

CHAPTER 2 - ALTERNATIVES

2.1 INTRODUCTION

This chapter describes, compares, and contrasts the Proposed Action alternative (Alternative B) with a No Action alternative (Alternative A) and an Alternative C that was developed in response to comments received during scoping.

This chapter concludes with a comparative summary of the alternatives considered in detail. This comparison will help provide the information necessary for the decision-maker to make an informed choice among alternatives.

2.2 DEVELOPMENT OF ALTERNATIVES

The Proposed Action was developed by the Interdisciplinary Team and was reviewed and approved by the Responsible Official prior to scoping.

Chapter 1 discussed the analysis of the concerns and suggestions received in response to the formal scoping of the Proposed Action.

One commenter requested that reforestation of lands within the Peace Rock IRA (MPC 4.1c) lands be dropped from the Proposed Action, citing concerns about the variability of the composition, structure, and age of vegetation within the Peace Rock Roadless Area that would be altered, and future management activities that might be necessitated by a plantation within the IRA. This concern presented an irresolvable difference with the Proposed Action and resulted in the development of Alternative C, Salvage without MPC 4.1c Reforestation. Other than not reforesting severely burned MPC 4.1c lands, Alternative C is identical to the Proposed Action. Both “action” alternatives were developed to fully or partially meet the purpose and need for which the project was proposed.

2.3 ALTERNATIVES CONSIDERED IN DETAIL

This section of the document describes the proposed treatments, design features common to all action alternatives, and those alternatives considered in detail, including the No Action Alternative. The design of all alternatives described in this document was based on the most current information and technology available at this time. Minor variations in the alternatives due to changed on-the-ground conditions or improved technology prior to implementation would be consistent with the intent of the original alternative.

2.3.1 Design Features Common to All Alternatives

In addition to Forest Plan standards and guidelines designed to mitigate impacts, the Interdisciplinary Team identified measures that would apply to all action alternatives. These design features, which have been incorporated to reduce or prevent undesirable effects resulting from proposed management activities, are listed below.

Noxious Weeds

NX-1 Avoid or reduce the introduction of weed seeds and propagates by including timber sale contract provisions to ensure appropriate off road equipment is cleaned.

NX-2 Seed mixes used during restoration and soil erosion prevention activities shall be comprised of certified weed free native or desirable nonnative seed mix, as recommended by the botanist.

NX-3 All seed, straw, hay, mulch, erosion cloth, biologs, or other organic matter brought to the project area for land management purposes shall be certified free of noxious weed seed.

Cultural Resources

CR-1 Two historic properties would be avoided and protected during project implementation.

CR-2 Contracts implementing either action alternative would be governed by provisions designed to prevent adverse impacts to any unknown cultural sites discovered during project implementation.

Wildlife

WL-1 Among the fire-killed and imminently dead trees available for salvage harvest within identified units of the Lucky and Lightning fire salvage area, an average of two trees (10-20 inches d.b.h.) and all ponderosa pine greater than 20 inches d.b.h. will be left per acre.

Snags retained to meet prescriptions and wildlife benefits will adhere to the following:

- ◆ Only fire-killed trees will count toward the snag retention prescription and not those that were snags prior to the fire.
- ◆ Retention will be minimized within 300 feet of roads, because these snags would be more likely to be removed by woodcutters.
- ◆ Ponderosa pine will be the preferred leave tree species in the 10 – 20 inches d.b.h size class.
- ◆ Snags should be retained in a clumping pattern of 3-6 snags/clump across a unit (i.e. not one large clump of snags).

WL-2 All trees that were dead before the fire will be left standing (C6.411# - Felling and Bucking Special Objectives).

WL-3 If an active goshawk nest is detected before or during implementation, no project-related activities shall occur within 650 feet. (Reynolds, et al., 1992) of the nest tree from March 1 to August 15. However, the wildlife biologist may alter the actual size and shape of the buffer around the nest if conditions (e.g., topography) warrant modifications. Additionally, the wildlife biologist may shorten the activity restriction period if it can be determined through nest monitoring that the nest has failed or the young have fledged and left the area where activities might disturb them.

WL-4 All personnel conducting activities associated with this project (e.g., road decommissioning contracts) shall not be permitted to hunt, transport hunters, discharge firearms, or transport game animals with vehicles in areas otherwise closed to motorized vehicles.

WL-5 Project-related contracts shall include protective measures for Threatened, Endangered, and Region 4 Sensitive species against unforeseen events. Protective measures will account for new species or areas that may be identified during project implementation.

Air Quality

AQ-1 A Burn Boss will monitor the prescribed fire and smoke-related visibility during and after ignition at intervals and intensity appropriate to the existing conditions.

AQ-2 A Prescribed Fire Burn Plan integrating the requirements of the Montana/Idaho Airshed Group, the Boise NF Fire Management Plan, and Interagency Prescribed Fire Handbook will be prepared.

AQ-3 Caution signs will be placed near projects to advise publics about prescribed burning in the project area.

Timber Harvesting

TH-1 Log haul is prohibited on weekends (all day Saturday and Sunday) and on all major holidays (Memorial Day, Independence Day, Labor Day, Thanksgiving and the day after), and the opening day of deer, elk and turkey general hunting seasons.

TH-2 Warning signs will be posted on the main roads to inform the public of logging operations and truck traffic.

TH-3 All stands that are reforested will be evaluated for gopher activity during the year of planting, and 2 successive years. Should the observed activity warrant, treatment shall be applied as follows:

Gophers are controlled by placing 0.50 percent strychnine oat bait below-ground in gopher burrows. Below-ground application was developed to mitigate bait exposure to nontarget species. Baiting is done manually, using the "probe and bleach bottle" method. Burrows are located using a steel probe, and bait (approximately 1 teaspoon per set) is placed into the runway via the hole produced by insertion of the probe. The breach is closed with a strip of paper tape and covered with soil to reduce the risk of covering the bait while sealing the hole or providing nontarget animals' access to the bait.

The EPA classified all strychnine products, except for those products containing strychnine at nominal concentrations no greater than 0.5 percent and which are limited by their labels to manual belowground applications, as restricted use in 1978 (US EPA, 1996). It is currently registered for use belowground as a bait application to control pocket gophers (US EPA, 1996).

Expected treatment rates for hand application of strychnine baits are 0.5 to 1.0 lb/ac, which give a range of 1,135 mg to 2,270 mg active ingredient of strychnine applied per acre. The persistence of strychnine treated bait in the environment is relatively short (Case and Jasch, 1994, Bonar, 1995). Depending on soil moisture and other factors, treated bait placed below ground is effective for 1 week to 1.5 months, (Black, 1994). Bait can quickly become moldy, damp, rancid, or otherwise inedible. In this condition, it is readily rejected by pocket gophers (Engeman and Witmer, 2000).

TH-4 To provide for safe winter recreation opportunities, winter logging activities would be prohibited from December 1 to April 15, unless this timeframe is altered by the District Ranger based on weather conditions.

TH-5 No salvage harvest activities would occur within Riparian Conservation Areas (RCAs).

TH-6 Slash treatment would occur by the following methods:

Off-Road Jammer/Tractor Units: Lop and leave onsite activity slash on all high intensity burned units and whole tree yard with the requirement to haul slash back to the skid trails within the treatment area on moderate intensity burned units.

Helicopter Units: Slash would be piled and burned on landings.

Road Management

RM-1 Road decommissioning activities would include some or all of the following activities: (1) block access at all points from exiting roads using berms, boulders, and/or recontouring, (2) remove culverts and stabilize crossings, (3) scarify and seed/mulch all disturbed areas with approved seed mix (see NX-2), and (4) maintain erosion control devices during all road decommissioning activities adjacent to streams (see SW-9). Decommissioned roads will be removed from the Forest transportation system. Culverts may be left if interdisciplinary team analysis determines that risks and consequences outweigh the benefits of removing the culvert.

RM-2 Road closures including year-round and seasonal restrictions and would be achieved through use of physical barriers including but not limited to gates, berms, and/or boulders.

Recreation

RE-1 Following conversion of the 1.2 miles of NFS road 668B to non-motorized trail, the trail will be signed at identified location (including its junction with the motorized Airline Trail #038), to facilitate trail use understanding and reduce potential conflict between motorized and nonmotorized users.

Soil, Water and Fisheries

SW-1 The Forest Service will approve skid trails in all units proposed for ground based skidding.

SW-2 The following riparian conservation areas (RCAs) are applicable to all management activities.

Perennial Streams and intermittent streams providing seasonal rearing and spawning habitat: The RCA will be the flood-prone width or two site-potential tree heights, whichever is greatest.

Intermittent streams not providing seasonal rearing and spawning habitat: The RCA will be the flood-prone width or one site-potential tree height, whichever is greatest.

Ponds, Lakes, Reservoirs, and Wetlands: The RCA will be the outer edge of seasonally saturated soils, the outer edge of riparian vegetation, or one site-potential tree height, whichever is greatest.

Water Source	RCA Distance*
Perennial Stream	240-foot slope distance (two site-potential tree heights)
Intermittent Stream providing seasonal rearing and spawning habitat	240-foot slope distance (two site-potential tree heights)
Intermittent Stream	120-foot slope distance (one site-potential tree height)
Ponds, Lakes, Reservoirs, and Wetlands	120-foot slope distance (one site-potential tree height)

* RCA distance based on PVG 2.

SW-3 Currently no log landings for ground-based harvest are planned to occur within RCAs. However, local topography may offer no other alternative than to build log landings within RCAs. It is estimated that for approximately every 8 acres of ground-based harvest, one landing (approximately 50 feet x 50 feet) would be needed to facilitate harvest (Thompson and VanZile, 2008, pers comm.). The landings would consist of approximately 50 percent road. Equipment will work from road and deck logs on the other 50 percent of the landing. It is not possible to estimate the number of log landings within RCAs; however, that number is expected to be minimal. If landings within RCAs are necessary, the following actions would occur:

- Any proposed landings within RCAs would be approved by a Forest Service hydrologist prior to construction.
- No landings would occur within one site-potential tree height of project area streams unless there is no other option.
- A slash filter windrow would be constructed between the landing and the stream. The slash windrow would be constructed to be no more than 2 meters wide and 1 meter high and material must be compacted and have contact with the ground in order to capture and store sediment. Construction and placement of the slash filter windrow would occur at the same time as the landing construction. Slash filter windrows would be left in place. Excess slash would be piled on or above the road for subsequent burning.

SW-4 In order to comply with Forest Plan Standard SWST08, all culvert replacements completed as part of project activities would provide fish passage on existing and potential fish-bearing streams. Acceptable ratings for gradient, water flow velocity, jump/drop height, and other parameters will be based on the best scientific data available.

SW-5 In order to comply with Forest Plan Standard FRST02, all culvert replacements completed as part of project activities would be designed to accommodate a 100-year flood recurrence interval.

SW-6 If water drafting is necessary, the locations, methods, and timing shall be approved in advance by a District fisheries biologist or hydrologist. Screen opening size must be the standard 3/32 inch or smaller, and screen surface area must be proportional to the pump intake rate to ensure that water velocity through the screen does not exceed 0.4 fps.

SW-7 An emergency spill containment kit shall be available onsite as mentioned in the Spill Prevention and Containment Plan. No fuels shall be stored in RCAs. Refueling or servicing of vehicles or equipment shall not take place in RCAs, unless there is no other alternative. All equipment shall be in good repair and free of leakage of lubricants, fuels, coolants, and hydraulic fluid.

SW-8 Helicopter landings would be constructed outside of RCAs.

SW-9 Disturbed areas would be seeded with an approved seed mixture (NX-2) after September 1.

SW-10 Erosion control devices, such as certified weed free straw wattles or straw bales, and erosion cloth will be maintained during all road decommissioning adjacent to streams to prevent delivery of sediment. Natural materials would be allowed to deteriorate in place. Silt fences, if used, would be removed 1 year after completion of the road-related activities.

SW-11 Removal/replacement of culverts would take place after spring peak flow.

SW-12 Sedimats may be placed downstream from culvert removals to minimize sediment delivery to the receiving waterbody. These would be removed from the channel at the conclusion of activities and may be placed on the streambanks for stabilization, if necessary for rehabilitation. Other sediment control measures may include silt fences, erosion control matting, mulch, straw wattles or bales, or slash.

SW-13 Skid trails would have cross-ditches constructed at intervals of approximately 20 feet where skid trails exceed 20 percent slope. Where logs are available immediately adjacent to the skid trails, logs 6 inches in diameter or greater would be placed against the ground surface and diagonal to the skid trails at 20-foot intervals instead of cross-ditches being constructed. Cross-ditching and/or placement of logs on skid trails would occur prior to equipment moving to the next harvest unit.

SW-14 The timber layout and engineering personnel will be trained to identify landslide-prone areas in the field and will be provided with a map of potential areas as modeled by SINMAP. If the crews identify moderate- or high-landslide-prone areas, a hydrologist or soil scientist will provide guidance for the appropriate level of avoidance and landslide prevention (Forest Plan, Appendix B, p. B45-B47). (See the following Landslide Prone Checklist.)

Identification and Management of Landslide Prone (LSP) Areas

Field reconnaissance will be used to identify LSP areas during road location and timber sale preparation. The following checklist will help field personnel identify potential LSP areas. If LSP areas are identified during fieldwork, effects to LSP areas will be mitigated by avoidance and/or prevention of landslides by limiting and/or restricting practices:

Landslide Prone (LSP) Checklist

Landslide prone areas may be identified by any of the following indicators:

On Slopes of:	Look For:
All Slopes	Existing slides or slumps
	Rotational slumps can be identified sometimes as ½ acre – 1 acre (or greater) flat areas immediately below steep slopes
	Escarpments with visible bare soils
	Roadways with drainage problems, fill failures, severe rilling, etc.
>50%	Moist sites as indicated by vegetation or actual seeps/springs (especially at the head of draws)
	Surface erosion features (rills and gullies). Look below these sites for accumulations areas (draws) that may collect water and produce a failure.
	Soil accumulations areas below rock outcrop zones.
	Concave hollows
	Jackstrawed and leaning trees are better indicators of LSP areas than pistol-butted trees.
	Bare soil areas caused by intense fires or recent timber harvest or road building that could increase surface runoff to an unstable slope.
>70%	All wet or dry sites on these steep slopes should warrant a close inspection of potential LSP, especially at the heads of draws or where overburden exists.

2.3.2 Monitoring

Detailed monitoring plans may be developed for the selected alternative and disclosed with the project's decision document. Monitoring plans would be designed to determine the implementation and general effectiveness of Best Management Practices, design features, and/or restoration activities. Monitoring is designed to accomplish all or some of the following goals:

- Determine if assumptions made for effects analyses appear correct;
- Verify implementation of design features and the general degree of effectiveness.
- Determine if resource objectives are being achieved.

2.3.3 Description of Alternatives

2.3.3.1 Alternative A - No Action

This is a required "no action" alternative that provides a baseline against which impacts of the various action alternatives can be measured and compared. Under this alternative no new management activities would occur, although all other ongoing activities (e.g., dispersed recreation, public fuelwood gathering, current travel management restrictions, etc.) would continue in the area. Suppression of wildfires within the project area would also continue.

2.3.3.2 Alternative B – Proposed Action

This alternative was developed to meet the project's purpose and need presented in Chapter 1. It represents the Forest Service's best recommendation prior to detailed analysis of the environmental effects. In addition to the custodial maintenance activities described in Alternative A, Alternative B would undertake the activities described below, summarized in Table 2.1, and illustrated in Figures 2.1 and 2.2:

- Fire-killed and imminently dead timber (greater than 8 inches d.b.h.) would be salvage harvested from approximately 1,077 acres burned at moderate and high intensity in late summer 2007. The proposed salvage harvest would entail two spatially distinct sales, Lucky Salvage and Lightning Salvage, about 8 miles apart. Both sales would offer only dead or imminently dead trees for salvage. Lucky Salvage would recover dead and dying timber from approximately 696 acres while Lightning Salvage would salvage the same material from approximately 381 acres. No salvage harvest would occur within the Peace Rock IRA.

A fire-killed tree would be a tree that died or is expected to die as a result of wildfire. Fire-killed trees include: (1) all species that have 70 percent crown scorch, and; (2) any Engelmann spruce, lodgepole pine, subalpine fir, or grand fir that has 50 percent or more of its basal circumference burned (Weatherby IN: USDA Forest Service, 1995). Imminently dead trees would be any tree not directly killed by the fire but subsequently considered dead as a result of windthrow or successful bark beetle attack. A bark beetle infestation would be considered successful if more than 50 percent of the tree's circumference has evidence of frass (i.e., bark beetle boring dust) (Weatherby et al., 1994).

Salvaged logs would be yarded to the road system with conventional ground-based equipment such as tractors and off-road jammers from about 705 acres, including 324 acres within the Lucky fire area and 381 acres within the Lightning fire area. In addition, helicopter yarding would occur on approximately 372 acres within the Lucky Salvage area. All helicopter-salvaged material would be yarded to five landings (one existing and four to be constructed).

- Dead, imminently dead, and weakened trees (hazard trees) jeopardizing public safety along about 1.1 miles of the Sixmile Creek road (NFS road 670) within the Lucky Fire area would be cut. Cut trees within one site-potential tree height of streams would be left onsite, unless they would affect road and/or culvert function. Other cut trees would be removed. "Hazard trees" are defined as those where an identifiable condition or defect could result in failure causing property damage or personal injury. The hazard a dead or weakened tree represents depends on the type of activity occurring near it, the duration of exposure to the hazard, the frequency of the exposures, the potential failure zone relative to the traveled portion of the road or adjacent work area, and whether a tree's failure is imminent or likely. Persons qualified to assess a tree's potential to fail, potential failure zones, the

nature of nearby activity, and whether a hazard exists if failure occurs would determine which trees along NFS road 670 constitute hazard trees.

- Approximately 784 acres would be planted with native conifer seedlings emphasizing ponderosa pine.

Although much (598 acres) of this planting would occur within lands assigned to MPC 5.2 outside of the eligible Wild and Scenic corridor, about 54 acres within the eligible Wild and Scenic Middle Fork Payette River (Lucky Fire area) would also be planted. In addition, 132 acres within the Peace Rock IRA (Lightning Fire area) would be planted. Of the 132 acres to be reforested in the IRA, about 90 acres are within the portion of the developed IRA. Approximately 146 acres of the total acres to be reforested would be in RCAs.

- No road construction would occur.
- A total of 34.7 miles of authorized road would be maintained to facilitate salvage activities. Treatment activities would include one or more of the following: road surface blading, culvert replacement, cleaning culverts, widening roads to minimum road width, clearing roadways and ditches, road watering, seeding and mulching of new slopes around culvert outlets, and repair of fill failure. In the Lucky fire area, these roads include 670Y (2.7 miles), 600 (1.0 mile), 670 (2.2 miles), 698 (10.9 miles). In the Lightning fire area, these roads include the 668 road (13.8 miles), 668B (2.0 mile) and 668C (2.1 miles).

About 2.2 miles of authorized (NFS) road and about 7.0 miles of unauthorized road would be decommissioned after salvage activities

Authorized and unauthorized roads to be decommissioned are listed below. Of the unauthorized roads to be decommissioned, about 3.2 miles of roads X555BCX1, X668BX2, X668BX7, X668BX3, and X668BX5 lie within the Peace Rock IRA.

Road	Authorized/Unauthorized	Length
668B1	Authorized	0.54 mile
668D	Authorized	0.72 mile
668E	Authorized	0.93 mile
X555BCX1	Unauthorized	1.60 mile
X668BX1	Unauthorized	0.31 mile
X668BX2	Unauthorized	0.57 mile
X668BX3	Unauthorized	0.18 mile
X668BX4	Unauthorized	0.26 mile
X668BX5	Unauthorized	1.04 miles
X668BX6	Unauthorized	0.25 mile
X668BX7	Unauthorized	0.14 mile
X668BX8	Unauthorized	0.42 mile
X668CX1	Unauthorized	0.99 mile
X668X1	Unauthorized	0.76 mile
X668X1A	Unauthorized	0.11 mile
X668X2	Unauthorized	0.10 mile
X668X3	Unauthorized	0.02 mile
X668X4	Unauthorized	0.08 mile
X668X5	Unauthorized	0.13 mile

- Block motorized access to about 0.2 mile of unauthorized road X668B2 at its junction with authorized road 668B, by placing boulders and/or berms near the junction.
- Convert the last 1.2 miles of NFS road 668B to nonmotorized trail.
- Administratively close year-round to motorized use about 7.2 miles of authorized road following vegetative activities, including:

Road	Length
668	0.07 mile*
668B	0.60 mile
668C	2.68 miles
668H	0.73 mile
668I	0.48 mile
668J	0.70 mile
698K	1.95 miles

* This value represents the length the yearlong closure within the project area. The closure will effectively close the remainder of the road (about 7.7 miles) to motorized use for public safety. Safety issues on the road include multiple cut and fill failures. The road miles outside the project boundary were not included in the effects analysis for this project.

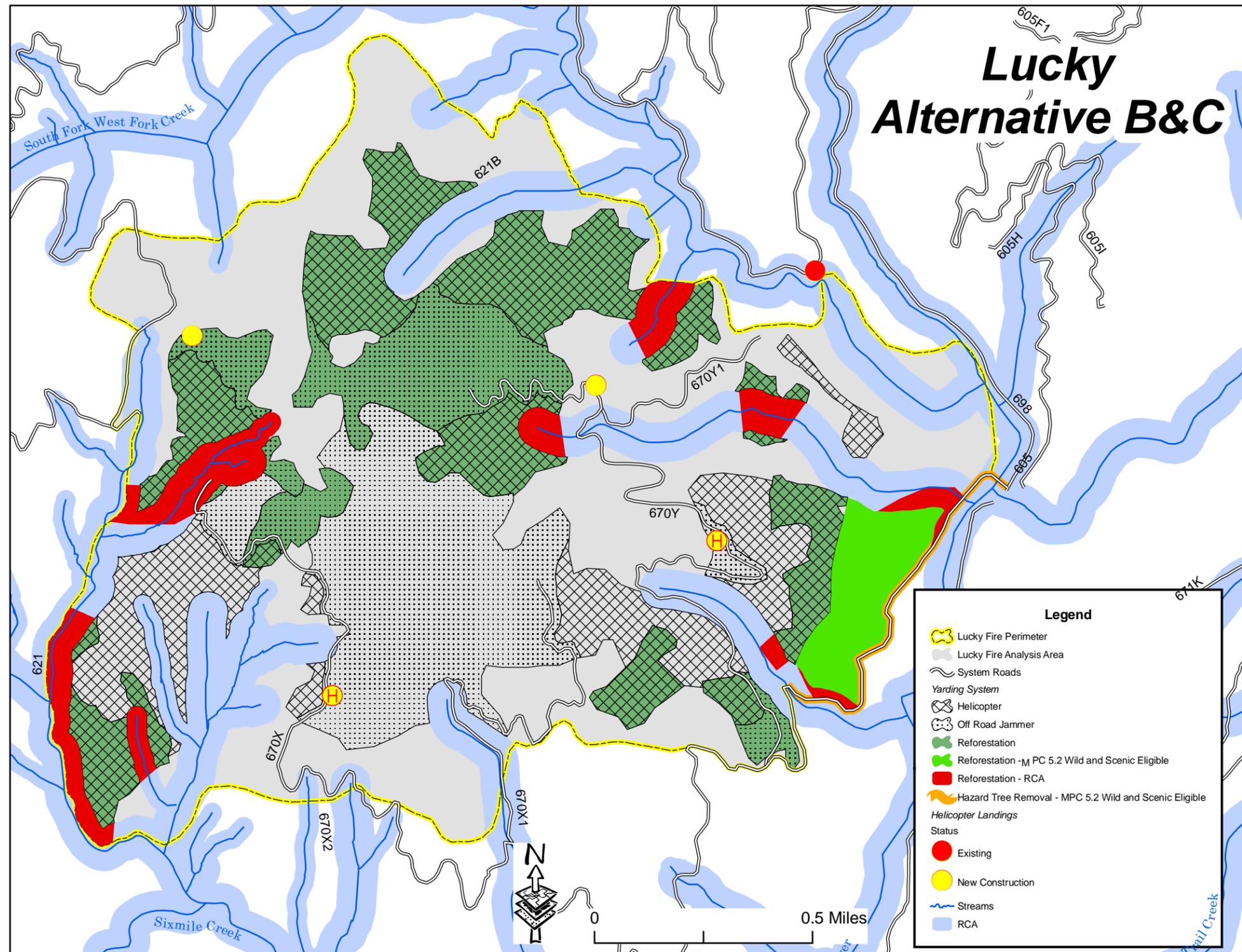
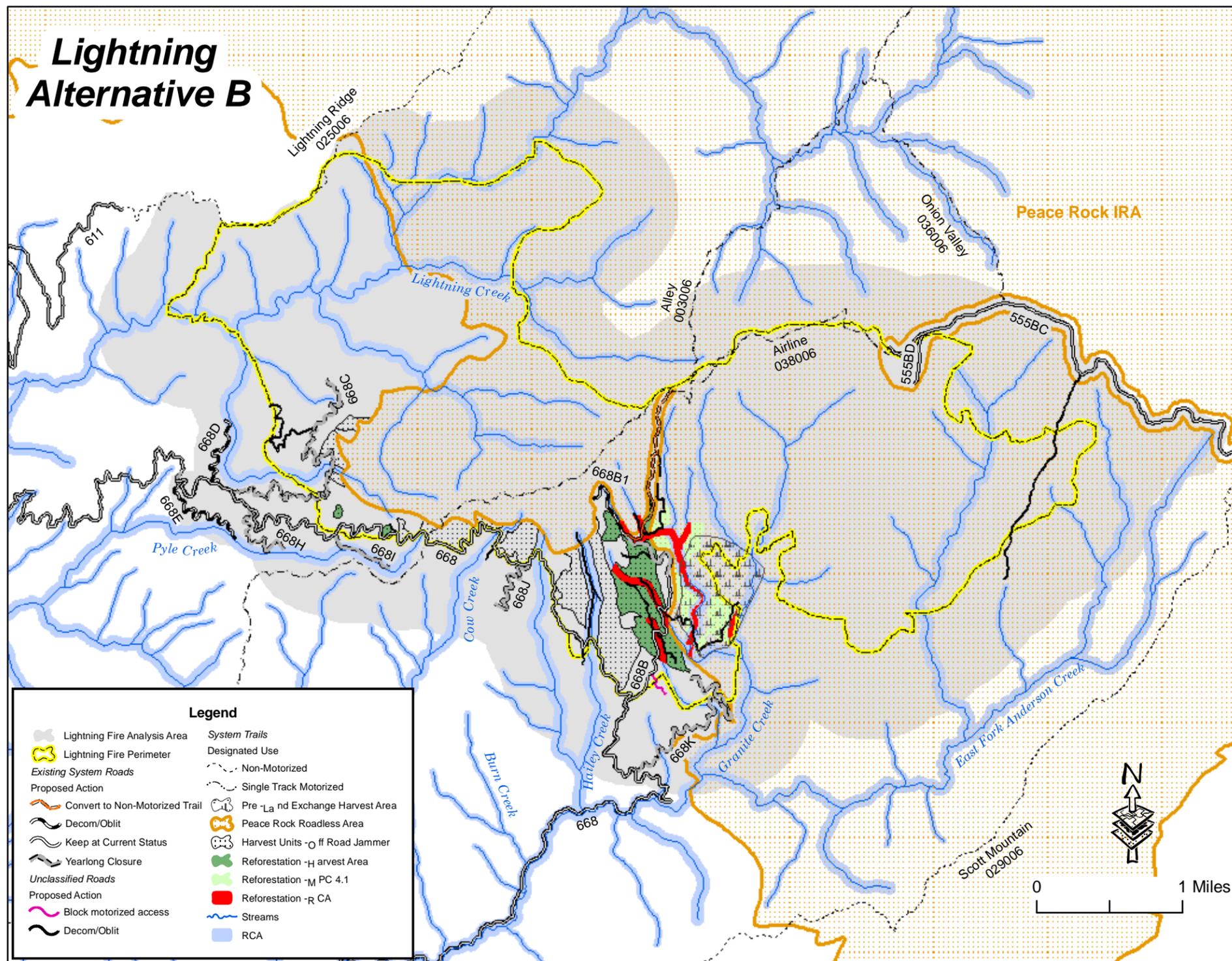


Figure 2.1 – Proposed Activities in the Lucky Fire Area: Alternatives B and C

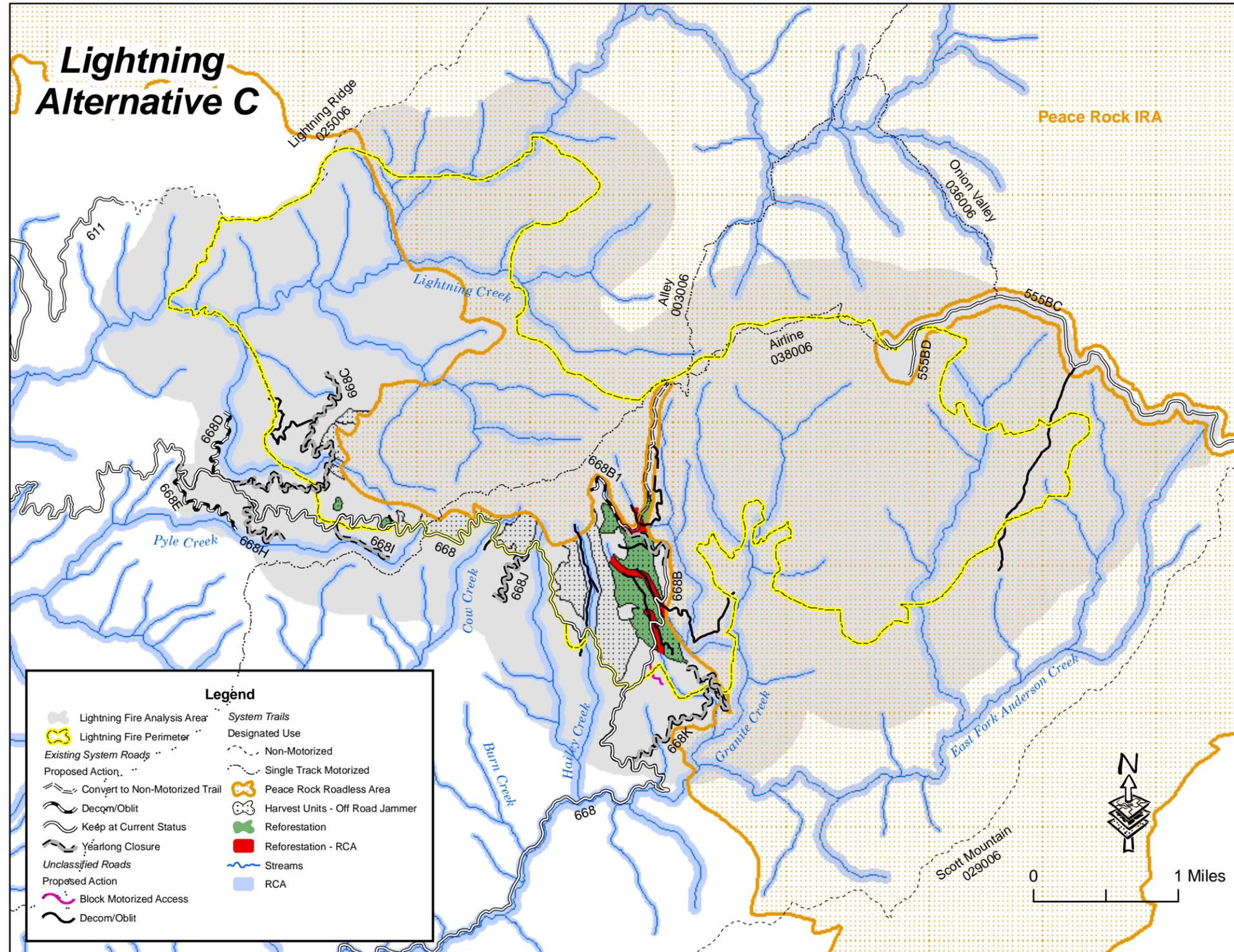
Figure 2.2 – Proposed Activities in the Lightning Fire Area – Alternative B



2.3.3.3 Alternative C

Alternative C was developed to address the issue of potential effects to the Peace Rock IRA (MPC 4.1) resulting from planting conifers within the IRA. Under Alternative C, all activities described under Alternative B would occur, except no conifer planting would occur within the Peace Rock IRA. Activities undertaken under Alternative C are illustrated in Figures 2.1 and 2.3 and summarized in Table 2.1.

Figure 2.3 – Proposed Activities in the Lightning Fire Area: Alternative C



2.4 SUMMARY COMPARISON OF ALTERNATIVES

Table 2.1 presents a comparative summary of principal activities for the alternatives being considered in detail. A brief summary of the effects of the alternatives follows the table. The summary is limited to the effects on project objectives, significant issues or concerns, Forest Plan standards, and/or other resources the Interdisciplinary Team deemed important for an informed decision.

Table 2.1 Comparison of Major Activities

Management Activities	Alternative A	Alternative B	Alternative C
Fire-Killed and Imminently Dead Timber Salvaged			
Burned Acres Salvaged	0	1,077	1,077
Tractor/Off-Road Jammer Yarding (Acres)	0	705	705
Helicopter Yarding (Acres)	0	372	372
Helicopter Landings Constructed (Number)	0	4	4
Fire-Killed Timber Salvaged (CCF)	0	6,473 ¹	6473 ¹
Fire-Killed Timber Salvage (MMBF)	0	3.7 ¹	3.7 ¹
Hazard Tree Removal along NFS Road 670			
Miles of Removal	1.1	1.1	1.1
Burned Area Reforested			
Total Burned Acres Planted	0	784	652
Burned Acres Planted within Peace Rock IRA	0	132	0
Reduction of Adverse Road Effects on Watersheds			
Road Maintenance	0	34.7	34.7
Authorized Road Decommissioning (Miles)	0	2.2	2.2
Unauthorized Road Decommissioning (Miles)	0	7.0	7.0
Year-round Admin Closure to Motorized Use (Mi)	0	7.2	7.2
Authorized Road Converted to Nonmotorized Trail (Mi)	0	1.2	1.2
Unauthorized Road Blocked (Mi)	0	0.2	0.2

¹ In the Proposed Action Report provided for 30-day notice and comment, preliminary analysis indicated the anticipated volume would be 7,459 CCF or 4.1 MMBF. Based on the refined analysis disclosed in this EA, the revised volume is 6,473 CCF or 3.7 MMBF.

2.4.1 Forest Plan Consistency/Other Key Items

The Forest Plan Consistency Checklist, contained in the project record, lists all applicable standards and guidelines in the 2003 Forest Plan and discloses how the various alternatives comply or fail to comply with those standards and guidelines. In addition, the Interdisciplinary Team identified other items considered important in making an informed decision. The following discussions summarize the effects of the alternatives relative to those standards and/or guidelines and other items identified by the Interdisciplinary Team as key in this assessment.

2.4.1.2 Threatened, Endangered, Proposed, and Candidate Species

Determinations disclosed in Chapter 3 for threatened, endangered, proposed, and candidate species concluded that:

- Alternative A would have **no effect** on any threatened, endangered, or proposed species.
- Alternative B or C **may affect** but is not likely to adversely affect *Spiranthes diluvialis* (Section 3.5.1.6).
- Alternative B or C **no effect** to Canada lynx and northern Idaho ground squirrel (Section 3.13.3.2).
- Alternative B or C **may affect** but is not likely to adversely affect bull trout (Section 3.15.8.3).

2.4.1.3 Sensitive Species and Forest Watch Plants

Determinations disclosed in Chapter 3 for sensitive species and forest watch plants have concluded that:

- Alternative A would have **no impacts** on any sensitive species or any Forest watch plants.
- Alternative B or C **may impact** individuals but is not likely to cause a trend to federal listing or loss of population viability) to potential populations or individuals of *Botrychium simplex*, *Lewisia sacajaweanana*, *Allium validum*, *Botrychium crenulatum*, *Botrychium multifidum*, *Botrychium virginianum*, and *Epipactis gigantean* (Section 3.5.1.6).
- Alternative B or C would have **no impact** on bald eagle, boreal owl, peregrine falcon, northern goshawk, greater sage-grouse, three-toed woodpecker, western big-eared bat, spotted bat, and spotted frog, **may impact** individuals but would not likely contribute to a trend towards federal listing or loss of viability to the population or species of gray wolf, flammulated owl, white-headed woodpecker, and wolverine; and **beneficial effect** to fisher and mountain quail (Section 3.13.3.3).

2.4.1.4 Management Indicator Species

The effects analysis for management indicator species are disclosed in Chapter 3 and concluded that:

- Alternative A would have **no effect** on Management Indicator Species.
- Alternative B or C **may affect** but is not likely to adversely affect bull trout (Section 3.15.8.3) based on the following rationale:
 - Bull trout have not been documented within any streams in project area streams. The Middle Fork Payette River (MFPR) is designated migratory and overwintering habitat for bull trout. The closest known bull trout local population in the Upper MFPR is located over 15 miles upstream from the confluence with streams in the Sixmile subwatershed and over 33 miles upstream from the confluence with Anderson Creek.
 - Sediment delivery to project area streams and migratory and overwintering bull trout habitat in the Middle Fork Payette River is expected to be immeasurable in the temporary and short-term timeframes due to project-area stream channel storage, RCA widths, BMPs, and project design features. It is expected that there would be an immeasurable decrease in sediment delivery to project area streams and the MFPR in the long-term timeframe as a result of natural recovery from the fire.
 - Hazard tree removal would occur on a very small portion of the Sixmile subwatershed RCAs which may result in a localized, immeasurable increase in stream temperatures in (other fishes) the temporary and short-term. LWD may also decrease in site-specific areas in the temporary and short-term in the MFPR and tributaries to the MFPR.
 - No salvage harvest activities, except removal of identified hazard trees, would occur within RCAs. Specifically, no ground-based harvest equipment would be used in RCAs.
 - RCA road decommissioning in the Anderson Creek subwatershed will result in immeasurable improvements for several WCIs including drainage network increase, RCA road density and location, sediment and RCAs in the Anderson Creek subwatershed.
 - Riparian functions and processes would be maintained in all subwatersheds.
 - Turbidity would increase temporarily downstream from culvert removals and replacement during and immediately after in-channel work. Sediment control design features would reduce the amount of sediment produced during culvert removals and replacement (see design features).
- Alternative B or C **may impact** individuals but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species of white-headed woodpecker (Sections 3.13.3.3 and 3.14).
- Alternative B or C would have minimal negative impacts on pileated woodpeckers based on the following:

- Salvage harvest would occur in areas that experienced ≥ 50 percent mortality and would not affect source habitat for pileated woodpeckers (40-100 percent canopy closure; Nutt et al. 2006g).
- Live trees would not be harvested.
- Snag retention within harvest units (design feature WL-1) would provide forage snags if pileated woodpeckers inhabit adjacent habitat (Section 3.13.3.4).

2.4.1.7 Eligible Wild and Scenic River

Under Alternative A, no new management actions would be undertaken, and no effects to the eligible Middle Fork Payette River segment would be anticipated. Under Alternatives B and C, the free-flowing character, Outstandingly Remarkable Values (ORVs), and Recreational classification of the eligible segment of the Middle Fork Payette River adjacent to the Lucky Fire project area would not be affected (Section 3.8.3).

2.4.1.8 Visual Resources

Under Alternative A, no management actions would be implemented and no effects would be anticipated.

Under Alternatives B and C, there would be no difference in visual effects between Alternatives B and C relative to seen areas from identified sensitive travelways (Section 3.9.2).

Under Alternatives B and C, hazard tree removal would occur adjacent to the Sixmile road (NFS road 670), which in turn would occur within the foreground viewshed of the Middle Fork Payette River road (NFS 698). Because only those trees that represent a direct threat to travel on the Sixmile road would be removed, relative little hazard tree removal would be anticipated and the remaining live green trees would minimize the visual effect of hazard tree removal. Some salvage units would be located in the middleground distance zone as seen from the Middle Fork Payette River road. The VQO in this zone is modification. It is anticipated that these salvage units in the middleground would be screened by intervening vegetation, that the visual change would not dominate the viewshed, and that the Modification VQO for the middleground would be met.

The Middle Fork Payette River road closely parallels the Middle Fork Payette River in this location. Views from the riverbank and the river would be very similar as those seen from the road. The assessment detailed above from the road also applies to river in that there would be some hazard tree removal along the Sixmile road that would occur within the foreground viewshed seen from the riverway. It is anticipated this hazard tree removal would generally not be noticeable, would likely be screened by intervening forest vegetation that occurs between the river and hazard tree removal zone, and that the Retention VQO would be met (Section 3.9.2.5.1).

2.4.1.9 Roadless Resource

The project area includes part of the Peace Rock IRA. Within this part of the IRA, there are approximately 217 acres that have been previously altered by ground-based timber harvest and which contain old skid trails. In addition, there are four distinct segments of old unauthorized road grade totaling approximately 3.2 miles which show noticeable evidence of road construction cut and fill banks. The development occurred when this area was under State management prior to a land exchange with the National Forest. This 217-acre area has been altered to a degree that it is considered developed and no longer retains wilderness attributes.

Under Alternative A, there would be no effect on the Peace Rock IRA because no management activities would occur.

Under either Alternative B or C, while the project would result in subtle changes to the natural integrity, natural appearance, and solitude or primitive recreation opportunities, the intensity and magnitude of such impacts would not result in the development of any portion of the IRA. The Peace Rock IRA would retain its wilderness characteristics within the current undeveloped portion of the IRA. It is not anticipated that this activity would affect any future consideration for wilderness designation of any portion of the Peace Rock IRA (Sections 3.10.3.2 and 3.10.3.3).

2.4.1.13 Wildlife

The species likely to be most affected by the action alternatives comprise those cavity-nesting birds that are associated with the habitat in the activity units. Although other wildlife species might be impacted from the other project activities (i.e. road modifications, reforestation, disturbance), alternations to snag densities has the most potential to affect white-headed woodpecker, Lewis's woodpecker, and black-backed woodpecker. Considering the snag retention prescription (4.1/acre, comprising 2 in the 10-20" dbh size class and all ponderosa pine >20" dbh {2.1/acre}), the black-backed woodpecker will be most likely to experience negative impacts since it is positively associated with recently burned areas exhibiting dense snag conditions. Lewis's woodpeckers, along with white-headed woodpeckers, will be less likely to experience negative impacts because they are associated with more open stands containing large snags, with Lewis's showing an association of snags with advanced decay (weak excavators that aerial-hawk insects). The above analysis shows that the action alternatives have the potential to negatively affect all three species but impacts will be localized and will have an inconsequential effect to their populations.

The following factors used to determine that impacts to the populations of the three woodpecker species will be negligible:

- The 1,100 acres that will undergo salvage harvest is surrounded by an additional 7,500 acres that burned during 2007 but will not be harvested.
- The salvage harvest is proximate to the Rattlesnake Fire that burned roughly 42,000 acres during 2006 and was not salvaged.
- Bark beetles and other pathogens will likely result in additional mortality of weakened trees that are not salvaged over the next 2-3 years (Jorgensen 2008).
- Post-implementation snag densities within the four 1-km radii theoretical home ranges (more pertinent scale to woodpecker biology than activity units) will remain high following implementation (>10" dbh range = 8.2-13.9/acre; >20" dbh range = 1.9-2.7/acre;).
- Projections of large, fire-created snags that will be standing 60 years following the fire indicates that there is only a slight difference among alternatives and only a slight chance that any alternative will result in a gap between losing all large snags and recruitment from regenerated stands 80-100 years post-fire (Dickerson 2008, personal communication).
- All fire-killed ponderosa pine trees >20" dbh will be retained within the salvage units (Section 3.14).

This retention of all large ponderosa pine will shift the tree species composition (albeit snags) to more ponderosa pine within the salvage units. The warm Douglas fir/moist ponderosa pine vegetation group that comprises most of the salvage activity units (roughly 80% of the 75% classified via stand exam) were historically dominated almost entirely by ponderosa pine while Douglas fir was restricted to stream bottoms and northern aspects (Sloan 1998). Pre-fire, non-ponderosa pine composition in the salvage areas were higher than what would occur naturally so the emphasis on retention of ponderosa pine will result in post-fire conditions more like those presented to cavity-dependent species historically. One consequence of retaining only the ponderosa pine of the fire-killed trees >20" dbh may be a more variable retention of large snags across the activity units (i.e. very few in some units and many in others) than what would have resulted if large tree retention was spread across the five tree species encountered during stand evaluations. However, there will not be an absence of snags in any of the salvage units because pre-fire snags (10-20" dbh = 1.9/acre; >20" dbh = 0.3/acre) and 2 fire-killed trees/acre in the 10-20" dbh size class (clumpiness emphasized) will more consistently be retained across all of the salvage units.

Portions of the MF Salvage project will have beneficial effects to some species (e.g. cavity-dependent species from road modifications) and negative effects to others. The largest negative impact will likely occur to black-backed woodpeckers as a result of snag densities within salvage units would fall below levels recommended for black-backed woodpecker sooner than with Alternative A. Since this is the most negatively impacted wildlife species and the salvage activities are not projected to measurably affect the population of this woodpecker, it can be inferred that effects to other wildlife species will at most impact individuals and not their populations.

2.4.1.14 Water Quality

The Lucky fire area is located in the Sixmile subwatershed. The Lightning area is located in the Anderson, Lightning, and Pyle subwatersheds. All of these subwatersheds are within the municipal watersheds for the Rivers Point Property Owners Association and the Horseshoe Bend water supply. The Middle Fork Payette River currently has U.S. EPA approved TMDLs for sediment and temperature. Within the Lightning fire area, project analyses for these resources focused on the Anderson subwatershed, since the effects within the Lightning and Pyle subwatersheds were estimated to slight and immeasurable.

Under Alternative A, the transportation system within the project area would remain at the current level. There would be no road improvements, decommissioning, or yearlong closures and consequently current stream sediment sources from roadways would persist. Additionally, road densities and RCA road miles would remain the same. Roads within RCAs have a negative impact to stream dynamics and fish habitat including delivery of sediment to streams, increased stream temperature, limited access to habitat due to improperly installed culverts, limited large woody debris recruitment, streambank impacts, and limited riparian functions and processes. In the Sixmile subwatershed, the modeled sediment yields would reduce to 11.8 percent over natural (ON) from 19.8 percent ON by 2018. The sediment yield reductions in this subwatershed are attributable to amelioration of wildfire effects overtime and implementation of ongoing projects (Sixshooter Project, 2006). In the Anderson subwatershed, modeled sediment yields would reduce from 24.8 percent ON to 13.2 percent ON by 2013. Sediment yield reductions in this subwatershed are attributed to amelioration of wildfire effects overtime. The watershed condition indicators (WCIs) would remain on their current trajectories with implementation of Alternative A in both the Sixmile and Anderson Creek subwatersheds. Implementation of the no action alternative would not affect municipal watersheds or designated beneficial uses within the Middle Fork Salvage Project area.

Under Alternatives B and C, municipal watersheds and designated beneficial uses would not be degraded by project activities with implementation of the project design features and BMPs. There is the potential for an unforeseen spill of contaminants to streams with implementation of either the action alternatives however the likelihood of a spill is discountable. Sediment modeling in the Sixmile subwatershed indicates a reduction in sediment yield to 12.1 percent ON from 19.8 percent ON by 2015. The long-term sediment yield reduction in this subwatershed would be attributable to a combination of recovery of wildfire effects, benefits of ongoing projects, and this project. In the Anderson subwatershed, modeled sediment yield would reduce from 24.8 percent ON to 12.3 percent ON by 2014. The long-term sediment yield reduction in the Anderson subwatershed would be due to recovery of wildfire effects, yearlong road closures, and road decommissioning. It is anticipated that implementation of these alternatives would have an immeasurable increase in sediment delivery to project area streams in the temporary and short-term timeframes and in the long-term have an immeasurable decrease in sediment delivery to streams (Section 3.15.7.2).

2.4.1.15 Soil Resources

Under Alternative A, no change to the long-term soil productivity would be anticipated. CWD would be expected to increase over time with recruitment of snags to CWD. DD in both the Lucky and Lightning fire areas are expected to remain at current levels for one to two years. Robichaud 2000 found that water repellency is broken or washed away within one to two years after a fire based on recovery of severely burned soils. It is expected that the DD in the Lucky Fire area activity units (salvage units) would drop from the current levels to 0.5 percent in each unit by 2011. In the Lightning Fire Area, it is expected that DD in the activity units (salvage units) would drop from current levels to 0.0 percent in each unit by 2011. DD reduction in both fire areas would be attributable to the recovery of the water repellent soils. Total soil resource commitment (TSRC) in the Lucky and Lightning Fire areas would remain current levels, 1.0 percent and 0.5 percent, respectively (Section 3.16.2).

Under Alternatives B and C, all salvage units in the Lucky and Lightning fire areas would be trending towards DD levels of 15 percent or less by 2011 and would meet Forest Plan standard SWST02 based on recovery of the DD effects associated with severely burned soils. Following project implementation, the Lightning and Lucky activity areas would meet the Forest Plan standard SWST03, with TSRC remaining below 5 percent for the activity areas (Section 3.16.3).

Under Alternatives B and C, CWD levels would be anticipated to meet the 4 to 15 tons per acre recommended by the Forest Plan for the PVGs in the Lucky and Lightning fire areas, respectively. Because no trees less than 8 inches d.b.h. would be salvaged in either alternative, CWD would be recruited from existing 3–8 inches d.b.h. fire-killed snags. In addition, in the short- to long-term timeframes, design feature WL-1 would provide recruitment of CWD greater in diameter (Section 3.16.3).

2.4.1.15 Transportation System

Alternative A would not change the current long-term road system in the project area. Alternative B and C would change the long-term road system in the Lightning Fire area only. Classified road miles in the Lightning Fire Area would be reduced from 23.0 miles to 19.6 miles in the long-term. The 7.2 miles of known unclassified roads would be decommissioned (7.0 miles) or blocked from motorized access (0.2 miles).

Alternative A would not change the road miles located within RCAs in the project area. Alternative B and C would change miles of road located in RCAs in the Lightning Fire Area only. Classified RCA road miles in the Lightning Fire Area would be reduced from 2.2 miles to 2.0 miles in the long-term. All portions of known unclassified roads located within RCAs would be decommissioned.