SUMMARY OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT

Introduction

This Final Environmental Impact Statement (FEIS) presents an analysis of the environmental effects of various alternatives proposing activities in the Logan Creek Analysis Area. A no-action alternative is also evaluated. Proposed management activities are primarily designed to reduce historically high fuel accumulations and move the analysis area toward natural ecosystem disturbance patterns. A Draft Environmental Impact Statement was completed in May, 2003.

The Logan Creek drainage is located in Flathead County and is approximately 12 air miles west of Whitefish, Montana. The Logan Creek Analysis Area is approximately 61,300 acres in size; of this total, 48,300 acres are located on and managed by the Tally Lake Ranger District, headquartered in Whitefish. Approximately 13,000 acres of the analysis area is comprised of private and state-owned land.

As the team conducted the assessment, pertinent findings of the Interior Columbia Basin Ecosystem Management Project were integrated, as appropriate. In addition, public comments and concerns were incorporated into the assessment process. The Logan Creek "Summary Document of Process and Findings," completed in September 2001, is available as a separate document at the Tally Lake Ranger District office. According to findings in the assessment, several management actions appeared appropriate. The Proposed Action was then developed through interdisciplinary consideration of resource conditions.

Purpose and Need for Action

The purpose of the proposed action is to reduce hazardous fuels across the landscape, restore or maintain historic patterns of vegetative cover and structure, reduce the vulnerability of the forest to large-scale disturbances, provide an ecosystem that sustains habitat for wildlife species, improve water quality, improve aquatic habitat, and provide economically viable removal of commercial timber.

Decision to be Made

The Responsible Official may choose any of the alternatives analyzed in this document, including the no-action alternative or some combination of elements of action alternatives, as long as they are within the range of effects. All action alternatives contain some proposed activities that would require temporary project-specific Flathead National Forest Land and Resource Management Plan amendments if included in the Record of Decision. The

proposed activities are timber harvest in Management Area 2C, temporary road construction in Management Area 2C, timber harvest in Management Area 13 without the harvest being specified in a Long Range Mule Deer and Elk Winter Range Activity Schedule, and timber harvest in Management Area 13A.

Public Review and Comment

Public participation helps the Forest Service identify concerns with possible effects of its proposals. It is also a means of disclosing to the public the nature and consequences of actions on National Forest System land.

A public involvement strategy for this project—also called "scoping"--was developed to ensure that potentially interested members of the public and other government agencies received timely information about the upcoming analysis so they may participate in the planning process.

Identification of Issues

Issues are identified through the public scoping process and by review from other agencies and Forest Service personnel. The scoping process is used not only to identify important environmental issues, but also to identify and eliminate issues that do not pertain to the Proposed Action, thus narrowing the scope of the environmental documentation process accordingly. The following issues were identified to address concerns about and to develop alternatives to the Proposed Action.

Wildlife Security

This issue stems from concerns that the various types, amounts, and distribution of timber harvest and prescribed burning units would reduce the area's ability to provide wildlife security. This would last about 15 years when saplings and shrubs would reoccupy the sites and provide places for wildlife to hide. Despite proposed restrictions on motorized public access on some roads and trails, timber harvesting under the Proposed Action would reduce the amount of secure elk habitat that is currently available during hunting season.

Effects on Existing Old Growth Habitat and on Late-seral/Structural Stage Forests

The Proposed Action would increase edge effects by harvesting mature and pole-sized timber next to old growth habitat, which would have numerous effects on the adjacent unharvested areas. In addition, timber harvest is proposed in some areas that are currently old growth habitat. However, these areas may no longer be old growth at the time of harvest due to large tree mortality resulting from continuing Douglas-fir beetle infestations. Road construction is proposed through existing old growth habitat. Patches of mature forests would be smaller, and some wildlife species would less easily travel between these patches.

Landscape Patterns--Connectivity

The Proposed Action would sever or constrict forested connections in numerous places that appear to serve as wildlife travel corridors between important habitats such as riparian forests and ridgelines.

Landscape Patterns--Seral/structural Stage Patch Size and Shapes

The Proposed Action would decrease the size and continuity of mature forests while increasing the amount of edge on others. The effort to enlarge patches of young forests to restore historic vegetation patterns would often require further fragmenting mature forests.

Water Quantity and Fine Sediment Deposition

WATSED, the model used to predict water yields and peak flows for this project, shows some drainages in the assessment area have had elevated water yields or peak flows (Reid, Bill, Cyclone, and Pike Creeks). Data collected in the field confirm these assessments. The Proposed Action would harvest timber and reclaim roads within main tributaries of Logan Creek and along areas that have potential to affect Logan Creek. Both ground-based timber harvest and roadwork have potential to cause at least short-term increases in water yields, peak flows, and sediment delivery to streams. In extreme cases, these activities could lead to changes in channel stability, especially if activities occur on sensitive landtypes or in drainages with stream types that are sensitive to additional water or fine sediment.

Road Access

There is concern that reclaiming existing roads would reduce future management opportunities, reduce access for fire suppression, and access for public recreation. Another perspective is that the Proposed Action does not reduce enough road miles to maintain wildlife security, improve water quality, and reduce the risk of human-caused ignition of fires.

Alternative Descriptions

Implementation of Alternative B would involve the maximum amount of timber harvest and road construction of any of the alternatives. Alternative A is the no-action alternative, under which no timber harvest or other activities are proposed. The other action alternatives are variations of the Proposed Action with reduced vegetation treatment and road building to emphasize the issues discussed above. Alternative C emphasizes wildlife security. Alternative D emphasizes protecting old growth habitat and the forested connections across the landscape that are used as travelways and cover. Alternative E addresses water quality, water yield changes, and possible increases in suspended sediment. Alternative F was crafted after the comment period of the DEIS was completed and addresses public concerns while meeting as many purpose and need objectives as possible. Each alternative addresses road access. These alternatives were designed to address the significant issues and represent a reasonable range of actions, while at least partially meeting the Purpose and Need for action defined in Chapter 1.

Alternative A - "The No-Action Alternative"

Under this Alternative, none of the actions proposed in any of the other alternatives would occur. The analysis in this DEIS describes the possible or likely consequences of not managing the Logan Creek area as proposed in the action alternatives.

Alternative B - "The Proposed Action"

The Proposed Action is a part of a strategy to reduce fuels and move conditions toward natural disturbance patterns in the ecosystem. Treatments would total approximately 6600 acres of commercial timber harvest, along with several thousand acres of prescribed burning, sapling thinning, and habitat improvement projects. Several miles of new specified and temporary road would be built, about 16 miles of road would be reclaimed, and drainage features on existing roads would be improved.

Implementation of the Proposed Action, as well as the other action alternatives, is designed to take place over the course of about 10 years. Most timber harvest activities would be concentrated in separate areas of the Logan Creek watershed at a time to minimize disturbance and cumulative effects in the remainder of the project area in any given year.

Alternative C - "Wildlife Security"

This alternative seeks to maintain and enhance security values for elk, deer, cavity nesters, and numerous other wildlife species.

Alternative C was developed using the Proposed Action as the base. This alternative dropped several harvest units and increased live tree retention in others to maintain hiding cover in elk security areas. Almost all of the harvest units in the urban interface were retained because most areas of private property have year-round motorized access. Additional road and trail restrictions for motorized vehicles are included to expand elk security areas. Treatment acres total approximately 4200 acres of commercial timber harvest, along with several hundred acres of ecosystem burning, sapling thinning, and habitat improvement projects.

Alternative D - "Old Growth and Connectivity"

This alternative was designed to respond to concerns about old growth habitat, forested fragmentation, and Canada lynx, while keeping units that are in the urban interface or that treat areas of heavy tree mortality.

Alternative D was also developed using the Proposed Action as the base. This alternative eliminates several stands that provide forested connectivity or future old growth. Where road construction through old growth habitat would be needed, the roads and their associated units were dropped. Unit boundaries were moved to 300 feet away from adjacent old growth habitat wherever high-contrast edge would be created. Live tree retention was increased in the units where possible, as was the amount of dead wood to be left. This allows the stands to retain the structure necessary to support wildlife dependent on such ecosystems. As in all the action alternatives, underburning would occur in 127 acres of relatively dry old growth habitat, which would enhance old growth and wildlife habitat values and extend the expected

life of these stands. Some stands that are currently old growth would be regenerated if continuing mortality causes these stands to no longer qualify as old growth habitat. This would occur in 40 of the 50 acres in the Proposed Action. Due to Canada lynx concerns, precommercial thinning of conifer saplings is substantially reduced and no harvest or burning would occur in mature stands that also appear to be feeding habitat for lynx. Treatment acres total approximately 4700 acres of commercial timber harvest, along with several hundred acres of ecosystem burning and habitat improvement projects.

Alternative E - "Soil and Water"

This alternative responds to issues raised involving water quality, water yield changes, and possible increases in sediment in fish habitat. It is also based on Alternative B. The Proposed Action would harvest timber in several drainages where channel conditions suggest that they are being affected by increases in water yield and peak flows. Four hydrologically sensitive sub-drainages where increased water yield are of special concern are Reid, Pike, Bill, and Cyclone Creeks.

Alternative E reduces the number of acres from the Proposed Action that would be treated with regeneration harvest in the Reid, Pike, Bill, and Cyclone drainages. In these watersheds, proposed harvest acres are reduced in an effort to minimize potential impacts from water yield increases. Although some water yield increases are still predicted, additional acreage reductions were not recommended because most of the remaining proposed harvest included commercial thins and removal of bark beetle-killed trees in stands that are steadily declining in health. Alternative E also reduces the number of roads that would be built to access harvest units and reclaims additional roads in areas where drainage problems now exist. Treatment acres total approximately 6300 acres of commercial timber harvest, along with several hundred acres of ecosystem burning, sapling thinning, and habitat improvement projects.

Alternative F - "Preferred Alternative"

This alternative was developed in response to the results of analysis in the Draft EIS and public comment on that document. It seeks to balance the environmental impacts on resources of issue while meeting the purpose and need for the project.

Alternative F was crafted using the Proposed Action as the base. In response to issues regarding water quality and fisheries habitat, Alternative F proposes fewer miles of road construction than the Proposed Action. Several units were eliminated from this alternative to reduce impacts to streams and fisheries habitat. Many proposed vegetation treatment units have been reduced in size to create a buffer between unit boundaries and stands identified as old growth. Units were eliminated to avoid impacting old growth habitat or reducing forested connections between key habitat areas. Other units were not included if they required road building in areas where adverse impacts might occur or had a negative effect on Canada lynx habitat. Retention levels in some units increased compared to the Proposed Action in response to concerns over wildlife connectivity and cover, hydrologic response, effects to fisheries habitat, and refinements of stand level vegetation data.

Comparison of Alternatives

Each alternative is evaluated for its effects on important resources and issues that were identified by the public and by Forest Service employees involved with the project. A narrative comparison of the affected environment and environmental consequences of the alternatives by resource or issue area follows. A tabular comparison can be found at the end of Chapter 2.

Vegetation

To varying degrees, vegetation treatments in Alternatives B through F respond to the various project objectives, while Alternative A, the No-Action Alternative, provides a baseline for comparison of the action alternatives. All action alternatives would reduce the number of acres at high risk to bark beetles by 3 to 4 per cent, which would reduce by 50 percent the acreage of highly vulnerable stands. Alternatives B, E, and F are the most effective and essentially the same in this regard. Alternatives C and D are effective in reducing the risk of bark beetle mortality, although relatively less than Alternatives B, E, and F.

From a landscape perspective, the current size and configuration of forest stands are, on the average, smaller and more disjunct than historically. To restore historic landscape patterns, many seedling stands would be enlarged. Alternative F, B, C, C, and E provide the largest average patch size, in descending order. The least number of late successional patches is also desirable from a landscape ecology perspective. Alternatives C, D, E, F, and B provide the least number of these patches, in descending order.

To restore the landscape to historical structure and composition, various vegetation treatments are necessary. Alternative B, E, F, D, and C, in descending order, would treat the most number of acres, which would move the landscape in the direction toward historic conditions.

Fire and Fuels

All action alternatives would reduce fuel, both live and dead, to varying degrees and would create Fire Intensity Reduction Areas across the landscape. This is accomplished by a combination of timber harvest with associated burning of slash, low-intensity burning with no associated harvesting, or hand fuel treatments and pile burning also with no associated harvesting. The order in which alternatives effectively address the Purpose and Need for fuels reduction is determined by the number and intensity of acres treated. Alternative F has the highest effectiveness rating in reducing wildland fire intensity and reduces fuel loading on the greatest number of acres. Alternatives B, E, D, C, and A are less effective, in respective order, relative to these objectives.

Threatened and Sensitive Plants

A list of species occurrences and their habitat was developed. While all proposed units have not been surveyed for Threatened, Endangered, or Sensitive (TES) plants at this time, all units would be surveyed prior to ground-disturbing activities. Where TES species are found, proposed unit boundaries would be moved to protect the population and its habitat. If listed

species are discovered, the plant and its habitat would be protected. Because surveys for TES plants would be conducted prior to harvest activities and adjusted if necessary, no alternative would produce direct, indirect, or cumulative effects on populations of TES plants.

Noxious Weeds

The primary noxious weed that occurs in the analysis area is spotted knapweed. Populations of orange hawkweed currently exist in the area; however, their potential for spread is low. The primary action that allows for the establishment of noxious weeds is ground-disturbing activities such as harvesting, burning, and road construction. The risk of noxious weeds spreading from existing sites and becoming established elsewhere is low primarily due to the habitat types in Logan Creek. Skid roads, landings, and roadsides with soil disturbance would be seeded with fast-growing, short-lived annuals to reduce the potential for establishment of noxious weeds. Surveys for noxious weeds would be conducted prior to harvest activities to determine the presence of noxious weeds. Should noxious weeds be discovered, treatment would be consistent with a strategy outlined in the forest-wide noxious weed plan. Finally, equipment used in ground-disturbing activities would require washing to eliminate weed seed prior to entering the area and before departure.

Soils

The effects of management activities on the soil resource primarily involve soil productivity and erosion. All action alternatives are designed so all harvest activities, site preparation, and brush disposal would maintain soil productivity. Likewise, soil erosion would be minimized by reducing the amount of bare, disturbed soils in harvested areas. In most cases, the same practices that maintain soil productivity also reduce the risk of soil erosion. The percent of past and proposed disturbance in the analysis area would increase from 9.9 percent in the no-action alternative to 11.3 percent in Alternative B, 10.8 percent in Alternative C, 10.9 percent in Alternative D, 11.2 percent in Alternative E, and 11.1 percent in Alternative F. The soil analysis indicates that all alternatives and all activities proposed by the alternatives would meet the Regional Soil Quality Standards of less than 15 percent detrimental soil disturbance and all Forest Plan management direction.

Water Resources

Alternative A would allow watersheds in the Logan Creek analysis area to continue to recover from the existing levels of increased water yield and peak flows caused by past management activities; therefore, unstable stream channels would continue to gradually recover at the current rate. There would be no reclamation of any roads or improvement of road drainage, so some impacts directly related to high road densities would not be addressed. So although there would be no increased sources of sediment or clearings created that would increase water yields, the recovery rate would remain relatively slow compared to the action alternatives that include various levels of hydrological improvement.

Alternative B would increase water yields, peak flows, and sediment delivery to streams in most sub-drainages in the Logan Creek area more than other alternatives because it includes the most forest management and road construction. In Reid, Pike, Bill, and Cyclone Creeks, these increases would put additional strain on channel segments that already show

characteristics of degraded channel stability. However, these negative effects would be mostly offset by the restoration features of this alternative, which are the most of any of the alternatives. The Proposed Action would reclaim or improve drainage on the most miles of road, but it would also construct new roads. In most cases these roads are high upon hillsides, well out any riparian areas and built with the newest Best Management Standards, so it is anticipated that they would add little new sediment to streams.

Alternatives C, D, E, and F are variations of B, with decreased harvest and road construction, so cumulative effects would be less by different degrees depending on total harvest, road drainage improvements on haul routes, and total road construction. Alternatives C and D would not eliminate regeneration harvest and road construction in the watersheds of concern as much as Alternative E or F would, so they would not reduce the risk of continued channel degradation as much as Alternative E or F. Alternative E and F would also target specific road segments for reclamation that have been identified as being sediment sources. So both Alternatives E and F would have the most beneficial effects on the aquatic resources compared to all other action alternatives.

Fisheries

The No-Action Alternative would lead to gradual habitat improvement over the long term. The action alternatives may have short-term consequences, but would ultimately improve habitat conditions faster than the No-Action Alternative. The primary mechanisms of habitat improvement are reduced sediment to streams, removal of fish migration barriers, and protection of riparian habitat. Some alternatives achieve habitat improvement better than others. However, while all alternatives would lead to better fish habitat, this is not enough to recover native cutthroat trout and bull trout in the Logan Creek area. Recovery of these species would require the removal of non-native species (brook trout, rainbow trout, lake trout) and this is outside of the Proposed Action. Therefore, the cumulative effect of all alternatives is essentially no change to viability of native species. The primary threat to cutthroat trout will continue to be competition from brook trout and rainbow trout, and cutthroat trout are likely to eventually disappear from the analysis area. Bull trout are even more rare and will continue to be threatened by lake trout. Non-native brook trout and rainbow trout will experience improved growth and survivorship no matter which alternative is implemented.

Old Growth Habitat and Old Growth Associated Wildlife Species

Alternative A would be expected to sustain habitat for old growth associated species over the short term, but it includes no active recruitment of old growth, nor would it protect old growth stands from insect, disease, or stand-replacement fire.

Alternatives D and F best respond to old growth habitat issues. Alternatives B, C, and E would substantially add to cumulative effects on old growth habitat through increased fragmentation, smaller patches of mature forests, increased high-contrast edge, reduced availability of interior habitat, and decreased forested connectivity. Alternatives B, C, and E would regenerate some mature forests that currently exhibit relatively little tree mortality and do not have high fire hazard levels. These alternatives would actively recruit future old growth habitat in many areas, but they also would regenerate many mature forests. In

addition, road construction in Alternatives B, E, and F would cut through 2500 feet of old growth habitat, requiring felling of trees on 1.0 to 1.1 acres.

Alternatives B, C, and E would create new edge along 3.6 to 11.7 miles of old growth, negatively affecting 128 to 427 acres of old growth. Effects such as the creation of new high-contrast edge and road construction in and along old growth habitat were almost entirely excluded from Alternative D by dropping 14 units, pulling back the edge 300 feet in 16 units, and changing silvicultural prescriptions where possible. Alternative F dropped or modified additional units to avoid all edge effects on old growth from timber harvest. All action alternatives would harvest in 34 to 54 acres of old growth if the Douglas-fir beetle infestation continues in these stands to the extent that they would no longer qualify as old growth habitat.

All action alternatives would also underburn a small acreage of existing old growth near Tally Lake to retain old growth habitat values consistent with its natural disturbance regime; the No-Action Alternative would not provide this benefit to old growth.

Snags and Downed Woody Material Wildlife Habitat

Alternative A would maintain current public motorized use, leaving about 5900 acres of snag and downed wood habitat vulnerable to firewood cutting. In all action alternatives, changes in year-round motorized road access in the Taylor Creek drainage would reduce this by about 500 acres. This, along with regeneration harvests, would reduce the amount of forest accessible to firewood gatherers by less than one percent while maintaining snag and downed wood habitat important to wildlife. The probability of stand-replacing wildfire would be the greatest under Alternative A. Such fire would substantially increase the availability of snag habitat over the short term, although living tree canopy could be destroyed over large areas—a trade-off not acceptable for other wildlife concerns such as security and connectivity.

For all action alternatives, Forest Plan Amendment 21 snag and downed wood standards would be met. Compared to the other action alternatives, Alternatives D and F propose to retain more live trees and snags in some units to provide elements of old growth habitat and wildlife travel connections.

Riparian and Wetland Wildlife Habitat

With the exception of Unit 138A, no vegetation manipulation or road construction would occur within Riparian Habitat Conservation Areas or riparian landtypes. Connectivity along riparian habitat corridors would not be severed under any action alternative, but would be narrowed to less than 300 feet wide in up to three places. Road repair and reclamation in all action alternatives would improve habitat conditions for many wildlife species using riparian and wetland wildlife habitat, but Alternatives E and F would improve it the most.

Sensitive, Threatened, and Endangered Wildlife Species

The affected area provides known or suspected habitat for four threatened species and 11 sensitive species that may be at risk across all or a portion of their range. A summary of these effects is discussed below.

The Canada lynx is the species most likely to be impacted by any part of the proposals. Underthe No-Action Alternative, feeding habitat for lynx would gradually diminish in quality and quantity, unless there is extensive fire or other stand-replacing disturbance. In the action alternatives, much of the vegetation management would occur within stands identified as lynx habitat. Temporary "unsuitable" habitat would increase to up to 29% of some Lynx Analysis Units. All action alternatives would harvest potential denning habitat, although this would occur to a much lesser extent in Alternatives C, D, and F. Precommercial thinning on 3376 to 3473 acres would reduce of temporary loss of sapling lynx feeding habitat in Alternatives B, C, and E. The 310 acres of precommercial thinning in Alternatives D and F is common to all action alternatives and are not in lynx habitat. Alternatives B, C, and E would regenerate 147 to 167 acres of mature forests with sapling understories and low conifer limbs, negating their value as lynx feeding habitat until saplings reoccupy the sites. Such units were dropped from Alternatives D and F. Commercial harvest in Alternatives B and E would sever 29 or 30 major forested connections, five of which would be on major ridgelines. Alternatives C and D would sever about half as many, while Alternative F would sever only two. Short-term loss and potential eventual enhancement of lynx habitat would occur in all action alternatives. Alternatives D and F would have the least negative effects on lynx.

Effects on other at-risk species are variable. All action alternatives, particularly Alternatives B and E, would alter a substantial amount of cover used by large mammals, such as grizzly bears, wolves, or their prey. Indirect effects of road construction in the Johnson Peak area from Alternatives B, E, and F would enable the loss of habitat for one reproductive pair of goshawks, as disclosed in the Good Creek FEIS and ROD. In other areas, potential habitat for both goshawks and flammulated owls would be improved or created by all action alternatives, although some potential nesting trees would be removed. The black-backed woodpecker would be affected by any actions that reduce the chance of large stand-replacing wildfires, such as in all of the action alternatives. In all action alternatives, boreal toads and their upland habitats could be impacted by harvest, burning, and machinery.

Management Indicator Species - Commonly Hunted Big Game

Three of the elk analysis units have less than 30 percent hunting season security area, which meets recommendations of Montana's statewide elk plan. Proposed regeneration harvest and burning in Alternatives B, D, and E would reduce security area acreage in all elk analysis units, resulting in five units below the 30 percent objective. This is despite the fact that changes in motorized public access proposed for all action alternatives would increase the security area by 1,999 acres. In Alternative C, security areas exceed 33% in all elk analysis units. This is due to an additional 0.7 miles of yearlong closures, changing 17.5 miles of trails to seasonally non-motorized. During development of Alternative C, tree retention levels were increased if possible or the units were dropped in most of the units in potential security area. Alternative F would change 12.7 miles of trails to seasonally non-motorized and would drop or alter some units in potential security area. Under Alternative F, security areas would exceed 33% in all but one elk analysis unit.

Across the analysis area, wildlife hiding cover values would be negated by harvest and burning on over 5000 acres in Alternatives B and E, about 4000 acres in Alternative F, and about 3000 acres in Alternatives C and D. Due to the large size of many proposed openings, between 438 (Alternative C) and 827 acres (Alternative B) would become unavailable for elk

to use for foraging--an increase of up to 640% over current levels. Under the No-Action Alternative, if no further timber harvest, prescribed burning, or wildfire occurs, nearly all of the area would function as hiding cover in 15 years, but availability of high-quality grazing and browse forage would be expected to decline, most notably in the shrub fields in the Tally Mountain area. All action alternatives would enhance shrub production in this area.

Recreation

The majority of the recreation in the analysis area is dispersed recreation, but a substantial amount occurs at the Tally Lake Campground. The primary effects of implementation of alternatives are vegetation treatments and trail construction in and around the Campground and the reduced number of miles of motorized road access throughout the analysis area. Of the action alternatives, Alternative C reduces the amount of seasonal motorized road and trail access the most, with Alternative F closing slightly less than Alternative C.

Air Quality and Smoke Management

The amount of smoke emissions including particulate matter produced from prescribed fire activities proposed in the action alternatives is greatest in Alternative B and least in Alternative C, with Alternatives D, E, and F between these two. All prescribed fire would be conducted in a manner to comply with all established regulations, and no health or ambient air quality thresholds would normally be exceeded. Short-term potential impacts to visibility in Class I airsheds would usually be less than one day and typically would occur during low visitation periods. The design of the action alternatives is to reduce the fuel level and subsequent intensity of wildland fire; therefore, the no-action alternative would have the greatest potential for wildland fire size, intensity, smoke emission production including particulate matter, and regional haze contribution.

Visuals / Scenery

The No-Action Alternative does not involve removing vegetation from the landscape through timber harvest or prescribed burning. The natural evolution of the landscape would continue, and the vegetation in the existing harvested areas would grow and eventually fill in the openings, but the shapes would remain evident. A large wildland fire would dramatically change the scenery across the landscape. All the action alternatives would manage vegetation to varying degrees. The combination of burning and harvesting would add diversity to the vegetation patterns by creating a mosaic of openings and forested areas of different ages, densities, and size classes. This would help reduce the artificial appearance caused by contrasts from old harvested areas adjacent to unmanaged areas. From established Viewpoint 1, all action alternatives would improve visual qualities by creating an open park-like appearance. From established Viewpoint 2, all action alternatives would improve the visual appearance of the landscape. Alternative C and especially D are more visually pleasing than the other action alternatives at this viewpoint because no new road construction would be visible. In addition, Alternative D proposes no low-dispersed retention harvesting which would further improve the short-term appearance of the landscape. From established Viewpoint 3, all action alternatives would improve the visual appearance of the landscape. Alternatives B and E would improve the appearance the greatest, Alternative F would

improve the appearance to a lesser amount, and Alternatives C and D would improve the appearance the least.

Heritage Resources

Initial surveys have identified 24 recorded historic sites within or near the analysis area. Of these, there were two recorded prehistoric sites within the area. These do not conflict with any activities proposed in any of the alternatives. More site-specific inventories will continue prior to any implementation and appropriate avoidance or project modification will take place to protect the resource. Consultation with MtSHPO and the Confederated Salish and Kootenai Tribes also continue.

Socio-Economics

Each alternative affects the economic and employment conditions of the local area in proportion to the level of activities proposed. Alternative B allows for the greatest amount of employment and present net value, Alternative F allows for a lesser amount, with Alternative C allowing for the least.