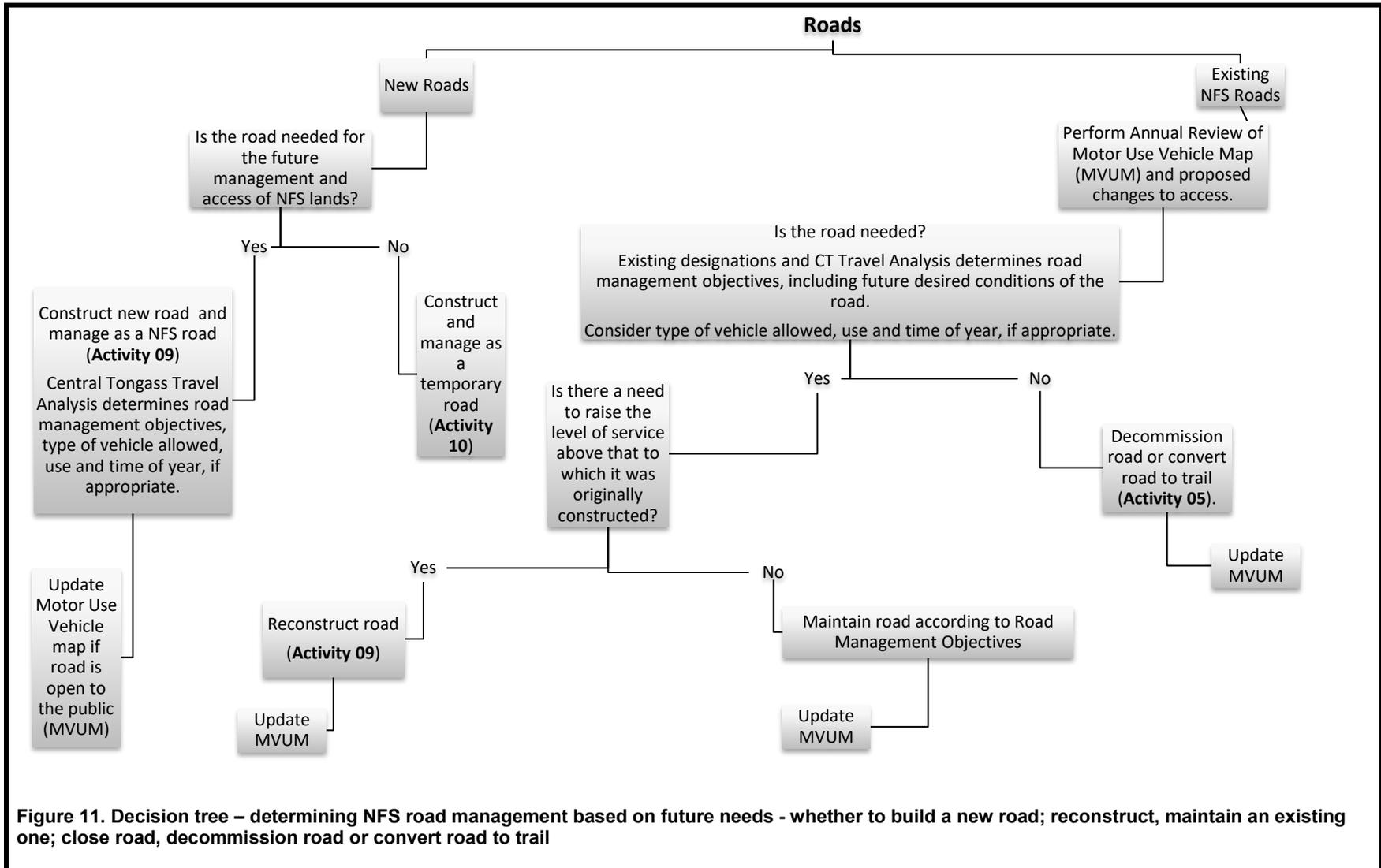


Figure 11. Decision tree – determining NFS road management based on future needs - whether to build a new road; reconstruct, maintain an existing one; close road, decommission road or convert road to trail

Appendix A

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Implementation Methods

Typically an excavator is used to clear stumps, rock, and other material to establish a pioneer road following a planned route. Rock is developed from quarries and hauled in dump trucks to the construction site where it is spread with a bulldozer. Ditches, culverts and bridges are installed for drainage and stream crossing requirements.

At the end of their use, decommission. Road decommissioning includes a variety of treatments to block the road, revegetate the road surface, restore surface drainage, remove crossing structures and fills, mitigate road surface compaction, re-establish drainage ways, remove unstable road embankments, and re-contour the surface to restore natural slopes. One or more treatments are applied to decommission the road depending on resource objectives and cost. Road fill may be removed from streams, floodplains, and wetlands to restore natural flow patterns and ecological function.

Equipment Used

Heavy equipment (excavators, loaders, bull dozers, rock drills, dump trucks, graders, and rock crushers) and chainsaw. Support vehicles for maintenance and refueling.

Integration Opportunities

Prior to decommissioning, temporary road access can provide opportunities for firewood gathering for a period of 3 to 5 years, and to access restoration activities where it is feasible to do so. Integration with activities requiring heavy machinery in the vicinity will reduce mobilization costs.

Resource-specific Design Features for Temporary Road Construction

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Follow design features for NFS Road Construction.
2. Design and maintain temporary roads for proper drainage to avoid increases in sediment delivery to streams. Provide for adequate passage of water, bedload and wood debris by sizing culverts to accommodate bankfull flows. Return stream bed and bank dimensions to natural conditions when crossings are removed (Alaska Region BMPs 12.17, 14.1, 14.24; National Core BMP Road-5).
3. Prior to demobilization of heavy equipment on the road system, consider resource or safety risks related to delayed temporary road decommissioning or NFS road storage. Include any mitigation efforts critical to the success of temporary road decommissioning

Botany

1. Follow National Core BMP Roads-2.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).

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2. Coordinate with District botanist/ecologist to ensure that treatments are occurring prior to road maintenance or reconstruction, as well as to adjust brushing schedules to prevent spreading seed when possible.
3. Follow Tongass National Forest Revegetation Guidelines where needed, using native seed when possible (Krosse et al. 2018).
4. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22, TRAN2.I.D p. 4-76)
5. Follow Weed BMPs Roads 7-14; Forest Management 17-18; Soils and Watershed 22.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Recreation

1. If the project is in the vicinity of any known recreation areas, initiate communication plan to alert recreation users of the timing/location of the activities.
2. If the project is in the vicinity of developed recreation facilities, determine if mobilized equipment can be used to address deferred maintenance needs.

Soils/Wetlands

1. Avoid locating roads on wetlands to the extent practicable. Use overlay construction where possible and install extra cross drains to avoid altering subsurface flow.
2. Avoid locating roads on slopes greater than 67 percent and on glacial till soil greater than 55 percent in order to minimize mass failures. Obtain a Tongass Soil Scientist review on slope stability and risks to downstream resources for proposed roads located on slopes over 55 percent.
3. Blasting operations should be designed to reduce the risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. New rock quarry developments should avoid wetlands. To minimize soil erosion, clear off any overburden on the cut face of the quarry pit.
4. All areas of exposed mineral soil from construction should be grass seeded with a Tongass approved mix.
5. Adhere to Alaska Region Soil Quality Standards.
6. Apply Alaska Region BMPs 12.5, 12.8, 12.10, 12.17, 13.9, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, 14.18, 14.20, 14.22, and 14.25. Apply National Core BMPs AqEco-2, Fac-1, Fac-2, Fac-8, Min-5, Min-6, Road-1, Road-2, Road-3, Road-4, Road-5, Road-7, Road-10, Veg-2, Veg-3, and Veg-4.

Wilderness

1. This activity is typically prohibited within designated Wilderness areas. No temporary road construction is authorized to take place within designated Wilderness areas with this project.

2. Consult wilderness manager if temporary road construction is adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wildlife

1. Apply wildlife design features, as determined through the wildlife specialist review in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.

Wild, Scenic and Recreational Rivers

1. No roads are allowed in wild river corridors.
2. For scenic river corridors, design and locate roads such that, except for short segments or at occasional bridge crossings, they are not evident to a traveler on the river.
3. In recreational river corridors, roads may parallel the river bank and be conspicuous when viewed from the river.
4. For both scenic and recreational rivers, ensure roads located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
5. For roads outside all wild, scenic, and recreational rivers, ensure the maintenance of ORVs.
6. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
7. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

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Activity 11: Aquatic Organism Passage

Activity Description

Aquatic organism passage (AOP) activities may include the installation of new bridges, culverts, or other stream crossings, as needed when building roads or trails, to minimize adverse impacts on water quality, stream courses and fisheries resources (Soil and Water Conservation Handbook, BMP 14.17). Aquatic organism passage activities also include replacing, removing, or improving stream crossing structures, where fish passage is inhibited.

The goal of this activity is to maintain the natural stream form and processes from the inlet, through the crossing, and into the downstream channel.

When would we implement this activity?

Aquatic organism passage activities occur:

1. If existing culverts on existing National Forest system roads and trails inhibit the passage of aquatic organisms (culverts often referred to as “red crossings”), and if the culvert is a priority based on biological and habitat surveys and assessments (Tongass National Forest Upstream Fish Habitat Assessment Protocol, Section IV, p. 1).
2. Where aquatic organism migration or movement is present and a stream crossing cannot be avoided during new road or trail construction or reconstruction activities.

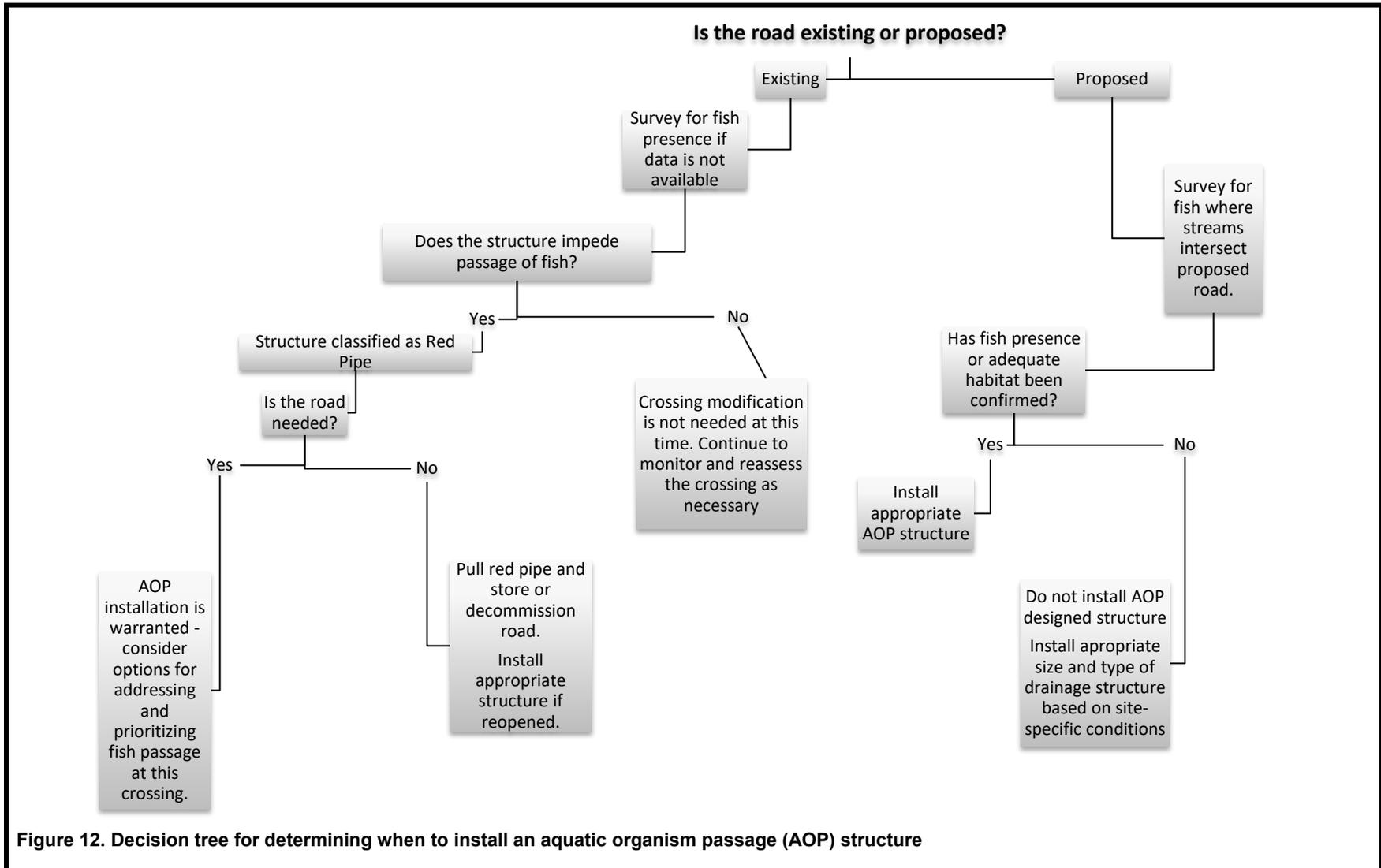


Figure 12. Decision tree for determining when to install an aquatic organism passage (AOP) structure

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Implementation Methods

Install appropriate structures based on site conditions and road management designations. Permanent or temporary structures (bridges, open-bottom culverts, and stream-simulated culverts) are designed and installed to applicable BMPs and design standards for new construction activities and when replacing existing structures. On roads where OHVs less than 50 inches wide is an allowed use, pulling red pipes and installing a low water ford may be an appropriate method. On roads where no vehicle use is allowed or the road has been decommissioned, blasting may be an appropriate method to restore AOP passage. Reinstall appropriate AOP structure when reopening.

Equipment Used

Heavy equipment, explosives and/or hand tools are equipment options for installing, replacing or removing structures to ensure drainage features are functional and allow fish passage.

Integration Opportunities

Integration with activities requiring heavy machinery in the vicinity will reduce mobilization costs. AOP improvements are often integrated into a watershed restoration action plan, which combines activities such as stream and floodplain restoration, riparian thinning, wildlife habitat improvements, invasive weed treatments, and road storage, road decommissioning and other road-related activities with the goal of watershed improvement.

Resource-specific Design Features for Aquatic Organism Passage Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Follow design features for NFS Road Construction.
2. Remove aquatic organisms from the construction area before dewatering. Use suitable measures to divert or partition channelized flow around the site, or to dewater the site to the extent practicable (National Core BMP AqEco-2).

Botany

1. Follow National Core BMP Roads-2.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
2. Follow Tongass National Forest Revegetation Guidelines where needed, using native seed when possible (Krosse et al. 2018).
3. National Core BMPs Road-7 and Rec-2 speak to minimizing disturbance.
4. Weed BMPs, Roads 7-13 and Recreation, Wilderness, and Roadless Areas 14 provide further direction on minimizing the potential for introduction and spread as well as for restoration.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

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Recreation

1. If the project is in the vicinity of known recreation areas, initiate communication plan to alert recreation users of the timing/location of the activities.
2. If the project is in the vicinity of developed recreation facilities, determine if mobilization of necessary equipment can be used to address deferred maintenance needs.

Soils/Wetlands

1. Avoid using heavy machinery in non-forested wetland areas to prevent rutting. Slopes over 25 percent gradient may not be suitable for heavy machinery under some soil moisture conditions. Heavy equipment requires the use of puncheon or a slash mattress on some sites to provide adequate bearing strength and prevent rutting. In some instances, scatter the puncheon trail upon completion. Avoid creating ruts greater than 12 inches in depth.
2. Minimize soil disturbance. Grass seed all areas of exposed mineral soil with a Tongass-approved seed mix. Adhere to Alaska Region Soil Quality Standards.
3. Design blasting operations to reduce risk of mass failure on potentially unstable or saturated soils. Blasting and/or excavating under saturated soil conditions is restricted. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances.
4. Apply Alaska Region BMPs 12.5, 12.8, 12.17, 13.9, 14.2, 14.5, 14.8, and 14.20. Apply National Core BMPs AqEco-2, Road-2, Road-3, Road-4, Road-5, Road-7, Road-10, and Veg-2.

Transportation

1. Design the appropriate crossing structure to meet the road management objectives and aquatic organism passage standards.
2. Alaska Region BMPs: 14.3, 14.9, 14.14, 14.17.
3. National BMP: Road-7.
4. See Activity 05: Trails on guidance regarding OHVs less than 50 inches wide.

Wilderness

1. This activity is not authorized to take place within designated Wilderness areas with this project.
2. Consult the wilderness manager if aquatic organism passage improvements are adjacent to designated Wilderness. Opportunities to minimize effects to wilderness character will be considered.

Wildlife

1. Wildlife design features, as determined through the wildlife specialist review will be applied in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.

Wild, Scenic and Recreational Rivers

1. Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.

2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV.
3. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
4. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Appendix A

Activity 12: Marine Access Facilities

Activity Description

Marine access facilities include water dependent facilities used by humans to transfer items from land to water or vice versa. These facilities contain a structure such as a mooring buoy, dock, log transfer facility, boat ramp, or a combination of these.

Construct, reconstruct and maintain bulkheads, ramps and log makeup areas to facilitate the movement of logs and machinery. Construct, reconstruct and maintain airplane and boat docks to facilitate the movement of people and cargo.

- New construction includes creating a new facility to facilitate loading logs to current industry standards, developing uplands for sorting, and developing collateral facilities such as dock or float.
- Reconstruction examples include improving drive down ramp and/or bulkhead for loading and unloading logs and machinery, increasing upland log storage capacity and improving stormwater drainage on LTFs, and improving floats, boat launches, mooring buoys, and docks.
- Maintenance includes working with the existing footprint, improving drainage, and brushing shot rock.

When would we implement this activity?

Maintain or reconstruct existing facilities or construct new facilities if there is a need to safely and efficiently transfer and transport people, cargo, logs or machinery or any combination of these from water to land or vice versa. Maintenance is ongoing and occurs as needed (Figure 13).

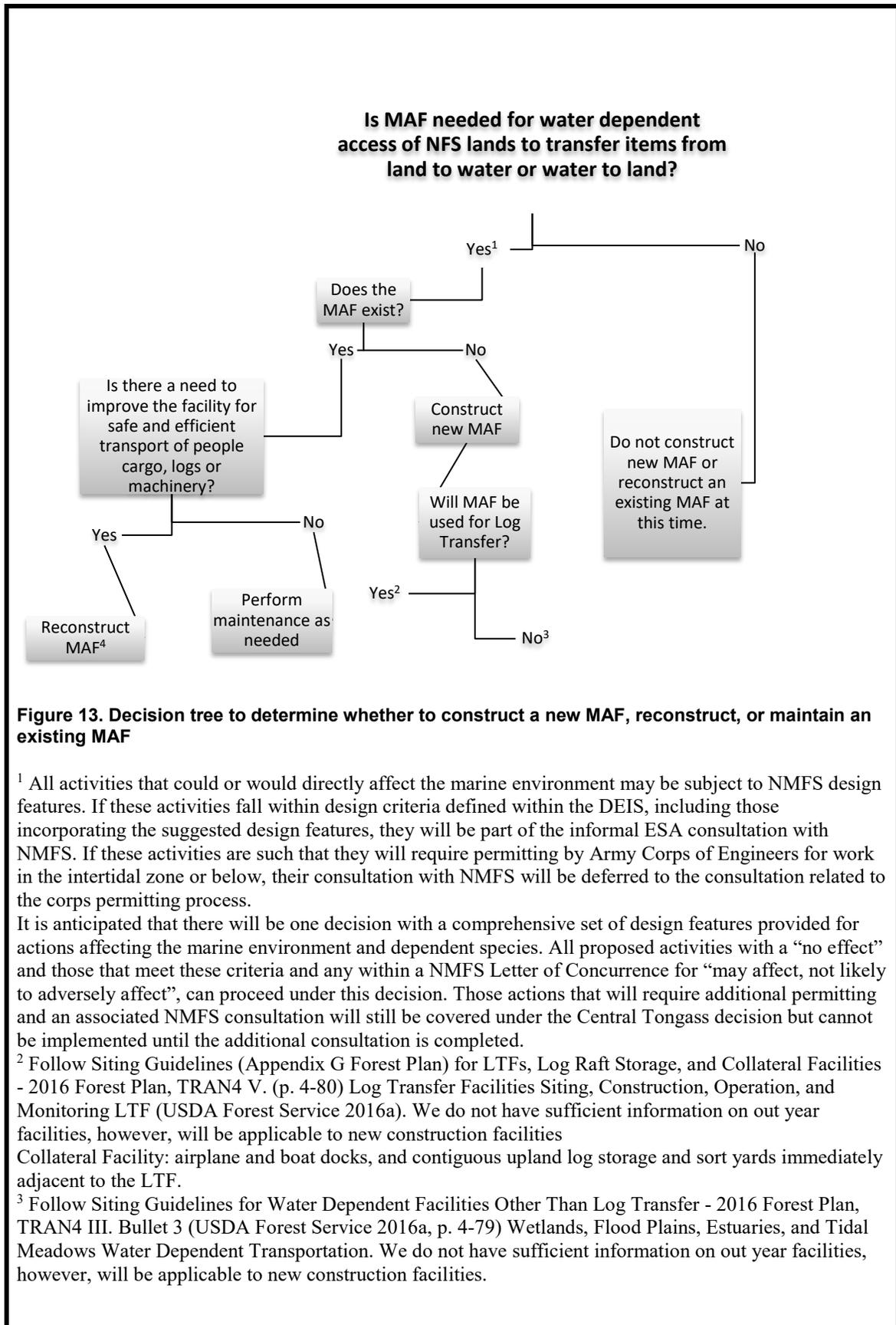


Figure 13. Decision tree to determine whether to construct a new MAF, reconstruct, or maintain an existing MAF

¹ All activities that could or would directly affect the marine environment may be subject to NMFS design features. If these activities fall within design criteria defined within the DEIS, including those incorporating the suggested design features, they will be part of the informal ESA consultation with NMFS. If these activities are such that they will require permitting by Army Corps of Engineers for work in the intertidal zone or below, their consultation with NMFS will be deferred to the consultation related to the corps permitting process.

It is anticipated that there will be one decision with a comprehensive set of design features provided for actions affecting the marine environment and dependent species. All proposed activities with a “no effect” and those that meet these criteria and any within a NMFS Letter of Concurrence for “may affect, not likely to adversely affect”, can proceed under this decision. Those actions that will require additional permitting and an associated NMFS consultation will still be covered under the Central Tongass decision but cannot be implemented until the additional consultation is completed.

² Follow Siting Guidelines (Appendix G Forest Plan) for LTFs, Log Raft Storage, and Collateral Facilities - 2016 Forest Plan, TRAN4 V. (p. 4-80) Log Transfer Facilities Siting, Construction, Operation, and Monitoring LTF (USDA Forest Service 2016a). We do not have sufficient information on out year facilities, however, will be applicable to new construction facilities
Collateral Facility: airplane and boat docks, and contiguous upland log storage and sort yards immediately adjacent to the LTF.

³ Follow Siting Guidelines for Water Dependent Facilities Other Than Log Transfer - 2016 Forest Plan, TRAN4 III. Bullet 3 (USDA Forest Service 2016a, p. 4-79) Wetlands, Flood Plains, Estuaries, and Tidal Meadows Water Dependent Transportation. We do not have sufficient information on out year facilities, however, will be applicable to new construction facilities.

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Water Dependent Transportation Facility Other than LTF: These types of facilities are generally not associated with a road system and are used for public access from saltwater and inland fresh water for recreation and subsistence use, cabins and trails. They include docks, landings, floats, mooring buoys and boat ramps.

⁴ Reconstruct MAF Facility: Examples include improving drive down ramp and/or bulkhead for loading and unloading logs and machinery, increasing upland log storage capacity and improving stormwater drainage on LTFs, and improving floats, boat launches, mooring buoys, and docks.

Implementation Methods

MAFs which include log transfer facilities:

Construction and reconstruction of bulkheads, ramps and log makeup areas facilitate the movement of logs and machinery while construction and reconstruction of airplane and boat docks facilitate the movement of people and cargo. Adjacent uplands are cleared and overlaid with blasted rock developed on site or from nearby established rock quarries for the construction or reconstruction of log transfer, log sorting and log storage areas and associated facilities.

MAFs typically not associated with a road system:

Reconstruction or construction of launching ramps, pilings, decking, rails, floats, anchors, buoys occur as needed to accommodate public use of the water and shoreline areas to access associated trailheads and shoreline cabins.

Equipment Used

Heavy equipment including rock drills, piling driver, tug boat, barge and support vehicles for equipment maintenance and refueling, small tools, fuel and/or hand tools.

Treatment Assumptions

Marine access facilities throughout the project area were identified in supporting documentation from the memorandum of understanding (MOU) between the USDA Forest Service Alaska Region and the State of Alaska through the Department of Natural Resources and Department of Transportation and Public Facilities (September 2006).

Additionally, proposed MAF site numbers were generated following Tongass Advisory Committee Final Recommendations, December 2015:

- Establish adequate docks and log transfer facilities within five logistic “working circle” areas: Hoonah, Kake, Wrangell, Klawock, and Ketchikan.
- Establish adequate land- and water-based log storage facilities within these five “working circles.”

Integration Opportunities

Use of heavy equipment is required for LTF maintenance, reconstruction, and construction. Log transfer facility sites often require tug boats and barges to transport machinery and material to perform work. Other work in the same vicinity requiring heavy equipment or material transfer will benefit from shared mobilization costs.

Use and access by the public of some LTFs and associated facilities, such as boat launches, occurs when not in use for log sorting and transfer purposes.

Integration of ramps and float facilities in the design of new MAF construction for log transfer where feasible would provide increased multiple use access point opportunities. The

incorporation of additional recreation facilities, such as a day use site, outhouse, or dispersed camping site or public use cabin may be appropriate improvements in these areas during periods of LTF inactivity.

Consider stream-related integration benefits, such as upgrading existing culverts located near the entrance/exit of the site that may not be passing fish.

Boat launches, floats and mooring buoys could be implemented in combination with trail and recreation facility maintenance, improvement and construction.

Boat launch and parking facility maintenance could be integrated with road maintenance.

Resource-specific Design Features for Marine Access Facility Activities

The design features listed below are in addition to those listed in the *Design Features Common to All Activities by Resource* section above.

Aquatics

1. Incorporate Forest Plan siting guidelines to avoid or minimize marine aquatic impacts (USDA Forest Service 2016a, p. G-2).
2. Adhere to National Marine Fisheries Service (NMFS) -consultation procedures, mitigation/conservation measures for T&E species and EFH.
3. Follow NFS road construction design features.
4. Follow stipulations in the Alaska Pollutant Discharge Elimination System (APDES) permit required for these sites, including those authorizing discharge of bark and wood debris into the coastal water (Alaska Region BMPs 12.8, 12.9).
5. Follow the pollution prevention plan within the APDES permit and monitor bark accumulation at the LTF/MAF according to permit standards (Alaska Region BMPs 14.25, 14.26, 14.27; National Core BMP AqEco-2).

Botany

1. Follow National Core BMP Roads-2.

Invasive Plants

1. Contract specifications must include invasive species preventive measures (Tongass National Forest Mechanized Equipment and Vehicle Cleaning Guidance).
2. Follow Tongass National Forest Revegetation Guidelines where needed, using native seed when possible (Krosse et al. 2018).
3. Follow Forest Plan Standards and Guidelines (USDA Forest Service 2016a, INV p. 4-22, TRAN2.I.D p. 4-76)
4. Follow Weed BMPs Roads 7-14 (heavy equipment use and access roads); Forest Management 17-18; Soils and Watershed 22; Recreation, Wilderness, Roadless Areas 14-15.

Karst

1. Determine karst vulnerability. Identify areas of high vulnerability karst, catchment areas contributing to them, and required protections.

Appendix A

Recreation

1. If the project is in the vicinity of known recreation areas, initiate communication plan to alert recreation users of the timing/location of the activities.
2. If the project is in the vicinity of developed recreation facilities, determine if mobilized equipment can be used to address deferred maintenance needs.
3. If the activity area has infrequent recreation use, determine if opportunities exist to enhance or establish recreation use by referring to the recreation management decision tree (Figure 5).

Soils/Wetlands

1. Obtain a Tongass soils scientist review of the soils and wetlands outside the existing footprint prior to implementing LTF construction, or reconstruction and maintenance. Location of LTFs should avoid wetlands to the extent practicable. If wetland avoidance is not feasible, complete a wetland delineation and inquire about a 404 permit from the U.S. Army Corps of Engineers.
2. Prior to implementation, conduct a Tongass soil scientist review of proposed docks and ramps to determine extent of proposed soil disturbance and presence of wetlands. A wetland delineation may be required.
3. Design blasting operations to reduce risk of mass failure on potentially unstable or saturated soils. Restrict blasting and/or excavating under saturated soil conditions.
4. Incorporate erosion control and stabilization measures in project plans for all human induced soil disturbances. Grass seed all areas of exposed mineral soil with a Tongass-approved seed mix. Minimize soil disturbance to the extent practicable.
5. Apply Alaska Region BMPs 12.4, 12.5, 12.8, 12.13, 12.17, 13.9, 14.4, 14.5, 14.25, 14.26, 14.27, 16.1, and 16.4. Apply National Core BMPs AcEco-2, Fac-1, Fac-2, Fac-6, Rec-2, Rec-3, Rec-8, Road-1, Road-9, Road-10, Veg-2, Veg-4, and Veg-6.

Transportation

1. Follow Forest Plan Appendix G Log Transfer Facility Siting Guidelines and TRAN4, V. Log Transfer Facilities, Siting, Construction, Operation, and Monitoring for Marine Access with Log Transfer (USDA Forest Service 2016a, pp. 4-80 and 4-81).
2. For all other MAF other than LTF, follow Forest Plan siting guideline TRAN4, III Wetlands, Flood Plains, Estuaries, and Tidal Meadows, Bullet 3 (USDA Forest Service 2016a, p. 4-79).
3. Follow appropriate traffic regulations.
4. Contractors implementing projects must maintain roads commensurate with their use where applicable.

Wilderness

1. No marine access facility activities are authorized within designated Wilderness areas with this project.

Wildlife

1. Apply wildlife design features, as determined by the wildlife specialist in adherence with Forest Plan Standards and Guidelines and other official guidance, direction, law, regulation, and policy.

2. All MAFs and LTFs will be located at least 1 mile from known Steller sea lion haul outs and rookeries (apply all other marine mammal design features as provided in the design features common to all activities).
3. For bald eagle nests, follow the National Bald Eagle Management Guidelines (USFWS 2007): Avoid construction of log transfer facilities and in-water log storage areas within 330 feet of the nest.

Wild, Scenic and Recreational Rivers

1. For wild, scenic, and recreational rivers, ensure any access routes or MAF-associated facilities located within the river corridors will maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System.
2. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV.
3. Section 7 of the *Wild and Scenic Rivers Act* applies to projects affecting the beds or banks of designated rivers and their tributaries.
4. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (USDA Forest Service 2016a, pp. 3-76 to 3-96).

Appendix A

Supporting Actions

Two supporting actions are contingent upon the implementation of 1 of the 12 proposed activities and are a component of the implementation. For example, the Supporting Action soil restoration may accompany Stream and Floodplain Restoration (Activity 01), Recreation Facilities (Activity 04), Trails (Activity 05), Old-growth Timber Harvest (Activity 06), or NFS Road Construction and Reconstruction (Activity 09). Additionally, the supporting action *Timber Stand Establishment - Planting and Interplanting* could occur in support of Old-growth Timber Harvest or Young-growth Timber Harvest (Commercial) activities (Activity 06 and 07). Natural regeneration after harvest is almost always abundant within the project area. If planting is desired, it will be to meet biodiversity, habitat, cultural or scenic objectives.

Soil Restoration

Action Description

Soil restoration is designed to restore soil productivity, and to some extent soil processes and functions and to minimize soil erosion as stated in BMPs (FSH 2509.22 and National Core BMPs).

When would we implement this action?

Restore soil productivity in areas where detrimental soil conditions approach or exceed 15 percent of an activity area, where an IDT has determined that soil productivity can be restored, and when it is beneficial to do so considering site and stand factors.

Detrimental soil conditions found in the activity area may include detrimental displacements, detrimental soil erosion (including landslides), detrimental puddling, and detrimentally altered soil wetness. A need for soil restoration may exist in older young-growth stands that were logged with spar tree corridors or tractors.

Conduct immediately after harvest operations are complete and before the equipment leaves the area where soil erosion is occurring.

Appendix A

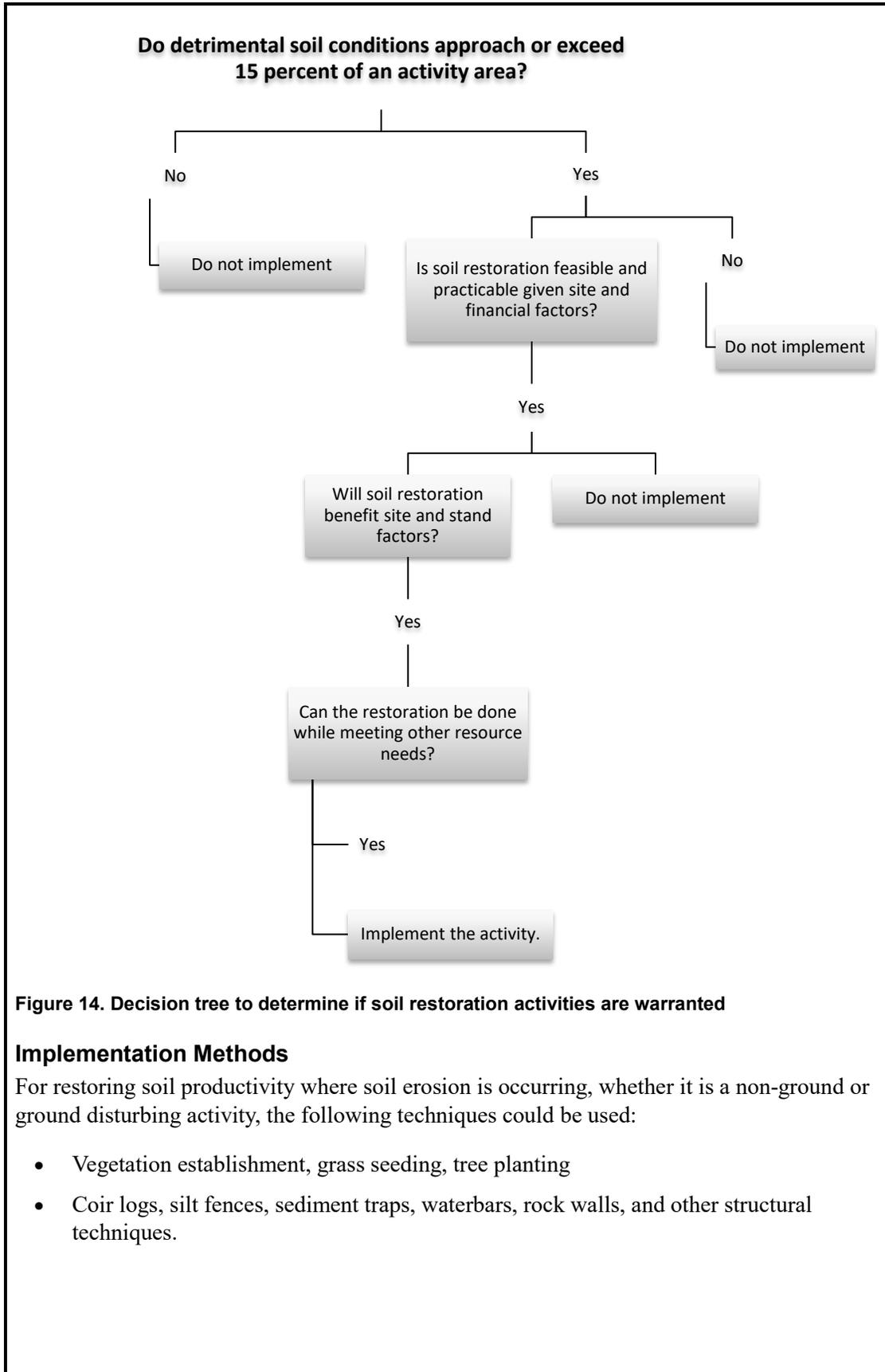


Figure 14. Decision tree to determine if soil restoration activities are warranted

Implementation Methods

For restoring soil productivity where soil erosion is occurring, whether it is a non-ground or ground disturbing activity, the following techniques could be used:

- Vegetation establishment, grass seeding, tree planting
- Coir logs, silt fences, sediment traps, waterbars, rock walls, and other structural techniques.

For restoring soils buried under road prisms

- Soils under temporary roads may be restored by removing road fill and reshaping to match natural contours or in some cases subsoiling, such as plowing, to destroy compacted soil layers.

For improving soil productivity from ground disturbing activities (for example, recently harvested stands) the following methods could be used:

- Moving topsoil from one part of the stand to a detrimentally displaced area.
- Importing topsoil and/or organic matter from another area to the detrimentally displaced area.
- Covering detrimentally displaced areas with slash.
- Fertilization with or without seeding to offset the effects of soil displacement.

For restoring soil productivity in areas of detrimentally altered wetness:

- Form microsites by importing woody debris or mounding soil, or
- Remove the drainage obstruction (road prism removal).

For areas where soil paludification is identified, the following methods may be used:

- Break up the subsoil cemented horizons to improve soil drainage, or
- Remove root wad or tip stumps to help break up the cemented layers.

Equipment Used

Heavy equipment (excavators, dump trucks, bulldozers) hand tools, helicopters with seeders, hand seeders, waddles or coir matting or logs, silt fences, chain saws, ATV, fertilizer, and Tongass-approved grass seed mix.

Integration Opportunities

Soil restoration can be included with other restoration plans or vegetation treatment activities, or as a stand-alone activity. If using heavy machinery, integrate with other activities requiring heavy machinery when feasible to defray the costs of mobilization.

Appendix A

Timber Stand Establishment – Planting and Interplanting

Action Description

Planting or inter-planting of tree seedlings in stands where a reforestation or other need has been identified to meet desired future conditions.

Why would we implement this action?

Planting: 1) Promote species diversity; 2) to accelerate tree establishment and growth; 3) in the event natural regeneration is insufficient to meet the 1976 *National Forest Management Act* certification after the third growing season, or the minimum stocking level falls below the Tongass National Forest stocking guidelines.

Inter-planting: 1) To maintain yellow-cedar or redcedar as a component of the stand's species composition; 2) to facilitate the migration of yellow-cedar to better drained locations and higher elevations; 3) to aid yellow cedar or redcedar in competing with faster growing Sitka spruce and western hemlock to enhance species composition if post-harvest evaluation determines that artificial reforestation is beneficial or helps meet desired future conditions of a harvested stand.

Implementation Methods

Manually plant seedlings (no mechanized equipment) in the harvested area at a pre-determined spacing or inter-plant on forested sites at a lower intensity if regeneration surveys indicate that stocking levels are below certification standards (< 300 trees planted/acre) within the 5-year timeframe following harvest, or a need, or desire is identified to artificially regenerate a species, such as yellow-cedar as a conservation strategy measure.

Equipment Used

Hoe-dad or shovel.

Integration Opportunities

If watershed restoration or wildlife habitat activities require tree planting, coordinate with timber establishment activities.

Cumulative Implementation Tracking Form

This form provides a location to record the implementation of activities for the Central Tongass Project to track actions that have limits specified in the Record of Decision. It also serves as a catalog of potential and completed activities for Forest Service resource specialists to consider in their cumulative effects analyses. *Note: The numbers in this table are not finalized at this time. They will eventually reflect the Selected Alternative.*

Table 2. Cumulative tracking table for timber and road activities in the Central Tongass project area

Activity and Maximum Allowable		Old-growth timber harvest	Young-growth timber harvest	Silvicultural intermediate treatments	New NFS Road Construction	Temporary Road Construction
Activity Name	Date	150 MMBF	80 MMBF	45,000 acres	25 miles	93 miles
Insert new rows above with new activities and update #s						
Total Remaining:						

Appendix A

Table 3. Cumulative tracking table for marine access activities in the Central Tongass project area

Activity and Maximum Allowable		Number of existing LTFs to maintain	Number of existing LTFs to reconstruct	LTF construction	Number of MAFs, such as docks, boat ramps and floats, to maintain, construct or improve for public access
Activity Name	Date	7	8	3	69
Insert new rows above with new activities and update #s					
Total Remaining:					

Table 4. Cumulative tracking table for recreation activities in the Central Tongass project area

Activity and Maximum Allowable		New cabins	New day use or picnic areas	New viewing platforms	New dispersed campsites	Decommissioned cabins	New shelters or cabin to shelter conversions	New or replaced outhouses	New pedestrian trail	New motorized trail	New winter trail
Activity Name	Date	6	30	6	10	15	10	75	300 miles	60 miles	105 miles
Insert new rows above with new activities and update #s											
Total Remaining:											

Appendix A

Table 5. Cumulative tracking table for stream, floodplain and fisheries improvement activities in the Central Tongass project area

Activity and Maximum Allowable		Stream restoration using heavy equipment	Stream restoration using hand crews	Stream barrier modification	Lake fertilization	Lake or pond improvements	New aquatic organism passage (AOP) structures on roads	New AOP structures on trails	Number of red crossing replacements
Activity Name	Date	49 stream miles	67 stream miles	25 stream miles affected	2 lakes	15 lakes or ponds	128	97	452
Insert new rows above with new activities and update #s									
Total Remaining:									

Implementation Checklist

Instructions

An implementation checklist packet will be prepared using the templates on the following pages. These templates are activity and resource checklists to verify all implementation process steps have been followed and documented. The instructions below refer to this template.

- Ensure Steps 1 through 5 of the implementation process are complete prior to the completion of this packet.
- Keep the implementation record current with all documentation related to implementation. Include a record number in all file names for indexing and long-term record keeping and include the record number on the following pages to show all pertinent files are a part of that record and can be easily obtained.
- “Activity Information” page: This section is general activity information. For relatively simple activities, all information may be presented here, including map images. For more complex activities, include summary or general information and reference detailed activity information, such as maps, activity design, unit cards, road cards, or other relevant documents.
- “Process Checklist” page: This section should document all the steps leading up to implementation of the activity and show that the Forest Service has followed the process within this implementation plan. Example: process-related records are listed in the template, but the list for any given activity should include all records disclosing the Forest Service’s process leading up to implementation.
- The remainder of the template pages are dedicated to resource documentation and rationale for approval of the activities. All documentation referred to should be a part of the implementation record. If separate documentation is not necessary due to the scale or complexity, the space on that template page may be used to disclose any necessary information.

Appendix A

Activity Name

Activity Information

Contact Person and Title:		
Legal Description or Location:		
Activities are within the following LUD(s):		
General Vicinity Description:		
<i>List All Maps and General Activity Documents</i>	<i>Date</i>	<i>Record Number</i>

This section is general activity information. For simple activities, all information may be presented here, including map images. For complex activities, the summary for the activity or general information and referenced detailed activity information, such as maps, activity design, unit cards, road cards, or other relevant or required documents will be presented here.

Process Checklist

<i>Step</i>	<i>Document</i>	<i>Date</i>	<i>Record Number</i>
1			
2			
3			
4			
5			
6			
7			
8			
9			

Refer to all documentation that shows the implementation process was followed. Documents that may be attached include:

- Public workshop meeting notes;
- Out-year Plan(s) activity;
- comments and summary of comments;
- letters or email communications with the public;
- government-to-government consultation documentation with local tribes (including meeting notes, letters sent, etc.);
- notifications printed in the *Ketchikan Daily News*, the *Petersburg Pilot* and/or the *Wrangell Sentinel*; and
- any letters or memos associated with the activity that authorizes it or that the Responsible Official has signed off on.

A process summary can occur in this space, if needed, to explain any of the above.

Appendix A

- peak flow calculations, concerns and mitigations;
- if the activity is within a floodplain, municipal watershed, or principal drinking water source;
- if it requires placement of fill in stream beds, bridge/culvert construction/replacement in stream beds, cutting of trees near streams, or diverting or pumping water;
- if it requires discharge of waste water; if the Watershed Condition Classification Framework score for affected watersheds would change;
- if any timing restrictions are required; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Appendix A

Botany

<i>Activity Documentation or Information</i>	<i>Date</i>	<i>Record Number</i>

Documentation, whether attached or noted above, could include:

- implementation review to ensure that the activity fits within the range of effects analyzed in the FEIS and why;
- confirmation that field surveys, if required, are complete;
- project design features required;
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations; and
- resource report for rare species.

Name, Title (print and sign)

Date

Heritage

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- NHPA Section 106 compliance documentation;
- SHPO consultation documentation (letters, emails, etc.);
- any Memorandum of Agreements or other mitigation documents if adverse effects are found;
- any additional consultation with tribes;
- if any sites are eligible; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Appendix A

Invasive Plants

<i>Activity Documentation or Information</i>	<i>Date</i>	<i>Record Number</i>

Documentation, whether attached or noted above, could include:

- implementation review to ensure that the activity fits within the range of effects analyzed in the FEIS and why;
- confirmation that field surveys, if required, are complete;
- integrated treatment plan (should be part of annual Invasive Plant Treatment Plan);
- project design features;
- required contacts made with the public pertaining to this resource for this activity; and
- compliance with laws and regulations..

Name, Title (print and sign)

Date

Karst

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- karst vulnerability assessment if conducted;
- maps of low, moderate, and high-vulnerability karst areas and the contributing watersheds if known;
- compliance with the *Federal Cave Resources Protection Act*;
- studies on the karst systems;
- if there are timing restrictions; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Appendix A

Recreation

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- if any developed or dispersed recreation sites are within or near the project area;
- if there are any timing restrictions;
- public notifications made/posted; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Scenery

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- modeling used to evaluate effects;
- which, if any, Visual Priority Routes and Use Areas affect the project area;
- what the Scenic Integrity Objective(s) are and if they are met; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Appendix A

Soils and Wetlands

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- if there are steep slopes, highly erosive soils, landslides, wetlands, or alluvial fans located in the project area;
- U.S. Army Corps of Engineers permit(s) and documentation; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Timber

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard documentation is attached would include:

- confirmation that the activity fits within the range of effects for the Selected Alternative and analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- contacts made with the public or other agencies;
- compliance with laws and regulations; and
- documentation associated with completion of Gate system direction included in FSM 2432.3 and 2432.4. This includes:
 - ◆ Gate 3 Sale Plan Implementation
 Marking guidelines that are the least-cost method and achieve the silviculture prescriptions and objectives; cruise information; and survey designs of roads needed to access timber appropriate to their intended use; certification in TIM or replacement program which marks the completion of gate 3.
 - ◆ Gate 4 - Final Package Preparation, Review, Appraisal and Offering
 Preparation of the appraisal report, advertisement, bid form, prospective bidder letter, prospectus, Sale Area Improvement Plan, Brush Disposal Treatment Plan (if any), Salvage Sale Fund Plan (if any), and sample contract.

 Name, Title (print and sign)

 Date

Appendix A

Transportation

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- Travel Analysis or Access & Travel Management documentation;
- road activity information associated with the activity;
- if roads will be added to or removed from the Forest Transportation System;
- if revisions will be needed for the Motor Vehicle Use Maps;
- obtain easement or surfacing agreements; and
- any other relevant documentation.

Document road storage and decommissioning requirements in compliance with immediate needs for storage or decommissioning. Document on road cards as required.

Name, Title (print and sign)

Date

Quarry Development

Rock quarries will be reviewed by an interdisciplinary team prior to implementation. The Line Officer must approve quarry development prior to implementation.

QUARRY DEVELOPMENT CHECKLIST			
Site Name:	District:		
Location Description:			
GPS Coordinates:			
Responsible Party/Contactor:			
Estimated use of Materials Developed:			
Bond Required:	YES []	NO []	
Special restrictions:			
APPROVALS			
Recommended: _____		Date:	
Coordinator			
Approved: _____		Date:	
Line Officer			
STAFF REVIEW			
Timber:	Wildlife:		
Recreation:	Heritage:		
Scenery:	Engineering:		
Geology/Karst:	Fisheries:		
Botany:	Soils:		
Hydrology:	Lands:		
NOTES			
Use additional pages as needed for site specific details.			

Appendix A

Vegetation Management

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- signed prescriptions; (if there will be regeneration needs or intermediate treatments for the stand(s) associated with the activity); and
- any other relevant documentation.

Name, Title (print and sign)

Date

Wilderness

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- if there are any timing restrictions for the activity; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Appendix A

Wildlife

<i>Activity Documentation and Information</i>	<i>Date</i>	<i>Record Number</i>

Standard inclusions above (if documentation is attached) or in this space (if only a few lines need to be written about it) could include:

- confirmation that the activity fits within the range of effects analyzed in the FEIS and why;
- if adjustments were made to the original proposal due to this resource;
- surveys or other form of data collection (attached, or reasoning why not needed);
- contacts made with the public pertaining to this resource for this activity;
- compliance with laws and regulations;
- Biological Assessment, Biological Evaluations, and other records of T&E/Rare/Sensitive species;
- consultation with state and federal agencies including copies of the letter of concurrence and associated required mitigations or mandatory terms and conditions;
- if there are any timing restrictions for the activity; and
- any other relevant documentation.

Name, Title (print and sign)

Date

Appendix B - Travel Analysis

Introduction

The focus of this travel analysis is to evaluate all proposed National Forest System (NFS) roads within the Central Tongass project area associated with the proposed timber harvest within the gross unit pool. An estimated 176 miles of existing NFS road was also evaluated common to both Action Alternatives. The gross unit pool identifies potential stands for timber harvest as well as the transportation network needed to access those stands (see Figures 4 and 5 in Chapter 2). None of the Central Tongass Project alternatives harvest all stands identified from the gross unit pool, only the acreage needed to meet the harvest level for the alternative. It is acknowledged that not all roads of the gross unit pool will be constructed or needed. However, the travel analysis reviews each proposed road and rates the risks and benefits as if it were to be constructed. Risk and benefit ranking by proposed route and methodology used by resource is located in the project record.

This travel analysis incorporates by reference the Decision Notices for the Access and Travel Management (ATM) Plans Environmental Assessments for Wrangell and Petersburg Ranger Districts signed 08/03/07 and 09/11/09 respectively. Designated roads and areas are reviewed annually and when approved changes are implemented. The roads and trails open to the public and type of vehicle allowed and any seasonal restrictions are shown on the Motor Vehicle Use Map (MVUM) published annually. The Central Tongass Project presents an opportunity to review 176 miles of existing NFS roads to allow the use of Off Highway Vehicles less than 50 inches wide on closed roads or roads to be closed for suitability as motorized trails and align existing maintenance with desired/future planned use.

Travel Analysis Objective

This travel analysis is an assessment of the existing condition of the current NFS road system and proposed additions. Specifically, once the travel analysis is completed, it will be used to provide the responsible official for the Central Tongass Project the appropriate level of information to identify proposed changes, and inform decisions relating to the administration of NFS roads and changes in travel management in the Central Tongass project area.

Road Maintenance Levels and Road Management Objectives

Road management incorporates the following three key elements: Operation Maintenance Level (OPML), Objective Maintenance Level (OBML), and Travel Management Strategy. These elements combine to describe and document the intended purpose of an individual road or Road Management Objectives (RMO) in providing access to implement projects within the Central Tongass project area, as well as decisions about applicable standards for the road. Each proposed road segment is assigned all three elements.

The Forest Service classifies maintenance of National Forest System roads by five levels: 1, 2, 3, 4, and 5. Maintenance level (ML) defines the level of service the road will provide. The level of service reflects a number of factors, such as speed, travel time, traffic interruptions, freedom to maneuver, safety, driver comfort, convenience, and operating cost. Once the level of service is defined, the maintenance level serves as a prescription for the type of maintenance the road will receive.

Appendix B

- **Maintenance Level 1.** Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Planned road deterioration may occur at this level. These roads are not shown on a motor vehicle use map (MVUM) as a road.
- **Maintenance Level 2.** Assigned to roads open for use by high-clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations. Motorists should have no expectations of being alerted to potential hazards while driving these roads.
- **Maintenance Level 3.** Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car.
- **Maintenance Level 4.** Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced.
- **Maintenance Level 5.** Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities.

All existing NFS roads within the project area have a designated maintenance level assigned. These standards are developed from the appropriate resource and management area direction, standard and guidelines, access management objectives, type and extent of resource activities, and any environmental constraints and design features.

Maintenance levels for roads in the Central Tongass Project analysis include ML 1 and 2, and to a lesser degree ML 3. Maintenance level 4 and 5 roads account for a minor amount of infrastructure confined to paved parking lots or about 0.8 mile and are not considered in this travel analysis.

Travel Management Strategies

Travel management strategies define the allowable traffic, if any, on NFS roads. The following travel management strategies for project area roads include:

- **Highway Vehicle Only** – These roads are open only to motor vehicles licensed under state law for general operation on all public roads within the state.
- **Open to All Vehicles** – These roads are open to all motor vehicles, including smaller off-highway vehicles that may not be licensed for highway use, but not vehicles that are oversized or overweight under state traffic law.
- **Seasonal Designation** – These roads are open only during certain portions of the year.
- **Closure (Storage)** – More information on road closure and the level of closure is found in the Wrangell and Petersburg District ATM. Motorized traffic is prohibited unless the road is designated as a motorized trail. Each drainage structure is evaluated to determine the appropriate closure strategy. Drainage structures may be removed or storm proofed with waterbars. Additional water bars or rolling dips may be added to control runoff. Seed and fertilize disturbed soils. This is intended to be the primary maintenance strategy applied on intermittent use roads during their closure cycle. Maintenance level 1, Closure is assigned. Administrative use of roads, trails, and areas not designated for motor vehicle use should be limited to what is required for administration and protection of FS lands.

- Motorized Trail – Some maintenance level 1 roads may be available and suitable for non-motorized uses and motorized off highway vehicle (OHV) less than 50 inches in width at the widest point, if the road is designated as a National Forest System trail. These roads continue to be managed as NFS roads during their closure cycle.
- Road Converted to other uses other than a road: The road is no longer needed. The road is decommissioned and converted into a trail.
 - ◆ Motorized Trail – This changes the designation from a National Forest System Road to a National Forest System Trail, and is no longer a road. These trails are open only to motor vehicles less than 50 inches in width at the widest point on the vehicle.
 - ◆ Road converted to Hiking Trail –This changes the designation from a National Forest System Road to a National Forest System Trail, and is no longer a road. No motorized access is allowed.
- Decommission – This takes the road out of the National Forest Road System. Decommissioning roads involves restoring roads to a more-natural state. Activities used to decommission a road may include, but are not limited to, the following: reestablishing former drainage patterns, stabilizing slopes, restoring vegetation, blocking the entrance to the road, installing water bars, removing culverts, reestablishing drainage-ways, removing unstable fills, pulling back road shoulders, or other methods designed to meet the specific conditions associated with the unneeded road. No motorized access is allowed.

Central Tongass Project Area Road System Existing Conditions

Roads may be maintained currently at one level and planned to be maintained at a different level at some future date. The Operational Maintenance Level (OPML) is the Maintenance Level currently assigned to a road considering today’s needs, road condition, budget constraints, and environmental concerns. It reflects the current condition of the road. The Objective Maintenance Level (OBML) is the Maintenance Level to be assigned at a future time considering road management objectives, traffic needs, budget constraints, and environmental concerns. The OBML may be the same as, or higher than or lower than, the OPML. The Central Tongass project area current condition (OPML) and future desired condition (OBML) are shown in Table 1.

Table 6. Current OPML and OBML road miles¹ in the Central Tongass project area

		Operational Maintenance Level (INFRA database)						
OPML	1	2	3	4	5	Decom.	Total miles	
Miles	235	416	257	0.3	0.1	N/A	908	
		Objective Maintenance Level (INFRA database)						
OBML	1 ²	2	3	4	5	Decom.	Total miles	
Miles	335	340	227	0.3	0.1	6	908	

¹ Rounded to nearest whole number

² 37 Mile of OBML 1 road are managed as Motorized Trails.

There are ten major existing road systems and several smaller road systems confined to smaller islands and isolated timber harvest within the project area. On these major road systems there are about 103 miles of designated open roads identified for closure (storage) at a future time (Table

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2). The smaller road systems are closed to motorized use between use or have been decommissioned and the road is not available for motor vehicle use.

Road closure can reduce annual and deferred road maintenance costs by removing drainage structures, installing water bars, or other means to stabilize the road surface until the road is needed again. Road closure methods (mechanical or natural revegetation) may vary depending on road/ground condition, with natural revegetation likely to occur over 15 years. Information on level of road closure can be found in the WRD and PRD ATMs.

Table 7. Miles of open road by system and miles to be closed at a future time

Road System by Location	Miles of Open Road (OPML)	Miles of road to be closed at a future time (OBML)
Etolin Island	45	15
Frosty Bay	0	0
Kuiu Island	122	42
Mitkof Island	108	5
Portage Bay	48	8
Thomas Bay	17	0
Tonka	56	7
Western Kupreanof Island	86	5
Wrangell Island	86	3
Zarembo	108	18
Total	676	103

Motor Vehicle Use Map (MVUM)

Annually, the Petersburg and Wrangell Districts prepare an updated Motor Vehicle Use Map (MVUM). The MVUM displays NFS routes (roads and trails) or areas designated as open to motorized travel (Table 3). The MVUM also displays allowed uses by vehicle class (e.g., highway-legal vehicles, vehicles less than 50 inches wide, and motorcycles), and provides information on other travel rules and regulations and seasonal designations. Exceptions are allowed for administrative uses, contracts, and permits on roads not shown on the MVUM.

Table 8. Miles of NFS routes open to motorized travel

Travel Management	Miles
Highway Vehicles Only	8
Open to All Vehicles	523
Seasonal Designation	44
Motorized Trails	37
Total	612

Access needs for utilization and administration of NFS lands and resources result in establishment of NFS roads that are part of the Forest transportation system but are not designated for motor vehicle use by the general public, and therefore are not shown on an MVUM. These routes are associated with administrative use. There are about 64 miles which are not open to the public.

Proposed Travel Management Changes

The travel analysis evaluates current road management objectives (RMOs) of about 176 miles of existing project area routes common to Alternatives 2 and 3 (about 19 percent of existing project area NFS road system) where current conditions or planned use warrant. Road management objectives describe the intended purpose of a NFS road based on management area direction and access management objectives. Proposed travel management changes for the Central Tongass Project are described as:

- For 128 miles of road, allow use of Off Highway Vehicle (OHV) less than 50 inches wide (ATV/Motorcycles) on Closed roads or road to be closed or decommissioned at a future time. These are closed roads which have been identified as needed to access future thinning units, and provide access to subsistence use and recreation.

Closed roads may be managed and designated as a motorized trail and shown on the MVUM if open to the public. Approval of OHV < 50 inches in width and showing the trail on the MVUM would occur on a route-by-route basis. See Implementation Guide Activity 5 for information on criteria considered before allowing OHV < 50 inches in width and designating as a Motorized Trail. When a road is designated as a motorized trail, management and maintenance occurs thru the recreation program. Designated motorized trails receiving little to no use or maintenance close in with trees and become unusable. Recreation budgets are constrained, and maintenance of currently designated motorized trails does not occur. At this time it is hard to predict future budgets and how the addition of motorized trails would be maintained. Partnering with user groups who use the trails could be one source for maintaining trails worth investigating by the Forest Service.

Of these, about 39 miles are currently managed open (OPML 2) but designated for closure at a future time.

86 miles are currently managed closed (OPML 1) road.

3 miles are currently managed open (OPML 2) but designated for decommissioning at a future time and converting to NFS trail, at which point it will be designated as a motorized trail.

- For 19 miles of road, change the future desired condition to ML 2 Open (OBML). The future desired condition of these roads is currently designated as ML 1 Closed.

These roads are currently open and used for subsistence, firewood, free use, and recreation by high-clearance vehicles. The proposal to designate these roads from Closed to Open, as the future desired condition, would reduce the amount of road closure within the project area from the 103 miles (Table 2) to about 86 miles.

Changing the OBML designation from Closed to Open allows use by high-clearance vehicles to meet future Central Tongass resource management objectives and allow access for subsistence, firewood, and free use to continue. The road would not be placed into closure and maintenance would occur when needed. The road would show on the MVUM as Open to All Vehicles unless otherwise specified.

- For 29 miles of road, change the future desired condition from Open to High Clearance Vehicles (ML 2), to Open to Standard Passenger Car (ML 3). These roads are currently crushed rock surfaced roads with a smooth surface and located on populated road systems

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where a variety of vehicle use is occurring by the public for recreation, subsistence, free use, timber management, and firewood.

Changing the future desired condition (OBML) from a lower standard road to a higher standard road aligns the road to address passenger car use as the road management objective.

Table 4 shows the comparison between the existing conditions and Central Tongass proposed travel management revision (OBML). Road-specific locations and proposed changes are displayed in Figure 1.

Table 9. Comparison of current OBML with proposed OBML

	Current Objective Maintenance Level ¹ (INFRA database)							
OBML	1 ²	2	3	4	5	Decom.	Convert to Motorized Trail	Total miles
Miles	335	340	227	0.3	0.1	6	N/A	908
OBML 1 Designated as NFS Motorized Trail ⁽²⁾	37	N/A	N/A	N/A	N/A	N/A	N/A	37
	Objective Maintenance Level Central Tongass Proposed Changes							
OBML	1 ³	2	3	4	5	Decom.	Convert to Motorized Trail	Total miles
Miles	315	330	257	0.3	0.1	3	3	908
OBML 1 Designated as NFS Motorized Trail	163	N/A	N/A	N/A	N/A	N/A	3	165

¹ Current Objective Maintenance Level road miles are from the INFRA database

² 37 Mile of OBML 1 road are currently managed as Motorized Trails

³ In addition to 37 Mile of OBML 1 road currently managed as Motorized Trails, OHV could be an allowed use on another 128 miles if meeting criterial located Activity 5.

Proposed New NFS Roads

Proposed NFS roads in the project area provide access for many uses and users. They also provide the infrastructure to facilitate motorized recreation and forest management. Roads require maintenance, and additions to the existing road system add costs. See also “Access Management” in Appendix A.

The following resources analyzed each proposed NFS route as if it would be built, along with the risk and benefits:

- Botany Resource
- Commercial Timber Access
- Cultural Resource
- Fisheries Resource
- Invasive Plants
- Non-NFS Lands Access
- Pre-Commercial Thinning Access

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- Recreation Access
- Soils Resource
- Subsistence Use Access
- Watershed Resource
- Wildlife Habitat Resource

This analysis was based on data contained in GIS layers and maintenance and repair cost data, and. Route-by-route ranking by resource and methodology is located in the project record. Proposed NFS route-by-route location, and draft road management designations which include Travel Management, Operational Maintenance Level (OPML), and Objective Maintenance Level (OBML) are found in Table 5 below and Figure 1.

Table 10. Proposed NFS roads recommended OBML and travel management

Road Number	Miles	Operational Maintenance Level (To Be Assigned If Built)	Objective Maintenance Level (Future Desired Condition)	Travel Management
Etolin – Anita Bay				
00001	1.2	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00005	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6272_1	1.1	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
Frosty Bay				
00007	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00008	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00009	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00010	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00012	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00014	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00015	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
Kuiu Island				
00016	0.5	2 - High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00020	1.0	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00024	1.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00026	2.2	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
46030	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
46032_1	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
46041_1	2.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
46094_1	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
46252_1	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
46449_1	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
46631	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure

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Road Number	Miles	Operational Maintenance Level (To Be Assigned If Built)	Objective Maintenance Level (Future Desired Condition)	Travel Management
6426_1	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6438_1	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
6463	2.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
6553_1	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
Mitkof Island				
00027	1.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00028	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00029	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00030	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00031	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
40007_1	1.4	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open to all Vehicles
40011	1.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
40821	1.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
6205_1	1.5	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open to all Vehicles
6211_1	1.9	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open to All Vehicles
6288_1	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
Portage Bay				
00002	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00032	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00033	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00034	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00035	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00036	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00095	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
43001_1	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6316_1	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6372_1	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
Thomas Bay				
00037	2.2	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
44900	2.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
44905	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure

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Road Number	Miles	Operational Maintenance Level (To Be Assigned If Built)	Objective Maintenance Level (Future Desired Condition)	Travel Management
44908	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
44920	1.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
44995	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6256_Rero ute	1.6	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open to all Vehicles
Tonka				
00038	0.2	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
00039	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00040	0.6	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
00041	1.1	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
00042	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
6251_1	2.7	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
Vank				
00058	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00059	3.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00060	2.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00061	1.2	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
Western Kupreanof				
00046	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00047	1.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00048	1.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00049	1.0	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00050	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00051	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00052	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00054	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00056	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00057	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6327_1	3.1	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
6330_1	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6332_1	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure

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Road Number	Miles	Operational Maintenance Level (To Be Assigned If Built)	Objective Maintenance Level (Future Desired Condition)	Travel Management
6333_1	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6334_1	2.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
6339_1	1.0	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6366_1	1.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
Wrangell Island				
00101	0.9	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
50042	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
50058	2.5	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
50074	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
50075	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
50076	1.0	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
50081 Re Route	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
50091	1.2	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
6251	3.1	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
6251 Re Route	0.9	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
Zarembo Island				
00062	2.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00063	1.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00064	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00065	1.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00066	2.2	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00067	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00068	2.8	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
00069	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00070	1.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00071	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00072	1.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00073	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00074	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed

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Road Number	Miles	Operational Maintenance Level (To Be Assigned If Built)	Objective Maintenance Level (Future Desired Condition)	Travel Management
00075	3.3	2 – High Clearance Vehicles	2 – High Clearance Vehicles	Open To all Vehicles
00076	2.0	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00077	1.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00078	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00079	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00081	0.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00082	2.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00083	0.4	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00084	1.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00085	0.6	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00087	1.3	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00088	2.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00089	1.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00090	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
00093	0.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00094	1.1	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
00097	0.8	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
52012_1	0.9	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure
52021_1	1.7	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	OHV < 50" once closed
52030_1	0.5	2 – High Clearance Vehicles	1 – Basic Custodial Care (Closed)	Closure

Road Maintenance Costs

Road maintenance includes any expenditure in the repair or upkeep of a road necessary to perpetuate the road and provide for its safe use. The road maintenance budget for the Petersburg Ranger District has been around \$200,000 per year and for the Wrangell Ranger District about \$180,000 the past 2 years. Combined, the Central Tongass project area averages about \$380,000 annually for road maintenance. Annual grading contracts cover about 150 miles of road grading/year; there is some flexibility in when and where roads are graded. Generally road grading is performed either annually or twice a year depending on road conditions and use. Annual brushing contracts cover about 84 miles of roadside brushing. Brushing is on a 3- to 5-year rotation depending on need. Other routine maintenance completed on an annual basis includes culvert replacement, ditch cleaning and road surface repair.

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Maintenance costs vary for each road depending upon what is needed. Some costs occur annually and sometimes several years pass between maintenance cycles. Higher maintenance level roads have higher annual costs due to more daily traffic and road grading requirements. Catastrophic events can lead to one-time annual increases in the costs for a road, e.g., a slide or culvert failure. Typical costs for maintenance items: blading \$900 per mile and brushing \$1,800 per mile. Culvert replacement, ditching, road surface repair, and emergency repairs cost around \$100,000 annually across the entire project area.

These costs vary year to year and the work is put out for competitive bidding. Appropriated funding is sometimes made available for more-costly maintenance items, such as bridge replacement.

Adding roads to the National Forest System would require additional road maintenance to be performed. Revising designations from planned closure OBML 1 to open OBML 2 also adds additional road maintenance.

There is no indication that additional maintenance funds would be available, so the existing budget would need to accommodate additional miles. During timber sale activities, purchasers are often required to perform blading, brushing, and ditching work as part of the requirements of the timber sale contracts. Roads maintained under timber sale contract allows road maintenance funds to perform other deferred maintenance elsewhere in the project area.

Most ML 2 roads typically do not require blading, and spot surfacing is infrequent. Brushing typically takes place on a 3- to 5-year rotation for ML 2 and 3 roads. Brushing, at an average of \$1,800/mile, equates to an additional \$450 per year for each mile of road (on a 4-year rotation). Average culvert replacement within the project area on ML 2 and 3 roads is about 20 per year at a cost of about \$176 per year per mile of road. Considering other work which may be required such as slide removal cleaning ditches etc. on any given maintenance cycle, each mile of ML 2 requires about \$802 per year and as a comparison about \$1,702/mile for ML 3 road.

Roads proposed for revision to travel management are included in this analysis and assumed as needed for both action alternatives by adjusting the road management of about 19 miles of OBML 1 roads to OBML 2. This analysis also considers adding new maintenance level 2 (ML 2) roads thru the construction of new routes needed for access in each of the alternatives. The 29 miles of maintenance costs proposed from OBML 2 to OBML 3 are not considered in this analysis. These roads are crushed rock smooth-surfaced roads and maintenance currently includes blading, brushing, and culvert replacement as part of the routine maintenance cycle.

Table 6 indicates the estimated yearly added cost/mile of maintenance of ML 2 roads if adding these roads into the NFS system using 2018 estimates.

Table 11. Increase of NFS ML 2 roads and estimated yearly increase in maintenance¹

	Total Gross Unit Pool	Alt 1	Alt 2	Alt 3
New Construction ML 2 NFS Added (Miles)	144	0	25	22
Total Estimated \$ increase in Added OBML 2 Maintenance Cost Per Year		\$0	\$20,050	\$17,754
Proposed Revision Travel Management ML 2 (Miles)	19	0	19	19

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	Total Gross Unit Pool	Alt 1	Alt 2	Alt 3
Total Estimated \$ Increase in Revised OBML 2 Maintenance Cost Per Year		\$0	\$15,333	\$15,333
Grand Total Estimated increase in ML 2 Miles		0	44	41
Grand Total Estimated \$ increase in OBML 2 Maintenance Cost Per / Year		\$0	\$35,288	\$32,882

¹Contracted road maintenance costs only. Does not include administrative costs.

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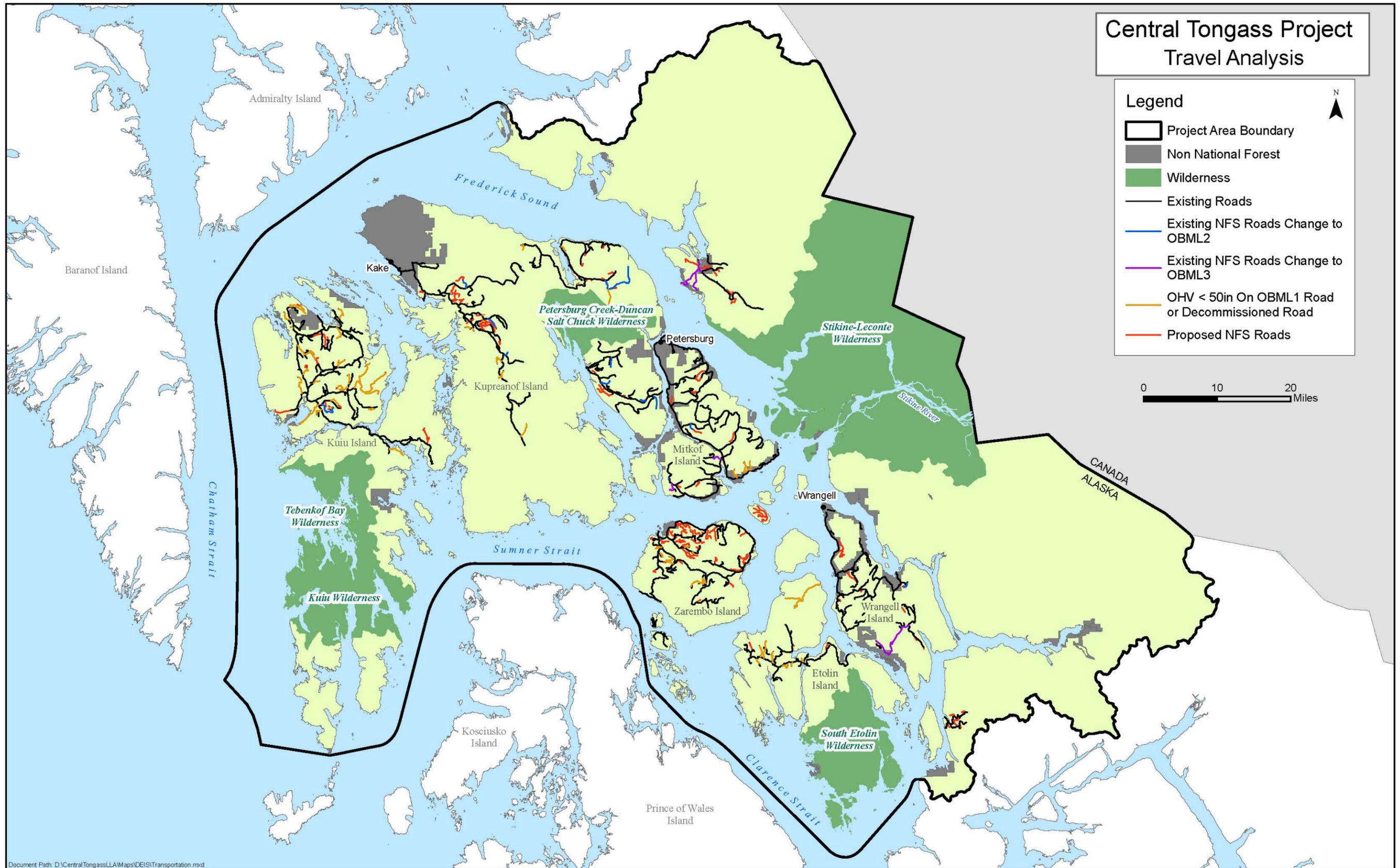


Figure 15. Central Tongass Project Travel Analysis

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Appendix C - Catalog of Events

Present and Reasonably Foreseeable Activities in the Central Tongass Project Area

Present and reasonably foreseeable projects in the Central Tongass project area are cataloged here in the Present and Reasonably Foreseeable Activities tables (Appendix C).

The following types of activities or projects are either present actions or are reasonably foreseeable activities and are combined with past projects (represented by the existing condition for each resource) for consideration in the cumulative effects analyses. Activities include timber harvest, thinning, road construction, restoration, recreation improvements, and others.

Reasonably foreseeable projects are those with a developed proposed action, or a geographic information system (GIS) layer, or a map displaying a location.

The acreages presented in these tables are generated from GIS and may vary slightly from on-the-ground acres. While these tables are based on the most current and complete information available, they should not be considered absolute.

Present Actions

Present actions are categorized into three tables by location: project-wide, Petersburg Ranger District and Wrangell Ranger District (Table 1, Table 2 and Table 3). These actions are either occurring or are scheduled to begin this year (2019). Some actions could be incorporated into the Central Tongass Selected Alternative. Multi-year actions (timeframe = “2019 and beyond” and “ongoing”) are included in the Present tables.

Table 12. Summary of PRESENT project-wide actions within or adjacent to project area that could cumulatively contribute to the environmental effects of the Central Tongass Project

Project-wide Location	PRESENT Timeframe	Description
Project-wide (Alaska Mental Health Trust Lands)	n/a	<u>Alaska Mental Health Trust Lands</u> There are no foreseeable project plans, including timber harvest, on Alaska Mental Health Trust Lands within the project area. <i>See Alaska Mental Health Trust Land Exchange in Tables 2 and 3.</i>
Project-wide (includes lands other than NFS)	Ongoing	<u>ATV/OHV Usage for Powerline Maintenance (Decision 2018)</u> Special Use Permit authorizes use of a tracked OHV to transport personnel and equipment (hand tools) within segments of the Tye transmission line right-of-way (ROW) on Wrangell, Vank, Woronokofski and Mitkof islands to complete vegetation maintenance activities). The segments on NFS lands are otherwise closed to motor vehicle use.

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Project-wide Location	PRESENT Timeframe	Description
Project-wide	Ongoing	<p><u>Cruise Ships</u></p> <p>Small and mid-sized cruise ships stop in the project area's communities (Petersburg, Wrangell and Kake) are anticipated to continue and increase.</p> <p><u>Petersburg</u> - In 2019 an estimated average of 150 stops will be made to Petersburg with an average cruise size of 80 passengers (range of 21 to 220 passengers) during the summer months.</p> <p><u>Wrangell</u> - Around 23,000 cruise passengers are expected in 2019 (about a 44 percent increase from 2018). The average passenger load for mid-sized ships is 688 and 84 passengers for the smaller vessels. 37 stops for the mid-sized ships are expected for 2019 (28 percent increase from 2018). 2018 saw 46 stops for the smaller ships.</p> <p>Kake – Data not available.</p>
Project-wide	Ongoing	<p><u>Dispersed Recreation and Subsistence Gathering</u></p> <p>Dispersed recreation will continue to occur in the project area along with the growth of communities, and the development of roads. Gathering of subsistence resources would also continue.</p>
Project-wide	Ongoing	<p><u>Marine Access Points</u></p> <p>There are about 69 marine access points within the project area where ongoing maintenance, improvements or new construction, such as docks boat ramps and floats within the project area could occur. These sites are typically not associated with a road system, but used to access NFS shoreline or inland water facilities such as a cabin, shelter or trailhead. In addition, there are existing 15 marine access facilities. These differ from marine access points because they are connected to a road system and permitted for log transfer.</p> <p>Marine access points are regularly used by the public and Forest Service throughout the year with some sites receiving more use than others, especially during the summer months.</p>
Project-wide	Ongoing	<p><u>Outfitters and Guides</u></p> <p>Outfitter and guide uses include guided hunts, camping, fishing, cross-country skiing, hiking, and other activities. Outfitter and guide services are generally provided within a half-mile inland of the shoreline but extend further for some activities (bear hunting, canoeing, freshwater fishing). The <i>Petersburg Outfitter and Guide Management Plan</i> allocates 39,600 recreation visitor days across the District for outfitter guide use (2018 actual use was 10,632 days), while the <i>Wrangell Outfitter and Guide Management Plan</i> allocates up to 30,783 recreation visitor days (2018 actual use was about 8,500 service days).</p>
Project-wide	Ongoing	<p><u>Road Maintenance</u></p> <p>Maintenance of Level 2 and 3 roads within the project area. Maintenance can include bridge repair, cleaning and inspections, bridge replacement, road ditching, culvert cleaning or replacement, road surface repair and blading, roadside brushing.</p>
Project-wide (includes lands other than NFS)	Ongoing	<p><u>State of Alaska Hunting and Trapping (includes subsistence and personal use) and Federal Wildlife Subsistence Regulations</u></p> <p>State regulations manage hunting and trapping activities, set season and bag limits, and may limit hunting and trapping. In addition a Federal Subsistence Board establishes subsistence regulations for NFS lands within the project area.</p> <p>Federal and State regulations allow the harvest of up to 2 black bear, up to 2 bucks, and up to 5 wolves during the established harvest seasons. Restrictions are based on resident/non-resident and subsistence/non-subsistence hunters.</p>

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Project-wide Location	PRESENT Timeframe	Description
Project-wide (includes lands other than NFS)	Ongoing	<p><u>State Fishing (includes state subsistence and personal use) and Federal Fishing Subsistence Regulations</u></p> <p>State regulations control fishing and shellfish collecting, set season and bag limits and may limit the methods used to pursue the resources. In addition, a Federal Subsistence Board establishes subsistence regulations for NFS lands within the project area. State and federal regulations allow the harvest of salmon, char, grayling and trout within the project area. For daily takes and possession limits, see the regulations.</p>
Project-wide (all lands)	2019 and beyond	<p><u>Wrangell-Petersburg Weed Management Project EA</u></p> <p>Project decision allows for the treatment of weed infestations on Wrangell and Petersburg Districts through various means including manual, mechanical, and chemical.</p> <p>Treatment Cap (200 acres per year, or 2,000 acres over the life of the project).</p> <p>Includes only NFS Lands</p> <p>Cannot treat emergent vegetation</p> <p>Only spot spray/hand application of herbicides is allowed (no broadcast spraying)</p> <p><u>2019</u></p> <p>Petersburg Ranger District - 10 acres of herbicide treatment are proposed</p> <p>Wrangell Ranger District - 102 acres of herbicide treatment are proposed</p> <p><u>2020-2022</u></p> <p>Petersburg Ranger District – Using a mix of herbicide, hand pulling and tarps treat up to 6 gross acres of orange hawkweed treatments, 1 acre of yellow hawkweed and oxeye daisy combined, 10 acres reed canarygrass, 1 acre knotweed, 0.1 acre bull thistle and 0.1 acre Canada thistle. Specific to wilderness: Up to 1 acre reed canarygrass, 0.1 acre dandelion (hand pulling).</p> <p>Wrangell Ranger District – Using a mix of herbicide, hand pulling and tarps treat up to 3 gross acres of orange hawkweed treatments, 100 gross acres of reed canarygrass treatments, 0.1 acre knotweed and 1 acre combined yellow hawkweed, oxeye daisy and foxglove. Specific to wilderness: Up to 63 acres reed canarygrass, 1 acre orange hawkweed, 0.1 acre yellow hawkweed, and 10 gross acres cut stump/spot spray treatments of European mountain ash.</p>

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Table 13. Summary of PRESENT Petersburg Ranger District actions that could cumulatively contribute to the environmental effects of the Central Tongass Project

Petersburg Ranger District Location ³	PRESENT Timeframe	Description
PRD-wide	2019	<p><u>Outfitters and Guides</u> Outfitter and guide special use permits allocate use to outfitter and guides within the project area. In 2019, 55 outfitters and guides are authorized to use the Petersburg Ranger District with 21,322 service days. Authorized use in the future is anticipated to be similar.</p>
PRD-wide	2019	<p><u>Petersburg Ranger District Riparian Thinning (Decision 2015)</u> Selectively thin and/or prune up to 2,420 acres of previously-harvested conifer stands in riparian areas adjoining Class I & II fish streams, near the communities of Petersburg and Kake, where thinning would benefit the desired future condition of the site. Implementation began in 2015.</p>
PRD-wide	2019-2020	<p><u>Isolated Cabin Special Use Permits on the Petersburg Ranger District (Decision 2015)</u> Continuing the use and occupancy of NFS lands for 12 isolated cabins on PRD at Petersburg Creek, Kupreanof Island; Ohmer Slough, Kupreanof Island; Portage Bay, Kupreanof Island; Blind Slough, Mitkof Island, Wrangell Narrows, Mitkof Island; Beecher Pass, Woewodski Island. These authorizations have been in place for over 30 years. <i>Permits expires in 2020, but renewals are anticipated.</i></p>
PRD-wide	2019 and beyond	<p><u>Outfitters and Guides</u> Outfitter and guide special use permits allocate use to outfitter and guides within the project area. In 2019, 55 outfitters and guides are authorized to use the Petersburg Ranger District with 21,322 service days. Authorized use in the future is anticipated to be similar.</p>
PRD-wide	2019	<p><u>Reissue Four Special Use Authorizations (Decision 2014)</u> Special use authorizations for crab pot storage site at Dakaneek Bay on Kupreanof Island; Petersburg Borough dry hydrant (fire department water line) near Blind Slough Picnic Area on Mitkof Island; and isolated cabin site at Tebenkof Bay on Kuiu Island. <i>Permits expire in 2019; likely to be renewed for 5 years (through 2024).</i></p>
PRD-wide	2019-2036	<p><u>Various Special Use Authorizations (Decisions 2016)</u> Authorize the construction, operation, and maintenance of an electrical transmission line near Kake; telephone line near Kake; power transmission line on Mitkof Island; and road use by the Petersburg Borough to access the Cabin Creek dam and reservoir on Mitkof Island (NFS roads 6235, 6204 and 6206).</p>
Kuiu Island	2019	<p><u>Bay of Pillars Water Transmission Line (Decision 2014)</u> Five-year special use permit issued for a 1 inch diameter x 300 foot long above-ground water transmission line associated with a floating lodge at Bay of Pillars. Permit expires in 2019.</p>

³ NFS lands unless otherwise noted

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Petersburg Ranger District Location ³	PRESENT Timeframe	Description
Kuiu Island	2019-2037	<u>Mount McArthur Communications Site (Decision 2017)</u> Issuance of a new special use authorization to the United States Coast Guard to continue to maintain their facility at the Mount McArthur Communications Site. Authorized use since 1998. Permit expires in 2037.
Kuiu Island	2019-2022	<u>Shore Ties at Seclusion Harbor (Decision 2017)</u> Issuance of a new special use permit to the owner of a float house to maintain the shore ties to secure a float house at Seclusion Harbor. Authorized use since 2003.
Kuiu Island, Kuiu Mountain	2019-2033	<u>Communication Facility on Kuiu Island (Decision 2014)</u> Authorized the Federal Aviation Administration to install a communication facility to provide radio communications. Forest Service radio equipment is located within FAA facilities. Facilities include 26' x 10' x 15' tall solar frame with solar panels; 6' x 8' x 17' tall equipment shelter; 20' x 20' helicopter landing pad.
Kupreanof Island, Duncan Canal	2019-2024	<u>Crab Fishing Gear Storage Sites at Duncan Canal (Decision 2018)</u> Issuance of a new special use authorization to allow storing crab gear at two sites on NFS land within Duncan Canal. Authorized since 2010. Permit expires in 2024; renewal is likely.
Kupreanof Island	2019-2022	<u>Tent Platform at Tunehean Creek (Decision 2017)</u> Issuance of a new special use permit to the owner of the tent platform at Tunehean Creek. The tent platform is used in conjunction with the taking of fish and/or game. Authorized since 2003.
Kupreanof Island (includes lands other than NFS)	2019-2020	<u>Kake Airport Vegetation Clearing Special Use Permit (Decision 2015)</u> Special use permit to the State of Alaska, Department of Transportation and Public Facilities, to authorize the cutting of vegetation to maintain visibility of navigation aids for the Kake airport. Permit expires in 2020, but likely to be renewed.
Kupreanof Island (includes lands other than NFS)	2019-2033	<u>Water Transmission Line Special Use Permit (Decision 2013)</u> Reissue a special use permit for a 2.5 inch diameter x 300 feet in length above ground water transmission line. Authorized since 2009.
Kupreanof Island, Kake Road System	2019 and beyond	<u>Annual knotweed treatment using herbicide</u> The Organized Village of Kake (OVK) expects to treat approximately 5 acres of knotweed annually with herbicides on OVK and private lands. This level of treatment is expected to continue into the foreseeable future.
Kupreanof Island, Kake Road System	2019	<u>Central Kupreanof Timber Harvest (Decision 2011)</u> High Tower timber sale (52 MBF) was advertised in May 2019 and, if sold, could be cut in 2019.
Kupreanof Island, Kake Road System	2019	<u>Cathedral Falls Trail (Decision expected in 2019)</u> Trail reconstruction. <i>Decision Memo and implementation expected in 2019.</i>
Kupreanof Island, Tonka Road System	2019-2020	<u>Tent Platform Special Use Permit (Decision 2015)</u> Special use permit to maintain a tent platform near NFS road 6350 (Tonka Road). The tent platform is used in conjunction with the personal use taking of fish and/or wildlife. Authorized since 2001. Permit expires in 2020, but likely to be renewed.

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Petersburg Ranger District Location ³	PRESENT Timeframe	Description
Kupreanof Island and Kuiu Island	2019 and beyond	<p><u>Southeast Cove Special Harvest Area</u> Chum salmon release site on north side of Rocky Pass between Kuiu and Kupreanof Islands.</p>
Mitkof Island (Petersburg Borough lands)	2019	<p><u>City Creek Trail Section 1</u> Trail construction ongoing - provides additional pedestrian access to the National Forest System Raven Trail.</p>
Mitkof Island	2019 and beyond	<p><u>City Creek Net Pen</u> Chinook (king salmon) release site from Crystal Lake Hatchery with average annual release of 200,000 fry.</p>
Mitkof Island	2019 and beyond	<p><u>Crystal Lake Hatchery</u> Chinook hatchery in Blind Slough on the Wrangell Narrows side of island.</p>
Mitkof Island	2019-2048	<p><u>City Creek Dam and Reservoir (Decision 2018)</u> Permit issued to the Petersburg Borough for use of the Petersburg Borough dam and reservoir at City Creek. Authorized use since 1973.</p>
Mitkof Island	2019-2022	<p><u>Material Disposal Sites on Mitkof Island (Decision 2017)</u> Special use permit to ADOT & PF for mineral and organic material disposal sites on Mitkof Island. Use has been authorized since 2013. Likely that this permit will be renewed when it expires in 2022.</p>
Mitkof Island	2019 and beyond	<p><u>Mineral Material Permits (Decision 2016)</u> Permits may be issued to allow removal of mineral material for personal use from 8 designated existing borrow pits.</p>
Mitkof Island	2019	<p><u>Mitkof Island Commercial Firewood and Individual Tree Sales (Decision 2018)</u> This decision allows up to 70 acres of harvest within 200 feet of existing roads on Mitkof Island. Harvest can include green trees using uneven-aged management and may include the removal of dead and dying trees.</p>
Mitkof Island	2019 and beyond	<p><u>Mitkof Microsales (Decision 2010)</u> Individual standing dead and down trees are available for purchase by interested members of the community. Microsales target dead and down trees that can be reached from existing roads within the Twin Creek and Woodpecker project areas. This project is expected to continue into the foreseeable future.</p>
Mitkof Island	2019 - 2021	<p><u>Raven Trail Reconstruction (Decision 2018)</u> Re-route and reconstruct miles 2 and 3 of the Raven Trail. Work will include reducing the trail's grade (steepness) and replacing boardwalk and native tread with gravel and concrete steps.</p>
Mitkof Island	2019-2029	<p><u>Special Use Permit to Ocean Beauty Seafoods LLC (Decision 2009)</u> Special use permit to Ocean Beauty Seafoods LLC for a portion of their cannery and dock.</p>
Mitkof Island	2019-2023	<p><u>State of Alaska's Road Use at Blind Slough</u> Special use authorization for State of Alaska, Department of Transportation to use the road and bridge abutment at Blind Slough. Authorized use since 1978.</p>

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Petersburg Ranger District Location ³	PRESENT Timeframe	Description
Mitkof Island	2019-2039	<p><u>Use of Fiber Optic Cable (Decision 2018)</u> Special use permit for GCI fiber optic cable on Mitkof Island. Use has been authorized since 2008. Permit expires in 2039.</p>
Mitkof and Kupreanof Islands (includes Alaska Mental Health Trust land)	2019 - 2020	<p><u>Alaska Mental Health Trust Land Exchange</u> On May 5, 2017, the Consolidated Appropriations Act of 2017 (Public Law 115-31) was enacted and authorized an exchange of lands between the Alaska Mental Health Trust and the USDA Forest Service. The Act established a framework to facilitate and expedite the land exchange over a condensed 2-year period in two separate phases. Phase I of the land exchange was completed and closed in January of 2019 for lands outside the project area. Phase 2 of the land exchange across the Tongass National Forest includes the remaining approximate 18,600 acres of NFS in exchange for 15,500 acres of AMHTA land adjacent to communities across the Forest. Phase 2 is likely to be completed in August 2020. The non-Federal lands, acquired by the USDA Forest Service, will become part of the Tongass National Forest. On the Petersburg Ranger District, this is approximately 3,871 acres, all on Mitkof Island, except for 280 acres on Kupreanof Island. 42 acres of the acres on Mitkof Island will be set aside as an Administrative Site for purposes of the future administrative needs of the Tongass National Forest. The other acreage (3,829 of 3,871 acres) acquired will take on the status of the undeveloped natural character.</p>
Thomas Bay	2019-2022	<p><u>ADF&G Cabin at Thomas Bay (Decision 2017)</u> Special use permit issued to ADF&G for an administrative use cabin at Thomas Bay. Use was first authorized in 1992.</p>
Thomas Bay	2019-2021	<p><u>Commercial Use of Roads and MAF at Thomas Bay (Decision 2017)</u> Road use permit issued for commercial hauling and storage from the State of Alaska gravel pit to the Thomas Bay Marine Access Facility on NFS roads 6256, 6252 and 6100. Authorized use since 2006. Another permit issued for storage of equipment and materials at a designated area at the MAF and near the end of NFS road 6100.</p>
Thomas Bay	2019-2034	<p><u>Private Road Easement to Bear Slough Crossing Groups, Inc. (Decision 2014)</u> Authorize use and maintenance of an existing road for access to private property near Point Agassiz. Authorized use since 1994.</p>
Thomas Bay	2019 and beyond	<p><u>Thomas Bay Terminal Harvest Area and Net Pen</u> NSRAA has been authorized to release up to 44 million chum salmon fry annually from the net pens near Ruth Island in the back of Thomas Bay. Authorized use since 2016.</p>
Woewodski Island	2019 and beyond	<p><u>Mineral Exploration on Woewodski Island (Decision 2017)</u> Plan of Operations to continue geophysical surveys that require no ground disturbance, surface rock and sediment sampling with hand tools and exploratory drilling. Mineral exploration and continued permitting are anticipated to continue into the foreseeable future.</p>

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Table 14. Summary of PRESENT Wrangell Ranger District actions that could cumulatively contribute to the environmental effects of the Central Tongass Project

Wrangell Ranger District Location ⁴	PRESENT Timeframe	Description
WRD-wide	2019 and beyond	<p><u>Outfitters and Guides</u> Outfitter and guide special use permits manage the number and distribution of outfitter and guides within the project area. In 2019, 33 outfitters and guides were authorized to use the Wrangell Ranger District. Activities provided include nature/wildlife viewing, freshwater fishing, kayaking, hiking, camping, and hunting (deer, brown bear, black bear and mountain goat). On average, outfitters and guides annually report approximately 8,500 service days of use on the Wrangell Ranger District. It is expected this level of use will continue.</p>
WRD-wide	2019 and beyond	<p><u>Wrangell District Roadside Timber Sales (Decision 2011)</u> Makes available up to 500 thousand board feet (MBF) of fuelwood and sawtimber per year in microsalses as commercial salvage harvest of dead, dying, or blown down fuelwood and sawtimber from natural disturbance, and the minor harvest of green fuelwood and green sawtimber, depending on demand from the public and local operators. The first microsale from the Roadside project was sold in 2012 and in each subsequent year, an average of 4 microsalses have been sold. Each year a net average of 20 MBF from an average of 2 acres have been harvested. Decision includes Wrangell, Etolin and Zarembo islands.</p>
Blashke Island and Mosman Island	2019 and beyond	<p><u>Two Upland Mariculture Operations (Decision 2014)</u> Multi-year special use permit for upland facilities related to 2 mariculture operations – one on Blashke Island and other on Mosman Island. Permits expire in 2019, but renewals are anticipated.</p>
Etolin Island	2019 and beyond	<p><u>Anita Bay Terminal Harvest Area and Remote Release Site</u> Coho, chinook and chum remote release site.</p>
Etolin Island	2019-2039	<p><u>Burnett Inlet Hatchery (Decision 2019)</u> Long-term authorization for Southern Southeast Regional Aquaculture Association to operate the Burnett Inlet Hatchery on National Forest lands. Authorization of new 20-year permit anticipated in 2019.</p>
Etolin Island	2019	<p><u>Burnett Inlet Hatchery Residence Construction (Decision 2018)</u> Authorizes construction and maintenance of a new building with deck and relocation of a segment of boardwalk foot trail.</p>
Etolin Island	2019	<p><u>Navy Timber Sale (Decision 2015)</u> Three Sisters Timber Sale (372 acres of old-growth harvest; 9.8 MMBF) is under contract.</p>
Horn Cliffs	2019 and beyond	<p><u>FAA Communication Site Authorization (Decision 2014)</u> Communication use lease to Alascom dba AT&T. Permit expires in 2019 but renewal is anticipated.</p>
Level Island	2019-2038	<p><u>FAA Level Island Communication Site (Decision 2018)</u> Special use authorization for FAA to continue at Level Island communication site. Use authorized since 1964.</p>

⁴ NFS lands unless otherwise noted

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Wrangell Ranger District Location ⁴	PRESENT Timeframe	Description
Shrubby Island	2019 and beyond	FAA Communication Site Authorization (Decision 2014) Communication use lease to Alascom dba AT&T. Permit expires in 2019 but renewal is anticipated.
Stikine-Le Conte Wilderness	2019-2021	ADF&G Helicopter supported salmon surveys in Wilderness (Decision 2016) Permit to Alaska Department of Fish and Game for helicopter access to Andrew Creek, within the Stikine-LeConte Wilderness, for the purpose of conducting salmon surveys. Helicopter was determined as the tool of minimum impact. Permit expires in 2021, but renewal is anticipated.
Stikine-Le Conte Wilderness	2019 and beyond	Special Use Permits for Private Cabins (Decision 2015) Twelve private cabins within the Stikine-LeConte Wilderness, authorized for personal recreation and subsistence activities. Permits expire in 2020, but are anticipated to be renewed.
Stikine-Le Conte Wilderness	2019-2021	Tent Platform Special Use Permits (Decisions 2016) Eight temporary tent platforms and associated outhouses authorized in the Stikine-LeConte Wilderness. These permits expire in 2021; renewal is likely. (PALS project numbers 45776 and 48416).
Stikine-Le Conte Wilderness Kakwan Point, Stikine River	2019-2020	Temporary Tent Platform (Decision 2015) Special use permit authorizes construction and maintenance of a tent platform near Kakwan Point. Permit expires in 2020 and will not be renewed.
Stikine-Le Conte Wilderness	2019	Sonar Cabin Replacement (Decision 2018) Replace the cabin with a new cabin at the same site. The cabin is used to support the Stikine River salmon research and monitoring conducted by the ADF&G under the Pacific Salmon Treaty.
Wrangell Island (includes Alaska Mental Health Trust land)	2019 - 2020	Alaska Mental Health Trust Land Exchange On May 5, 2017, the Consolidated Appropriations Act of 2017 (Public Law 115-31) was enacted and authorized an exchange of lands between the Alaska Mental Health Trust and the USDA Forest Service. The Act established a framework to facilitate and expedite the land exchange over a condensed 2-year period in two separate phases. Phase 1 of the land exchange was completed and closed in January of 2019 for lands outside the project area. Phase 2 of the land exchange across the Tongass National Forest includes the remaining approximate 18,600 acres of NFS in exchange for 15,500 acres of AMHTA land adjacent to communities across the Forest. Phase 2 is likely to be completed in August 2020. The non-Federal lands, acquired by the USDA Forest Service, will become part of the Tongass National Forest and will be managed as a non-development LUD. On the Wrangell Ranger District, this is approximately 1,071 acres, all on Wrangell Island and includes the Pat Lake area.
Wrangell Island (State Land)	2019	Pat Creek Restoration Project Proposed restoration of stream channel by addition of large woody debris to enhance stream habitat and stabilize banks. The project site includes approximately 840 feet of the East Fork and 750 feet of the West Fork upstream of their confluence; and, 500 feet of Pat Creek downstream of the confluence. Project is located on State of Alaska land.

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Wrangell Ranger District Location ⁴	PRESENT Timeframe	Description
Wrangell and Zarembo islands	2019	Wrangell Island Aquatic Organism Passage Culvert Replacements (Decision 2019) Remove failing culverts and replacing with AOP designed culvert pipe, road resurfacing, riprap to stabilize/control erosion, reestablish ditches, and excavation. Project area includes Wrangell Island and Zarembo Island.
Zarembo Island	2019 - 2020	Frenchie Integrated Resource Timber Contract Conventional old-growth timber harvest – 267 acres.
Zarembo Island	2019-2027	USCG Communication Site Special Use Authorization (Decision 2007) Authorization for the US Coast Guard to operate and maintain a mountain top VHF communication site on Zarembo Island.
Zarembo Island	2019 and beyond	<u>Zarembo Minerals Exploration 2018-2019, 2019-2020 (Estimated Decision July 2019)</u> Continued authorization for Zarembo Minerals LLC.; exploratory surface drilling and sampling. Authorization renewal expected into the foreseeable future.

Reasonably Foreseeable Actions

Actions are categorized into three tables by location: project-wide (Table 4, Petersburg Ranger District (Table 5) and Wrangell Ranger District (Table 6). Foreseeable actions include multi-year actions (timeframe = “2019 and beyond” and “ongoing”).

Table 15. Summary of REASONABLY FORESEEABLE project-wide actions within or adjacent to the Central Tongass project area that could cumulatively contribute to the environmental effects of the Central Tongass Project

Project-wide Location ⁵	FORESEEABLE Timeframe	Description
Project-wide (includes lands other than NFS)	2020-2032	<u>Stream Restoration Using Hand Tools (Decision 2017)</u> Restoration in previously-harvested floodplain/riparian areas with Class I and II streams on Petersburg and Wrangell Ranger Districts. Implementation would consist of a small work crew using hand tools including picks, shovels, chainsaws, winches, etc. to place large wood structures in the active channels and floodplains of 5 small to medium-sized streams within the next 5 years on the Petersburg and Wrangell districts. First project planned is BITSU8 Creek on Zarembo Island (2020), followed by (not necessarily in this order): Bent Boot Creek and Junior Creek on Kake Tribal land north of Kake (Kupreanof Island), Fry Creek in Totem Bay (Kupreanof Island) and Upper Dean Creek on the Kuiu road system.

⁵ NFS lands unless otherwise noted

Table 16. Summary of REASONABLY FORESEEABLE Petersburg Ranger District actions that could cumulatively contribute to the environmental effects of the Central Tongass Project

Petersburg Ranger District Location ⁶	FORESEEABLE Timeframe	Description
Kuiu Island	2024	<u>Pre-commercial Thinning (Decisions in 2014 and 2017)</u> Precommercial thinning on the Kuiu road system - approximately 1,332 acres of 19 to 41 year old young-growth stands.
Kuiu Island	2025	<u>Pre-commercial Thinning (Decisions in 2014 and 2017)</u> Precommercial thinning on the Kuiu road system - approximately 1,297 acres of 19 to 41 year old young-growth stands.
Kuiu Island	2026	<u>Pre-commercial Thinning (Decisions in 2014 and 2017)</u> Precommercial thinning on the Kuiu road system - approximately 1,012 acres of 19 to 33 year old young-growth stands.
Kuiu Island	TBD	<u>Kuiu Timber Sale Area (Decision 2008, SIR 2016)</u> North Kuiu Timber Sale Project - 23 MMBF from 870 acres of even-aged management.
Kupreanof Island, Kake Road System	2020 and beyond	<u>Central Kupreanof Timber Harvest (Decision 2011)</u> Decision authorized timber harvest on 1,329 acres (26.3 MMBF). As of May 2019, approximately 62 MBF has been harvested. Another 52 MBF was advertised in May 2019 (see table 2).
Kupreanof Island, Kake Road System (lands other than NFS)	2021	<u>Old-growth Timber Harvest on University of Alaska Trust Lands</u> Estimated 0.9 MMBF of old-growth harvest on Kupreanof Island off of the Kake road system. <i>Information from 2017 All Lands Timber Sale Schedule</i>
Kupreanof Island, Tonka Road System	2020	<u>Pre-commercial Thinning (Decision 2017)</u> Precommercial thinning on the Tonka road system - approximately 356 acres of 30-year old young-growth stands.
Kupreanof Island (includes lands other than NFS)	2020- 2023	<u>Keex' Kwaan Community Forest Partnership (KKCFP)</u> The KKCFP project area includes all full watersheds within which Sealaska and Kake Tribal lands occur. This includes 13 HUC 12 watersheds and a total of 165,000 acres (US Forest Service 105,000 acres; Sealaska 33,000 acres; Kake Tribal 22,500 acres; SEAL Trust 2,500 acres; State/City/Other 1,000 acres). 2019-20: Assemble and update natural resource and infrastructure inventory 2020-21: Conduct watershed assessments, draft conservation plans and implement pilot projects 2022-23: Complete conservation plans, assemble 10-year program of work, begin implementation http://sustainablesoutheast.net/kkcfp/

⁶ NFS lands unless otherwise noted

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Petersburg Ranger District Location6	FORESEEABLE Timeframe	Description
Kupreanof and Mitkof Islands (includes lands other than NFS)	2019-2069	<p><u>Kake Access Road</u> Section 4407 of Public Law 109-59, (SAFETEA-LU), as amended by Public Law 114-94 (FAST Act), granted the State of Alaska 50-year transportation and utility easements crossing Tongass National Forest System lands to connect communities of Southeast Alaska. The State of Alaska accounted for these transportation routes associated with SAFETEA-LU in their 20 year, 2004 Southeast Alaska Transportation Plan, which is currently undergoing amendment and public comment. http://dot.alaska.gov/sereg/projects/satp/index.shtml The Kake to Petersburg easement falls within the Petersburg Ranger District portion of the project area. The State of Alaska was granted a right-of-way easement 300 feet in width, for a term of 50 years for transportation and utility planning purposes. Approximately 1,608 acres. (Document No. 2006-000911-0, December 7, 2006, Petersburg Recording District)</p>
Kupreanof Island and Mitkof Islands (includes lands other than NFS)	Unknown	<p><u>Kake to Petersburg Transmission Line Intertie Project (Decision 2016)</u> Decision authorizes the project applicant to construct an electric transmission line between Petersburg on Mitkof Island and the city of Kake on Kupreanof Island. The transmission line would be approximately 60 miles long and follow existing roads for 34 miles. Access for construction along the remaining sections of the route would be via shovel trails supported by temporary matting panels.</p>
Kupreanof Island (includes lands other than NFS)	2019-2069	<p><u>Kake-South Kupreanof Road</u> In 2006, the State of Alaska was granted a 50-year public easement for a 300-foot wide easement for transportation and utility planning purposes. Approximately 1,407 acres. http://dot.alaska.gov/sereg/projects/satp/assets/SATP_2014_Draft_Final_Web.pdf (see Table 4: Kupreanof Island Corridors) (Document No. 2010-000764-0, October, 14, 2010, Petersburg Recording District)</p>
Kuiu Island	2019-2069	<p><u>Kuiu Road: Security Bay to Reid Bay</u> In 2006, the State of Alaska was granted a 50-year public easement for a 300-foot wide easement for transportation and utility planning purposes. 41.1 miles. http://dot.alaska.gov/sereg/projects/satp/assets/SATP_2014_Draft_Final_Web.pdf (see Table 4: Kuiu Island Corridors)</p>
Mitkof Island (includes lands other than NFS)	2020	<p><u>Crystal Mountain Communications Site Powerline (Decision expected in 2020)</u> AP&T Wireless, Inc. proposes to install a powerline from the Crystal Lake dam to their communications facility at the Crystal Mountain Communications Site on Mitkof Island. The powerline cable would be two inches in diameter and placed on the ground. The length of the powerline that would be on NFS land is approximately 9,000 feet.</p>
Mitkof Island	2021	<p><u>East Ohmer Creek Restoration (Decision 2016)</u> Proposed instream and floodplain restoration on approximately 0.2 mile of East Ohmer Creek and 0.4 mile of Lumpy Creek, one of its tributaries. Construct wood structures for pool creation and cover. Floodplain restoration may include addition of soil and logs/trees for structure. Perform maintenance on currently excavated rearing ponds.</p>

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Petersburg Ranger District Location6	FORESEEABLE Timeframe	Description
Mitkof Island	2020	<p><u>Ideal Cove Trail (Decision expected in 2019)</u> Proposal to reconstruct 0.8 miles of the Ideal Cove Trail with a variety of trail types - native ground, step-and-run boardwalk, elevated boardwalk/bridges and gravel.</p>
Mitkof Island	2021	<p><u>Man Made Hole Stream Channel Maintenance (Decision 2016)</u> This project proposes to re-excavate a channel and add wood and/or rock structures to encourage water flow to a channel that connects a tributary of Blind River to the pond at Man Made Hole. Currently, the flow into the pond has been reduced due to natural deposition of sand and gravel in the channel.</p>
Mitkof Island	2020	<p><u>Mitkof Island Deer Habitat Enhancement (Decision 2015)</u> The objective is to treat up to 1,114 acres of young-growth stands on Mitkof Island to benefit deer. A variety of silvicultural treatments are being considered.</p>
Mitkof Island	2021	<p><u>Ohmer Creek Floating Bridge (Decision expected in 2021)</u> Proposal to reconstruct the Ohmer Creek floating bridge. The bridge connects two sections of the Ohmer Creek Trail that is separated by an active beaver pond. Design type and length to be determined in 2020.</p>
Mitkof Island	2020	<p><u>Pre-commercial Thinning (Decision 2017)</u> Precommercial thinning on the Mitkof Road system - approximately 651 acres of young-growth stands that are 19-41 years old.</p>
Mitkof Island (State of Alaska land)	2022	<p>Mitkof Island Area Timber Sale Borough of Petersburg during the planning process for these sales. The timber sale is named in the Alaska Division of Forestry's Five-Year Schedule of Timber Sales (CY2018-2022). The sale area is located on Mitkof Island, southeast of the City of Petersburg on SESF land. An estimated volume of 4,000 MBF of old growth is proposed for harvest from approximately 210 acres. No road building is proposed for access in the harvest areas. Areas adjacent to this sale have been selected by the Borough of Petersburg for municipal entitlement land. The sale will be entirely on Southeast State Forest lands. It is currently scheduled for harvest in CY2022. http://forestry.alaska.gov/Assets/pdfs/timber/ketchikan_timber/2018/2018-2022_fysts_SSE_adopted_wmaps_comments.pdf</p>
Thomas Bay (State land)	2022	<p><u>Thomas Bay Area Timber Sale</u> The sale area is located at Thomas Bay northeast of Petersburg, Alaska and is comprised of both old growth and second growth stands. The total estimated volume that could be harvested is 20,200 MBF on 1,713 acres, of which 4,900 MBF is old growth and 15,300 MBF is young growth. Preliminary planning indicates 3.7 miles of road would require reconstruction and approximately 1.7 miles of new road would need to be constructed. http://forestry.alaska.gov/Assets/pdfs/timber/ketchikan_timber/2018/2018-2022_fysts_SSE_adopted_wmaps_comments.pdf</p>
Thomas Bay	2021	<p><u>Thomas Bay Moose Habitat Enhancement (Decision 2013)</u> Selectively thin conifers in riparian areas on roughly 100 acres** in the Patterson River floodplain at Thomas Bay. The areas will be treated to encourage the growth of willow and cottonwood, forage species preferred by moose. **<i>Approximately 50 acres of treatment are remaining.</i></p>

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Table 17. Summary of REASONABLY FORESEEABLE Wrangell Ranger District actions that could cumulatively contribute to the environmental effects of the Central Tongass Project

Wrangell Ranger District Location ⁷	FORESEEABLE Timeframe	Description
Anan	2022	<u>Anan Wildlife Observatory Trail Repair and Surfacing (Decision 2018)</u> This project will repair and surface a portion of the Anan Creek Trail (#448) between the Anan Trailhead and the high water landing in the Anan Lagoon with gravel to eliminate steps and provide secure footing. The existing smaller bridges are in poor condition and will be replaced with culverts. The project will replace the three existing Brown Bear Cove bridges with one long-span low-profile bridge. The project will result in a barrier-free trail from the Anan Trailhead to the Anan Wildlife Observatory Viewing Deck.
Anan	2021	<u>Anan Wildlife Observatory Replacement (Decision 2018)</u> The project will replace the viewing deck at the Anan Wildlife Observatory using the conceptual design prepared by Corvus Design.
Etolin Island	2022	<u>Navy Timber Sale (Decision 2015)</u> As of July 2019, 864 acres (3.1 MMBF) of old-growth harvest remaining (helicopter harvest only).
Etolin Island	2020	<u>Timber Stand Improvement (Decision 2016)</u> Pre-commercially thin approximately 1,011 acres of young growth on Etolin Island.
Shrubby Island	2022	<u>Timber Stand Improvement (Decision 2013, 2016)</u> Pre-commercially thin and prune approximately 438 acres of young growth on Shrubby Island for timber production and wildlife and fish habitat enhancement.
Wrangell Island (includes lands other than NFS)	2019-2069	<u>Wrangell to Fools Inlet Road</u> Section 4407 of Public Law 109-59, (SAFETEA-LU), as amended by Public Law 114-94 (FAST Act), granted the State of Alaska 50-year transportation and utility easements crossing Tongass National Forest System lands to connect communities of Southeast Alaska. The State of Alaska accounted for these transportation routes associated with SAFETEA-LU in their 20-year, 2004 Southeast Alaska Transportation Plan, which is currently undergoing amendment and public comment. http://dot.alaska.gov/sereg/projects/satp/index.shtml (see the Draft 2014 Southeast Alaska Transportation Plan, Table 4 - Mid-Region Access Corridors) The Wrangell to Fools Inlet easement falls within the Wrangell Ranger District portion of the project area. The State of Alaska was granted a right-of-way easement 300 feet in width, for a term of 50 years for transportation and utility planning purposes. Approximately 864 acres. (Document No. 2006-000482-0, December 7, 2006, Wrangell Recording District.)

⁷ NFS lands unless otherwise noted

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Wrangell Ranger District Location ⁷	FORESEEABLE Timeframe	Description
Wrangell Island and Mainland (includes lands other than NFS)	2019-2069	<p><u>Tyee-Wrangell-Blake Channel and Bradfield Roads</u> In 2006, the State of Alaska was granted a 50-year public easement from the United States for a 300-foot wide easement for transportation and utility planning purposes. http://dot.alaska.gov/sereg/projects/satp/assets/SATP_2014_Draft_Final_Web.pdf (see Table 4 – Mid-Region Access Corridors) <u>Tyee – Wrangell – Blake Channel – Eastern Passage</u> Approximately 1,311 acres. (Document No. 2006-000483-0, December 7, 2006, Wrangell Recording District) <u>Bradfield</u> Approximately 816 acres (Document No. 2006-000481-0, December 7, 2006, Wrangell Recording District.) <u>Cleveland Peninsula Eagle River To Bradfield</u> Approximately 766 acres (Document No. 2009-000546-0, February 26, 2009, Ketchikan Recording District.)</p>
Wrangell Island (Alaska Mental Health Land)	Unknown	<p><u>Alaska Mental Health Trust Timber Sales</u> AHMT has harvested, leased, or sold much of its land on Wrangell Island. The remaining land is slated to produce revenue at some point in the future, for economic development. There is an annual land sale program for AMHT lands on Wrangell Island. The amount of land for sale is not determined until the offering is publicized. Typically, subdivision lots and small sized parcels are offered to the highest qualified bidder through a competitive land sale.</p>
Wrangell Island (State Land)	2022	<p><u>Earl West Cove Area Timber Sale</u> The timber sale is named in the Alaska Division of Forestry’s Five-Year Schedule of Timber Sales (CY2018-2022). The sale area is located on the east shore of Wrangell Island. An estimated volume of 12.5 MMBF of old growth is proposed for harvest from approximately 700 acres. An estimated 5 miles of road could be constructed for access in the harvest areas. The sale will be entirely on Southeast State Forest lands. It is currently scheduled for harvest in CY2022. http://forestry.alaska.gov/Assets/pdfs/timber/ketchikan_timber/2018/2018-2022_fysts_SSE_adopted_wmaps_comments.pdf</p>
Wrangell Island (City and Borough Land)	Unknown	<p><u>Institute Property Development</u> The City and Borough of Wrangell is in the initial stages of planning development of the currently undeveloped 140-acre Institute Property near the 5-mile marker on Zimovia Highway for housing, health care and educational facilities. This property abuts the National Forest.</p>
Wrangell Island	2024	<p><u>Timber Stand Improvement (Decision 2016)</u> Pre-commercially thin and prune approximately 863 acres of young growth on Wrangell Island for timber production, wildlife and fish habitat enhancement and scenery enhancement.</p>
Wrangell Island	2022	<p><u>Wrangell Island Project (Decision 2017)</u> 428 acres (5-7 MMBF) of old-growth harvest 2.3 miles NFS road construction 1.4 mile of NFS road reconstruction 2.6 miles of temporary road</p>

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Wrangell Ranger District Location ⁷	FORESEEABLE Timeframe	Description
Zarembo Island	2020	<p><u>BITSU8 Creek Stream Restoration Using Hand Tools</u> The NEPA for this project was completed in the <i>Stream Restoration Using Hand Tools EA and DN/FONSI (2017)</i>. The proposed restoration reach is approximately 0.3 miles on Zarembo Island and in a previously-harvested floodplain/riparian area. The existing condition meets the criteria for restoration described in the EA. Implementation would use hand tools including picks, shovels, chainsaws, winches, etc. No heavy equipment proposed.</p>
Zarembo Island	2021-2022	<p><u>Timber Stand Improvement (Decision 2016)</u> Pre-commercially thin and prune approximately 1,460 acres of young growth on Zarembo Island for timber production, and wildlife and fish habitat enhancement.</p>

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