Chapter 2

Alternatives

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Table of Contents

Chapter 2
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Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the Central Kupreanof Timber Harvest project to meet the Purpose and Need and to respond to the Significant Issues as described in Chapter 1. It includes a description and map of each alternative. The following topics are discussed:

- The development of the Proposed Action and alternatives,
- A description and map of each alternative considered in detail,
- An overview of design elements
- A comparison of the alternatives focusing on the evaluation criteria for the Significant Issues,
- Alternatives eliminated from detailed study, and
- Mitigation, other proposed projects, and monitoring

This chapter presents the alternatives in comparative form to inform the public and other agencies, and to provide a basis for a decision by the responsible official (40 CFR 1502.14). For a complete discussion of the effects used to compare alternatives, consult Chapter 3, "Affected Environment and Environmental Consequences."

A Logging System and Transportation Analysis (LSTA) was developed to include all suitable commercial forest land as identified by the National Forest Management Act and the Forest Plan. From that LSTA, potential timber harvest units were identified. These units were field-verified to ensure their suitability, to identify any concerns, and to determine which silvicultural prescriptions would be feasible.

In response to the Significant Issues and comments received during scoping, a No-action alternative, the Proposed Action, and two other action alternatives were developed. Other alternatives were considered but dropped from detailed analysis. The development of the alternatives led to deferring several potential timber harvest units from further consideration at this time.

Development of the Proposed Action

The initial unit pool was designed to harvest approximately 40 MMBF (estimated from sawlog volume). Preliminary field exams revealed much lower volume than expected. Possible units were added to the unit pool and a second public involvement letter went out recognizing the project could harvest up to 80 MMBF through the development of alternatives.

Units that did not meet Forest Plan Standards and Guidelines (when all the Best Management Practices, project design and mitigations were included) were eliminated from the unit pool. The proposed action was adjusted to include the remaining second round units and better respond to timber economic concerns while remaining within the scope of the original proposed action.

During the development of alternatives, a preliminary deer habitat alternative was developed. In comparison, there were few differences between this alternative and the proposed action. Design elements of the deer habitat alternative were brought forward into the proposed action and the deer habitat alternative eliminated from further study. Specifically, units in acres of concentrated past and proposed harvest were dropped or prescribed with 50 percent retention to facilitate potential travel corridors. Also, units were dropped to promote additional connectivity between small old growth reserves. In response to the reduction of volume, additional units with no deer habitat or wildlife issues were added to the proposed action.

Development of Alternatives

A group of resource specialists, making up the Interdisciplinary Team (IDT), considered varied alternatives to the Proposed Action to provide a reasonable range of options for meeting the purpose of this project. Alternatives were designed to address the issues identified during scoping (See Chapter 1). They were also designed to meet Forest Plan Standards and Guidelines (2008 Forest Plan) and applicable laws. Each action alternative represents a site-specific proposal developed through intensive interdisciplinary evaluation and field verification. Within the range of options they provide, the decision maker can consider various combinations of alternatives in determining the Selected Alternative.

Changes Made Between Draft and Final EIS

- Stream and crossing information on the Road Cards in Appendix B were corrected with field data or gaps identified and criteria disclosed. A correction from 61 red fish crossings to 54 crossing occurs in the FEIS due to more recent road maintenance information. Also, based on available stream information, short span log stringer or modular bridges were recommended to reduce effects on some stream channels (including Class III streams). Prior to actual construction of roads and stream crossings, final locations, structure types and design will be completed. All applicable Forest Plan Standards and Guidelines, Forest Service manual and handbooks, best management practices and the MOUs with Alaska Department of Fish and Game (when applicable) will be incorporated during design, construction and maintenance of roads.
- In response to concerns about the red crossings within the project area, an upstream assessment of fish habitat was completed and is included in the FEIS Aquatics section. Consequently, the number of red fish crossings was updated. This analysis supports the original DEIS analysis.
- Field methods were better documented for several resources including aquatics and transportation.
- A more detailed discussion of effects to stream flows is also included in the FEIS.
- Road densities were calculated at multiple scales and included in the analysis.
- In document discussions, corrections were made to the road numbers and miles of currently open NFS roads that would be closed with this project. Road cards, maps and related road numbers were correct in the DEIS.
- The timber sale economics and supply analysis was updated due to the use of NEAT_R version 2.15 as well as a better description of the small sales available and greater flexibility in the larger volume alternatives.
- The wildlife section was updated to include a more complete discussion of the rationale for choosing POG as the unit of measure and method of analysis.
- The Subsistence section was updated to include better information on use areas, preferences, access, and use of multiple subsistence resources.

- The cumulative effects analysis for POG within multiple WAAs was updated to exclude the Threemile Timber Harvest units as the decision for this project was vacated.
- Updates to the Region 10 Sensitive Species List (2009) were noted in the sensitive plants section. However, the Central Kupreanof project is exempt from applying the 2009 revisions due to the project's advanced stage when the list was approved and signed. The difference would be fewer effects to sensitive species in the area with the revisions since the two known species were removed from the list and none of the new species were found in the project area.
- The Yellow-billed loon was added as a Federal Candidate Species; the Black oystercatcher and Aleutian Tern were added to the Sensitive Species list, and evaluated in the analysis for the FEIS.
- Biological Evaluations have been published in this FEIS in Appendix E.
- The total acres affected for Rocky Pass IRA was corrected.
- On May 28, 2009, the USDA Secretary reserved decision making authority over the construction and reconstruction of roads and the cutting, sale or removal of timber in Inventoried Roadless Areas. This project will be sent to the Secretary of Agriculture for review.
- The acres of detrimental soil conditions caused by temporary road construction were underestimated for all action alternatives. The increase, however, did not change the percentage of the harvest area affected.
- The miles of reconstructed, temporary and system roads crossing wetlands were underestimated for all action alternatives, as well as the existing condition of system roads crossing wetlands. The underestimation was by a factor of three due to a unit conversion error. This does not change the conclusion regarding the cumulative effects of roads crossing wetlands.
- The Southeast Alaska Conservation Council (SEACC) submitted an alternative for consideration after the 45 day comment period for the DEIS was over. The alternative was considered but not carried forward (see page 2-11 for more discussion).

- Additional information and minor corrections were added, where appropriate, as requested through comments on the DEIS.

Alternatives Considered in Detail

The No-Action Alternative (Alternative 1), Proposed Action (Alternative 2) and two other action alternatives (Alternatives 3 and 4) are considered in detail in this chapter. Alternatives 3 and 4 provide alternate means of satisfying the Purpose and Need for this project than does the Proposed Action. They respond differently to the significant issues that are discussed in this chapter. Maps of all alternatives considered in detail are provided at the end of Chapter 2. The map for Alternative 1, the No-action Alternative, represents the current condition of the project area (See Figures 2-1 through 2-4, at the end of this chapter, for maps of each alternative. Larger-scale maps of the alternatives are contained in the project record.)

Alternative 1 (Figure 2-1)

This alternative represents the existing condition against which the other alternatives are compared.

Alternative 1 proposes no new timber harvest or road construction in the Central Kupreanof project area at this time. It does not preclude future timber harvest or other activities from this area. The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14d) requires that a "No Action" alternative be analyzed in every EIS.

Alternative 2 (Figure 2-2)

Alternative 2 is the Proposed Action and was designed to meet the Purpose and Need for this project, and to address concerns related to timber economics and deer habitat. It would offer up to 46.8 MMBF (sawlog and utility) of timber from 2,506 acres. It would consist of 2,031 acres (81%) that would be clearcut (CC), 33 acres (1%) that would be clearcut with reserves (CCR), and 442 acres (18%) that would be uneven-aged management. There would be 7.3 miles of new NFS roads constructed, 2.9 miles of reconstructed road, and 3.9 miles of temporary road construction to access timber.

Alternative 3 (Figure 2-3)

Alternative 3 would provide the largest amount of volume of all the alternatives. It proposes harvesting 70.2 MMBF (sawlog and utility) from 3,647 acres. It would consist of 3,127 acres (86%) that would be clearcut (CC), and 520 acres (14%) that would be uneven-aged management. This alternative proposes helicopter yarding for those units where access by road construction is not feasible. Ground based systems and associated road construction are analyzed for this alternative. There would be 25.1 miles of new NFS roads constructed, 9.1 miles of reconstructed road and 6.1 miles of temporary road constructed.

This alternative would respond to maximizing timber harvest opportunity while meeting Forest Plan Standards and Guidelines. It addresses the timber economics issue by maximizing the proposed volume available and would allow the Forest Service the flexibility to respond to current and future market demands.

Alternative 4 (Figure 2-4)

Alternative 4 was developed in response to public concerns about the impacts of increased access, timber harvest, and road building on inventoried roadless area characteristics. This alternative offers the lowest amount of volume at 28.2 MMBF (sawlog and utility) from 1,327 acres. All units would be clearcut (CC). There would be no new NFS road construction; 2.6 miles of road would be reconstructed and 2.2 miles of temporary road construction.

Alternative 4 addresses all of the significant issues to some extent. It does not propose harvest and road building within the boundary of any Inventoried Roadless Area, although there would be effects to the zone of influence. Harvest would be limited to units in close proximity to existing roads. No new NFS roads and 2.2 miles of temporary road are proposed, which addresses concerns related to increased access. Less road building results in shorter haul distances which also satisfies timber economics concerns related to today's market, but does not take into account the need for flexibility in the long term.

Identification of the Preferred Alternative

In the DEIS, alternative 3 was identified by the interdisciplinary team as the Preferred Alternative and approved by the Forest Supervisor. This was based on the environmental analysis and public and agency comments received to date at that time. The Responsible Official may select this alternative, another alternative, or a modification of one of the alternatives.

Design Criteria Common to all Action Alternatives

All alternatives are consistent with the 2008 Tongass Land and Resource Management Plan (Forest Plan). All applicable Forest Plan Standards and Guidelines have been incorporated into the design of the proposed units and alternatives. While some alternatives have been designed to provide a greater measure of protection than is required by the Forest Plan for some resources, such as additional consideration for potential wildlife travel corridors, all alternatives were designed to meet Forest Plan Standards and Guidelines for these and all other

resources. Additional direction comes from applicable laws and Forest Service manuals and handbooks. A complete collection of site-specific descriptions and resource considerations for each potential harvest unit (unit and road cards) were published in Appendix B of the DEIS. In this FEIS road cards can be found in Appendix B, and the unit cards associated with the selected alternative are located in Appendix 2 of the ROD. These cards serve as the prescription or design narrative for the project as well as detail design elements for the construction and reconstruction needed for existing National Forest System roads.

Roads

Temporary (or NFS) roads were proposed in all units where shovel-yarding distances exceeded 500 feet to provide a surface for log hauling. Temporary road locations on the maps are estimated. Temporary road locations are subject to approval by the Forest Service. Temporary road decommissioning will be part of the timber sale contract.

Road closures will occur up to ten years after the completion of timber harvest. Road closure, storage and decommissioning are described in the Road Management/Access section in Chapter 3 and in the Glossary of Chapter 4.

Rock Quarries

Existing rock quarries may be expanded or new rock quarries may be developed to support new road construction and maintenance. Quarry sites would be developed within 500 feet of a road and avoid Class I and Class II stream buffers, old-growth habitat reserves, eagle and goshawk nest tree buffers, and non-development LUDs. With either the expansion of an existing quarry or the development of a new site, the area footprint would not exceed five acres.

Prior to quarry development a Site Development Plan will be reviewed and approved by resource specialists and the District Ranger.

Logging Camp

No land camp is proposed in the project area for any of the alternatives. The town of Kake or a floating camp could be used during harvest activities. Appropriate permits would need to be acquired by the operator for use of a floating camp.

Mitigation Measures

The analysis documented in this EIS discloses the possible adverse effects that may occur from implementing the actions proposed under each alternative. Many of these effects are reduced or avoided by using Forest Plan direction, including management prescriptions, Standards and Guidelines, and Best Management Practices (BMPs), which meet the requirements of the Clean Water Act. All unit-specific and/or alternative-specific mitigation is identified in Appendix B.

Stewardship Contracting

In developing the projects common to all action alternatives, the District considered the potential of using stewardship contracting with proposed timber harvest activities. The District worked with Kake to identify projects where existing equipment and infrastructure could be used to accomplish the work. Funding for project contracting may come from a combination of timber receipts and other appropriated dollars. The receipts from the value of the timber could be used to finance the contractual requirements, and a priority listing of the project area activities could be included in the contract. These projects would either be accomplished as part of the contract or independently. There would be a list of mandatory projects to be completed with timber receipts, combine with the possibility of using other appropriated dollars available at the time to maximize the number of project completed.

Projects Common to all Action Alternatives

The following projects were identified by the Interdisciplinary Team as possible stewardship opportunities within the project area. These projects are not design criteria or mitigation measures to reduce the effects of the alternatives, but could be used to improve or enhance resources or to complete obligations within the project area. These projects are common to all action alternatives and are suitable for potential stewardship contracting opportunities.

See Figure 2-5 for more information regarding Projects Common to All Action Alternatives.

Fisheries/ Hydrology

During this project, the Roads Analysis Process (RAP) was updated and recommendations for road management objectives for the entire Kake road system were made. Recommendations for roads not associated with the proposed timber harvest activities have been incorporated into the Petersburg Ranger District Access Travel and Management Plan Environmental Assessment (EA). Roads identified for closure include roads with red fish crossings. Ultimate closure of those roads will depend on the decision made from that EA (expected in 2009). Implementation of road closures would result in the removal of culverts that do not meet fish passage standards and could be accomplished through stewardship contracts associated with an action alternative.

Recreation

Maintain the four recreational hiking trails in the area: Cathedral Falls (0.5 mi.), Goose Lake (0.75 mi.), Hamilton Creek (1.0 mi.), and Big John Bay (1.75 mi.). The total length of all trails combined is about

four miles. The work could include annual brushing, condition surveys and replacement of gravel as needed. Structure work on the trails could also be included depending on the extent and difficulty of the work. Gravel for trail maintenance in the past has been obtained locally in Kake.

Conduct annual maintenance for the Big John Bay Cabin including preparing it for occupancy in the spring and winterizing it at the end of the season. In addition, deferred maintenance and repairs could also be considered for this project. The cabin can be accessed by hiking the 1.75-mile trail off Road 45001or by boating to Big John Bay.

Invasive Plants

Hand-pull a small population of spotted knapweed located on the 6337 Road. Work could involve up to a half-day of work annually for at least five years and possibly monitoring and/or hand-pulling beyond that depending on how well the plants respond to hand-pulling. Proper disposal of the pulled weeds would be specified as part of the project design, most likely burning in a controlled manner. Other roadside weed populations could also be included, if new populations are discovered.

Silviculture/ Wildlife

Currently there are 325 acres of precommercial thinning to accomplish in second growth stands that could potentially be done under a stewardship contract on the Kake road system. These stands are approximately 25 years old. Thinning prescriptions would use traditional thinning methods, and may vary to include spacing from 14 x 14 to 18 x 18 feet. Thinning in these stands would also benefit wildlife as it would provide cover and allow side lighting to reach the forest floor. (See Figure 2-5)

Transportation

There are approximately 114 miles of Forest Service System roads in the Kake road system, which encompasses the Central Kupreanof EIS project area. Of those 114 miles of roads there are approximately 94 miles of open roads that need maintenance to remain open. This maintenance generally includes brush cutting, blading of the road surface, ditching and cleaning of culverts to keep proper drainage. Of the 94 miles of open road there are approximately 38 miles of mainline roads (6040, 6328, 6314, 6314S) that take first priority for maintenance.

Petersburg Ranger District historically has approximately $70,000 per year to spend on road maintenance in Kake. On the average it costs $2,000 per mile to maintain roads, which equates to 35 miles of road per year that can be done in Kake. Generally, two thirds of the mainline roads are done and the remaining portion is spent on selected side roads.

Microsales

A Microsale is a timber sale consisting of dead or down timber which has been proposed by a prospective purchaser, and the District Ranger agrees to offer for bidding using an informal advertisement and short bid form. The maximum size of a Microsale would be 50 MBF.

Microsales are generally associated with a small number of trees. Dead or down trees within a distance of approximately 200 feet from one of the listed roads, and are harvestable under Forest Plan (2008) Standards and Guidelines, may be eligible as a Microsale opportunity within the project area.

On site evaluation will be conducted when trees have been identified for Microsale opportunities. For all action alternatives, Microsales authorized by the District Ranger would be allowed to occur along NFS roads 6040, 6314, 6314S, 6326, 6328, 6334, 6336, 6339 and 6367.

Alternatives Considered but Eliminated from Detailed Study

Individual resources were considered in identifying significant issues. Chapter 1 "Other Issues and Concerns" explains how these resources were considered and the rationale for eliminating them as issues that would drive alternatives. Several alternatives were considered during the planning process, but have not been included in this EIS for detailed study. These are described briefly below, along with the reasons for not considering them further.

Subsistence/ Deer Habitat

A few alternatives that addressed subsistence and deer habitat were developed. During the first round of alternative development using the original unit pool, the team discussed subsistence and deer habitat as a potential significant issue. Many comments indicated subsistence use, access, and deer were concerns. Units were rated using deer winter range data, the highest rated units being removed from the alternative, or prescribed for 50 percent retention. Potential travel corridors were also considered. This alternative was eliminated from further consideration when additional units were added to the unit pool.

Two more alternatives around deer habitat were developed once the unit pool was finalized. Again higher rated units for deer habitat and units within potential travel corridors were avoided or prescribed retention. One alternative applied these elements to the proposed action; the other alternative applied these elements to the entire unit pool. Elements of the first alternative were incorporated into the proposed action and therefore this alternative was eliminated from further study. The later alternative was eliminated from further consideration because deer habitat was considered in the design of the proposed action.

Timber Supply and Sale Economics

An alternative for timber supply and sale economics was developed from the first unit pool. This alternative concentrated on the least amount of road building and the best economics of "today" as identified by the financial efficiency analysis. This alternative was eliminated from further study since elements of this alternative were ultimately incorporated into the development of Alternative 4.

Inventoried Roadless Areas

While carried forward as a Significant Issue, several preliminary alternatives were developed to respond to Inventoried Roadless Area concerns.

Using the initial unit pool, an alternative was developed that avoided Inventoried Roadless Areas completely, at times cutting settings and units in half. The alternative proposed only to build roads and harvest units that were within the 600-foot buffer of existing units and 1,200-foot buffer of existing roads. The volume estimated was about 18 MMBF. It estimated no new miles of system road and 13 miles of temporary roads. It was eliminated due to low volume, high costs, and effects to future timber management opportunities; it did not meet the purpose and need.

A second alternative was developed at this time that minimally impacted Inventoried Roadless Areas (approximately 565 acres would have been affected). Existing unit boundaries were considered as well as those in close proximity to roaded areas. The alternative proposed to build road and harvest units that were within the 600-foot buffer of existing units and 1200 foot buffer of existing roads, and some units that were not more than 1500 feet outside the buffers. It offered about 30 MMBF with approximately 12-19 miles of new road. It was eventually eliminated from further study when the unit pool changed. Alternative 4 was developed to addresses the issue of Inventoried Roadless Areas.

Microsale and Small Sale

An alternative designed to supply small mills would not meet the need to provide an economics reliable supply of timber to a forest products industry which includes processing facilities and timber sale purchasers of varying size and capacity. Such an alternative would not meet the need to provide an adequate supply for the larger mills of Southeast Alaska industry. Each action alternative in the Central Kupreanof project includes many harvest units suitable for small timber sale offerings. The timber volume in any action alternatives could be separated administratively into timber sales of varying size and complexity. Please see the "Opportunities for Small Sales" section in Chapter 3.

Community Alternative

SEACC submitted a proposal called the "Community Alternative" in May 2008. At this point, the IDT was responding to comments to the DEIS made during the 45-day comment period and finalizing resource reports for the FEIS. SEACC acknowledged the timing of their submittal could problematic for inclusion in the FEIS.

The Community Alternative was based on the Alternative 4 in the DEIS and in brief review, compared similar to most resource effects disclosed for Alt 4. The unit and roads in this alternative are the same as Alternative 4: however, the silvicultural prescriptions for several units were modified to retain more stand structure. The Community Alternative would allow about 20 million board feet of timber to be harvested on 1,326 acres but would ration this timber volume out at 200 mbf per year to support local mills in Kake. In addition, young-growth management would occur on an equal amount of acres. For access to this timber, 2.2 miles of temporary roads would be constructed but no National Forest System roads.

In addition to timber harvest, this alternative includes the following stewardship projects:

- Replacement of all red fish crossings within the project area
- Decommission roads 45808 and 45906 after thinning
- Road maintenance, repair, and decommissioning
- Thinning and capture of thinning product with fish waste for fertilizer
- Production of blueberries in gapped stands

The Community Alternative was considered but eliminated from detailed study and inclusion in the FEIS. When the Community Alternative was compared to those alternatives that were already analyzed, the Community Alternative was found to be very similar in many ways to Alternative 4. Furthermore, some of the proposed measures to reduce impacts on deer habitat were considered in Alternative 2. It therefore does not respond any differently to Issues 2 and 3 (Inventoried Roadless Areas and Road Management/Access) as Alternative 4 does.

Regarding Issue 1, the Community Alternative improved timber economics by adding or increasing retaining more stand structure in harvest units. The financial efficiency analysis used information from recent bids on microsales and small sales. As stated in the SEACC letter, most of this data on microsales came from Prince of Wales (POW) Island, involved no road construction (even temporary road construction), and eliminated barging costs. Also, the timber on POW is generally of higher quality than in the Central Kupreanof project area. The Central Kupreanof project used NEAT-R, which is based on the Residual Value method and uses cost collection data. Therefore, it is hard to compare alternatives; however, the Forest Supervisor can consider retaining more stand structure in making his decision, as uneven-aged management is considered in Alternatives 2 & 3.

In addition, the Community Alternative uses an implementation strategy that would limit annual harvest. While the Forest Supervisor could consider such an implementation strategy in making his decision, the tradeoffs would also need to be considered. The Forest Supervisor must consider a volume that is large enough to amortize the cost of mobilization and offer a potential for profit to purchasers. By limiting yearly harvest, non-local or larger operators in Southeast would likely be excluded from this project area's timber supply. He would also need to consider the concerns of small mill owners who have discussed the difficulties of harvesting, processing materials and marketing products from the small sales purchased.

Many of the Community Alternative specific design elements are addressed through Projects Common to All Alternatives in this document, like fisheries/hydrology projects, invasive species, wildlife thinning, and road maintenance. Other parts are included in the Petersburg Ranger District's ATM EA, the District's programmatic thinning schedules and road maintenance schedules, special uses, and/or the Forest's prioritization for the replacement/repair/removal of red fish crossings, as disclosed for all alternatives in the both the DEIS and FEIS.

Because the Community Alternative was so similar to Alternative 4 and did not respond differently to the Significant Issues (was within the range of effects disclosed in the FEIS alternatives, including projects common to all alternatives), this alternative was considered but eliminated from further consideration. SEACC's letter and alternative proposal are located in the project record.

Monitoring

Monitoring is a tool which involves gathering data and information and observing the results of management activities as a basis for evaluation. Monitoring activities can be divided into project-specific monitoring and Forest Plan monitoring. The National Forest Management Act requires national forests to monitor and evaluate their forest plans (36 CFR 219.110). Chapter 6 of the Forest Plan includes the monitoring activities to be conducted as part of the Forest Plan implementation.

Forest Plan monitoring items are either contingent on management activities, such as those associated with this project, or are based on the condition of the Tongass National Forest as a whole. Much of the monitoring at the Forest Plan level consists of annually surveying a representative sample of harvest units or roads.

Implementation monitoring is conducted at the project level. The selected management activities need to be consistent with the design criteria used to analyze the environmental effects during the planning stage.

The IDT prepared unit and road cards to provide site-specific analysis and guidance for unit layout, road location during timber harvest, and road construction and road reconditioning needs. Unit cards include a unit map and a narrative explaining resource concerns and how the concerns could be addressed in the design of each unit. Road Management Objectives were developed for each NFS road (Road Cards, Appendix B).

Staff members who prepare timber sale contracts are required to confirm and certify that the contract is in agreement with the decision document. This certification verifies that items such as maps, number of acres, location of units, harvest methods, and stand numbers are consistent. The certification also ensures that all mitigation measures identified in the EIS relation to timber sale contract requirements are included in the contract.

Implementation monitoring continues through harvest and contract inspections. As a routine part of project implementation, sale administrators and road inspectors monitor harvest and construction activities. Through provisions contained in the timber sale contract or other contracts, contract administrators and inspectors ensure that the prescriptions contained on the unit and road cards are implemented. Sale administrators and road contract inspectors have the authority to initiate action to repair resource damage and suspend operations until problems have been corrected. This process ensures that project elements and Forest Plan Standards and Guidelines are implemented as designed. The Contract Administrators monitor all units and roads for implementation of the appropriate BMPs.

Comparison of Alternatives

This section compares outputs, objectives and effects of the alternatives in terms of the Significant Issues for the Central Kupreanof Timber Harvest project. The discussions of effects are summarized from Chapter 3, which should be consulted for a full understanding of these and other environmental consequences. Table 2-2 below provides an overview comparison of information from the alternative descriptions and Chapter 3 relevant to the issues. This information will be used in the discussions that follow.

Issue 1- Timber Supply/ Sale Economics

Optimizing volume and net return on timber harvest will provide for flexibility, in both the long and short term, for offering economically viable timber sales.

While Alternative 3 proposes the greatest amount of NFS road and temporary road construction, it provides the Forest Service the most flexibility in sale packaging and the greatest ability to respond to future market conditions. It proposes the most volume at approximately 70 MMBF.

Estimated logging and transportation costs would be $410 per MBF with road costs estimated to be $48 per MBF. The indicated bid is ($129.16) per MBF. Between 234 and 332 direct annualized jobs would be supported in Alaska, providing an estimated $9.1 to $12.5 million in direct income.

Alternative 4 was developed in response to public concerns about the impacts of increased access, timber harvest, and road building on roadless area characteristics. Although this alternative proposes the lowest volume and the lowest flexibility in sale packaging, it has the highest indicated bid under current market conditions. It proposes only harvesting stands accessible from the existing road system or temporary roads and avoids building new National Forest System roads and helicopter yarding. Alternative 4 proposes the least amount of volume (28.2 MMBF) of all of the action alternatives.

Estimated logging and transportation costs would be $353 per MBF with road costs estimated to be $17.00 per MBF. The indicated bid is ($85.45) per MBF. Between 94 and 143 direct annualized jobs would be supported in Alaska, providing an estimated $3.6 to 5.0 million in direct income.

Alternative 2 provides less flexibility than Alternative 3, but still provides more flexibility than Alternative 4. It builds the greatest amount of road after Alternative 3, and offers the second highest amount of volume with 46.8 MMBF. The estimated logging and transportation costs would be $374 per MBF with road costs estimated to be $18 per MBF. The indicated bid is ($86.42) per MBF. Between 156 and 221 direct annualized jobs would be supported in Alaska, providing an estimated $6.1 to 8.3 million in direct income.

Alternative 1 proposes no timber harvest. Timber needed to meet the estimated demand would have to be harvested from other areas on the Tongass National Forest. Jobs supported by this project and manufacturing would not be supported by this project.

Issue 2- Inventoried Roadless Areas

Timber harvest and building roads in inventoried roadless areas would reduce roadless acres within the project area and may affect roadless values.

In all action alternatives, the roadless values would either remain unchanged or be minimally influenced by the proposed activities.

In all alternatives, the North Kupreanof, South Kupreanof, Rocky Pass, and Castle Inventoried roadless areas would remain greater than 5,000 acres in size and eligible for Wilderness consideration in subsequent forest planning. In all alternatives the Castle Roadless Area would be unaffected by timber harvest, road construction, buffers, or other associated activities.

No changes to inventoried roadless acres or character would occur as a result of Alternative 1.

Alternatives 2 and 3 include timber harvest within the boundaries of the North Kupreanof, South Kupreanof, and Rocky Pass Inventoried Roadless Areas. The predominant effect would be to the South Kupreanof Inventoried Roadless Area with approximately 341 acres of timber harvest and one mile of new NFS road in Alternative 2 and 1,184 acres and 15 miles of road construction in Alternative 3. In comparison, the North Kupreanof Inventoried Roadless Area acres of harvest would vary from 90 acres in Alternative 2 to 152 acres in Alternative 3. No new roads are proposed within the North Kupreanof or Rocky Pass Inventoried Roadless Areas. Both Alternative 2 and 3 propose three acres of timber harvest within the Rocky Pass Inventoried Roadless Area.

Of the three action alternatives, Alternative 3 affects the most total inventoried roadless acres. Up to 5,273 acres would be treated as developed in the South Kupreanof Inventoried Roadless Area. The affected acres represent about two percent of the South Kupreanof Inventoried Roadless Area.

Alternative 4 avoids timber harvest and road building within the boundary of inventoried roadless areas. However, the application of the 600 feet and 1,200 feet around harvest units and roads would overlap into the inventoried roadless area boundaries. Alternative 4 affects the least total roadless acres of any action alternative.

Issue 3- Road Management- Access

Road building, reconstruction and closures associated with the timber sale may change access within the project area.

Construction of new roads and closure of existing roads would affect motorized access. The proposed roads in each alternative are necessary to meet the purpose and need of the project because they provide access to the timber and provide transportation for timber to be hauled to a processing facility. Each alternative requires a different level of road construction thus having different levels of effects.

Alternative 1 does not propose any new road construction. Under this alternative, current management plans would continue to guide the management of NFS roads. All system roads would be managed as directed by the Forest Plan, road management objectives, and previous NEPA decisions. Access would not increase or decrease for recreational or subsistence activities and maintenance would continue to be ongoing.

Alternative 3 (construction of 25.1 miles new NFS road) would have the greatest increase for motorized public access to the area. Alternative 2 (construction of 7.3 miles new NFS road) would also increase motorized public access. Alternative 4 (no new NFS road construction) would not increase motorized public access. Any increase in new access will occur during the timber sale and for up to ten years after timber harvest completion. However, motorized access would then decrease as roads are closed and placed in intermittent service. Closed roads would still provide a long term increase for non-motorized access. Alternative 2 and 3, by creating additional infrastructure, would enhance opportunities for future timber harvest.

Alternative 3 reconstructs 9.1 miles of existing NFS road, Alternative 2 reconstructs 3.9 miles of existing NFS road, and Alternative 4 reconstructs 2.2 miles of existing NFS road. This reconstruction would increase current access. All reconstructed roads would be managed as a maintenance level 2, open to motorized vehicle traffic, during timber sale activities and up to ten years thereafter. However, motorized access would again decrease as these roads are closed and placed into intermittent service.

Alternatives 3 and 4 close the most existing NFS roads (about 2.0 miles) while Alternative 2 closes only slightly less miles at 1.1 miles of road. This will reduce motorized access and place roads in a condition that requires minimum maintenance to protect the environment and preserve them for future use.

Table 2-1. Comparison of Alternatives by Issues and Effects

(Numbers may not add up to the totals shown due to rounding)

	Alt 1	Alt 2	Alt 3	Alt 4
Issue 1- Timber Supply/Sale Economics				
Indicated Bid Value $/MBF [1]	0	($86.42)[1]	($129.16)	($85.45)
Logging/Transportation Cost $/MBF	0	$374.00	$410.00	$353.00
Road Costs $/MBF	0	$18.00	$48.00	$17.00
Temporary Road Miles	0	3.9	6.1	2.2
NFS Road Miles	0	7.3	25.1	0
Helicopter Sawlog Volume (MMBF)	0	3.0	3.4	0
Ground Based Sawlog Volume (MMBF)	0	36.4	55.6	23.6
Total Volume (sawlog and utility) (MMBF)	0	46.8	70.2	28.2
Direct Jobs[2]	0	156-221	234-332	94-133
Economic Flexibility Ranking	N/A	2	1	3
Issue 2- Inventoried Roadless Areas				
Acres of Timber Harvest within Inventoried Roadless Areas	0	434	1,339	0
Miles of NFS Roads (closed after harvest)	0	1	13	0
Miles of Temporary Roads within Inventoried Roadless Areas (decommissioned after harvest)	0	0	2	0
Total Acres Affected Including Buffers (600' for harvest units, 1200' for roads)[3]	0	1,255	5,709	140
Percent of Inventoried Roadless Area Affected (includes Rocky Pass IRA, North Kupreanof IRA, and South Kupreanof IRA acres)	0	0.3	1.5	<0.1

[1] Numbers in () indicate negative values
[2] These jobs are shown as a range to account for export if approved by the Regional Forester (Based on number of job years. See Table 3-7).
[3] Helicopter units are not buffered.

	Alt 1	Alt 2	Alt 3	Alt 4
Issue 3- Road Management/Access				
Miles of Open Existing NFS Road before Harvest	64	64	64	64
Miles of Proposed New NFS Road to be Constructed	0	7.3	25.1	0
Miles of Proposed New Temporary Road	0	3.9	6.1	2.2
Miles of NFS and Temporary Road to be Constructed in Inventoried Roadless Areas	0	1	15	0
Total Miles of Road Remaining Open after Implementation of each Alternative	64	62.3	62.3	62.3
Miles of Existing NFS Road to be Closed after Harvest	0	1.69	1.69	1.69
Miles of Reconstructed Existing Closed Road to Remain Open after Harvest	0	2.9	9.1	2.6
Miles of Road to be Left Open for up to Ten Years after Harvest	64	74.2	98.2	66.6
Total Road Cost for all New Temporary, New NFS, and Reconstructed Road within the Project Area[4]	$0	$2,039,000	$6,017,000	$416,000
Other Environmental Considerations				
Effects on Wildlife				
Acres of POG Harvested	0	2,427	3,568	1,261
Percent Change from Current Condition (2008) within Project Area (57,628 acres of POG)	0	4.2%	6.2%	2.2%
Percent Change from Current Condition (2008) within Multiple WAAs (269,593 Acres of POG)	0	0.9%	1.3%	0.5%
Percent Change from Current Condition (2008) within Biogeographic Province (307,710 acres of POG)	0	0.8%	1.2%	0.4%

[4] Includes maintenance costs

	Alt 1	Alt 2	Alt 3	Alt 4
Percent Cumulative Reduction From Historic/Original Condition Biogeographic Province (431,217 acres of POG)	-29%	-29.8%	-30.2%	-29.4%
Percent Cumulative Reduction From Historic/Original Condition WAA (359,445 acres of POG)	-26%	-26.9%	-27.3%	-26.5%
Effects on Timber and Vegetation				
Total Acres Even-aged Management (Clearcut)	0	2,031	3,127	1,327
Total Acres Two-aged Management (Clearcut with Reserves)	0	33	0	0
Total Acres Uneven-aged Management (Single-tree Selection)	0	442	520	0
Total Acres of Harvest by all Silviculture Systems	0	2,506	3,647	1,327
Effects on Soils				
Total Acres Soil Disturbance	42	167	299	93
Acres of Very High Risk Hazard (MMI-4) Soils within Units	0	10	17	0
Effects on Wetlands				
Total Miles of Road (Reconstructed, Temporary and NFS) Crossing Wetlands	0	2.83	7.06	1.17
Effects on Heritage Resources	**None**			
Effects on Scenery				
Percent of Past and Proposed Visual Disturbance by Viewshed				
Hamilton	5%	7%	7%	6%
Big John Bay	15%	22%	23%	20%
Rocky Pass	2%	3%	3%	2%

	Alt 1	Alt 2	Alt 3	Alt 4
Upper Castle	2%	2%	4%	2%
Upper Duncan	1%	2%	4%	1%
Effects on Recreation	**No Significant Effects**			
Effects on Hydrology/Fisheries				
30 year Cumulative Harvest Percentage by Alternative (Assuming a 2009 implementation date and that all proposed acres are harvested)				
Hamilton Creek	1.9%[5]	5.3%	5.4%	4.6%
McNaughton Point	2.9%	13.8%	14.5%	11.9%
Big John Creek	4.5%	6.8%	7.1%	5.8%
West Duncan Canal	0.4%	1.3%	2.5%	0.6%
Keku Creek	0.2%	0.4%	0.4%	0.2%
Castle River	1.3%	1.5%	2.7%	1.5%
Tunehean Creek	1.2%	1.9%	1.9%	1.5%
Total Number of Proposed Stream Crossings by Alternative				
Hamilton Creek	0	22	31	2
McNaughton Point	0	14	14	1
Big John Creek	0	6	13	1
West Duncan Canal	0	5	43	0
Keku Creek	0	4	4	0
Castle River	0	4	29	4
Tunehean Creek	0	4	5	0
Total	0	59	139	8
Total Number of New Class I Crossings	0	4	4	0
Total Number of New Class II Crossings	0	5	12	4
Effects on Sensitive Plants	**No Effects**	**May impact individuals but is not likely to lead to a Federal listing**		
Effects on Subsistence	**No Significant Effects**			

[5] Values indicated under Alternative 1 reflect cumulative percentages in 2009 assuming no timber harvest.

2 Alternatives

Central Kupreanof Timber Harvest
Figure 2-1
Alternative 1

Productive Old-growth
Inventoried Roadless Area
Managed Stands
Lakes
Old-growth Reserve
Existing Open Roads
Roads in Storage (Closed)
Stream Class I & II
100ft Contour Interval
Project Area Boundary

South Kupreanof IRA
North Kupreanof IRA
Rocky Pass IRA
South Kupreanof IRA

45906
45915
45803
45806
63145
45808
45807
45800
45810
6326
6336
6339
6318
6328
6315
6334
6333
6331
6332
6040
6041
6337
6330
6329
6314
45007
6030
6039

0 0.5 1 2 3 4 Miles

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Central Kupreanof Timber Harvest
Figure 2-2
Alternative 2

Existing Open Roads
Roads in Storage (Closed)
Proposed Temporary Roads
Proposed System Roads
Reconstructed Road
Stream Class I & II
100ft Contour Interval
Project Area Boundary

0% Retention
10% Retention
50% Retention
60% Retention
Productive Old-growth
Inventoried Roadless Area
Managed Stands
Lakes
Old-growth Reserve

South Kupreanof IRA
North Kupreanof IRA
Rocky Pass IRA
South Kupreanof IRA

0 0.5 1 2 3 4 Miles

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Central Kupreanof Timber Harvest
Figure 2-3
Alternative 3

- Reconstructed Road
- Proposed Temporary Roads
- Proposed System Roads
- 100ft Contour Interval
- Inventoried Roadless Area
- Existing Open Roads
- Roads in Storage (Closed)
- Project Area Boundary
- Stream Class I & II

- 0% Retention
- 10% Retention
- 60% Retention
- Productive Old-growth
- Managed Stands
- Lakes
- Old-growth Reserve

North Kupreanof IRA

South Kupreanof IRA

Rocky Pass IRA

South Kupreanof IRA

0 0.5 1 2 3 4 Miles

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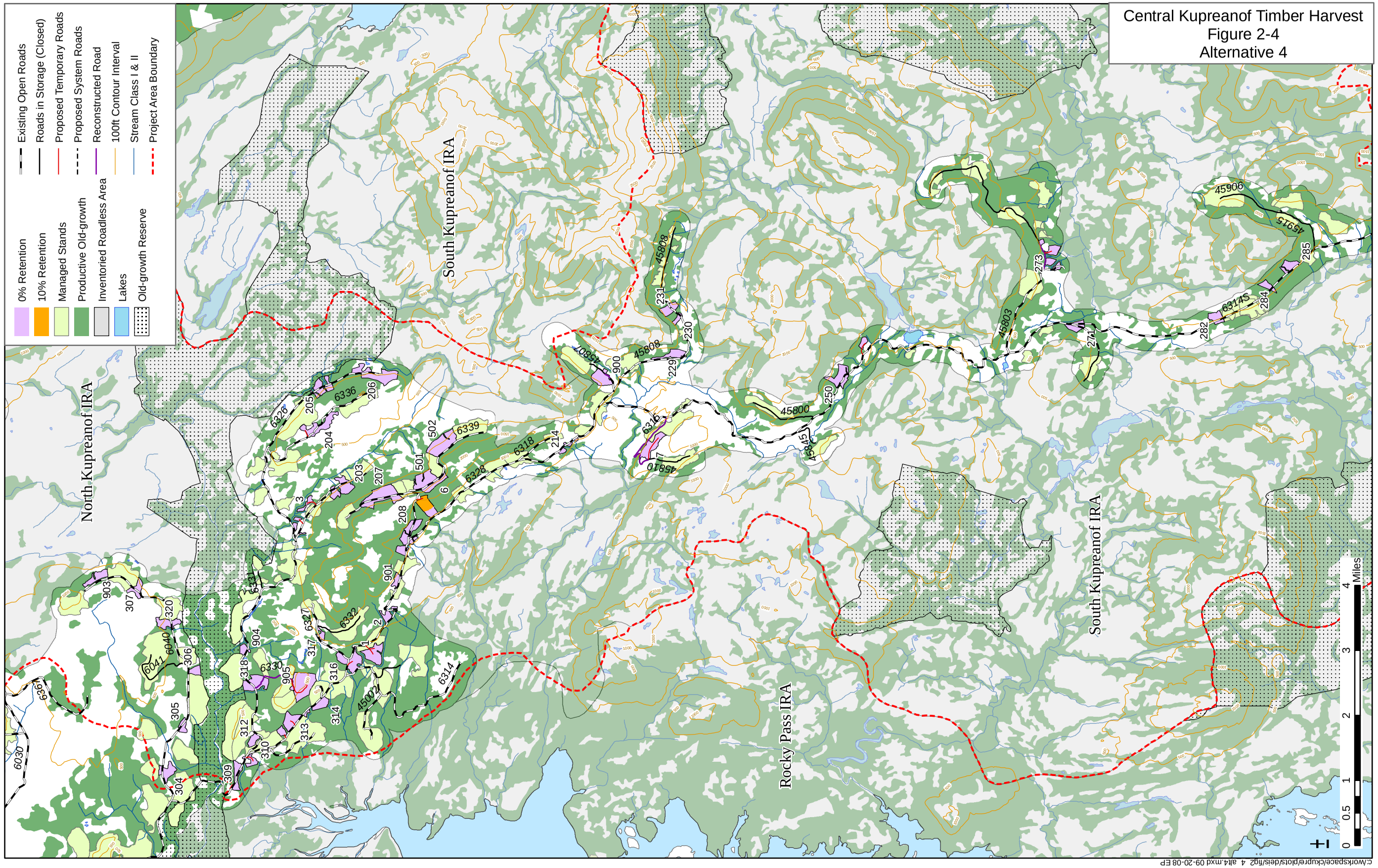
Central Kupreanof Timber Harvest
Figure 2-4
Alternative 4



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Legend

- Pre-commercial/Wildlife Treatment
- Non-national Forest
- Trails
- Existing Open Roads
- Closed Road
- Project Area Boundary
- Stream Class I
- Cabins
- Red Pipes
- Invasive Plant

Frederick Sound

Kake

West Point Cabin

Portage Bay

Portage Bay Cabin

Bohemia Lake (Jamaica Lake)

Goose Lake

Goose Lake Trail

Cathedral Falls

Little Hamilton LTF

Seal Point

Hamilton CreekTrail

Hamilton Creek

Big John Bay Trail

Big John Bay Cabin

Keku Strait

Big John Bay

Towers Lake

Towers Arm Cabin

Towers Arm

Salt Chuck East Cabin

Kupreanof Island

Duncan Canal

Port Camden

Rocky Pass

Kluane Lake

Irish Lakes

Castle River

Castle Flats Cabin

Castle River Cabin

Devil's Elbow Cabin

Kuiu Island

Threemile Arm

Keku Strait

6308 6000 6312 6366 6367 45602 45601 6030 6040 6314 6326 45007 6327 6333 6330 45002 6334 6339 6328 6318 45808 45803 45806 6314S

0 1 2 4 Miles

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Central Kupreanof Timber Harvest
Figure 2-5
Projects Common to all Action Alternatives