CHAPTER II

ALTERNATIVES

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A. CHANGES BETWEEN DRAFT AND FINAL

Minor edits were completed throughout this chapter to provide clarification of information previously presented. The proposed Forest Plan Amendments associated with the RRNF and KNF have been dropped; minor inventory adjustments have been processed as an addendum or correction to the respective Forest Plans (see discussions in Section B, regarding these changes).

The alternatives or component actions within alternatives that have been eliminated from detailed study and the rationale for their elimination are discussed and documented as part of the Final EIS in Appendix D. This discussion has been expanded over that provided with the DEIS, based on comments identified during the Comment Period on the July 2003 DEIS. Component project descriptions (contained in Section F) have been clarified, as appropriate.

Based on public comment on the July 2003 DEIS, and to expand the range of alternatives considered in detail, the following changes have been made to the alternatives (in comparison to these alternatives as presented and analyzed in the DEIS). These changes primarily involve rearrangement of parking and facility components among alternatives that were previously considered in the DEIS.

Alternative 1 (No-Action) = no change

Alternative 2 (Proposed Action) = no change

Alternative 3 = minor change; now includes no additional main parking lot (front and back). However, the Tubing Facility parking lot (approximately 20 spaces) and the bottleneck widening are still included (these are Components P-1 and P-3; the bottleneck widening is a sub-component of P-1). Although not an element that the Forest Service can authorize, the financial analysis now includes costs for a park and shuttle system from the bottom of the Access Road (e.g., Callahans's Restaurant).

Alternative 4 = no change

Alternative 5 = no change

Alternative 6 = minor change associated with the following components; Main parking lot expansion (front and back) is eliminated. It is replaced by the Knoll parking area as described in Alternative 4 (Component P-2). The Tubing Facility parking and bottleneck parking remain. The Access Road Widening project (Component IR-2) is included, which is a necessary connected action to Knoll parking. This alternative and its financial analysis also include van shuttles from the Knoll parking lot to the Base Area. The Moraine Lodge is replaced by Moraine Toilets and the Ski Patrol Hut (Component B-4 and 5).

The Mitigation Measure section has been edited, clarified, supplemented, and reorganized. The detailed listing of implementation phasing by alternatives is moved to the financial analysis appendix (FEIS Appendix I). This was done because scenarios for phasing are for analysis only. The primary use for scheduling and phasing is in predicting financial and economic consequences; phasing in these exact scenarios is not necessarily being proposed and would be the responsibility of the proponent if an expansion alternative were selected.

The DEIS contained a draft Monitoring Plan Framework (referenced in Chapter II and contained in DEIS Appendix M). Rather than being contained in the FEIS, a detailed Monitoring Plan will be made an attachment to the Record of Decision, if an expansion alternative is selected. This would allow it to be developed specifically to the alternative and the expansion components it may contain, and be specific to the area(s) where expansion is being authorized (i.e., Middle Fork, Knoll, or Current Facility areas and/or the various sub-watersheds.

B. INTRODUCTION

This Chapter identifies and compares a range of actions and alternatives to address, in varying degrees, the Purpose and Need for future expansion of the Mt. Ashland Ski Area (MASA). Six alternatives are considered in detail including No-Action. Three Action Alternatives considered in detail that are primarily based on a site-specific analysis of a current proposal received from the proponent to develop a portion of the Master Plan in the Middle Fork area[1]. Two additional alternatives are analyzed in detail that would expand the ski area predominately in areas other than Middle Fork, within the Special Use Permit (SUP) area. This chapter presents detailed descriptions of components and facilities associated with each alternative. Chapter II also identifies and discloses the process used to develop alternatives, alternatives considered but eliminated, alternatives considered in detail, mitigation measures, monitoring, and a comparison of alternatives considered in detail in a table format.

This Final EIS will not re-open the decision for expansion based on the Master Plan that was made in the 1991 FEIS/ROD. All alternatives considered and documented in this chapter are consistent with, and are based on the selected alternative (Alternative 7) in the 1991 ROD/FEIS (see Section D of Chapter I for a summary of the decisions made with the Master Plan). All alternatives are also designed under the RRNF and KNF LRMPs as amended by the Northwest Forest Plan, Regional Guides for Region 5 and 6, and all applicable state and local environmental laws, regulations and ordinances. Information regarding their relation to the design and environmental analysis of this ski expansion proposal is contained throughout this Final EIS.

This Final EIS is prepared in accordance with the National Environmental Policy Act (NEPA), and the regulations for implementing the procedural provisions. The range of alternatives has been developed in accordance with Council on Environmental Quality (CEQ) regulations to provide the decision-maker and the public with a clear basis for choice (40 CFR 1502.14). This range includes all aspects of actions and alternatives considered but eliminated from detailed study, as well as those actions and alternatives considered in detail. The specific alternatives considered in detail have been designed to respond to the Purpose and Need for this proposed action and the Significant Issues associated with the Proposed Action identified in Chapter I.

[1] Within the overall 960 acre SUP area, there are three somewhat distinct sub-areas that logically correspond to geographic locations of potential expansion activities, and are associated with the Alternatives Considered in Detail. In this analysis, reference is made to these three areas in order to provide clarity of geographic reference. These areas are described as follows and are further described in Chapter III and portrayed on Map III-1. The "Current Facility", is located in the central and southern portion of the SUP area where ski area developments currently exist. The "Middle Fork" area is the area associated with the northwest portion of the SUP area and the Middle Fork of the East Fork of Ashland Creek and Chairlift LC-6. The "Knoll" is the area in and around the northeast portion of the SUP area associated with the geographic feature known as the Knoll.

NEPA regulations require that all reasonable alternatives be considered to ensure that the proposed actions are well conceived and thoroughly evaluated (40 CFR 1502.14a). Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint, using common sense, rather than those that are simply desirable (46 CFR 18027, Forty Most Asked Questions Concerning CEQ's NEPA Regulations).

C. CORRECTIONS, FOREST PLAN AJUSTMENTS AND OTHER ADDITIONAL DISCLOSURE

This section presents corrections, discussion on Forest Plan adjustments and additional disclosure relevant to the 1991 FEIS and ROD. This information is important to the analysis of the currently Proposed Action and alternatives and serves to establish an accurate and current baseline for alternative analysis.

These features are presented and discussed prior to the presentation of alternatives because they represent factual corrections and administrative procedures and adjustments that have been needed since the 1991 ROD was released. The Forest Service has chosen to document them at this time, concurrent with this Final EIS analysis under NEPA. They serve to correct errors, update information, provide clarification and consistency, regardless of whether ski area expansion activities are authorized at this time, or not.

1. Correction to Special Use Permit Area Acreage

The 1991 Ski Area Master Plan ROD/FEIS disclosed the expanded ski area permit boundary to include an area of approximately 1,180 acres. In 1992, when the current Ski Area Term SUP was re-issued to the City of Ashland, the gross permit area acreage was changed to this number. Recent analysis, based on transferring the SUP to more technically precise computer mapping methods, has calculated the area within the permit boundary to be approximately 960 acres (a difference of 220 acres). In addition to more precise technology, this magnitude of change may be due to an error in the assumptions for calculating or estimating the area during the 1991 FEIS analysis (the 1991 planning area was much larger than the current permit area). There is no change to the location of the boundary associated with the decision made in 1991, only to the calculation of the area contained within it. All alternatives and the analysis documented herein assume and include the area within the 1991 expanded SUP area at this corrected figure (960 acres). All alternatives and the analysis documented herein also assume and include the area within the 1991 expanded 960-acre SUP area to include 888 acres on the Rogue River-Siskiyou National Forest and 72 acres on the Klamath National Forest.

2. Forest Plan Adjustments

To account for the programmatic 1991 Ski Area Master Plan decision that expanded the ski area permit boundary, there were needs for Forest Plan adjustments. The expanded Special Use Permit (SUP) area boundary resulting from the analysis and selection of Alternative 7 of the 1991 FEIS 1990 affects lands managed under the RRNF LRMP as amended by the 1994 Northwest Forest Plan, and the 1995 KNF LRMP. The 2000 DEIS for Ski Area Expansion included a proposal for a non-significant plan amendment to correct these items (both the 1991 decision and NWFP decision) for the RRNF only. The 2003 DEIS for Ski Area Expansion included a proposal for a non-significant plan amendment to correct the NWFP decision (in terms of acres) on the RRNF, and the KNF (in terms of allocation assignment).

None of these "adjustments" should have been termed Forest Plan Amendment, as they are actually adjustments that have no significance under the National Forest Management Act.

a. Rogue River National Forest

The 1990 ROD/FEIS for the RRNF LRMP states "the decision to expand the Mt. Ashland Ski Area is a site-specific decision which has its own concurrent analysis. That site-specific decision and its effects are not part of this analysis" (USDA FS RRNF LRMP FEIS 1990: page IV-3). The 1991 ROD and Ski Area FEIS did not identify, disclose or amend the 1990 LRMP land allocations. Allocations associated with the 1990 RRNF LRMP and the Mt. Ashland Ski Area primarily involved Developed Recreation (Management Area (MA) 4), and Restricted Watershed (MA 22).

The Northwest Forest Plan formally amended RRNF LRMP and its land allocations in 1994. That Record of Decision allocated the SUP area to Administratively Withdrawn, based on the RRNF 1991 ROD and Ski Area FEIS. Maps associated with the 1994 Northwest Forest Plan included the expanded ski area boundary (approximately 950 acres on the RRNF). This Northwest Forest Plan allocation was intended to provide for existing ski areas and for the RRNF, this allocation is complimentary to the Developed Recreation RRNF LRMP allocation (see NWFP ROD, page 15).

Recent analysis, based on transferring the SUP area boundary from the 1994 Northwest Forest Plan mapping, using more technically precise computer mapping methods, has calculated the area within the SUP area boundary on the RRNF to be approximately 888 acres instead of 950 acres (a difference of 62 acres). This adjustment changes (reduces) approximately 62 acres of Administratively Withdrawn, Developed Recreation, and changes (increases) the surrounding area (within two sub-watersheds) of Late-Successional Reserve, by 62 acres. The total SUP area on both forests is now calculated at 960 acres (see Section 1, above).

This inventory change slightly adjusts and corrects the location of the SUP area boundary associated with the decision made by the Northwest Forest Plan in 1994; there is no intent to change the intent or objectives of this 1994 decision, nor to the decision made in 1991 with the Master Plan ROD/FEIS. A Forest Plan Correction has been prepared to document the more accurate figure. This Correction (for the RRNF) has been distributed to interested parties to the RRNF LRMP (i.e., the Forest Plan mailing list), as well as all interested parties to the NEPA process for ski area expansion at MASA.

b. Klamath National Forest

The 1995 ROD/FEIS for the Klamath NF LRMP was issued after the 1994 Northwest Forest Plan, and therefore incorporated its land allocation strategy. In the vicinity of Mt. Ashland, the KNF LRMP included specific allocations of Administratively Withdrawn (Special Management) to a portion of the 1991 expanded ski area boundary. It did not however, correctly allocate all of the 1991 expanded SUP area existing on the Klamath National Forest.

To account for the programmatic 1991 Ski Area Master Plan decision that expanded the SUP area boundary, a Klamath Forest Plan adjustment was needed. The KNF includes approximately 72 acres of the 960-acre ski area SUP boundary. Approximately 47 acres were allocated Administratively Withdrawn and the other 25 acres to Matrix. This adjustment changes (reduces) approximately 25 acres of Matrix (visual emphasis) and assigns these 25 acres to Administratively Withdrawn - Special Management, accounting for the 1991 expanded SUP area boundary, making all 72 acres on the KNF within the SUP consistent.

Current LRMP Standards and Guidelines and Best Management Practices were found to be adequate for ski area management on the KNF. This adjustment was processed as a Forest Plan Addendum (File Code 1920 May 7, 2004); the public was informed via the 2003 Monitoring Report for the KNF. This adjustment also makes the 1991 expanded ski area boundary (72 acres on the KNF) and the management direction for rest of the Mt. Ashland Ski Area (888 acres on the Rogue River-Siskiyou NF) consistent on both National Forests.

c. Significance

Under the National Forest Management Act, this adjustment was (previously) evaluated from the perspective of timing, the location and size of the area affected compared to the overall planning area (the Forests), how the changes would affect the long-term relationship between levels of goods and services projected in the Forest Plan, and whether the change would apply only to a specific situation or the management prescriptions across the planning area. This analysis was included in Chapter IV of the 2003 DEIS.

Based on this significance analysis, none of the adjustments, either individually or collectively, would constitute an adjustment that would be significant. Having to do with the location and area (acreage) included within land allocations, the application of consistent land allocations across two Forests, these adjustments were determined to be an inventory change and were processed as addendums or corrections to each respective Land and Resource Management Plan, as noted above. Forest Plan Amendments were not found to be necessary.

3. McDonald Peak Inventoried Roadless Area

The 1991 ROD/FEIS did not discuss or disclose the effects on the McDonald Peak Inventoried Roadless area (IRA). At the time the analysis was being conducted, roadless area encroachment or effects to roadless character did not come up as a public or agency issue, and consequently were not discussed.

In 1992 (after the ROD/FEIS for the programmatic Master Plan was issued), the Forest Service implementation regulations for NEPA changed, making disclosure of effects to Inventoried Roadless Areas a requirement that warranted documentation under an EIS. This Final EIS includes the disclosure of these effects, associated with this proposed ski area expansion, in compliance with current regulations FSH 1909.15, Chapter 20).

All alternatives in this Final EIS being considered are based on the 1991 FEIS and ROD, which included establishment of an increased area for the MASA SUP area boundary. This expanded area includes lands inventoried as roadless and described as the McDonald Peak Roadless Area; see Chapter III, Section E, 4, and Map III-12 for more discussion on the area known as the McDonald Peak IRA.

It has been determined that the current use of the ski area in the vicinity of the Upper West Ridge, is within the mapped boundary of the McDonald Peak Inventoried Roadless Area. This small area does not currently possess typical roadless character, and human use and development has been ongoing for over 30 years. This area is estimated to be < 1 acre (see Map III-12).

All Final EIS alternatives are based on the 1991 decision to expand the SUP area boundary associated with Alternative 7 in the 1991 ROD/FEIS. This expanded boundary overlaps the boundary of the McDonald Peak area, inventoried as roadless, by approximately 298 acres. In addition, the current ski facilities and use overlap this boundary by less than 1 acre. This Final EIS discloses the effects to roadless character and other factors, which are associated with all alternatives, including No-Action, for the Inventoried Roadless Area. Other site-specific roadless area effects are associated with the significant project issues and are variable according to the magnitude and locations of actions and anticipated change in roadless (unroaded, unentered, or unmanaged) character, whether previously inventoried for these values or not.

D. DEVELOPMENT OF ALTERNATIVES

In this analysis, the Forest Service has utilized a five-step process to develop the range of alternatives and actions considered under the EIS process. This range is intended to: a) provide clear choices for the decision-maker, b) respond to scoping comments, particularly the Significant Issues, c) respond to management direction including the 1991 Master Plan ROD/FEIS, and d) respond to the Purpose and Need for the Proposed Action. The No-Action alternative (Alternative 1) is designed to address all but factor d) and provides a benchmark against which to evaluate the Action Alternatives.

Step 1: Scoping and Identification of Issues – Comments about the current proposal were received from the public throughout the entire scoping process, which began in 1998. Following scoping, which included review of comments received on the February 2000 DEIS, the project's interdisciplinary team (IDT) categorized these comments into approximately 60 issue statements, and then sorted them into various topic areas related to affected resources or values. The Ashland District Ranger, acting under delegated authority from the RR-SNF Forest Supervisor then determined which individual issues or groups of issues were considered to be significant, for purposes of alternative development and analysis. Significant Issues (see Section I, subsection 2 of Chapter I) were then used to help frame possible alternatives.

Step 2: Conceptual Alternative Formulation - Alternatives to the Proposed Action were formed that could reduce or eliminate possible adverse or undesirable effects associated with the Proposed Action as identified by the Significant Issues. Where feasible, potential effects of design or construction features were reduced or eliminated by making adjustments or changes to the proposal. Significant Issues centered on the potential resource effects and the human social effects associated with change in current environmental conditions and character associated with the area in which expansion is proposed. While some adjustments and elimination of features in the Proposed Action were possible, some issues could not be entirely accommodated by a feasible action alternative; the No-Action Alternative would best respond to these issues.

Step 3: Consideration of Other Alternatives - During scoping (including review of comments received on the February 2000 and July 2003 DEIS) specific comments were solicited and received about possible alternatives and alternative component options to the Proposed Action, including alternative locations within the SUP area. The IDT discussed each of the ideas received and weighed them against the concept described above. Reasons for elimination of alternatives and specific elements within alternatives from detailed analysis are introduced in Section D below, and presented in detail in FEIS Appendix D.

Step 4: Refinement of a Range of Alternatives - Based on IDT recommendation and Responsible Official approval, six alternatives are included for detailed analysis in this Final EIS, including the No-Action alternative. This range is intended to respond to the Significant Issues, to provide a variety of choices for expansion of MASA at this time, and to address the stated Purpose and Need. Consideration was given to numerous other alternatives and alternative elements as discussed in Section E below and FEIS Appendix D. In addition, the Responsible Official may choose a portion or portions of the alternatives considered in detail and create a "blend" alternative as the final decision.

Step 5: Identification of a Preferred Alternative - NEPA requires that this FEIS identify the agency's Preferred Alternative or alternatives, if more than one exists. The Forest Supervisor of the Rogue River-Siskiyou National Forest has identified **Alternative 2 and Alternative 6,** as presented in this FEIS and considered in detail as the **Preferred Alternatives**. The final decision will likely include some combination of elements and options primarily contained in these two alternatives, and may include elements of other Alternatives Considered in Detail. Alternative 6 was identified as the Agency's Preferred Alternative in the 2003 DEIS. This has changed for the FEIS based on further analysis and public and agency comment to the 2003 DEIS (see FEIS Appendix A, Response to Comments on the July 2003 Draft EIS).

1. Process Used to Develop the Proposed Action

This section discusses the processes used to develop the Proposed Action, including the processes that occurred both prior to and during the March 1998 submittal, and between that proposal and the revised (March 2002) proposal. The Proposed Action was developed through an evolving process between the Forest Service and the proponent, examining important resource values and environmental parameters. The intent of this iterative modification process was to minimize the adverse resource effects as much as possible, prior to conducting a thorough analysis of the alternative as the Proposed Action under NEPA, documented within this FEIS.

The majority of the proposed improvements were originally analyzed within the 1991 *Mt. Ashland Ski Area Final Environmental Impact Statement* (FEIS), and programmatically approved in the related *Record of Decision*, July 3, 1991. Proposed projects that were not specifically identified in the FEIS are designed to remain within the contextual scope of the ROD/FEIS approval.

As detailed information regarding key natural resources and location maps was assembled, the proposal evolved accordingly, in order to minimize and/or avoid effects to each resource to the maximum extent possible while maintaining a practicable proposal. The proposal was developed by MAA in association with its employees and management, and several contracted professional ski area designers and resource consulting firms. These included:

- **SE GROUP** (formerly Sno.engineering Inc.), resort planners and environmental consultants with offices in Bellevue, Washington, Burlington, Vermont, Park City, Utah, and Frisco, Colorado;
- **Northwest Biological Consulting**, a multidisciplinary biological consulting firm in Ashland, Oregon;
- **Phillip Williams** and Associates, a hydrology firm from Portland, Oregon;
- **Barnhart/Malcolm**, a resort planning firm headquartered in Lyme, New Hampshire and Broomfield, Colorado;
- **T.J. Bossard and Associates**, an engineering design firm in Grants Pass, Oregon;
- **Tom Ferraro**, an engineering geologist in Ashland, Oregon;
- **JBR Environmental Consultants**, a multidisciplinary environmental consulting firm in Reno, Nevada;
- **Parsons Engineering Sciences**, a water resources engineering firm with offices in Reno, Nevada and Portland Oregon;
- **Fred Phillips**, a registered professional engineer and land surveyor in Medford, Oregon;
- **Polaris Surveying** in Ashland, Oregon;
- **Reitinger and Associates**, a building design firm in Ashland, Oregon; and
- **Outback Construction**, a ski lift installation firm in Ashland, Oregon.

a. Primary Considerations for Lifts and Ski Runs

Primary chairlift and ski run design was completed by MAA management and employees (with over 100 years of combined experience), SE GROUP, and Northwest Biological Consulting. This design process included consultation with many local specialists in a range of environmental disciplines and involved many Forest Service resource specialists. MAA management also considered and in some cases, incorporated public comment received on the 2000 Draft EIS, additional scoping conducted in 2002, and public comment on the 2003 DEIS. Principal considerations during site specific planning for the LC-6 Chairlift, Surface Lift, Tubing Facility and associated ski runs and trails include:

- the stated Purpose and Need, and objectives for the project: with a focus on the development of lower level ability skiing terrain (the type of terrain currently missing at MASA);
- creation of an appealing run design that draws skiers and snowboarders away from currently crowded terrain;
- provision of an appealing design that incorporates natural features, variable run widths, glading, and tree islands;
- maintenance of a consistent fall line that minimizes or eliminates side slope terrain;
- consideration of appropriate slope angles and aspects to help maintain consistent high quality natural snow coverage throughout the ski season;
- improving skier/rider circulation throughout MASA;
- taking advantage of natural topography to minimize the need for grading and soil disturbance;
- maximizing use of natural openings in order to minimize the amount of clearing required;

- avoidance of wetlands, riparian areas, highly erodible soils, and areas of potential slope instability to the maximum extent practicable;
- minimizing the exposure of forested edges in wind prone areas;
- minimizing the effects to a unique Engelmann spruce grove;
- avoidance of snags, nesting trees, and other sensitive wildlife habitat; and
- proper slope angle and runout zone for the tubing facility.

Development of the layout for the proposed ski runs and lifts commenced with a detailed review of the issues discussed in the 1991 FEIS, a review of the available mapping, and a confirmation of map features on the ground. Working with ski area design consultants from SE GROUP and specialists from the Ashland Ranger District, MAA personnel thoroughly walked and surveyed the SUP area. With the assistance of a variety of field tools such as inclinometers, altimeters and global positioning system (GPS) receivers, the proposed ski trails and runs were field located and mapped, utilizing all of the above described considerations.

E. ALTERNATIVES CONSIDERED, BUT ELIMINATED FROM DETAILED STUDY

NEPA regulations require that this Final EIS discuss the reasons for eliminating any alternatives explored but not developed in detail (40 CFR 1502.14(a)). The range of alternatives considered includes all aspects of actions and alternatives considered but eliminated from detailed study, as well as those alternatives considered in detail.

In response to comments identified during ongoing scoping, the Comment Period on the February 2000 DEIS, the Comment Period on the July 2003 DEIS, and in addition to ideas and proposals developed by ski area planners, environmental consultants and the IDT, numerous components have been considered. These ideas span a vast range of thinking and all ideas have been carefully considered by the IDT. Conceptually feasible component or design alternatives were either eliminated upon further analysis, or incorporated into the Proposed Action or an alternative. The alternatives or component actions within alternatives that have been eliminated from detailed study and the rationale for their elimination are discussed and documented as part of this Final EIS; this documentation is contained in FEIS Appendix D. They are contained in this appendix for efficiency and to aid in document readability.

F. COMPONENT PROJECT DESCRIPTIONS FOR ALTERNATIVES CONSIDERED IN DETAIL

This section presents a complete listing and description of all specific component facilities that currently exist, or are part of a proposed project connected action or activity being considered for development. These components are inclusive of the Alternatives Considered in Detail in this Final EIS and contained within one or more of the alternatives analyzed in detail.

The format of this section introduces the various components, organized by category (e.g., buildings, lifts, runs, etc.) and explains the purpose, function, and general implementation or construction methodologies that are common to the various components, as applicable. Then, specific components (e.g., B-1 Existing Lodge) are further described with general locations, a reference to which alternative(s) it is associated with, the relationship to and changes from the 1991 FEIS/ROD, more specific discussion on location or variability in location, and more specific discussion on variability in construction methodologies.

Under the forthcoming description for each alternative, a complete listing of the components and connected actions included as part of that alternative is presented, referring back to components presented in this section, along with specific locations (mapping) and extent of the variable components. Information is presented here and in this format so as to reduce the redundancy of repeated duplicate explanation of components common to one or more alternatives, and/or methodology under each alternative considered in detail.

Component projects are further organized and referenced on alternatives maps according to category. The following codes describe the scheme for identifying the categories and components, and for labels that appear on the alternative maps. Specific components have the following letter codes, followed by a unique number code, specifically identifying each component:

B = Buildings

P = Parking

L = Lifts

LC = Chairlifts, LS = Surface Lifts

I = Infrastructure

IR = Roads, IP = Power, IW = Potable Water and Wastewater,
IN = Night Lighting, IH = Helispots, IE = Emergency Egress,
IM = Miscellaneous

S = Snowplay

R = Runs (or trails)

W = Watershed Restoration

1. Buildings

This category includes ski area operational structures or facilities designed for the comfort, needs and experience of winter guests. Operational buildings are also proposed for Ski Patrol needs and vehicle and shop maintenance needs. This category includes proposals for construction of new buildings to serve an expanded ski area, and remodeling of existing buildings. Exact function of each building would be determined at implementation. Relative to the analysis in the FEIS, environmental consequences are determined by size and location of each structure, not the function of the structure. All new construction would conform to the standards and guidelines of the Americans with Disabilities Act (ADA).

Full clearing and grading would take place at all proposed building locations. All trees and stumps would be removed within the construction (site) limits. Grading may include the use of explosives for the removal of bedrock or large boulders and/or the use of heavy equipment (e.g., excavators, bulldozers, etc.) for earthmoving. Standard construction techniques would be used for erecting buildings, with maintenance roads providing vehicular access to the building site, unless indicated otherwise (see Roads (IR), subsection 4, Infrastructure).

a. Existing Buildings

Base Lodge

This four-story facility was constructed in 1963. The structure provides ticket and ski school sales, rest rooms, food service, bar, seating, ski lockers, a small retail outlet (hats, gloves, goggles, etc.), office space, storage, and a small apartment for a caretaker. The building footprint is approximately 6,750 square feet (including the "sea container" installed in 2002).

Rental Shop Complex

This facility includes a rental shop, ski school and lift ticket sales, ski patrol base station, vehicle shop, office space, and rest rooms. The rental shop portion of the structure, constructed in 1963, provides ski, snowboard, pole, and boot rentals as well as a small ski and snowboard repair area. The ski patrol room, part of the original rental shop building, is the primary first aid station at MASA. It houses first aid beds, medical supplies, search and rescue equipment, and personal items for patrol members. The vehicle shop portion of the complex, constructed in the 1980s, provides an enclosed area for snow cat maintenance and parking, a generator for night lighting, and space for other miscellaneous maintenance and repair activities. Above-ground fuel tanks are located adjacent to the west end of the structure. The building footprint for the complex is approximately 6,100 square feet.

Lift Shop

This building, constructed in the 1970s, provides lift component maintenance space and storage. A small office and night lighting backup generator are also located here. The building footprint is approximately 800 square feet.

Race Building

This two-story structure was constructed in 1994 through the volunteer efforts of local high school ski race teams, businesses, individuals, and the Mt. Ashland Racing Association. It replaced a small A-frame shack that was constructed in 1967. The building provides storage for race training and event supplies and houses race officials (timers, judges, computer operators, etc.) during race events. The building footprint is approximately 320 square feet.

Wastewater Treatment Building
This facility was constructed in 1999 as part of a substantial upgrade and replacement to MASA's previous wastewater treatment system. The building houses wastewater tanks and equipment to pre-treat wastewater before it is pumped to a number of drainfield cells in the Knoll area. The building footprint is approximately 2,400 square feet, including the wastewater tanks, which are partially external to the building itself.

b. Proposed Buildings

B-1 Base Lodge Remodel (Alternatives 3 and 6)
Under this component, the existing Base Lodge facility would be remodeled and expanded to provide more efficient use of existing space and additional room for existing services offered to guests. The current building footprint of 6,750 square feet would be enlarged to approximately 8,550 square feet. Existing Lodge Modification was described in the 1991 ROD/FEIS as Project 1.

B-2 Base Area Guest Services Buildings (Alternatives 2, 3, 5, 6)
Two buildings are proposed under this component and both would be located near the present parking lot. These buildings were described or referenced in the 1991 ROD/FEIS as Project 4, Rental Shop and Ticket Booth Modifications, and under Project 1, Existing Lodge Modification.

B-2a Ticket Building, Skier Plaza (Alternatives 2, 3, 5, 6)
This facility would be constructed along the southeastern side of the pathway leading from the parking lot to the existing lodge (between the base terminal of the Sonnet Lift and the driveway). This building would primarily house guest services, including ticket sales (with windows facing the driveway), restrooms, vending and a general seating area, useable also as a conference space. This is proposed as a two-story building with a footprint of approximately 1,200 square feet. The ticket building would be constructed primarily on previously disturbed ground.

The present driveway area would be paved and/or tiled and maintained in a plowed condition during the winter season, which would require a heating system below the paved/tiled surface. This would allow for better guest service and for deliveries to the Base Lodge along with better access for persons with disabilities. The Plaza footprint would be approximately 4,400 square feet (260 feet x 18 feet).

B-2b Arrival Services Building (Alternatives 2, 3, 5, 6)
The Arrival Services Building would be constructed near the north edge of the parking lot, immediately east of the existing rental shop. Its primary purpose would be to house a Rental Shop, though ticket sales and rest rooms would be included.

The building footprint for the Arrival Services Building would be approximately 4,000 square feet. It would be constructed primarily on previously disturbed ground. In conjunction with the development of this facility, the existing rental shop would be converted to other uses such as storage, office space, and expanded ski patrol facilities.

B-3 Moraine Lodge (Alternatives 2, and 5)

The 1991 ROD/FEIS Project 5 provided for additional skier services facilities in a combination of modifications to the present Lodge and Rental Shop buildings, and construction of new buildings. Additional indoor space for warming, various guest services, and convenient sanitation facilities would be needed to accommodate an increase in number of guests and meet skier's basic needs. Additionally, this facility would be designed to accommodate current and increasing demands for a high quality recreation experience.

Site specific planning and analysis conducted by MAA in cooperation with SE GROUP was conducted in the summer of 1997 to determine the optimum location for additional guest facilities programmatically approved in the 1991 ROD/FEIS. In addition, SE GROUP completed a study and guest facility improvement plan in July and August 1998. It was determined that a guest service facility in the vicinity of the top of the proposed LC-6 Chairlift would provide the needed guest amenities while minimizing effects to surrounding resource values. Site analysis by MAA, SE GROUP and Reitinger and Associates, along with assistance from Forest Service resource specialists determined that the proposed Moraine Lodge location and design could provide the following benefits:

- The facility could be easily and safely accessed by skiers from both the Ariel and LC-6 Chairlifts;
- The provided services would help reduce crowding at the current lodge.
- There is a need (sanitation, skier warming, etc.) for at least some type of facility in this area due to the lateral layout of the ski area;
- By utilizing the site topography, the facility could be designed have a low profile when viewed from the Bowl side and fit into the landscape without extensive site modification; and
- The conceptual Alpine Chalet design could utilize local rock to accommodate the goal of blending with the environment.

Augmenting existing skier service facilities, this facility is proposed for development near the top of Lift LC-6 on the terminal moraine near the base of the Bowl. The lodge would be located to allow skier access from the LC-6, the Upper Dream ski run, and from the Bowl. The Moraine Lodge is proposed as a two level chalet-style structure with a building footprint of approximately 2,900 square feet and a terrace footprint of approximately 1,450 square feet. It would accommodate about 80 indoor seats and an additional 80 seats on the outside terrace.

Due to its location on the hillside, the lower level would have less usable space than the main floor. With the use of native rock in the facade, the building would have a low profile, fit into the hillside and would be designed to be aesthetically compatible with the natural surroundings.

A tracked excavator would complete the excavations required for the Moraine Lodge. Concrete for terrace foundations would be delivered to the site by helicopter or via a concrete pumper truck where access allows. Other construction materials would be delivered via helicopter or the work road as appropriate. Native rock used in building or terrace construction would be limited to that obtained from excavations, work road construction, and ski run preparation.

Water would be supplied to the site via a potable water pipeline buried within the maintenance road. Wastewater would be conveyed to the wastewater treatment plant near the Knoll. Safeguards, such as use of pressure grade pipe and level sensors with central alarms, would be incorporated to the same standard as the pipeline from the present facilities to the plant. The wastewater plant would provide adequate treatment capacity for the wastewater produced at existing and proposed facilities.

Development of the Moraine Lodge would be phased, and the initial development would likely be smaller, most likely a yurt or similar building providing only a warming area and toilet facilities. The ultimate facility is proposed to be developed to the size proposed above to provide skier warming and offer full restrooms, simple food and beverage services, ski patrol, and storage facilities.

B-4 Moraine Ski Patrol Building (Alternatives 3 and 6)

This facility would be constructed near the top of Lift LC-6 on the lateral moraine between the Bowl and Caliban and would have a building footprint of approximately 250 square feet. This building would serve as a dispatch point for ski patrollers, especially on days when Ariel is closed. It would also provide a storage area for ski patrol equipment and supplies and would provide an on-hill training location for volunteer and professional patrollers. Although not specifically mentioned as a stand-alone ski patrol facility in the 1991 ROD/FEIS, this facility would provide an important public safety function in the absence of a patrol facility associated with the Moraine Lodge.

B-5 Moraine Toilet (Alternatives 3 and 6)

This building would be constructed near the top of Lift LC-6 on the lateral moraine between the Bowl and Caliban and would have a building footprint of approximately 600 square feet. It would be a compost or incinerator-type toilet with a maximum of four stalls. Although not specifically mentioned in the 1991 ROD/FEIS, this facility is proposed to collaborate with the design of Alternative 3, which has less terrain in the area of LC-6, and subsequently would need to serve less people. It is also designed to be a less costly improvement, in alignment with the function of Alternative 3 (see Section F, 4).

B-6 Knoll Lodge (Alternative 4)

This building would be located in the small saddle adjacent to the switchback near the upper end of the Access Road. The structure would house all guest services necessary for Knoll area development such as food and beverage service, lockers, rental shop, etc. The Knoll Lodge is proposed as a one level structure with a building footprint of approximately 8,160 square feet, including an outside deck, and would have a seating capacity for approximately 450 people. The 1991 ROD/FEIS discusses this building (Project 5) and it was included on the Alternative 7 map.

B-7 Knoll Ski Patrol Building (Alternative 4)

This facility would be constructed near the south edge of the Knoll summit and would have a building footprint of approximately 350 square feet. This building would serve as a dispatch point for ski patrollers to all locations on the Knoll area. It would also provide additional storage space for ski patrol equipment and supplies and would provide an on-hill training location for volunteer and professional patrollers.

Although not specifically mentioned in the 1991 ROD/FEIS, this building is also proposed in concert with the function of Alternative 4 (see Section F, 5), which would initially expand in the Knoll area first, and would subsequently have a need for improved ski patrol facilities in the Knoll area.

B-8 South Ridge Tubing Facility Yurt (Alternatives 2, 3, 5 and 6)

In conjunction with the development of the tubing facility (see subsection 5, Snowplay), this component would install a yurt and attached deck near the top of the tubing lanes. The yurt would provide a ticketing and warming area for guests. The approximately 30-foot diameter yurt would be constructed on pier foundations on a slope near the top of the tubing lanes, allowing for tube storage underneath the yurt. The building footprint, including the deck, would be approximately 900 square feet.

Although not specifically identified in the 1991 ROD/FEIS, the South Ridge Tubing Facility would increase the diversity of local winter recreational opportunities, which was identified as a Purpose and Need element in the 1991 FEIS.

B-9 South Ridge Tubing Facility Toilets (Alternatives 2, 3, 5 and 6)

A two-stall vault toilet structure would be installed near the top of the proposed tubing facility and would have a building footprint of approximately 300 square feet.

B-10 Knoll Vehicle/Lift Shop (Alternative 4)

This building would be used as parking, fueling, and maintenance area for snow-grooming vehicles (groomers) and snowmobiles. ODEQ approved above ground fuel tanks would be located here. The structure would also function as a storage and maintenance area for various lift components. The building footprint would be approximately 3,200 square feet. Although not specifically mentioned in the 1991 ROD/FEIS, this building is also proposed in concert with the function of Alternative 4, which would expand in the Knoll area first, and would subsequently have a need for vehicle and shop facilities in the Knoll area.

2. Parking

The 1991 ROD/FEIS Project 19, Sufficient Parking and Access, provided programmatic approval of access and parking necessary to accommodate up to 1,905 vehicles (the existing parking area can accommodate 550-600 vehicles).

Approximately 200 additional parking spaces (an increase of approximately 36 percent over the current parking area) is proposed to accommodate the anticipated increase in guests associated with Alternatives 2 and 6. Approximately 160 additional parking spaces (an increase of approximately 29 percent over the current parking area) is proposed to accommodate the anticipated increase in guests associated with Alternative 5, and approximately 328 additional spaces is proposed under Alternative 4 (an increase of approximately 60 percent). Alternative 3 would provide 20 additional spaces at the South Ridge Tubing facility (a four % increase). MAA would have to find additional parking off of NFSL under Alternative 3. The South Ridge Tubing Facility would also add an additional 20 spaces, as associated with Alternatives 2, 5 and 6.

Many potential parking lot locations were analyzed with the 1991 FEIS; details and conclusions for each option are documented in Appendix C of the 1991 FEIS. Analysis was performed on these options at various times by T. J. Bossard and Associates, Barnhart/Malcolm, Forest Service resource specialists, and MAA management. Upon careful review of these described options, MAA elected to propose several potential locations, which are described below.

Full clearing and grading would take place at all proposed parking lot locations. All trees and stumps would be removed within the construction limits. Grading may include the use of explosives for the removal of bedrock or large boulders and/or the use of heavy equipment (e.g., excavators, bulldozers, etc.) for earthmoving.

Cut and fill slopes would be retained by a method consistent with the requirements of the Mitigation Measures such as use of geotextile fabrics, welded wire retaining structures, rock armoring, revegetation with native plants, and other methods. The present road and parking lot are included in the Oregon Snow Park System and all proposed parking facilities would be completed in compliance with those standards. All parking lots would be paved and all would have approved drainage and stormwater management plans to minimize or prevent slope erosion.

Current Parking Lot

The current 4.2 acre lot was constructed in 1963, however at that time it was composed of two levels as shown in a circa 1965 aerial photograph (LaLande 1999, photo # W-2-70.1). Originally used as a native surface lot, it was first paved in 1988. The current capacity is approximately 600 vehicles (550 considering the larger size of today's vehicles) including the "front" (east) lot, "back" (west) lot, and a one lane "bottleneck" area.

P-1 Current Parking Lot Expansion

Alternatives 2 and 6: Enlargement of the present parking lot is proposed on the south side of the Sonnet Lift for development of additional vehicle and bus parking as well as a guest drop off area near the existing Base Lodge driveway. Development of this site would involve excavating on the north side of the Access Road immediately east of the present parking lot entrance. Fill material would be used to provide an even edge extending from the current lot (up to approximately 20 feet) eastward along the south edge of the Access Road. Approximately 19 trees less than 19 inches DBH, 8 trees 19-24 inches DBH, and 4 trees 25-30 inches DBH would be cut and removed for this portion of the parking lot. All of the trees to be removed would be Shasta red fir. Material produced by the cut area north of the access road would primarily be used to widen the south side (up to approximately 50 feet) of the back (west) parking lot. At the back lot, approximately 6 Shasta red fir trees 19-24 inches DBH, 5 trees 25-30 inches DBH, and one tree approximately 34 inches DBH would need to be cut and removed.

A third component of parking expansion would be a cut into the existing north cut slope that would widen the current "bottleneck" by a maximum of approximately 20 feet at the narrowest point. Excess fill would be used for the Sonnet/Blossom re-contour proposal (Project R-23). Approximately 25 Shasta red fir trees less than 19 inches DBH and two trees approximately 19-24 inches DBH would need to be cut and removed near the "bottleneck." The proposed parking lot improvements would add approximately 1.5 acres of additional parking, and about 200 additional spaces (160 in the front and 40 in the back).

Alternative 5: Under this alternative, the current parking lot would be expanded, similar in location and methodology as that described under P-1 (Alternatives 2 and 6) above. Because Alternatives 5 proposes less overall terrain, the resulting need for additional parking is less. This facility is estimated to involve 1.2 acres (instead of 1.5) and would accommodate an estimated additional 160 vehicles (instead of 200). Less area would be developed for parking along the north side of the access road and current parking area, near Sonnet. This option would also involve less tree removal.

P-2 Knoll Parking (Alternatives 4 and 6)

This parking lot would be located in the small saddle adjacent to the switchback near the upper end of the Access Road. This lot would serve the satellite facilities located at the Knoll (Alternative 4) or would serve the western half of the permit area through the use of a shuttle system on busy days (Alternative 6). Development of the site would involve cutting down the saddle area on its north side and using that material to partially fill in the area on the lower south side of the saddle. Additional fill for the south end of the saddle, if required, would be obtained from stockpiles located on the upper end of the Access Road and/or Forest Road 2080. These stockpiles are generated from roadside ditch cleanout performed annually by Jackson County. The proposed parking lot improvements at the Knoll would involve approximately 2.5 acres of additional parking, and create about 328 additional spaces.

P-3 South Ridge Tubing Facility Parking (Alternatives 2, 3, 5 and 6)

This parking lot would be located on the south side of the Access Road approximate 700 feet east of the current parking lot. This lot would serve the proposed tubing facility. Development of the site would include fill material placed along the existing fill slope of the Access Road and would be obtained from either the Jackson County stockpiles mentioned above, or from the material excavated for the main parking lot expansion, if approved. The proposed Tubing Facility parking lot would produce approximately 0.2 acres of additional parking, and about 20 additional spaces.

3. Lifts

This category includes mechanized lifts to allow movement of people from lower elevations to higher elevations to allow downhill skiing on ski runs, except for LC-11, which would provide for guest transport between the current facility and the Knoll area. The function of each lift (i.e., what terrain it accesses) is related to the portion of the ski area being developed and the combination and extent of ski terrain that it includes. Some lifts have chairs and are designed to move people above the snow surface; a chairlift is identified using the code LC. Other lifts do not have chairs and are designed to allow people to get from one place to another over the snow surface; these are referred to as surface lifts or LS (examples include rope tows, T-bars, and platters). Existing lifts are included and existing conditions discussed to allow complete understanding and comparison of the overall consequences of each action alternative.

Vegetation is typically cleared in a more or less straight line for the haul rope (steel cable), and supporting towers. Standard construction techniques would be used for erecting lift terminal structures, with maintenance roads providing vehicular access to the drive terminal, unless indicated otherwise. Lift tower footings would be excavated by hand or by excavators, where accessible, without additional road construction (unless otherwise noted in the following sections).

Concrete for footings and lift towers would be flown in by helicopter in situations where it could not be transported on the ground. Standard and site-specific Best Management Practices (BMPs) and mitigation measures would be implemented (see Mitigation Measures, Section 8, this Chapter). For a typical fixed-grip lift (chairs do not detach from the haul rope), the drive terminal would require a 15 by 20 foot concrete pad for a motor room and a 15-foot wide return terminal bull wheel area. Maximum clearing area at each terminal would be about 1/3 of an acre.

Chairlifts always include two operator buildings that would be placed within the cleared area at the top and bottom of each lift. Surface lifts can have one or two operator buildings, depending on length and topographic features. The surface lifts considered in this analysis, assume two operator buildings at each surface lift.

A 40-foot clearing width is assumed for all chairlifts and 30 feet for all surface lifts. A clearing width of 40 feet is typical for quad chairlifts (seats 4). Widths are generally less than 40 feet for double (seats 2) and triple chairlifts (seats 3). Excavations required for lift tower concrete footings are generally 10 feet x 10 feet x 7 feet deep. The numbers of towers for each lift are estimates only and are highly dependent on type of lift, engineering specifications, slope angles, and other factors. No lift towers are proposed or required for surface lifts considered in this analysis. Lift capacity is the number of persons transported per hour (pph).

LC-1 Ariel (Alternatives 1, 2, 3, 4, and 6)

The existing Ariel Chairlift is located within the central portion of the SUP area and currently provides access to primarily advanced runs leading from Mt. Ashland's summit. It would also serve as access to proposed Run 15. It is a bottom-drive, double chairlift (1,100 pph) that extends 3,075 feet with a base elevation of 6,415 feet and a top elevation of 7,475 feet. It includes 19 lift towers.

LC-1.1 Ariel Replacement (Alternative 5)

LC-1.1 would be installed within the central portion of the SUP area and would replace the existing Ariel chairlift. It would have the same alignment as the current lift and would provide access to the same terrain. The bottom terminal would be located slightly upslope (approximately 50 feet) to allow for improved skier traffic patterns in this area. Currently, skiers heading west to east on Rodger's Way are constricted to a narrow route adjacent to the bottom terminal. Moving the terminal upslope would effectively widen Rodger's Way. The top terminal would also be relocated. Currently, the top terminal is located near the road leading to the National Weather Service radar site on the south side of Mt. Ashland. The new terminal would be located on the north side (approximately 180 feet from the current location) to allow for better weather protection and an increased unloading area size.

Modification of Ariel Chairlift was part of the 1991 ROD/FEIS and was identified as Project 3. Proposed as a bottom-drive, double chairlift (1,100 pph), this lift would extend approximately 2,841 feet in length, have a base terminal elevation of roughly 6,415 feet, and a top terminal elevation of approximately 7,471 feet. The Chairlift would include approximately 19 lift towers.

LC-2 Windsor (All Alternatives)

LC-2 is located within the central portion of the SUP area and provides access to intermediate and advanced runs in the middle portion of the current ski area. This lift also provides the primary access to Ariel via the Lower Tempest and All's Well ski runs. It is a bottom-drive double chairlift (1,200 pph) that extends 2,018 feet with a base elevation of 6,334 feet and a top elevation of 7,078 feet. It includes 8 lift towers.

LC-3 Comer (All Alternatives)

LC-3 is located within the central portion of the SUP area and primarily serves the novice terrain of Lower Juliet. This lift spans the East Fork of the East Fork of Ashland Creek. It is a bottom-drive triple chairlift (1,800 pph) that extends 1,217 feet with a base elevation of 6,330 feet and a top elevation of 6,652 feet. It includes 9 lift towers. Under Alternative 3, novice skiers would use this lift to access the LC-6 pod via the reconfigured Betwixt Run to the Skiway (R-18).

LC-4 Sonnet (All Alternatives)

LC-4 is located within the central portion of the SUP area and currently provides access to the beginner terrain adjacent to the Base Lodge. Under Alternative 5, this lift and the proposed Poma Lift (LS-14) would provide access to the proposed North Ridge Lift (LC-5). It is a bottom-drive triple chairlift (1,200 pph) that extends 848 feet with a base elevation of 6,582 feet and a top elevation of 6,680 feet. It includes 6 lift towers.

LC-5 North Ridge (Alternative 5)

LC-5 is a new lift that would be installed within the central portion of the SUP area and would provide access to the novice run (R-21) located along the North Ridge adjacent to the Access Road. It was proposed as Chairlift C5 Option A, Project 7, as indicated in the 1991 ROD/FEIS.

Proposed as a top-drive, (1,000 pph) chairlift, this lift would extend approximately 1,015 feet in length, have a base terminal elevation of roughly 6,509 feet, and a top terminal elevation of approximately 6,664 feet. The chairlift would include approximately 7 lift towers.

LC-6 Middle Fork (Alternatives 2, 3, and 6)

LC-6 would be a new lift installation within the western portion of the SUP area and would provide access to all proposed runs (except Run 15) located in the Middle Fork area as well as lower ability-level runs within the current ski area. Chairlift LC-6 was approved for development to the north of the area known as the Bowl (1991 ROD/FEIS Project 13).

As the main feature of functionality of expansion alternatives in the Middle Fork area, the top terminal was located to provide sufficient space for skiers and snowboarders to gather and prepare for descent (checking gear, strapping onto their snowboard, discussing route, etc.); provide novice-level access to Run 12; provide a slight downhill slope to the proposed Moraine Lodge; be clear of the Bowl and Circe traffic pattern; and provide for a novice-level return to Caliban, and to the existing Base Area. The top terminal was located approximately 300 feet southeast of the location indicated in the 1991 ROD/FEIS Alternative 7, at a slightly higher elevation.

The bottom terminal was located to provide sufficient space to provide for the “mazes” where skiers gather prior to boarding the chairlift; provide for very gentle entrance slopes; and be a suitable distance from the Middle Fork Ashland Creek riparian areas. A key element of the bottom terminal location is the gentle slope of the area; slopes below the selected location drop off sharply. In order to provide sufficient slope from Run 12 to the bottom terminal of the chairlift, the base was located approximately 350 feet to the west-northwest of the location indicated in the 1991 ROD/FEIS, at essentially the same elevation.

Proposed as a top-drive, quad chairlift (1,800 pph), this lift would extend approximately 4,742 feet in length, have a base terminal elevation of roughly 5,891 feet, and a top terminal elevation of approximately 7,159 feet. The chairlift would include approximately 18 lift towers.

Under **Alternative 3**, the actual length of the lift would be shorter (4,385 feet) and both terminals are placed slightly east of the locations proposed under Alternatives 2 and 6. The base terminal location would have an elevation of roughly 5,959 feet and a top elevation of approximately 7,176 feet. As part of the function of Alternative 3 (see Section F, 4), this alternative location is proposed to completely avoid direct effects to Engelmann spruce and to avoid possible indirect effects to Henderson's horkelia in the Bowl moraine area.

LC-7 East Fork (Alternative 4)

LC-7 is a new lift that would be installed within the eastern portion of the SUP area and would provide access to the intermediate and advanced runs located in the Knoll area. It was proposed as Chairlift C7 Option A, Project 12, as indicated in the 1991 ROD/FEIS.

Proposed as a top-drive, (2,000 pph) chairlift, this lift would extend approximately 2,683 feet in length, have a base terminal elevation of roughly 5,820 feet, and a top terminal elevation of approximately 6,630 feet. The chairlift would include approximately 10 lift towers. Key elements of the bottom terminal location include gentle slope (adjacent areas drop off sharply) and avoidance of wetlands to the east and west.

LC-8 Beginner (Alternative 4)

LC-8 is a new lift that would be installed within the eastern portion of the SUP area and would provide access to beginner terrain located in the saddle area of the Knoll (northeast of the Access Road switchback). It was proposed as Chairlift C8, Project 14, as indicated in the 1991 ROD/FEIS.

Proposed as a top-drive (800 pph) chairlift, this lift would extend approximately 851 feet in length, have a base terminal elevation of roughly 6,379 feet, and a top terminal elevation of approximately 6,533 feet. The chairlift would include approximately 6 lift towers.

LC-9 East Ridge (Alternative 4)

LC-9 is a new lift that would be installed within the eastern portion of the SUP area and would provide access to the novice and intermediate runs located along the East Ridge. It was proposed as Chairlift C9 Project 14, as indicated in the 1991 ROD/FEIS. This lift would provide the primary access to the novice terrain located along the East Ridge.

Proposed as a top-drive, (2,000 pph) chairlift, this lift would extend approximately 2,964 feet in length, have a base terminal elevation of roughly 5,976 feet, and a top terminal elevation of approximately 6,630 feet. The chairlift would include approximately 11 lift towers.

LC-10 Novice Access (Alternative 4)

LC-10 is a new lift that would be installed within the eastern portion of the SUP area and would provide novice access to the summit of the Knoll and the novice terrain on the East Ridge. Upper level skiers could also use this lift to access all of the runs served by LC-7 and LC-9. In the 1991 ROD/FEIS, this lift was included as part of C-9. Under that configuration, one lift with 2 loading and 2 unloading stations would have been constructed.

In this FEIS, LC-10 is proposed as a top-drive, quad chairlift (1,200 pph), this lift would extend approximately 968 feet in length, have a base terminal elevation of roughly 6,384 feet, and a top terminal elevation of approximately 6,630 feet. The chairlift would include approximately 7 lift towers.

LC-11 Interconnect (Alternative 4)

LC-11 would be a new lift installation within the central and eastern portions of the SUP area to provide lift-served access between the existing Base Area and the Knoll. Depending on the phasing of the Knoll development, a shuttle bus may serve as an interim transfer system (1991 FEIS, page II-14). It was proposed as Knoll Access, Project 22, as indicated in the 1991 ROD/FEIS. The east terminal has been located approximately 450 feet north from the location indicated in 1991 in order to provide down slope access to the Knoll Lodge and lifts LC-7 and LC-10.

Proposed as a bottom-drive, (1,200 pph) chairlift, this lift would extend approximately 2,732 feet in length, have a base terminal elevation of roughly 6,421 feet, and a top terminal elevation of approximately 6,604 feet. The chairlift would include approximately 13 lift towers.

LS-12 South Ridge Snow Tubing Lift (Alternatives 2, 3, 5, and 6)

LS-12 would be a new lift installation within the central portion of the SUP area and would provide lift access for snow tubers. It was discussed as a snow play facility, Project 9, as indicated in the 1991 ROD/FEIS.

Proposed as a top-drive surface lift (300 pph), this lift would extend approximately 645 feet in length, have a base terminal elevation of roughly 6,415 feet, and a top terminal elevation of approximately 6,538 feet.

LC-13 Windsor to Moraine (Alternatives 5 and 6)

LC-13 would be a new lift installation within the central portion of the SUP area and would provide access to novice and intermediate terrain in both the Current facility area and the proposed runs served by LC-6. This lift would replace the Skiway (R-18) as the primary access to LC-6 for novice and low intermediate skiers. Although not specifically mentioned in the 1991 ROD/FEIS, this lift would provide access to additional novice through intermediate skiing terrain, a primary purpose and need element in 1991.

Proposed as a bottom-drive, (1,200 pph) chairlift, this lift would extend approximately 3,093 feet in length, have a base terminal elevation of roughly 6,330 feet, and a top terminal elevation of approximately 7,193 feet. The chairlift would include approximately 14 lift towers.

LC-14 Poma Chair (Alternatives 2 and 3)

LC-14 would be a new lift installation within the central portion of the Special Use Permit area and would access terrain that was abandoned in the 1980s. It would also access expanded terrain in this same area (R-20A) as well as provide lift-served access to the half-pipe located on the Lodge run. Although not specifically mentioned in the 1991 ROD/FEIS, this lift would provide access to novice and intermediate skiing terrain, a primary purpose and need element in 1991.

Proposed as a bottom-drive (800 pph) chairlift, this lift would extend approximately 585 feet in length, have a base terminal elevation of roughly 6,491 feet, and a top terminal elevation of approximately 6,665 feet. The chairlift would include approximately 4 lift towers.

LS-14 Poma Surface (Alternatives 5 and 6)

LS-14 would be a new lift installation within the central portion of the SUP area and would access terrain that was abandoned in the 1980s. It would also provide lift-served access to the half-pipe located on the Lodge run. Although not specifically mentioned in the 1991 ROD/FEIS, this lift would provide access to novice and intermediate skiing terrain, a primary purpose and need element in 1991.

Proposed as a bottom-drive surface lift (500 pph), this lift would extend approximately 549 feet in length, have a base terminal elevation of roughly 6,503 feet, and a top terminal elevation of approximately 6,662 feet.

LS-15 Rodger's Way (Alternative 2)

LS-15 would be a new lift installation within the central portion of the SUP area and would provide novice access to the base of the proposed LC-6 from the base of the Comer and Windsor Lifts. Although not specifically mentioned in the 1991 ROD/FEIS, this lift would provide access to novice and intermediate skiing terrain, a primary purpose and need element in 1991.

Proposed as a bottom-drive surface lift (800 pph), this lift would extend approximately 842 feet in length, have a base terminal elevation of roughly 6,309 feet, and a top terminal elevation of approximately 6,396 feet.

LS-16 Rope Tow (Alternatives 1-3, 5, 6)

LS-16 is an existing portable rope tow located within the central portion of the Special Use Permit area on the Sonnet run adjacent to the Base Lodge. It is a bottom-drive surface lift with a capacity of 600 pph that provides lift access for ski instructors teaching new students. Its length is 152 feet with a base elevation of 6,582 feet and a top elevation of 6,599 feet. The lift's terminals are built on skids that are set up over the snow at the beginning of each ski season and taken down at the end of each season. Each terminal is attached to buried concrete anchors with a steel cable. This lift is not included in Alternative 4 because the Interconnect Lift (LC-14) upper terminal would be at the same location.

a. Lift Summary

Table II-1 provides a summary of all existing and proposed lift specifications applicable to all alternatives.

Table II-1. Existing and Proposed Lift Specifications

Alt.	Lift Name or Number	Lift Type	Top Elevation	Bottom Elevation	Vertical Rise (feet)	Horiz. Length (feet)	Slope Length (feet)	Average Grade (%)	# of Lift Towers	Hourly Capacity (pph)	Status
1-4,6	Ariel (LC-1)	Chair	7,475	6,415	1,060	2,854	3.075	37%	19	1,100	Existing
5	Ariel (LC-1.1)	Chair	7,471	6,415	1,050	2,622	2,841	40%	19	1,100	Modified
All	Windsor (LC-2)	Chair	7,078	6,334	744	1,857	2,018	40%	8	1,200	Existing
All	Comer (LC-3)	Chair	6,652	6,330	322	1,153	1,217	28%	9	1,800	Existing
All	Sonnet (LC-4)	Chair	6,680	6,582	98	838	848	12%	6	1,200	Existing
5	LC-5	Chair	6,664	6,509	155	998	1,015	16%	7	1,000	Proposed
2,6	LC-6	Chair	7,159	5,891	1,268	4,525	4,742	28%	18	1,800	Proposed
3	LC-6	Chair	7,176	5,959	1,217	4,212	4,385	28%	18	1,800	Proposed
4	LC-7	Chair	6,630	5,820	810	2,543	2,683	32%	10	2,000	Proposed
4	LC-8	Chair	6,533	6,379	154	836	851	18%	6	800	Proposed
4	LC-9	Chair	6,630	5,976	654	2,873	2,964	23%	11	2,000	Proposed
4	LC-10	Chair	6,630	6,384	246	937	968	26%	7	1,200	Proposed
4	LC-11	Chair	6,604	6,421	183	2,706	2,732	7%	13	1,200	Proposed
2,3,5,6	LS-12	Surface	6,538	6,415	123	631	645	19%	NA	800	Proposed
5,6	LC-13	Chair	7,193	6,330	879	2,927	3,093	29%	14	1,200	Proposed
2,3	LC-14	Chair	6,665	6,491	174	557	585	31%	4	800	Proposed
5,6	LS-14	Surface	6,662	6,503	159	2,927	3,093	30%	NA	500	Proposed
2	LS-15	Surface	6,396	6,309	87	832	842	10%	NA	800	Proposed
1-3,5,6	Rope (LS-16)	Surface	6,599	6,582	17	151	152	11%	NA	600	Existing

4. Infrastructure

a. Roads

This category includes roads (IR) designed for vehicle access to building sites and lift terminals. Included are existing roads, reconstruction of existing roads, and construction of new roads to serve an expanded and/or remodeled ski area. The function of each road is related to the portion of the ski area being developed and the combination and extent of ski lifts and structures that it includes. Roads are being proposed for construction access (initial development) and ongoing maintenance needs. Proposed roads are designed in concert with and informed by the site specific Roads Analysis conducted for this DEIS; see Roads Analysis contained in Appendix G.

Full clearing and grading would take place at all proposed road locations. All trees and stumps would be removed within the construction (site) limits. Grading may include the use of explosives for the removal of bedrock or large boulders and/or the use of heavy equipment (e.g., excavators, bulldozers, etc.) for earthmoving. Standard construction techniques would be used with special attention paid to the decomposed granitic soils located within the SUP area (see Mitigation Measures for Maintenance Roads, Section 8, b., this Chapter).

Falstaff Road

This road was constructed in 1963 and was associated with the initial construction of the Ariel Chairlift and the "Big T-Bar" (replaced by the Windsor Chairlift in 1977). It has not been used as a summer maintenance road since at least the mid 1970s, perhaps earlier. More recent occasional use has been as a travelway for small tractors, excavators, and ATVs associated with limited run widening and re-contouring projects. During the ski season, the road is part of the existing Falstaff ski run. Road length is approximately 0.40 miles.

Sonnet Maintenance Road

This road was constructed in 1963 and was associated with construction of the rope tow (replaced by the Sonnet Chairlift in 1987), Poma Lift (dismantled in the 1980s), and the Radio Facility located on the northeast corner of the Poma ski run. The road currently provides access to Sonnet's top terminal and the privately operated radio facility. Road length is approximately 0.28 miles.

Windsor/Ariel Maintenance Road

This road was constructed in 1963 and was associated with the initial construction of the Ariel Chairlift, the "Big T-Bar" (replaced by the Windsor Chair in 1977), the "Little T-Bar" (replaced by the Comer Chairlift in 1987), and the water collection system and pump house located northwest of Ariel's bottom terminal. Pacific Power's feeder line to Ariel and Mt. Ashland's summit is buried underneath this road. During the ski season, the road is part of the existing Lodge, Lower Juliet, and Rodger's Way ski runs. Road length is approximately 0.57 miles.

Comer Maintenance Road

This road was constructed in 1963 and was associated with the initial construction of the "Little T-Bar" (replaced by the Comer Chairlift in 1987). It currently provides access to Comer's top terminal and during the ski season, is part of the existing Lower Juliet ski run. Road length is approximately 0.14 miles.

Ariel Road

This road was constructed in 1963 and was associated with the initial construction of the Ariel Chairlift. It has not been used as a summer work road since at least the mid 1970s, perhaps earlier. Currently, it receives occasional use by hikers and mountain bikers going to Ariel from the summer parking area at the end of Forest Road 300. It is closed to vehicle traffic. During the ski season the road is part of the existing Circe ski run. Road length is approximately 0.10 miles.

National Weather Service Maintenance Road

This road was constructed in 1971 when the National Weather Service (NWS) radar site was established. Its primary purpose is for access to the NWS site (by snowcat in winter and standard vehicles in summer), but it is also used by MASA personnel for maintenance activities located in the upper ski area reaches. Road length is approximately 0.13 miles.

Bull Gap Maintenance Road

The Civilian Conservation Corps constructed this road in the mid 1930s[2]. The road received a minimum amount of reconstruction work in 1999 as part of MAA's upgrade to their wastewater treatment facilities. Currently, a portion of this road provides year-round access for MAA personnel to the wastewater treatment facility. In addition, the road is a popular Nordic ski trail in winter and mountain bike/hiker trail in summer. Road length is approximately 0.64 miles from the MASA parking lot to the wastewater building.

[2] The road, formerly known as the Ashland Loop Road, began in Ashland and terminated in the Upper Applegate River area, approximately 20 air miles west of Mt. Ashland. It's eastern reaches served as the primary access to MASA during its first year or two of operation.

IR-1 Falstaff Maintenance Road Reconstruction and New Segments Construction (Alternatives 2, 3, 5, and 6)

Construction and maintenance access to the Moraine Lodge and the top terminal of the LC-6 Lift would utilize the existing summer work road to the extent possible. However, two new sections of SUP work road are proposed in order to connect existing segments. Approximately 1,000 feet of new work road would connect the existing road segment at the top of the Comer Lift with a section that currently extends from the Romeo Run to the Upper Dream Run. Additionally, approximately 1,120 feet of new work road would be constructed connecting the existing segment at the Ariel Chairlift to the LC-6 top terminal site. The 320 foot existing section between Ariel Chairlift and Dream ski run is too steep for the proposed use and would be returned to natural contours and revegetated. This road was proposed as summer maintenance road, Project 2, in the 1991 ROD/FEIS.

The work road would be approximately 2,297 feet long (0.44 miles) by 12 feet in width, with grades averaging approximately 16% (maximum 21%) and be accessible to small 4 wheel drive (pickup) trucks, all terrain vehicles, and construction equipment such as tracked excavators. It would have a primarily natural surface with small crushed rock used in some areas for soil stability. Erosion control measures such as water dips and bars, rock armoring and revegetation on cut and fill slopes would be incorporated into the design.

IR-2 Access Road Center Turn Lane at Knoll Junction - Paved (Alternatives 4 and 6)

For safety reasons, access to the Knoll area would require construction of a center turn lane in the Mt. Ashland Access Road south of the switchback in the eastern portion of the Special Use Permit area (Niemeyer 2001). Pavement width would increase from the current 32 feet to 48 feet for a distance of approximately 150 feet with tapers at each end for a total distance of about 500 feet. The current roadbed can accommodate the pavement increase for approximately 150 feet without any new fill slope, however the remaining 350 feet would require additional fill. No new cut slopes would be constructed. This project was not specifically identified in the 1991 ROD/FEIS, however the safety factor at the Knoll junction was discussed in Appendix C-Alternative Parking Areas and Interconnecting Base Area Transportation, in the 1991 FEIS.

IR-3 Bull Gap Road Reconstruction (Alternative 4)

The former Bull Gap Road, now the Bull Gap Trail, would be lightly reconstructed to provide construction and maintenance access to the proposed bottom terminal of the East Ridge Chairlift (LC-9) and partial access to the East Fork Chairlift (LC-7). Only light grading would be required on this trail from the wastewater treatment plant to the base of the East Ridge lift as the roadbed is still very much intact. Reconstruction of this road was not discussed in 1991 because it was still a Forest Service classified (system) road and was maintained. Later in 1991, the road was converted to a Forest Service system trail.

The work road would be approximately 0.84 miles long by 12 feet in width, with grades averaging approximately 5% (maximum 10%) and be accessible to 4 wheel drive (pickup) trucks, all terrain vehicles, cement trucks, and construction equipment such as tracked excavators. It would have a primarily natural surface although small crushed rock would be used in isolated areas for soil stability. Erosion control measures such as water dips and bars with rock-armored outlets would be incorporated into the design. No new cut and fill work would be required.

IR-4 Knoll Peak Road (Alternative 4)

Construction and maintenance access to the top terminals of the three lifts (LC-7, LC-9, LC-10) and Ski Patrol Building (B-7) on the top of the Knoll would require new road construction from the Knoll base area. This road was not specifically discussed in the 1991 ROD/FEIS, however it is an obvious and logical associated need, identified during the application of the conceptual design programmatically approved in the 1991 ROD.

The work road would be approximately 0.27 miles long by 12 feet in width, with grades averaging approximately 14% (maximum 18%) and be accessible to 4-wheel drive (pickup) trucks, all terrain vehicles, cement trucks, and construction equipment such as tracked excavators. A six-inch lift of crushed surfacing aggregate would be placed on the Knoll Peak road where slopes exceed ten percent and/or where surface erosion occurs. Drain dips would be constructed with a spacing of 150 feet apart on slopes less than ten percent. The drain dips on slopes steeper than ten percent would be spaced 50 to 75 feet apart. The road prism would be out sloped from two to four percent to reduce potential for erosion.

IR-5 South Ridge Tubing Facility Road (Alternatives 2, 3, 5, and 6)

This work road would provide construction and maintenance access to the top portion of the tubing facility where a yurt and vault toilet structure would be located. This road would generally follow an old wheel track. The area of the proposed Tubing Facility was considered a promising site for wastewater leach fields (Project 20 and 1991 FEIS Appendix D). Access to the site would have been from a new road at approximately the same location as the proposed Tubing Facility Road.

The work road would be approximately 200 feet long by 12 feet in width with grades up to a maximum of 15%, and be accessible to 4 wheel drive (pickup) trucks, all terrain vehicles, and construction equipment such as tracked excavators. The Tubing Facility road would require crushed surfacing aggregate (six-inch lift) where slopes exceed ten percent and/or where surface erosion potential is high.

Drain dips would be constructed with a spacing of 150 feet apart on slopes less than ten percent. The drain dips on slopes steeper than ten percent would be spaced 50 to 75 feet apart. The road prism would be out sloped from two to four percent to reduce potential for erosion. Any fill slope created would require native grass seed for erosion control.

b. Power

All proposed power cables (IP) would be buried in a trench about 30 inches deep in three to five inch PVC conduit. Concrete vault boxes (approximately 6 x 6 feet square) would be located along power cable routes where sharp turns would be encountered in order to pull cable through the conduit. Track or wheel-mounted excavators would be used to dig trenches. In a few cases, explosives might be used in order to fracture rock in the trench line. Electrical power was not specifically discussed in the 1991 ROD/FEIS, however it is an obvious and logical associated need, identified during the analysis and application of the facilities programmatically approved in the 1991 ROD/FEIS.

Base Area Power

Power to the Base Area comes from the Pacific Power feeder line junction box located near the Bull Gap and Windsor/Ariel maintenance roads junction northeast of the Base Lodge. The MASA line goes to the Base Lodge with branches to the portable rope tow, Sonnet Chairlift bottom terminal, and to the Rental Shop. Total length is approximately 750 feet.

Windsor/Ariel Area Power

Power to the facilities located adjacent or close to the Windsor/Ariel Maintenance Road comes from the Pacific Power feeder line, which is buried in the road. Branch lines serve the bottom terminals of Windsor, Comer, and Ariel Chairlifts, the Lift Shop, Race Building, and Pumphouse. In addition, a short line leads to Ariel's top lift shack from a Pacific Power junction box at the lift's unloading area. Total length is approximately 1,175 feet.

IP-1 Moraine (Alternatives 2, 3, 5, and 6)

Power for the LC-6 lift and Moraine Lodge would be buried within the proposed Falstaff Maintenance Road and would connect to the existing Pacific Power line located along the Dream ski run. Total length would be approximately 475 feet.

IP-2 Knoll (Alternative 4)

Power for the Knoll area would connect to the existing main Pacific Power line located at the Access Road switchback and would be routed to the lodge, then follows the proposed road to the LC-8 top terminal and to the top of the Knoll. Total length would be approximately 1,425 feet.

IP-3 South Ridge Tubing Facility (Alternatives 2, 3, 5, and 6)

This line would tap into the existing power source near the bottom terminal of the Sonnet Lift and would follow the proposed enlarged parking lot and Access Road to the Yurt, toilets, lift, and night lighting at the Tubing Facility. In Alternative 3, the line would follow the Access Road since no enlargement of the current lot is included under this alternative. It would drop below the Access Road in a previously undisturbed area for a short distance. Total length would be approximately 1,350 feet.

IP-4 North Ridge Chairlift (LC-5) (Alternative 5)

This line would connect into the existing power source located in the old rope tow building near the top of the Sonnet Chairlift and would follow the existing service road to the radio facility. Total length would be approximately 300 feet.

IP-5 Poma Chairlift or Surface Lift (LS 14 and LC-14) (Alternatives 2, 3, 5, and 6)

This line would extend from the splice boxes located below the Lodge and follow the existing summer work road to the base of this proposed lift. Total length would be approximately 335 feet.

IP-6 Windsor to Moraine Chairlift (LC-13) (Alternatives 5 and 6)

This line would tap into the main Pacific Power line at the bottom of Windsor. Total length would be approximately 50 feet.

IP-7 Rodger's Way (LS-15) (Alternative 2)

This line would tap into the main Pacific Power line at the bottom of Windsor. Total length would be approximately 50 feet.

IP-8 Base Area Guest Services Buildings (B-2) (Alternatives 2, 3, 5, and 6)
Both of these proposed structures would be located adjacent to an existing power line. The building footprints would encompass the connection to this existing power source between the lodge and rental shop, therefore no new trenching would be necessary.

c. Potable Water and Wastewater

Construction techniques would be identical to those listed above for Power. Water and wastewater lines (IW), where feasible and permitted by laws and regulations, would be buried in the same trench. All lines would be buried to a depth of 24-36 inches. Wastewater would be conveyed to the wastewater treatment plant via a system incorporating underground pumping tank or tanks (approximately 1,000-gallon capacity) adjacent to proposed facilities with grinder pumps. Safeguards, such as pressure grade pipe like High Density Polyethylene (HDPE) and level sensors with central alarms, would be incorporated to the same standard as the pipeline from the present facilities to the plant. The existing wastewater treatment facility provides ample treatment capacity for the wastewater produced at existing and proposed facilities. Additional water storage capacity (55,000 gallons total was specified in Alternative 7) was identified as Project 21 in the 1991 ROD/FEIS. Similarly, additional wastewater treatment was identified as Project 20.

Base Area Water and Wastewater
Water is delivered to the existing Base Lodge and Rental Shop via gravity flow from the Water Holding Tank located southwest of Comer's top terminal. Water to the Holding Tank is pumped from the Pumphouse near the base of Ariel. An underground spring provides the source of the ski area's drinking water. Its flow is estimated at 12 gallons per minute. Based on analysis by an independent laboratory, the existing water quality is excellent from a microbiological, radiological, and chemical standpoint. This water source is adequate to provide potable water to an expanded ski area in sufficient quantities, with increased water storage facilities. Because of the high water quality, it is not treated prior to use by the ski area. All pipes are buried in existing summer work roads except the relatively short section between the Comer Road and the Holding Tank. Likewise, *wastewater* is delivered to the treatment facility from the Base Area in a line buried in the existing Bull Gap Road.

IW-1 Moraine Lodge (Alternatives 2, 5, and 6)
Water: This line would be buried in the Falstaff Road from the top of Comer Chairlift to the proposed Lodge. Total length would be approximately 3,700 feet. In addition, an auxiliary or replacement water storage tank would be located just south of Comer's top terminal in an existing excavation. Total water storage would increase from the present 15,000 gallons to a maximum of 40,000 gallons. *Wastewater:* This pipe would be located in the Falstaff road between the Moraine Lodge, and would connect to the current line between the Rental Shop and Main Lodge. Total length would be approximately 4,130 feet.

IW-2 Knoll Lodge (Alternative 4)
Water: This line would be buried in the Bull Gap summer work road from near the Rental Shop to a point adjacent to the Wastewater Treatment Plant. From that point the line would turn south and terminate at the Knoll Lodge. Total length would be approximately 3,620 feet. In addition, an auxiliary or replacement water storage tank would be located just south of Comer's top terminal in an existing excavated area. Total water storage would increase from the present 15,000 gallons, to a maximum of 40,000 gallons.

Wastewater: This line would run from the Knoll Lodge to the Wastewater Treatment Plant and would be co-located with the water line in this section. Total length would be approximately 615 feet.

IW-3 Base Area Guest Services Buildings (Alternatives 2, 3, 5, and 6)
Water and *Wastewater:* Both facilities would connect to adjacent water and wastewater lines. The building footprints would encompass the connections to these existing lines, therefore no new trenching would be necessary to provide water and wastewater services to these buildings. In addition, an auxiliary or replacement water storage tank would be located just south of Comer's top terminal in an existing excavated area. Total water storage would increase from the present 15,000 gallons to a maximum of 40,000 gallons.

IW-4 South Ridge Tubing Facility (Alternatives 2, 3, 5, and 6)
Water: There would no water lines constructed to this facility.
Wastewater: Wastewater would be pumped from the toilet facility holding tanks (2-3,000 gallon capacity) by licensed operators and disposed of at approved facilities in southwest Oregon.

d. Night Lighting

Typical night lighting (IN) construction standards include light installation on trees or wooden light towers. Light towers are used where trees are absent or do not have the necessary height (approximately 50-60 feet). Tower hole dimensions would be approximately 3 feet x 3 feet x 8 feet deep. All power cables would be laid on the ground surface in three-inch steel conduit. Night lighting was not specifically discussed in the 1991 ROD/FEIS, however it is an evolving and logical associated need, identified during the application of the conceptual design programmatically approved in the 1991 ROD.

Current Night Lighting
The following ski runs are lit during night skiing operations: Sonnet, Lodge, Lower Juliet, Dan's, Romeo, Avon, Lower Winter, and Lower Tempest. A combination of trees and treated wood towers support lights at approximately 23 locations. Approximately 38 acres are lit for night skiing.

IN-1 Bottom, Upper Juliet, Pistol, Dream, Caliban, and Rodger's Way (Alternative 5)
Approximately 34 lights would be installed on trees and towers along the east side of these six runs except for the two lights on the west side of Upper Juliet. It is estimated that at least 12 of these lights would require light towers. Total length of the power cables would be approximately 9,870 feet.

IN-1.1 Bottom (Alternatives 2, 3, 6)
Approximately six lights would be installed on trees along the east side of Bottom. It is anticipated that no light towers would be necessary on this ski run. Total length of the power cable would be approximately 1,590 feet.

IN-2 South Ridge Tubing Facility (Alternatives 2, 3, 5, 6)
Approximately three lights would be installed on two trees and one tower along the west side of the tubing facility. Total length of the power cable would be approximately 730 feet.

e. Helispots

Helispots (IH) are natural or improved takeoff and landing areas intended for temporary helicopter use. Guests suffering from potentially life-threatening injuries or medical conditions would be transported via toboggan to the helispot. During good weather conditions suitable for helicopter flight, these patients would be transported to hospital facilities in Medford. Helispots were not specifically discussed in the 1991 ROD/FEIS, however this safety concern is an evolving and logical associated human need associated with the application of the conceptual design programmatically approved in the 1991 ROD.

Established Federal guidelines and practices would be used in the final design of proposed helispots (Forest Service Fireline Handbook 1998). Helispot construction would be similar to ski run construction. Trees would be removed but ground vegetation would remain intact and no grading would be necessary for construction. Cleared area size would be approximately 0.4 acre.

Current Helispots

While not formally designated as helispots, three locations have been previously used for emergency transport of critically injured skiers in winter and the general public in summer. On days when the parking lot has available space, the parking lot is used. If the parking lot does not allow safe landing and takeoff due to limited space, then the small, level saddle between the Rental Shop and Base Lodge is used. An alternate location is the junction of Lower Tempest and Rodger's Way runs.

IH-1 Helispot (Alternative 6)

This helispot would be located near the base of LC-6 along the east edge of Run 9.

IH-2 Helispot (Alternative 4)

This helispot would be located just below the bottom terminal of base of LC-7.

f. Emergency Egress Routes

The primary purpose of emergency egress routes (IE) would be to safely and efficiently transport injured skiers by snowcat or snowmobile to ski patrol first aid facilities. Egress routes would also provide over-the-snow access to lifts for maintenance personnel and operators. Finally, these routes would serve as "catch lines" for guests who are skiing off of designated trails and would function as the ski area boundary. A ski area boundary, as opposed to permit area boundary, will always allow a skier to return to a lift by gravity. Project 13, as described in the 1991 FEIS, "Chairlift LC-6 Option B", briefly discussed "an over-the-snow route would be built for evacuating skiers during a lift failure." Emergency egress routes were not specifically discussed in 1991, however this safety concern is an evolving and logical human need associated with the application of the conceptual design programmatically approved in the 1991 ROD.

Emergency egress routes would require terrain modification. Areas with less than 20% side slope would only require tree removal. In areas with a greater than 20% side slope, excavation would be needed to create a 20% side slope area of approximately 14 feet wide. Depending on the steepness of the existing side slope this would involve a cut into the hill slope of 4 to 7 horizontal feet and a fill area of approximately 4 to 7 horizontal feet for a total tree clearing width of about 22 to 28 feet.

On slopes greater than 25%, trees would be laid perpendicular to the slope on the low side of the clearing width in order to minimize ground modification and to help form a platform for snowcats to build an over-the-snow route. Final design would incorporate alterations of width and slope in order to avoid many of the larger trees along the route.

Current Route

Since much of the ski area is located at a higher elevation than the Base Area, many injured skiers can be directly transported to the base facilities by ski patrollers on their skis or snowboard. Otherwise, injured guests are transported by snowmobile or snowcat along Rodger's Way and/or Lower Juliet to the Lodge run and then to the Base Area (Base Lodge or Ski Patrol facility in Rental Shop).

IE-1 LC-6 Emergency Egress (Alternative 6)

This project would be located along the same route as Run 18 (Skiway) in Alternatives 2 and 3. It would have a top elevation of 6,400 feet at its junction with Rodger's Way and a bottom elevation of 6,018 feet at the junction of proposed Run 9 with a total length of 3,520 feet. The crossing of Pumphouse Creek for the LC-6 egress route would consist of stable, coarse rock that is not subject to erosion. Injured skiers would be transported on this route from the runs associated with the LC-6 area to Rodger's Way, and then to the Ski Patrol Facility located at the Rental Shop.

IE-2 LC-7 Emergency Egress (Alternative 4)

This project would be located between the Bull Gap Trail and proposed Run 4. It would have a top elevation of 6,133 feet at its junction with the Trail and a bottom elevation of 6,062 feet at the junction of Run 4 with a total length of 915 feet. Injured skiers would be transported on this route from LC-7 to Bull Gap Trail, and then to Ski Patrol facilities located at the Rental Shop or Knoll Lodge.

g. Miscellaneous

This infrastructure category includes miscellaneous projects that do not fit within other previously described groups. Although not specifically discussed in the 1991 ROD/FEIS, these projects also represent logical and experienced needs associated with the application of the conceptual design programmatically approved in the 1991 ROD.

IM-1 Circe Snow Fence (Alternatives 2, 3, 4, 5 and 6)

This proposed snow fence would be located on the uppermost portion of the Circe ski run and would collect snow for use on Upper Dream run and the Ariel unloading area during low snow depth periods (generally early season or drought years). This location is currently used as a snow collection site. The proposed snow fence would increase the amount of snow available for use. The wooden fence would be approximately 80 feet long and 6-10 feet high (similar in design to existing snow fences on Dream and Lower Juliet runs). Approximately 10 holes (8 inches diameter and 24 inches deep) would be dug for post installation.

IM-2 Lower Run 12 Creek and Wetland Crossing (Alternatives 2)

Skier traffic from Runs 11 and 14 would join Run 12 near the base of the Middle Fork area and would cross an area of small creeks and wetlands in order to access the base terminal of the LC-6 Chairlift. This is also one of the areas between Road 2060 and the Middle Fork area where Engelmann spruce are located. Extensive analysis of the creek and wetland area crossing at the base of Run 12 led to a design which skirts the edge of the wetland area and utilizes a bridge over the Middle Fork of the East Fork of Ashland Creek (see specifications below). The crossings of the creeks near the base of Run 12 are located in an area where there is less surface water when compared with locations up stream.

Extensive evaluation by Northwest Biological Consulting, a team of hydrologists from Phillip Williams and Associates, engineering geologist Bill Hicks, botanists Richard Brock and Linda Chesney, biologist Scott English, soil scientist George Badura, engineer Fred Phillips, along with ski run planners and wetland biologists from SE GROUP, resulted in a run design which serves to minimize wetland effects, and requires a single bridge across the Middle Fork of the East Fork of Ashland Creek (approximately 180 feet east of the LC-6 base terminal site). Public input was instrumental in the final design minimizing effects for a variety of resources.

The bridge is proposed to be the width of the ski run (50 feet) by approximately 60 feet, constructed with a wooden deck, a steel frame, and concrete supports. As designed, the bridge supports would be located in upland areas adjacent to the creek, and the decking would be spaced to allow sunlight to penetrate for photosynthesis by vegetation underneath the structure. The bridge would meet capacity requirements for skiers, snow grooming equipment, and anticipated snow loads, and the opening (area underneath) would be sized to carry any anticipated creek and/or debris flow without obstruction. Bridge materials would be generally inert (such as cedar decking).

The smaller creek, approximately 75 feet to the west of the bridge site, would not require a bridge. The compaction of the snow surface by skiers and snow grooming equipment would provide adequate winter protection of this small creek.

IM-3 Lower Run 12 Creek and Wetland Crossing (Alternative 6)

An alternate design for the bridge foundation utilizes on-site logs from ski run clearing for bridge abutments. Vegetation for each footing would clear an area of about 50 feet long and 10 feet wide. A pad of crushed rock underlain by geotextile and positioned beneath the logs would eliminate direct contact of logs with the ground, thus prolonging their useful service life. Progressively smaller diameter logs would be placed on the approaches to the sill logs to provide a ramped transition to the bridge deck. The prepared sites would total approximately 0.02 acres. Large (24-36” DBH) prepared logs would be placed on the gravel pads parallel to the stream on both sides of the crossing. The sill logs would support the steel girder superstructure and wood decking. The on-site glacial deposits would have sufficient bearing capacity for the structure and live loads and the structure design could accommodate any potential foundation settlement.

The small creek about 75 feet west of the proposed bridge crossing is also treated differently under this alternative. High strength plastic arches varying from four-to-eight feet long and two feet wide would be seasonally placed within the channel banks along the length of the ski run crossing. These slotted arches would allow unobstructed flow of water beneath them while providing snowmelt to pass through them. The short lengths can accommodate meanders of the stream alignment and can be installed and removed with minimal disturbance, while maintaining the integrity of the banks. The arches would provide additional vertical support and resistance to potential stream bank impacts during early and late season crossings by snow groomers.

Mitigation measures would be designed specific to implementing the wetlands crossing to reduce the potential impacts of sediment delivery. This alternative crossing technique would involve surface grading of the site rather than excavations for footings as in Alternative 2.

5. Snowplay

This section describes the proposal for a new snowplay area associated with the Action Alternatives. There is currently no designated facility specifically designed for non-skiing guests. The 1991 ROD/FEIS analyzed a snowplay facility located in the Knoll area in Alternatives 2, 3, 5 and 6. The proposed location of the South Ridge Tubing Facility was approved for use as a sewage facility in that document. The South Ridge Tubing facility now proposes to utilize a portion of the SUP area, now not utilized for sewage facilities, or any other use. It would increase the diversity of local winter recreational opportunities, which was identified as a purpose and need element in the 1991 FEIS.

The South Ridge Tubing Facility has been previously described under the various components it includes. It is further described here as a package of components, and is referenced on alternative maps as such. Slope preparation methodology for the snowplay area would be identical to that described for ski run preparation.

S-1 South Ridge Tubing Facility (Alternatives 2, 3, 5, and 6)

The South Ridge Tubing Facility is proposed south of the Access Road just at the east end of the proposed parking area under the Proposed Action. It would provide a lift-served area for snow sliding on specialized tubes. Construction of the tubing area would require approximately 3.8 acres of clearing. The facilities would consist of:

- The Snow Tubing Lift (LS-12),
- The tubing facility itself (S-1), including three lanes created from the snow each about 18 feet wide, with 6 to 8 feet of snow berm between the lanes,
- A structure, most likely a yurt approximately 30 feet in diameter, for ticket sales and warming (B-8),
- An additional vehicle parking area (P-3),
- A two-stall vault toilet (B-9), and
- A short section of work road (IR-5) for summer access to the yurt and vault toilets, and for winter walking access to the site from the parking area. The work road would follow an existing wheel track and would be approximately 200 feet long and 15 feet wide.

6. Runs

Ski run (or trail) preparation (**clearing**) would typically require tree removal and maintenance of a low vegetation level to allow sufficient snow cover for winter use. Construction methods customarily include cutting stumps just above ground level (12 inches or less), retention of most ground vegetation, with numerous tree branches left for erosion control and composting. Smaller diameter trees would be de-limbed and secured horizontally to the fall line as a guard against erosion. While most of this work would be completed by hand, an excavator (low ground pressure tracked vehicle) would be used to place some of the logs on the fall line slopes.

Additional ski run preparation would require fracturing the above-ground portions of granite rocks with explosives in certain areas. A small compressor would be towed along the middle of the novice and intermediate level runs as required. Drilling would be completed with a portable drill attached by rubber hose to the compressor to avoid the need for lateral movements by the tracked vehicle. Most fractured rocks would be placed in lower positions by hand with some larger rocks requiring movement by excavator. In addition, this equipment would be used to construct traverse run areas as needed and place rocks on the downhill side of these areas for erosion control. An excavator would be utilized only on slopes equivalent to novice through advanced intermediate level runs.

Under Alternative 6, the use of an excavator for run clearing (and other excavation work associated with clearing for lifts; lift towers and creek crossings) would be restricted to a lightweight, low ground pressure machine (e.g., a “spider”). This relatively light (16,000 pound) excavator can be air lifted in and out of construction sites. Under Alternative 6, the specified crossing of Lower Run 12 (IM-3) would use log footings, as opposed to excavated concrete footings (see component descriptions for IM-2 and IM-3).

For purposes of analysis, the use of a lightweight, low ground pressure machine such as a “spider” was assumed. A "spider" is one of many machines that could meet this threshold. A “spider” is a trackless machine that differs from a conventional excavator in its four independently adjustable legs; two spider-like legs and two with tires. Its four stabilizers reduce compaction of the soil and keep the excavator in level operation. This excavator is operable on slopes up to 100% and its upper structure is mounted on a turn-table with a 360 degree rotation. The relatively light (16,000 pound) excavator can be air lifted in and out of construction sites. The minimal (6-foot wide) stance enables the machine to work in tight places. The legs with 22-inch wide front pads and 20-inch wide rear wheels exert about 13 pounds per square inch pressure on the ground surface. The four stabilizers reduce soil compaction and disturbance of ground vegetation, as compared to conventional excavators. A “spider legs” can also be fitted with 30”x30” pads to further reduce standing ground pressure to about 8 pounds per square inch. The spider excavator can step over large obstacles, such as logs.

Gladed ski run preparation would involve the selective removal of trees within the gladed run boundary. Of the total area, 20-40 percent of the trees (up to 17 inches DBH) would be removed and the remaining 60-80 percent of the stand (including larger trees) would be left intact. These are maximum numbers. It is expected that fewer trees would be cut in the first year of implementation. After a season of skiing, MAA and the Forest Service would determine if further selective tree removal would contribute to a more high quality ski experience. The goal is to cut as few trees as possible while still providing for wind protection and open routes through the stand. In some cases that may only require 10-20 percent of the trees to be removed.

Trees would be cut flush to the ground and stumps would not be removed. The ground surface would not be graded and the natural ground cover would be maintained. Slash treatment in sparsely vegetated area would include lop and scatter. Helicopters would be used for tree removal. Any damage to the topsoil would be repaired by hand. Gladed runs are not associated with the formal ski run network and would primarily be used by advanced intermediate and expert skiers.

Three geographic areas are used to provide a context for the run descriptions. These include the **Knoll area** (Runs 1-8), the **Middle Fork area** (Runs 9-19), and the **Current Facility area** (Runs 20-32). The Knoll is located northeast of the current ski area within the eastern portion of the SUP area in the Neil Creek and the East Fork of the East Fork of Ashland Creek watersheds. The Middle Fork area is located northwest of the current ski area in the western portion of the SUP primarily within the Middle Fork of the East Fork of Ashland Creek. The Current Facility is located within the central portion of the SUP area and includes the current ski area as well as adjacent areas such as the North Ridge. This area primarily drains into the East Fork of the East Fork of Ashland Creek with a smaller portion located in the Cottonwood Creek watershed.

Some runs (R) include the letters "A" or "B" following the run number. This indicates a variation of a primary run that connects to another run or lift. The letter "G" following the run number indicates a gladed run. The words "**Upper**" and "**Lower**" indicate upper and lower portions relative to elevation of the same run, differentiated due to a change in ability level. To the extent possible, the numbering sequence at the Knoll and Middle Fork areas attempts to follow the same system as employed in the 1991 ROD/FEIS. However, some runs were not assigned numbers in 1991 so new numbers have been added in this analysis to provide a unique identifier for all proposed runs, including glading and widening.

a. Existing Runs

Most of the existing runs were cleared when the ski area was constructed in 1963-64. Some runs, such as Circe, Upper Winter, Romeo, and Lower Juliet are partially located in natural open areas and did not require tree or brush removal. Through the years, many runs have been widened and portions of a few (Upper Dream and Avon) have been re-contoured. Currently available ski terrain is essentially the same as it was in the 1960s. Unless otherwise noted all runs are groomed on a daily basis. Existing runs are referenced in this analysis by name only (not with a number).

Sonnet

This is the primary beginner-rated run at the current MASA. It is rated Beginner because it is the easiest slope to ski at MASA but the 19% slope angle at the top of this run exceeds ski industry standards for beginner terrain. This run is adjacent to the Base Lodge and includes the teaching terrain served by the portable Rope Tow.

Blossom

Blossom was constructed in the late 1980s after the Sonnet Chairlift was installed as a replacement for the original Rope Tow. Replacing the surface lift with an aerial lift allowed for development of beginner terrain south of the Sonnet run. Note: surface lifts prohibit skier crossing of lift lines.

Poma
The Sonnet Chairlift serves the Poma Run, named for the Poma Surface Lift that was located on this run until the late 1980s. The upper half of this run is rated novice while the lower half is rated as low intermediate. The lower half is seldom skied because the skier has to climb out from the bottom of the run in order to reach the Lodge Run. Due to conflicts with the halfpipe and problems associated with side hill grooming (caused by the 90 degree turn into the slot through the trees), this run is seldom groomed.

Lodge
This novice-rated run is adjacent to the Base Lodge. In recent years, the run has served as the primary location for MASA's halfpipe. After exiting the run, skiers must travel to the Comer Chairlift, return to the Base Lodge area via Lower Juliet, and then ride Sonnet in order to take advantage of this novice terrain. Many snowboarders who use the halfpipe simply walk back up the slope.

Lower Juliet
This is the primary novice-rated run at MASA and is served by the Comer Chairlift. Located adjacent to the Base Lodge, Rental Shop, and Parking Lot, it receives use by all skiers at Mt. Ashland except for beginners in the Sonnet Area. Its lower portion is very narrow and is often congested on weekends and holidays. This lower area has one of the highest skier accident rates on the mountain (Johnson pers. com. 2002b).

Upper Juliet
This advanced intermediate run is primarily served by the Windsor Chairlift and can be accessed from the Romeo and Ado Runs. Its lower end connects to Lower Juliet and consequently, accesses back to the Base Area. The run is seldom groomed.

Dan's
Dan's Run was established in 1987 when the Comer Chairlift replaced the Little T-Bar. The Comer Chairlift primarily serves this intermediate run. Its natural concave slope is popular with snowboarders.

Romeo
The Windsor Chairlift serves Romeo. The upper portion of this advanced intermediate run is located on a side hill, while the remainder is on the fall line. Skiers who are returning to the Base Area often use the top half of this run.

Lower Bottom
The Windsor Chairlift serves Lower Bottom, which is accessed by Romeo or Upper Bottom. It is currently groomed on an irregular basis.

Upper Bottom
The Windsor Chairlift serves Upper Bottom. This wind-protected expert run is a favorite for powder skiers during and immediately after storms. Upper Bottom is not groomed.

Windsor
The Windsor Chairlift serves the Windsor Run. This wind-protected expert run is also a favorite for powder skiers during and immediately after storms. Windsor is not groomed. Large moguls frequently develop here.

Avon
All skiers who use the Ariel Chairlift must use this intermediate run that is accessed via the Windsor Chairlift. Consequently, Avon receives very high use as it also provides access to the Lower Tempest and Winter Runs. Avon was slightly re-contoured in the mid 1990s in order to lessen the run's side slope, and make it easier for lower ability skiers. During above normal snowfall years, there is enough snow build-up to eliminate side slope, thereby making the run easier. Conversely, during drought years and the early season, the run becomes more difficult due to side slope.

Winter
The Windsor Chairlift serves the Lower Winter Run. Over 90 percent of the race events at MASA take place on this advanced intermediate run. It is also the most commonly used run for race training by various schools and clubs.

Lower Tempest
This intermediate run is primarily served by the Windsor Chairlift, but it is also used by Ariel Chairlift skiers who access it via Upper Tempest and Upper Winter. Similar to Avon, most skiers use this run to access Ariel from Windsor.

All's Well
All's Well is a short connector run between Lower Tempest and Pistol. Since the Ariel Chairlift's loading area cannot be accessed from the east due to safety concerns, this intermediate run is highly used by skiers coming from Windsor Chairlift who want access to Ariel.

Ariel
The Ariel Chairlift serves the Ariel Run. This expert run is another favorite for powder skiers during and immediately after storms, although its upper reaches are not wind protected to the same degree as the Upper Bottom and Windsor Runs. Ariel is not groomed.

Upper Tempest
The Ariel Chairlift serves expert-rated Upper Tempest, which has similar attributes as the Ariel run. Upper Tempest is groomed four to five times a year for race events.

Balcony
The Ariel Chairlift serves this expert-rated run. Balcony is the beginning point for a return to the Base Area. It offers highly scenic views to the north, east, and south and provides access to a number of other advanced runs. This run is not groomed.

Upper Winter
The Ariel Chairlift serves Upper Winter. Other than the Bowl, this is perhaps the most difficult run on the mountain because it is narrow and steep. Rock outcrops provide natural launching point for the most adventurous skiers and snowboarders on this short expert run that has never been groomed. Highly selective tree cutting in the 1980s, along with natural openings, resulted in its designation as a formal ski run (as opposed to "tree skiing").

Ado

The Windsor Chairlift serves the lower portion of this run while the upper portion can only be reached from the Ariel Chairlift. Most of the run is located on the main ridge dividing the Rogue and Klamath River watersheds and is subject to high winds. These winds form a high number of wind drifts and other irregular features, which serve as jumps and/or give the feeling of riding a roller coaster on this un-groomed run. Like Upper Winter, expert-rated Ado is a favorite for adventure skiers and boarders. The run offers outstanding views, but snow conditions are highly variable.

Pistol

The Ariel Chairlift serves this advanced intermediate run, although it can be reached by traversing through the trees from the top of the Windsor Chairlift. The run is generally groomed on weekends and holidays, thereby increasing its use and helping to decrease skier densities on Dream and Caliban.

Upper Dream

Upper Dream is the most highly used run served by the Ariel Chairlift. It is the easiest route down from the top of the mountain. During the 1990s, the run was widened and permanent snow fences were installed. These projects made the run easier compared to previous years. However, the 40+ percent slope, high winds and whiteouts during storms, changeable snow conditions (despite daily grooming), and high skier density on some days, often makes the descent difficult except for the most accomplished skiers.

Lower Dream

The Ariel Chairlift serves Lower Dream. The terrain on this run is actually intermediate, but it has an advanced intermediate rating because the skier must access it via the more difficult terrain of Upper Dream. Lower Dream is the site of a terrain park and is occasionally used for race training.

Upper Caliban

The Ariel Chairlift serves Upper Caliban. The terrain on this run is actually intermediate, but it has an advanced intermediate rating because the skier must access it via the more difficult terrain of Upper Dream or the expert terrain of Circe and/or the Bowl runs.

Lower Caliban

The Ariel Chairlift serves Lower Caliban. The terrain on this run is novice to low intermediate, but it has an advanced intermediate rating for the same reasons as Upper Caliban. The run is better protected from the wind than both Upper and Lower Dream.

Circe

The Ariel Chairlift serves this expert run that surrounds the Bowl on three sides. During high winds and stormy weather, this run is often closed due to safety concerns, especially when whiteout conditions are present or when avalanche danger in the Bowl is moderate to extreme. The run is not groomed.

Bowl

The Ariel Chairlift serves the Bowl, which has an expert rating. Local skiers have identified four primary chutes as different routes down this glacial cirque. Slope angles approach 100% in a few locations. Large cornices form on the south and west sides of the Bowl and contribute to the avalanche danger that is present here.

After the Ski Patrol has stabilized the slopes, it is common to see the best expert skiers getting "big air" off of the cornices (meaning a long jump). Like Circe, the Bowl is often closed during stormy weather or when avalanche danger has not been assessed or minimized through standard avalanche control practices.

Upper Rodger's Way

The Ariel Chairlift serves this run, which functions as a return route to Ariel, or as connector to Lower Rodger's Way and subsequent access to the Windsor and Comer Chairlifts. The actual terrain on Upper Rodger's Way is novice, but the run has an advanced intermediate rating for the same reasons ascribed to the Lower Dream and Lower Caliban runs above.

Lower Rodger's Way

The Windsor Chairlift primarily serves this intermediate run although the Ariel Chairlift also serves it. From Ariel, Lower Rodger's Way provides the easiest access back to the Comer lift and return to the Base Area. The actual terrain is novice rated, but all skier access must negotiate a minimum level of intermediate terrain.

Falstaff

The Ariel Chairlift serves this expert-rated run. During the late 1970s and 1980s, this run was often groomed. Due to the numerous junctions with other trails and the safety concerns related to skier collisions, grooming was stopped, thereby discouraging use. The run is still used occasionally by skiers, but in fewer numbers at generally slower speeds because of the un-groomed condition.

Betwixt

The Comer and Windsor Chairlifts serve this advanced intermediate run. For the same reasons as Falstaff, grooming was discontinued. Another reason for not grooming this run is that east side access to Ariel's loading terminal was also stopped in the late 1980s due to numerous skier collisions in the terminal area.

West Ridge

The Ariel Chairlift serves this expert-rated run. Access to the run is via Circe. The run terminates in the "2nd Bowl" area close to the top switchback on the 300 Road. From this point skiers take various traverse routes through the trees back to the Caliban Run. This run is closed whenever Circe is closed. Like Circe, this run is exposed to wind and whiteout conditions. However, on clear days, it offers excellent views of the Grouse Creek Basin and points west along the Siskiyou Crest.

b. Knoll Area

Although not extensively used in this analysis, the term "**Pod**" is introduced here to aid in the discussion of ski runs. A Pod is a geographic area of associated ski runs that are typically provided access via a specific ski lift. The following discussions refer to a Pod as being the primary ski lift and/or area associated with a group of ski runs.

Note: all runs in the Knoll area are unique to Alternative 4 only.

LC-9 Pod

R- 1

Run 1 would follow the broad East Ridge from the Knoll down to the base of LC-9. It would be the primary novice run at the LC-9 pod, and generally follows the same route as proposed in the 1991 FEIS except for the top portion, which was moved slightly south to take advantage of lower slopes angles and natural openings.

R-1A and 1B

These novice-rated runs connect Run 1 to the lower portion of run 3. Run 1A's upper portion is located where Run 2 was placed in the 1991 FEIS. Instead of continuing down slope to the Bull Gap Trail as proposed in 1991, Run 1A terminates at its junction with Run 3 approximately 350 feet above the Trail. This was done to avoid the low slope angles (<10%) of the Trail route. Run 1B is located in approximately the same location as an unnumbered run shown on maps in the 1991 FEIS. Both runs offer alternative routes to the base of LC-9.

R-2

This low intermediate run would follow the LC-9 lift from the Knoll summit to Run 1A. It would not continue to the Run 1 and 1B junction, due to a rise in slope from west to east, between Runs 1A and 1B.

R- 3 (Upper and Lower)

This run would be rated as intermediate above its junction with Run 1A and novice below that point. In the 1991 FEIS, Run 3 had a north aspect down to its junction with the Bull Gap Trail where it turned eastward and followed the trail to the base of LC-9. Site-specific examination of this route in 2001 showed that slope angles along the run route were generally in the five to eight percent range. This slope angle is not sufficient for skiers to maintain momentum under varying snow conditions. Therefore, Run 3 was relocated to maintain a minimum 10% slope angle along its entire route. Its junction with the Bull Gap Trail is approximately 1,500 feet east of the 1991 junction.

LC-7 Pod

R- 4

This advanced intermediate run generally follows the same route as proposed in the 1991 FEIS. The middle portion was moved slightly east to take better advantage of fall line slopes and to avoid a rock spine located between Runs 4 and 5. Its lower portion takes advantage of a bench-like terrain feature to minimize side slope. This portion would also serve as part of the emergency egress route from the base of LC-7.

R- 5 and R-6

These intermediate runs follow the same general routes as proposed in the 1991 FEIS. However, in order to lessen tree removal, Run 6 was moved slightly east to incorporate the clearing width required for LC-7.

R-7 (Upper and Lower) and R-7B

Upper Run 7 would be located between the Knoll summit and the Bull Gap Trail and has an intermediate rating, while the lower portion below the Trail has an expert rating. Both portions were moved slightly east from the location shown in the 1991 FEIS in order to more efficiently take advantage of fall line slopes. In addition, the bottom portion of the run below 6,000 feet has been narrowed and shortened to avoid excessive side slopes (>50%) and potentially unstable areas near a wetland and an East Fork tributary. The expert rating for Lower Run 7 is due to a relatively narrow width, 50% plus slopes, and a side slope configuration below the 6,000-foot elevation. Run 7B is a short connector trail that would provide intermediate access to Run 6.

Knoll Base Area Pod

R-7A

This novice-rated run would function as the route used by all skiers returning to the Base Area from the LC-7 and LC-9 pods. Run 7A is essentially the same as the unnumbered ski run shown in the 1991 FEIS. However, it has been moved slightly north in this analysis to avoid a rock outcrop at approximately 6,500 feet.

R- 8

Run 8 would be rated as Beginner and would be located essentially as indicated in the 1991 FEIS (in that document, this run was labeled as Run 15). The upper portion of this run has slope gradients of 14-17 %, exceeding the standard Beginner slope angles of 8-12%. Approximately one acre would be re-contoured to provide more suitable slope gradients.

R- 8A and R- 8B

Run 8A, located adjacent to the proposed Knoll Parking Lot, would provide novice access to LC-10, which in turn would transport skiers to the novice runs served by LC-9. Run 8B, located between the proposed base of LC-8 and the Bull Gap Trail, would provide intermediate and expert access to LC-7. Both of these runs would be accessible from LC-11 (Interconnect Lift).

c. Middle Fork Area

All new runs within the Middle Fork area would be accessed via the proposed LC-6 Chairlift; they can therefore be described as the LC-6 Pod.

R-9 (Upper and Lower)

Alternative 2: The upper portion of Run 9 would follow the top of the wide ridge below the Caliban Run, providing a lower intermediate ski run along the fall line. Instead of diverging from the middle portion of Caliban (as proposed in the 1991 FEIS), Run 9 originates at the base of Caliban. This was done to take advantage of the wide ridge in this location, which would provide fall line skiing with no side slope, and to minimize the clearing necessary to create this ski run. Between the 6,180 foot and 6,280 foot elevation levels, a “tree island” would be retained to maintain a group of larger trees and avoid a rock outcrop. Lower Run 9 would access the base of LC-6 and would be rated as novice beginning at its junction with the Skiway (R-18).

Alternative 3: In this alternative, the top half of this run would be shifted slightly to the east to provide room for proposed Run 19. In addition, Lower Run 9 length is approximately 340 feet shorter in Alternative 3 compared to Alternative 2, due to LC-6 being moved upslope.

Alternative 6: Like Alternative 3, Upper Run 9 would be shifted east to account for proposed Run 19. Lower Run 9 would be identical in length and location as Alternative 2, but rated as low intermediate because there would be no novice access via the Skiway (Run 18) in this alternative.

R-10 (Upper and Lower)

Alternatives 2 and 6: The upper portion of Run 10 would be located essentially as shown in the 1991 FEIS. The middle section would utilize a portion of the chairlift line clearing as part of the ski run thereby reducing the total required cleared area. The lower one-third of Run 10 would be located approximately 400 feet to the east of the location approved in the FEIS in order to avoid wetland areas. Run 10 would merge with Run 9 approximately 400 feet uphill from the base of LC-6. During onsite analysis, it was determined that the Upper Run 10 contains an expert rated slope.

Alternative 3: Run 10 in this alternative would be slightly realigned because of the alternative lower terminal location for LC-6.

R-10A

Alternatives 2, 3, and 6: Run 10A would provide an intermediate route to Lower Run 10, which has an intermediate rating. Run 10A originates approximately 375 feet above the base of the Caliban Run.

R-11

Alternative 2: Run 11, a short expert run, is proposed in the west central portion of the LC-6 pod. It would be accessed by Run 12, from the top of LC-6. Run 11 is proposed to narrow down to about 60 feet wide on the traverse (the lower 200 feet) across the Alder Glade to the merge with Run 14. Runs 11 and 14 would be developed in lieu of the Run 11 location indicated in the 1991 FEIS. As shown in the 1991 FEIS, Run 11 is an advanced run that contains sections with a substantial side slope. In addition, the lower portion of Run 11 as specified in the 1991 FEIS, would have cut through the middle of a wetland area populated by Engelmann spruce.

The wetland/spruce area would be avoided by the proposed alignments for Runs 11 and 14. The Run 11 location would purposely begin in a dry meadow (to minimize tree removal) at 6,620 feet in elevation. This is in the same area indicated in the 1991 FEIS, but following a fall line route before its traverse across the Alder Glade.

R-12

Alternative 2**:** This novice-level run would be located essentially as indicated in the 1991 FEIS. The primary considerations for Run 12 design were to maintain an appropriate slope and width for novice-level skiers and to minimize the necessary clearing by utilizing naturally open terrain. It is the longest run proposed in any alternative. It commences at the top of
LC-6, traverses across the slope to the Upper Meadow along the west edge of the LC-6 pod, then follows a gentle fall line route along a wide ridge to its proposed bridge crossing of the Middle Fork of the East Fork of Ashland Creek and terminates at the bottom of LC-6.

See component project description IM-2 for a description of "Lower Run 12 Creek and Wetland Crossing." Run 12 also provides access to a variety of novice, intermediate and expert terrain, as well as tree skiing in the Middle Fork area.

In order to provide a run with an acceptable amount of side slope for a novice-level skier, the upper portion of Run 12 would require terrain modification. A complete topographic survey was completed of this area by Polaris Surveying to assist in design. Upon consultation with ski area planners from SE GROUP, this section was designed to be as narrow as possible in order to minimize clearing and ground disturbance, while still accommodating anticipated skier traffic.

Consultation with Forest Service geotechnical engineers, hydrologists, and geologists resulted in a run design where some side slope would be left with drainage patterns designed, rocks carefully embedded on the downhill side of the run, and the cut areas revegetated and mulched to minimize runoff and potential erosion. This portion of Run 12 is designed to have an approximate 30 to 35 foot wide skiing area with a slope of 15 to 20 percent (along the ski run), and a finished side slope of approximately 5 to 10 percent. The side slope design would prevent runoff from traveling along the run, with slight "dips" created along the route and reinforced with rocks to further minimize runoff erosion. The side slope would also minimize the amount of water that percolates into the soil strata to help prevent slope instability.

As snow depths increase through the ski season, the skiing surface could be widened with snow. The clearing width required would be 50-60 feet, from top of cut slope to bottom of fill slope. Approximately 1.1 acres would be re-contoured along this upper traverse section of Run 12.

Alternative 6: Run 12 in this alternative is identical to Alternative 2 except for the approach to the Lower Wetland Area crossing. In order to minimize direct effects to Engelmann spruce and wetlands, R-12 approaches the Lower Wetland Area from the northwest in contrast to the southwest approach in Alternative 2. However, unlike the Alternative 2 approach, terrain re-contouring would be required in the Alternative 6 approach to the delineated wetland and spruce grove, in order to provide a run with an acceptable amount of side slope for a novice-level skier. Approximately 0.5 acres would be re-contoured in the Run-12 approach to this area under Alternative 6.

R-12B

Alternative 2: Run 12B was not specifically included in the 1991 FEIS; it is proposed in order to offer additional mid-level terrain and to provide decreased skier density before the wetland crossing. This run had a low intermediate rating in the 2000 DEIS. After further onsite investigation and study, it was determined to have an intermediate rating due to the 40% slope adjacent to the Lower Wetland area. This intermediate-level run branches off of Run 12 at approximately 6,130 feet in elevation and rejoins the latter run at the Lower Wetland area crossing.

Alternative 6: Run 12B in this alternative would branch off of Run 12 at approximately 6,050 feet in elevation and rejoin the latter run at the Lower Wetland area crossing. All skiers on Run 14 would use the lower portion of this short connecting run.

R-13 (Upper and Lower)

Alternatives 2 and 6: Run 13, not specifically included in the 1991 FEIS, would begin at the top of LC-6, cross Run 12 at the 6900 foot elevation level, and then merge back with Run 12 in the "Upper Meadow" at 6,700 feet in elevation. The upper portion above Run 13 would provide intermediate access to Runs 12, 14 and 11, and as a result, would lessen the skier traffic on the upper "traverse" portion of Run 12. The lower portion would provide a novice option for Run 12 skiers. The lower section of Run 13 would also provide access from the LC-6 Lift to Runs 12, 14 and 11 should the area below the "2nd bowl" be temporarily closed for avalanche control.

R-14

Alternative 2: Run 14, an intermediate run in the west central portion of the LC-6 pod, would be accessed by proposed Run 12 from the top of the LC-6 Chair. It would rejoin Run 12 approximately 800 feet from the proposed base of LC-6. See discussion under R-11 (above) for further design considerations and relationship to the 1991 FEIS.

Alternative 6: In this alternative, the lower third of Run 14 would be moved upslope (west) in order to avoid the Lower Wetland area and the Engelmann spruce grove, in concert with the relocated Run 12 in Alternative 6.

R-15

Alternatives 2 and 6: Run 15, an expert run, would be an extension of the existing West Ridge Run. It would be accessed from the top of the Ariel Chairlift, via Circe and West Ridge, traversing above the Bowl. Run 15 was not specifically included in the 1991 FEIS; it is proposed in recognition of extensive existing use of the West Ridge. The development of Run 15 would help reduce the density of skiers in the upper traverse portion of Upper Run 12.

R-16 and 16A

Alternatives 2 and 6: Runs 16 and 16A, consisting of two parallel traverses, are essentially the same as the unnumbered ski runs indicated in the 1991 FEIS, which connect the top terminal of LC-6 with the Caliban Run. The runs are designed to provide for intermediate and novice-level access to Caliban. From Caliban, a novice level return would be provided to the base of Comer, then continuing via the Comer Chairlift to the Base Area.

Alternative 3: The runs would be slightly reconfigured in this alternative. Acreage that was included in the very top portions of Runs 12 and Upper 13 in Alternatives 2 and 6, are included in Runs 16 and 16A, since the former runs are eliminated from this alternative.

Alternative 5: The runs would be slightly reconfigured in this alternative due the absence of LC-6.

R-17

Run 17, a connector run, provides upper intermediate-level access from the top of Ariel via Upper Dream to the Moraine Lodge (Alternatives 2, 5, and 6), the Moraine Toilets (Alternative 3), and the runs served by LC-6 (Alternatives 2, 3, and 6).

R-18 (Alternatives 2 and 3) "Skiway"

Enabling emergency egress and providing novice skier access to LC-6, the Skiway Run is proposed to connect the existing Tempest ski run to proposed Run 9. The clearing width for this run would be approximately 30 to 40 feet. Project 13, as described in the 1991 FEIS, "Chairlift C-6 Option B", specified "an over-the-snow route would be built for evacuating skiers during a lift failure. The route would extend from the base of LC-6 to the base of Windsor." (1991 FEIS page II-11).

In order to provide novice access to the ski runs served by the LC-6 Lift, this over-the-snow route would also need to accommodate skiers traveling downhill to the base of LC-6. The distance and elevation difference between the base of Windsor and the base of LC-6 would not allow development of an entrance access and egress trail of sufficient slope for skiers (particularly snowboarders) to maintain momentum under varying snow conditions. In order to meet these constraints, the over-the-snow route was designed at the minimum width necessary for novice access to the base of LC-6, and occasional simultaneous emergency egress for snowmobiles pulling evacuation sleds. The upper elevation of the Skiway Run was located below the base of the Tempest ski run to provide for a sufficient slope (minimum 10%) to the base of LC-6.

The Skiway Run would require terrain modification. Areas with less than 12% side slope would only require tree removal. In areas with a greater than 12% side slope excavation would be needed to create a 5-10% side slope area of approximately 16 feet wide. Depending on the steepness of the existing side slope, this would involve a cut into the hill slope of 7 to 10 horizontal feet and a fill area of approximately 7 to 10 horizontal feet for a total tree clearing width of about 30 to 40 feet. Final design would incorporate alterations of width and slope in order to avoid many of the larger trees along the route. It would be used for limited summer access (e.g., maintenance) to LC-6 by MAA employees on ATVs and/or by foot.

R-18G (Alternative 3)

This gladed run would be located between Caliban/Run 9/Rodgers Way junction and Run 18 (Skiway). The upper third of Run 18G is thinly forested with large areas of manzanita (genus *Arctostaphylos*) and would already offer a gladed run experience with little vegetative manipulation.

R-19 (Alternatives 3 and 6)

This intermediate rated run, not specifically included in the 1991 FEIS, would begin near the bottom of Caliban and would terminate near the bottom of proposed Run 10 at 6,050 feet in elevation. Run 19 would offer alternate access to the proposed LC-6 base and would lessen skier traffic on Runs 9 and 10.

d. Current Facility Area

Discussions in this section include new proposed run creation in the current facility area with clearing, widening of existing runs, and glading between existing runs. **Existing runs** are described under Sub-section a, this Section, **and are part of all alternatives**.

New Runs (Cleared)

R-20 (Alternatives 2, 3, 5, and 6)
This low intermediate-rated run would make use of terrain that was abandoned in the 1980s when a surface lift was removed. Access to Run 20 would primarily be from proposed lifts LC-14 (Alternatives 2 and 3) or LS-14 (Alternatives 5 and 6). When combined with the present Poma Run, this new lift served area would provide access to the half-pipe on the Lodge run, race training, and novice to low intermediate "learning" terrain

R-20A (Alternatives 2 and 3)
This novice-rated run would be located north of, and adjacent to, the old Poma Lift slope. It would increase terrain acreage served by proposed LC-14 by approximately 2.8 acres. It would offer additional novice terrain in proximity to the current Beginner area served by the Sonnet Lift.

R-21 (Alternative 5)
This novice-rated run was identified as Run 16 in all Action Alternatives except the preferred alternative in the 1991 FEIS. Although not specifically stated in the 1991 ROD, this run was most likely not included in the 1991 ROD because full development at both the Knoll and LC-6 was programmatically approved, thereby lessening the need for this run and associated lift (LC-5). Similar to Run 20A, it would also offer additional novice terrain in proximity to the current Beginner area served by the Sonnet Lift.

R-22 (Alternative 5)
Widening an existing slot through the trees would create this proposed run between Lower Dream and Pistol. This slot, informally known as "Coolwater" by the Ski Patrol and long-time locals, would be widened by approximately 25 feet on each side to create a new upper intermediate run within the current ski area boundary.

Widen Existing Runs

R-23 Sonnet/Blossom Widen/Re-contour
Alternatives 2, 3, and 5: The upper portions of the Sonnet area would be widened and re-contoured to provide more suitable slope gradients and run widths for beginners. Run widening would take place primarily between the upper Blossom and Sonnet Runs, where additional lower-gradient lanes would be created by removing approximately 50% of the trees in the sparsely vegetated area between those runs. Included as part of this widening, is the removal of the old rope tow shack (15 feet x 15 feet) near the south edge of the Sonnet Run. The uppermost 150 feet of the Blossom Run would be widened by approximately 30 feet on the east side.

Run re-contouring would utilize excess fill from both the proposed parking area construction and stockpiled fill from Access Road ditch cleaning. The area where fill would be used is approximately 125 feet x 350 feet, at an average depth of about 4 ½ feet, along the upper center of the present run. This would reduce the steepness of the upper part of the Sonnet slope from approximately 19% to 15%.

The primary composition of fill from the parking construction would be partially decomposed and fractured granite. The fill would be layered with the fractured granite in the first layer (bottom), more highly decomposed granite in the second layer, and primarily fines for the uppermost one foot, to create a smooth surface and provide a good medium for vegetation. Overall, the upgrades to the Sonnet area would require approximately 0.3 acres of clearing and 1 acre of re-vegetated fill.

Alternative 6: This variation of Run 23 would not include the re-contouring and fill work.

R-24 Lower Juliet Widen (Alternatives 2, 3, 4, 5, and 6)

The lower portion of Lower Juliet, beginning approximately at the base of Dan's Run to approximately 100 feet past Comer, would be widened by about 30 feet (0.6 acres) to provide for a safer and more efficient and safe skier merge zone and provide more suitable and comfortable terrain for lower level skiers. The run would be widened through the installation of a retaining wall along the northwest portion of the existing work road. Fill material would be placed between the road and retaining wall to create a wider skiable surface along Juliet.

R- 25 Lower Bottom Widen (Alternative 5)

The west side of Romeo at the junction of Betwixt and the east side of Lower Bottom would be widened by approximately 20-30 feet (0.14 acres). This would provide for more efficient merge zones at the Betwixt/Romeo/Lower Bottom junction and the Lower Bottom/Lower Juliet junction. Lower Bottom widening would also provide more suitable terrain for intermediate skiers on this run.

R-25.1 Romeo Widen (Alternatives 2, 3, 4, 5, and 6)

Approximately six trees (less than 0.1 acre) would be removed on the east side of Romeo just above the Betwixt junction, to provide better sight distance on this bottleneck section.

R-26 Winter Widen (Alternatives 2, 3, 4, 5, and 6)

The lower 500 feet of Winter would be widened by an average of about 75 feet on the east side of the run, from about the vicinity of Betwixt to approximately 25 feet above the base of the run (0.8 acres). This widening is designed to enhance "finish arena" safety at the base of the Winter Run, which is often used for scholastic and other ski and snowboard races.

R-27 Lower Tempest Widen

Alternative 2: The lower 350 feet of Lower Tempest would be widened by approximately 100 feet (0.8 acres) on the east side at the entrance to Roger's Way to provide for a safer and more efficient skier merge zone.

Alternatives 3 and 5: In these alternatives both sides of Lower Tempest would be widened to provide for safer and more efficient merge zones. The west side widening would also provide a location for terrain park features that could be used during night skiing operations. The lower 350 feet of Lower Tempest would be widened by approximately 100 feet (0.8 acres) on the east side and approximately 50 feet (0.6 acres) on the west side at the entrance to Roger's Way.

R-28 All's Well Widen (Alternatives 2, 3,4, 5, and 6)

On the All's Well Run, the entrance from Lower Tempest and the exit to Lower Pistol (about 400 feet) would be widened by an average of approximately 35 feet (0.4 acres) to provide for safer and more efficient skier merge zones at the All's Well junctions with Ariel and Pistol.

R-29 Lower Caliban Widen

Alternatives 2, 3, and 6: The lower 400 feet of Lower Caliban would be widened by an average of approximately 75 feet (0.8 acres) on the east side at the merge with Dream and at the entrance to Roger's Way to provide for a safer and more efficient skier merge zone. The west side of Lower Caliban along approximately 800 feet of the lower half of the run would be widened (1 acre) to provide easier skiing terrain and to provide for a safer and more efficient skier merge zones with Runs 9, 10, 10A, and Rodger's Way. Overall widening of this run would also provide easier terrain for the novice skier.

Alternative 5: In order to maximize novice terrain in this alternative, further widening of Lower Caliban would take place on the east and west sides of the run. This additional widening would be at three locations along the central portion of the run and would add another 1.4 acres to the 1.8 acres described above, for a total of 3.2 acres.

R-30 Rodger's Way Widen

Alternatives 3 and 6: Lower Rodger's Way would be widened on its north side between Tempest and LC-13 by an average of approximately 20 feet (0.4 acres) in order to lessen skier densities on this return route to the Base Lodge, and the existing and proposed lifts at the bottom of this run.

Alternative 5: Upper and Lower Rodger's Way and portions of Lower Dream and Pistol would be widened in order to lessen skier densities on this novice return route to LC-13. Upper Rodger's Way would be widened on its north side between Caliban and Pumphouse Creek by an average of approximately 60 feet, and on its south side between Dream and Pistol by an average of approximately 25 feet (total of 2.1 acres). Most trees would be left in place on the north side in order to lessen the side slope angle at this location. Lower Rodger's Way would be widened by an average of approximately 25 feet (0.7 acres).

R-31 Betwixt Widen/Re-contour (Alternative 3)

This run would be modified to provide novice access to the Middle Fork area. Novice skiers would ride the existing Comer Chairlift and then take Betwixt to the Skiway at its junction with Tempest. Betwixt would be widened at two locations in the Bottom and Lower Bottom areas (approximately 0.5 acres). In addition, run re-contouring would take place from Lower Bottom to Winter, a distance of approximately 380 feet. Excavation would be needed in order to reduce the side slope to a maximum of 10 percent and to fill in low areas along this route, particularly near and in the drainages located between Bottom and Windsor. Three culverts would be installed in this same area.

Gladed Runs

R-32G Between Windsor and Winter (Alternatives 3 and 5)

Approximately 12.6 acres of terrain would be gladed under Alternative 3 and 12.1 acres under Alternative 5.

R-33G Between Ariel and Pistol (Alternatives 3 and 5)
Approximately 13.6 acres of terrain would be gladed under Alternative 3 and 13.3 acres under Alternative 5.

R-34G Between Pistol and Dream (Alternatives 3 and 5)
Approximately 11.8 acres of terrain would be gladed under Alternative 3 and 10.5 acres under Alternative 5.

R-35G West side of Caliban (Alternatives 3 and 5)
Approximately 4.3 acres of terrain would be gladed under Alternative 3 and 7.9 acres under Alternative 5.

R-36G Upper Winter (Alternative 5)
Upper Winter is currently a designated ski run with glade-like characteristics in natural and cleared openings. Less than five percent of the trees would be removed from the current run and a maximum of 20 percent would be removed from the adjoining area. Approximately 2.5 acres of terrain would be gladed.

e. Run Summary

Table II-2 provides a summary of all existing and proposed ski run specifications applicable to all alternatives

Table II-2. Existing and Proposed Ski Run Specifications

Alt.	Run Name or Number	Top Elevation	Bottom Elevation	Vertical Drop (feet)	Horiz. Length (feet)	Slope Length (feet)	Avg. Width (feet)	Grade Max/Avg. (%)	Surface Area (acres)	Skier Ability Level	Status
All	Ado	7,441	6,720	721	2,193	2,332	134	50/33	7.33	Expert	Existing
1	All's Well	6,591	6,444	147	790	809	73	20/19	1.38	Intermediate	Existing
2-6	All's Well	6,591	6,444	147	790	809	100	20/19	1.74	Intermediate	Modified
All	Ariel	7,460	6,578	882	2,005	2,200	100	56/44	5.10	Expert	Existing
All	Avon	7,078	6,898	180	684	713	143	45/26	2.43	Intermediate	Existing
All	Balcony	7,447	7,069	378	1,263	1,331	104	46/30	3.35	Expert	Existing
1,2,4-6	Betwixt	6,613	6,446	168	993	1,005	48	40/17	1.18	Advanced Inter.	Existing[1]
3	Betwixt	6,613	6,452	161	807	819	69	40/20	1.38	Novice.	Modified[1]
1,4	Blossom	6,680	6,610	70	591	598	67	20/12	0.94	Beginner	Existing
2,3,5,6	Blossom	6,680	6,610	70	591	598	90	20/12	1.26	Beginner	Modified
All	Bowl	7,415	7,159	256	842	901	553	100/30	12.44	Expert	Existing
All	Circe	7,475	7,125	350	2,120	2,192	82	45/17	4.20	Expert	Existing
All	Dan's	6,635	6,446	189	603	634	124	39/31	1.82	Intermediate	Existing
All	Falstaff	7,203	6,828	375	951	976	56	45/39	1.36	Advanced Inter.	Existing[2]
All	Lodge	6,602	6,478	124	736	750	96	26/17	1.69	Novice	Existing
1-4,6l	Lower Bottom	6,553	6,457	96	592	625	133	46/33	1.94	Advanced Inter.	Existing
5	Lower Bottom	6,553	6,457	96	592	625	133	46/33	2.08	Advanced Inter.	Existing
All	Upper Bottom	7,066	6,553	513	1,127	1,246	135	54/46	3.92	Expert	Existing
1,4	Lower Caliban	7,018	6,597	421	1,831	1,889	88	33/23	3.90	Advanced Inter.	Existing
2,3,6	Lower Caliban	7,018	6,592	426	1,857	1,915	120	33/23	5.38	Novice	Modified
5	Lower Caliban	7,018	6,592	426	1,879	1,937	150	33/23	6.82	Novice	Modified
All	Upper Caliban	7,305	7,018	287	858	909	94	40/33	1.99	Advanced Inter.	Existing
1,4	Lower Dream	7,307	6,569	738	2,323	2,448	243	42/32	13.65	Advanced Inter.	Existing
2,3,5,6	Lower Dream(a)	7,307	6,936	371	1,309	1,365	269	42/28	8.44	Advanced Inter.	Existing[3]

Alt.	Run Name or Number	Top Elevation	Bottom Elevation	Vertical Drop (feet)	Horiz. Length (feet)	Slope Length (feet)	Avg. Width (feet)	Grade Max/Avg. (%)	Surface Area (acres)	Skier Ability Level	Status
2,3,5,6	Lower Dream (b)	6,935	6,569	366	1,012	1,080	211	42/36	5.22	Intermediate	Modified[3]
All	Upper Dream	7,475	7,307	168	436	466	138	44/39	1.49	Advanced Inter.	Existing
1	Lower Juliet	6,651	6,334	317	1,637	1,673	199	30/19	7.74	Novice	Existing
2-6	Lower Juliet	6,651	6,334	317	1,637	1,673	215	30/19	8.38	Novice	Modified
All	Upper Juliet	6,953	6,651	302	920	974	151	45/33	3.41	Advanced Inter.	Existing
1,4	L. Rodger's Way	6,413	6,334	79	942	949	62	20/8	1.38	Intermediate	Existing
2,3,5,6	L. Rodger's Way	6,413	6,334	79	942	949	88	20/8	1.80	Novice	Modified
1,4	U. Rodger's Way	6,597	6,414	183	1,263	1,278	66	35/14	2.01	Advanced Inter.	Existing
2,3,6	U. Rodger's Way	6,591	6,414	177	1,217	1,233	66	35/15	1.95	Novice	Modified
5	U. Rodger's Way	6,591	6,414	177	1,218	1,234	139	35/15	4.10	Novice	Modified
1,4	Lower Tempest	6,908	6,420	488	1,416	1,503	182	47/34	6.32	Intermediate	Existing
2,6	Lower Tempest	6,908	6,420	488	1,416	1,503	206	47/34	7.15	Intermediate	Modified
3,5	Lower Tempest	6,908	6,420	488	1,416	1,503	223	47/34	7.72	Intermediate	Modified
All	Upper Tempest	7,448	6,915	533	1,156	1,278	134	55/46	3.95	Expert	Existing
1	Lower Winter	6,904	6,361	543	1,380	1,487	128	49/39	4.39	Advanced Inter.	Existing
2-6	Lower Winter	6,904	6,361	543	1,380	1,487	153	49/39	5.22	Advanced Inter.	Modified
1-4,6	Upper Winter	7,375	7,016	359	765	852	54	57/47	1.06	Expert	Existing
5	Upper Winter	7,448	6,915	533	1,156	1,278	118	57/46	3.53	Expert	Modified
All	Pistol	7,100	6,525	575	1,452	1,569	139	50/40	5.10	Advanced Inter.	Existing
All	Poma	6,680	6,606	74	583	591	113	25/13	1.57	Novice	Existing
All	Romeo	7,078	6,398	680	1,953	2,078	226	51/35	10.90	Advanced Inter.	Existing
1,4	Sonnet	6,680	6,582	98	789	798	128	19/12	2.34	Beginner	Existing
2,3,5	Sonnet	6,680	6,582	98	789	798	128	15/12	2.73	Beginner	Modified
6	Sonnet	6,680	6,582	98	789	798	128	19/12	2.73	Beginner	Modified
1,3,4,5	West Ridge	7,409	7,162	247	1,019	1,052	73	32/24	1.77	Expert	Existing
2,6	West Ridge	7,409	7,246	163	743	764	85	32/22	1.49	Expert	Modified
All	Windsor	7,069	6,334	735	1741	1900	70	55/42	3.06	Expert	Existing
4	1	6,630	5,976	654	3,133	3,205	142	30/21	10.52	Novice	Proposed
4	1A	6,377	6,208	170	786	806	112	30/22	2.08	Novice	Proposed
4	1B	6,260	6,097	163	877	894	120	29/19	2.47	Novice	Proposed
4	2	6,630	6,293	337	1,022	1,083	127	35/33	3.16	Low Inter.	Proposed
4	Lower 3	6,203	5,975	228	1,839	1,856	89	28/12	3.93	Novice	Proposed
4	Upper 3	6,630	6,203	427	1,356	1,432	113	41/31	3.73	Intermediate	Proposed
4	4	6,630	5,881	749	2,639	2,757	117	46/28	7.49	Advanced Inter.	Proposed
4	5	6,530	5,867	664	2,123	2,232	122	38/31	6.27	Intermediate	Proposed
4	6	6,630	5,844	810	2,459	2,594	137	42/33	8.18	Intermediate	Proposed
4	Lower 7	6,286	5,867	420	1,359	1,439	115	51/31	3.86	Expert	Proposed
4	Upper 7	6,630	6,287	343	1,234	1,285	125	35/28	3.71	Intermediate	Proposed
4	7A	6,630	6,477	153	759	777	115	30/20	2.06	Novice	Proposed
4	7B	6,398	6,346	52	196	203	90	35/26	0.42	Intermediate	Proposed
4	8	6,533	6,382	151	932	947	187	20/16	4.08	Beginner	Proposed
4	8A	6,468	6,386	83	491	499	99	25/17	1.15	Novice	Proposed
4	8B	6,379	6,293	86	298	312	88	30/29	0.63	Intermediate	Proposed
2	Lower 9	6,012	5,891	121	573	582	113	38/21	1.50	Novice	Proposed
3	Lower 9	6,012	5,959	53	240	243	121	20/18	0.67	Novice	Proposed
6	Lower 9	6,012	5,891	121	573	582	113	38/21	1.50	Low Intermediate	Proposed
2, 3, 6	Upper 9	6,622	6,014	608	2,119	2,210	145	35/29	7.39	Low Inter.	Proposed
2, 6	Lower 10	6,459	5,967	492	1,891	1,971	109	46/26	4.99	Intermediate	Proposed
3	Lower 10	6,459	5,959	500	1,877	1,959	138	46/27	6.28	Intermediate	Proposed
2, 3, 6	Upper 10	6,903	6,459	444	1,300	1,387	125	51/34	4.05	Expert	Proposed
2, 3, 6	10A	6,691	6,453	238	746	795	128	46/32	2.37	Intermediate	Proposed

Alt.	Run Name or Number	Top Elevation	Bottom Elevation	Vertical Drop (feet)	Horiz. Length (feet)	Slope Length (feet)	Avg. Width (feet)	Grade Max/Avg. (%)	Surface Area (acres)	Skier Ability Level	Status
2	11	6,620	6,179	441	1,512	1,605	130	65/29	4.92	Expert	Proposed
2	12	7,159	5,891	1,268	7,222	7,359	100	32/18	17.20	Novice	Proposed
6	12	7,159	5,891	1,268	7,315	7,450	104	32/17	18.06	Novice	Proposed
2	12B	6,130	5,934	196	982	1,006	109	40/20	2.51	Intermediate	Proposed
6	12B	6,050	5,929	121	468	486	89	40/26	0.99	Intermediate	Proposed
2,6	Upper 13	7,159	6,938	221	846	886	116	42/26	2.41	Intermediate	Proposed
2,6	Lower 13	6,877	6,700	177	943	963	89	23/19	2.00	Novice	Proposed
2	14	6,588	5,991	597	2,268	2,358	127	45/26	6.98	Intermediate	Proposed
6	14	6,583	6,000	583	2,551	2,632	110	45/23	6.81	Intermediate	Proposed
2,6	15	7,243	6,818	425	1,029	1,127	115	60/41	2.98	Expert	Proposed
2,6	16	7,068	6,989	79	361	371	64	22/22	0.57	Novice	Proposed
3	16	7,153	6,989	164	673	697	102	24/24	1.67	Novice	Proposed
5	16	7,159	6,989	170	728	752	77	23/23	1.36	Novice	Proposed
2,6	16A	7,109	7,059	50	264	271	61	22/19	0.39	Novice	Proposed
3	16A	7,148	7,059	89	469	482	98	22/19	1.12	Novice	Proposed
5	16A	7,159	7,059	100	510	525	60	22/21	0.75	Novice	Proposed
2,3,5,6	17	7,251	7,159	92	364	391	92	28/25	0.83	Advanced Inter.	Proposed
2,3	18 (Skiway)	6,396	6,018	378	3,494	3,520	50	12/11	4.41	Novice	Proposed
3	18G	6,588	6,225	363	868	944	368	55/42	8.03	Expert	Proposed
3,6	19	6,649	6,049	600	1,798	1,902	133	44/33	5.85	Intermediate	Proposed
2,3,5,6	20	6,618	6,491	127	313	331	135	35/36	1.03	Low Inter.	Modified
2,3	20A	6,665	6,491	170	699	720	161	23/24	2.75	Novice	Modified
5	21	6,664	6,509	155	1,065	1,087	259	30/15	6.60	Novice	Proposed
5	22	6,955	6,835	120	359	380	80	50/33	0.72	Advanced Inter.	Modified[4]
3	Lower 32G	6,482	6,347	135	502	520	274	51/27	3.75	Expert	Modified[5]
5	Lower 32G	6,482	6,347	135	502	520	274	51/27	3.30	Expert	Modified[5]
3,5	Upper 32G	6,929	6,499	431	928	1,030	370	51/46	8.82	Expert	Modified[5]
3,5	33G	7,089	6,552	536	1,220	1,340	438	50/44	13.56	Expert	Modified[5]
3	Lower 34G	6,893	6,520	373	875	955	405	45/43	8.86	Expert	Modified[5]
5	Lower 34G	6,893	6,520	373	875	955	405	45/43	7.60	Expert	Modified[5]
3	Upper 34G	7,074	6,896	178	576	604	213	45/31	3.00	Expert	Modified[5]
5	Upper 34G	7,074	6,896	178	576	604	213	45/31	2.87	Expert	Modified[5]
3	35G	7,015	6,834	181	813	838	233	57/22	4.34	Expert	Modified[5]
5	35G	7,018	6,716	302	1,300	1,342	248	57/23	7.94	Expert	Modified[5]

[1] Area does not include those areas where Betwixt crosses other runs.
[2] Area does not include those areas where Falstaff crosses other runs.
[3] Lower Dream (a) is that portion of the run that retains its Advanced Intermediate rating when lift access is provided to the Circe and Lower Caliban Runs with either LC-6 or LC-13. Lower Dream (b) is the lowermost portion of this run; it changes to Intermediate because of skier access at an elevation of approximately 6,930 feet from Lower Caliban.
[4] Existing tree skiing route (known as Coolwater by locals) is proposed for widening.
[5] Existing tree skiing area.

Source: USFS and MAA

7. Watershed Restoration

In addition to and concurrent with expanded ski terrain and facilities, MAA proposes the development and implementation of various watershed restoration projects, including structural and non-structural erosion and sediment controls. Watershed restoration is a component of the Aquatic Conservation Strategy of the Northwest Forest Plan (see page B-12). These watershed restoration projects are designed to assist in maintaining or improving the trend toward watershed recovery in the Ashland Creek, Neil Creek, Cottonwood Creek and Grouse Creek sub-watersheds.

These restoration projects were developed in conjunction with Forest Service and consultant resource specialists during the development of the MASA proposal and environmental analysis. MAA would have responsibility for funding and implementation of all projects, in coordination with Forest Service and/or resource consultants.

a. Background

Ashland, Neil, Upper Cottonwood, and Grouse Creek watersheds receive flow from the MASA Special Use Permit area. These watersheds, located in granitic terrain, naturally produce high amounts of sediment to watershed streams. Watershed Analysis covering Bear Creek (including Ashland and Neil Creeks), and Beaver Creek (including Grouse Creek), determined human caused disturbance can accelerate detrimental sediment production (USDA FS RRNF 1995b, USDA FS KNF 1996b). Although Watershed Analysis has not yet been completed for the entire Cottonwood Creek watershed, site-specific analysis conducted by the Forest Service in association with this Final EIS found similar conditions associated with its granitic terrain. These watersheds are recovering as a result of natural processes and from watershed restoration efforts aimed at stabilizing soils and slope conditions.

Soil erosion potential on disturbed sites can be reduced through restoration practices that increase soil cover, shorten slope lengths, disperse concentrated water, and improve soil conditions. Over the years, many restoration practices have been tried in and adjacent to the Mt Ashland Ski Area. These include seeding, planting, contour trenching, fertilization, slash placement, road surfacing and drainage, and placement of gully structures. An understanding of the effectiveness of these practices has lead to the more specific proposals for restoration as discussed herein. See Chapter III, Soils, Section 7, for more discussion on the success and effectiveness of restoration practices in this area.

In the winter and early spring of 1992, the RRNF analyzed a proposal to dismantle the facilities located at the Mt. Ashland Ski Area that resulted in the *Mt. Ashland Ski Area Restoration Environmental Assessment* (EA) and the *Decision Notice and Finding of No Significant Impact* (DN) signed by Jim Gladen, Forest Supervisor, on April 28, 1992. The ski area was not dismantled and has functioned as a developed ski area since that time.

In 2002, a survey was conducted to identify and document specific areas at the MASA that were identified in 1992 as needing ***restoration*** work and to briefly describe the 2002 condition and current needs of these areas. A more accurate term to describe the first objective would have been **reclamation** as was the intent of the 1992 plan. This term better fits the needed actions associated with dismantlement of the ski area and returning the site to a more natural and stable forested environment, similar to that which existed prior to 1963 (before the ski area was constructed).

The 2002 survey (*Status Report on the 1992 Ski Area Restoration EA: Ten Years later*), looked at 35 sites identified in the 1992 EA; this report is contained in Appendix F of this FEIS and is incorporated by reference. As a functioning ski area, many of the decisions made in 1992 are not applicable to the current situation. Examples include parking lots that would be ripped and planted, buildings and lift towers that would be removed, and roads that would be re-contoured to the original shape of the land. Other sites are fully recovered in terms of vegetative cover through either natural processes or through the efforts of ski area personnel (plantings, check dams, mulching, etc.).

Five sites were identified that could benefit from spot planting or mulching. This work will be accomplished by MAA as part of their annual restoration work at the ski area. Three more sites were identified as "watershed restoration" projects and are incorporated into proposals for restoration, this Section.

b. Watershed Restoration Proposals

Unless otherwise noted, all projects are common to all Action Alternatives (Alternatives 2 through 6). If the Responsible Official chooses an action alternative, all restoration projects would be completed prior to or concurrent with the first development phase in the first year. These projects have been determined to be needed and appropriate regardless of ski area expansion. Therefore, if the No-Action Alternative is selected, these restoration projects could be processed under a separate and additional decision process under the NEPA.

Some sites identified for restoration are likely related to ongoing ski area operations. Other sites being proposed and identified as needing restoration are due to natural factors and outside of ski area operations.

Watershed restoration projects are organized and presented herein by the portion of the watershed or sub-watershed in which they are located, e.g., Ashland Creek (WA), Neil Creek (WN), Cottonwood Creek (WC), and Grouse Creek (WG). They are further identified on Map II-1. They are portrayed on this map (as opposed to the alternative maps) to make them easier to see, as they are not masked by other proposed projects. Key elements of the proposed restoration projects, and the watersheds and alternatives they are associated with are further described below.

Ashland Creek Watershed

In addition to the existing erosion and sediment control practices already in place at the current ski area, watershed restoration would include the installation of additional structural stormwater controls. The sediment retention facility located at the lower end of Bottom would be re-sized and upgraded to a more permanent structural facility (i.e., sediment basin/trap). Similarly, a new structural control would be installed to the east of the Windsor bottom terminal to capture sediment from the lift line and surrounding area.

Non-structural controls, such as the placement of small woody material (SWM - tree material less than 24 inches diameter and LWM – tree material greater than 24 inches diameter) would be implemented at numerous dry gullies and intermittent streams to further reduce sediment mobility in these areas, and to allow for the re-establishment of riparian features (e.g., bed and bank, riparian vegetation, etc.). Restoration such as rock and wood check dams and geotextile material may also be utilized to stabilize some of the steeper sites. Specific site design and installation of these facilities would be carried out utilizing recommendations of Forest Service and environmental consultant specialists. Specific projects and locations are identified as follows:

WA-1 Windsor Run

Sediment is being mobilized about half way up the Windsor Lift and Run and transported down slope to an ephemeral stream near the headwaters of the East Fork of the East Fork of Ashland Creek. This project would revegetate the existing ski run and place LWM perpendicular to the slope to retain sediment.

WA-2 Windsor Base

Sediment that is mobilized in the lower portion of the ski run under the Windsor Chairlift is being transported into an intermittent stream via a roadside ditch. The storm water ditches in this area would be enlarged (deepened) to keep storm water from overflowing the ditch and transporting sediment across the maintenance work road. Rock check dams would be installed approximately every 40 feet in this area to trap sediment.

WA-3 Pistol Run

Sediment is being mobilized in the Pistol Run and transported toward an intermittent stream in the Pumphouse Creek drainage near the bottom terminal of the Ariel Chairlift. This project would revegetate bare areas of the ski run and place LWM and/or large rocks in a cross-slope orientation to retain sediment.

WA-4 Dan's Run

The ephemeral stream in Dan's Run is incised due to lack of riparian vegetation and sediment input from the up-gradient upland areas. The uplands would be stabilized by planting vegetation and by placing SWM in a cross-slope orientation to retain sediment. The stream channel would be stabilized by SWM jams every 50 feet and individual SWM every 10 feet.

WA-5 Windsor Road

The existing sediment trap located on the north side of the Windsor/Ariel maintenance road west of the Windsor Chairlift bottom terminal is undersized and is situated in an intermittent stream. The sediment trap would be removed and the original channel configuration would be restored. A sediment detention pond would be constructed near the base of the Windsor Chairlift to trap sediment before it enters this stream. Sediment collected would be measured at least once annually by the Forest Service, and transported off-site by MAA.

The original channel configuration aspect of this project would not take place under Alternative 2, due to construction of the Rodger's Way Surface Lift at this location.

WA-6 Betwixt Run

The intermittent stream west of the Windsor Lift becomes incised where it is crossed by the Betwixt Run. Sediment that is mobilized on the run is also being transported to the stream. All bare soil areas near this stream would be revegetated. The stream would be stabilized with one SWM jam at the north side of the ski run. LWM and SWM would be placed in the stream every 10 feet in an alternating fashion 50 feet up and down stream of Betwixt.

WA-7 Second Bowl

Rilling and gully erosion is present on the steep slopes of the "2nd Bowl' in areas where natural forest cover is not very dense. The gully erosion is natural, but large amounts of sediment are being transported to an intermittent stream. This project would spread native grass seeds and mulch on all bare mineral soil areas proximate to the erosion areas and gullies. LWM and SWM would be placed in the gullies approximately every 15 feet in an alternating fashion (dependent on slope gradients) to retain sediment and reduce the chance of continued channel incision.

WA-8

Several rills have formed in the Lower Tempest Run and near the Ariel Chairlift. These uplands would be stabilized by planting grass and by placing LWM perpendicular to the slope to retain sediment. SWM and/or rock would be placed in the rills every 15 to 25 feet depending on slope gradients.

WA-9 Lower Juliet

The ditch along the uphill side of the Windsor/Ariel maintenance road, in the vicinity of the Lower Juliet Run, collects runoff and is filled with sediment. The ditch would be cleaned of sediment, rock check dams would be installed as appropriate, and two culvert approaches would be rock armored for stabilization.

WA-10 Bull Gap Creek

To aid in overall watershed improvement, a previously harvested clear cut area (circa mid-60s) in the upper end of Bull Gap Creek, a tributary to Ashland Creek, would be restored. While most of the unit is stocked with young conifers, portions of the riparian area within the unit would be planted with native riparian vegetation for establishment of streamside shading.

WA-11 West Fork Bull Gap Creek

Rilling and gully erosion is present on the slopes of a meadow near the junction of proposed Runs 1A and 3 at an elevation of approximately 6,250 feet. The gully erosion is natural, but large amounts of sediment are being transported to an intermittent stream. This project would spread native grass seeds and mulch on all bare mineral soil areas proximate to the erosion areas and gullies. LWM would be placed in the gully approximately every 15 feet to retain sediment and reduce the chance of continued channel incision.

WA-12 Big T Bar Terminal

This site was the location of the "Big T-Bar" top terminal. Installed in 1963, the terminal was crushed by snow creep in 1974 and was replaced by the Windsor Chairlift in 1978, slightly down slope from the T-Bar location. This excavated site has a lack of vegetation and could benefit from vegetation planting including trees, as it is now not a designated run. This project would place LWM perpendicular to the slope to reduce sediment movement. In addition, native grass seed or plugs along with conifers would be planted and mulched.

WA-13 Pumphouse Creek

Sediment transport occurs in Pumphouse Creek, a tributary to the East Fork of Ashland Creek. A sediment trap would be constructed to retain sediment runoff from ski runs and the maintenance road before it enters this intermittent stream. Sediment collected would be measured at least once annually by the Forest Service and then transported off-site by MAA employees.

Neil Creek Watershed

Non-structural controls, such as the placement of SWM and seeding and mulching would be implemented at several sites to further reduce erosion and sediment mobility. Site design and installation of these facilities would be carried out utilizing recommendations of Forest Service and environmental consultant specialists. Specific projects are identified as follows:

WN-1 South Ridge

Soil rilling and sediment transport occurs in the steep areas directly upslope of the Access Road below the proposed snowplay area. This project would seed and mulch all bare soil areas proximate to the erosion areas and gullies. LWM and SWM would be placed in the gullies every 10 feet in an alternating fashion to retain sediment and reduce the chance of continued channel incision.

WN-2 Drainfield Service Road

Sediment transport and deposition is occurring along a 100-foot stretch of Road 2000195, which provides access to the wastewater treatment plant and drainfield cells. This project would stabilize the disturbed areas near the road with grass seed and mulch, install drain dips on the road every 50 feet, and spread gravel on the entire length of the road.

This project would not take place under Alternative 4 due to construction of the Knoll Parking Lot at this location.

WN-3 East Ridge

Soil rilling and gully formation occurs in the open meadow in proposed Run 1 east of the Knoll at approximately 6,500 feet in elevation. This project would spread native grass seed and mulch all bare soil areas proximate to the erosion areas and gullies. SWM would be placed in the gullies every 10 feet in an alternating fashion to retain sediment and reduce the chance of continued channel incision.

WN-4 Bull Gap Trail (#1)

Soil rilling and sediment transport are occurring at the upper hairpin corner of the Bull Gap Trail near the bottom terminal of the proposed LC-9 Lift. The old roadbed at this location would be graded to divert water toward the outside edge of the road and a ditch would be constructed with rock check dams approximately every 20 feet. A rock apron 6 feet by 15 feet would be constructed at the outlet of the ditch.

WN-5 Bull Gap Trail (#2)

In conjunction with Project WN-4, this project would install water bars in the old roadbed every 50 feet for 200 feet along the roadway in both directions from the hairpin corner of the Bull gap Trail. Fill slopes of the road would be armored with 2 to 4 inch rock below the outlet of each water bar.

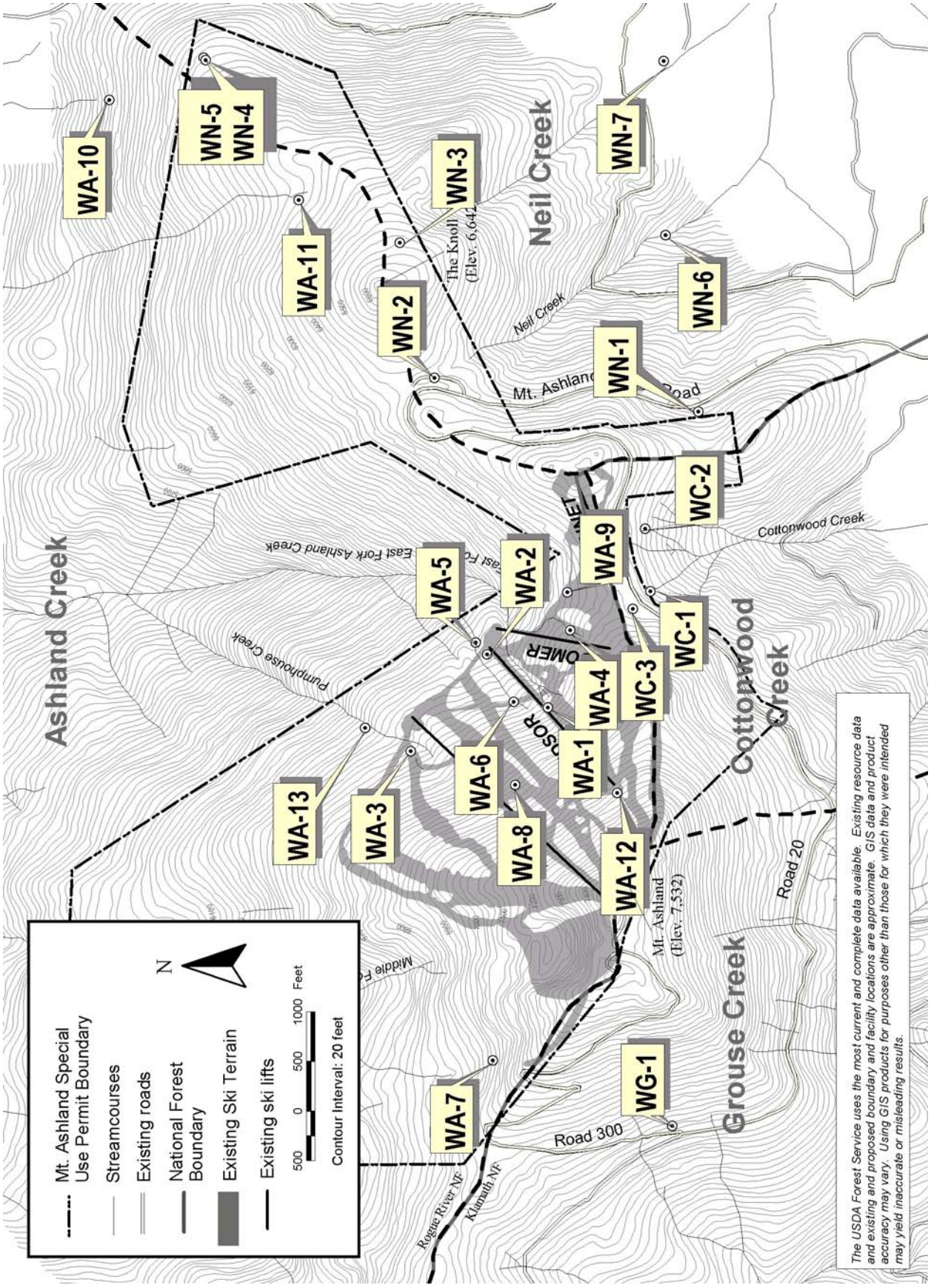
WN-6 Neil Creek

A previously harvested unit (circa early 80s) lies within the headwaters of Neil Creek and below Forest Service Road 2080. Within the riparian area, all overstory trees were removed and the riparian area would benefit from planting of native vegetations to increase shade. This project would also add instream LWM for diversity and complexity of fish habitat.

WN-7 East Fork Neil Creek

Another previously harvested unit (circa early 80s) lies within the headwaters of the East Fork of Neil Creek, below Forest Service Road 2080, and north of project WN-6. Within this riparian area, all overstory trees were also removed and the riparian area would benefit from planting of native vegetation to increase shade.

MAP II-1. Watershed Restoration Projects



Cottonwood Creek Watershed

Watershed Restoration projects in this watershed would address the gullying and down cutting of several streams located immediately south and east of the existing and proposed MASA parking lot areas. Restoration projects would include the placement of SWM into the stream channels to dissipate flow velocities, retain sediment, and to allow for the re-establishment of riparian features along the channels. In addition, an abandoned road (former powerline route), which is the cause of some of the degradation, would be stabilized and planted to reduce the occurrence of erosion. Site design and installation of these facilities would be carried out utilizing recommendations from Forest Service and environmental consultant specialists. Specific projects are identified as follows:

WC-1 Cottonwood Meadow

Several large gullies formed on the south side of the main parking lot above the headwaters of Cottonwood Creek after the ski area was constructed in 1963. Previous restoration and erosion control efforts have improved the watershed condition but further efforts are needed. The head cutting of the gullies is due to lack of vegetative cover and over-steepened fill-slopes. This project would seed and mulch all bare soil areas proximate to the gullies. LWM and/or large rock would be placed in the gullies every 10 feet in an alternating fashion. An erosion control mat or wood chips would be placed on the fill-slope of the Access Road in this area.

WC-2 Powerline

In addition to Project WC-1, an abandoned road (former powerline route), which is the cause of some of the degradation, would be stabilized and planted to reduce the occurrence of erosion. The area would be seeded and mulched and SWM and/or large rock would be placed in exposed areas.

WC-3 Existing Parking Lot

The cut and fill slopes of the existing parking lot are contributing to increased sediment yield to streams and wetlands in Cottonwood Meadow. A combination of erosion control BMPs would be used to minimize sediment sources and to remove sediment from stormwater runoff to the greatest extent practicable before it enters the streams and wetlands.

Grouse Creek Watershed

Similar to the restoration projects in the Cottonwood Creek sub-watershed, several upland gullies, located along the southwestern slope of Mt. Ashland would be stabilized to reduce sediment mobility. Within the gullies, SWM and/or large rock would be placed in a manner that would dissipate flow velocities and allow for the retention of sediment.

In addition to the watershed benefits, stabilization of these channels would allow for natural establishment by creating habitat for several rare plant species found in the area. Site design and installation of these facilities would be carried out utilizing recommendations from Forest Service and environmental consultant specialists. *The Beaver Creek Ecosystem Analysis* (USDA FS KNF 1996b) was also reviewed for needs identified within the upper portion of the Grouse Creek sub-watershed and near the SUP area; where logical feasible, these areas have been incorporated.

WG-1 Road 300

Several gullies have formed in the area just above Road 300 near its junction with Road 20. These gullies are transporting sediment to several headwater springs located below Road 20 and have eliminated a substantial amount of habitat for plant species. The sediment transport has also contributed to degradation of the Pacific Crest National Scenic Trail. This project would place LWM and native rock in the gullies every 10 feet in an alternating fashion on several sites. An erosion control mat or wood chips would be placed on the fill-slope of Road 300 where large areas of bare soil are exposed or where soil rilling is observed.

8. Tree Cutting, Removal, Slash Disposal and Utilization of Commercial Timber

The first and foremost use of the vegetation and tree material generated by clearing for the ski run and lift areas would be for erosion control, and as a long term source of organic materials (SWM). Commercial grade trees (timber) above and beyond these needs would be removed and utilized by local mills. Due to steep slopes, sensitive soils, and lack of adequate access roads in the area, helicopter yarding would be utilized for the vast majority of the timber removal. Minimizing soil disturbance would be a primary consideration. Run and lift clearing would occur during the summer and during dry conditions.

Analyzed herein as a connected action to ski area expansion, logs would be flown by helicopter from the location where felled to the vicinity of the ski area parking lot where adequate room exists for safe operations. Gravel or wood chips would be temporarily placed on the existing paved surfaces to protect the pavement during log landing operations. The landing area has access to Road 20 and County Road 1151, where the logs would be hauled to Interstate 5 and then to a milling site in the Rogue Valley or Northern California. When log-landing operations are completed, the protective material would be gathered up and hauled away. Helicopter yarding operations would generally be uphill with an approximate elevation gain of 700 feet (maximum). The average elevation gain for the majority of volume would be approximately 200 feet.

Optional methods of timber removal such as “over snow” clearing could occur, if authorized by the Forest Service, and if resource protection objectives are met (including protection of nesting wildlife species). See Section 8, Mitigation Measures for more detail on resource protection objectives. Other methodology (e.g., use of low ground pressure tree shears to fall and bunch timber for helicopter turns) similarly could be authorized if resource protection objectives can be met.

a. Quantity of Material that would be Cut and/or Removed

Although trees smaller than twelve inches in diameter breast height (DBH) would be cut while clearing for ski runs and lifts, no trees less than twelve (12) inches in diameter would be removed from the SUP area, or sold as commercial merchantable volume. **All material 12 inches and smaller would be left on site for erosion control, stabilization, and soil building**. Estimates of the total number of trees to be cut are discussed in Chapter IV, Environmental Consequences. To estimate the potential commercially valuable (merchantable) volume that would be removed, only trees larger than twelve inches DBH were considered, and is presented below.

To estimate the merchantable volume of trees that could be cut within the proposed ski runs, run widening, glading, and lift corridors, vegetation mapping completed by Geographic Resource Solutions (GRS) in Arcata, CA was utilized. This mapping utilized Landsat TM satellite imagery. The database associated with the imagery describes attributes including: canopy closure, tree size, trees per acre, and percent hardwood, conifer, shrub, and grass.

To estimate the amount of merchantable volume that could be removed, it was assumed that approximately **ten percent of material greater than 12" DBH would be left on site for erosion control measures or as woody material**. Some of this larger diameter material would also need to be retained in certain runs to provide an area for leveling the surface when grooming the runs in winter.

In addition, to arrive at a net merchantable volume, a further deduction is made to account for **hidden defect and breakage**; for this analysis, it **is assumed to be 15%**. Table II-3 displays the estimated net merchantable volume that could be removed under each alternative.

Table II-3. Estimated Volume Quantities by Alternative

Alternative	(A) Total Volume >12" (MBF/CCF)	(B) Volume to be left for erosion control, woody material (MBF/CCF)	(C) Net Merchantable Volume (MBF/CCF)
1	0	0	0
2	2,060/3,962	238/458	1,822/3,504
3	1,403/2,698	152/292	1,251/2,406
4	2,086/4,012	241/464	1,845/3,548
5	430/827	39/75	391/752
6	1,987/3,821	230/442	1,757/3,379

Notes: Net merchantable volume = Total volume minus volume to be left minus an estimated 15% for defect and breakage of logs. [C=0.85*(A-B)] Volumes are shown in both MBF (thousand board feet) and CCF (hundred cubic feet).

b. Utilization of Commercial Grade Timber

Under Forest Service policy, there are several methods available for the utilization and disposition of commercial grade timber associated with ski area clearing. The following excerpt from FSM 2464 outlines these methods.

FSM 2464 - - TIMBER SETTLEMENT

2464.01 - Authority. Forest Officers may grant a permittee the right to cut, damage, or destroy National Forest timber or other forest products in conjunction with an authorized occupancy of a right-of-way or other use of National Forest land (36 CFR 223.12).

2464.02 - Objective. To account and receive payment for timber cut, damaged, killed, or destroyed on National Forests in connection with the occupancy of land under permit or easement.

2464.03 - Policy. Use timber settlement to sell and remove the timber or other products, only when commercial sale procedures are not expected to meet the objective. Examples include:

1. Timber harvest and removal by commercial sale would not meet the required time limits.
2. Sale of logs or other products felled, bucked, and decked incident to the clearing require prompt removal to allow continuation of the project.

2464.04 - Responsibility. See FSM 2404.2 for delegation of authorities and assignment of responsibility by organizational level. Forest Officers must consider their authorization to sell timber and decide whether to charge for the timber and at what rates. They shall:

1. Determine the approval status of the special use or occupancy permit.
2. Base the decision on free use verses charging for the material on: (a) the benefit to the National Forest, and (b) whether the permittee would otherwise qualify for free use.

2464.05 - Definitions.

1. Timber settlement is the compensation of the United States for property taken or rendered unusable for other purposes incidental to some lawful use of National Forest land. When timber has a value, clearing the land for some use other than growing timber constitutes a forced sale.

2464.1 - Conditions of Use.

2464.11 - Payment Required. Require payment for:

1. Timber of merchantable size and quality, which the permittee cuts or destroys incident to any authorized use of National Forest land, except as stated in FSM 2464.12.
2. Cutting and destroying young growth below merchantable size unless analysis shows an insignificant volume or value.

2464.12 - Payment Not Required. Do not charge for timber cut or destroyed in timber settlement when:

1. The timber cut or destroyed results in a documented benefit to the United States (such as an air strip, resource improvement, or recreational development) and the products removed are not being used for a commercial purpose, including use in construction or as fuelwood.
2. The permittee qualifies for free use or free administrative use.
3. Plans provide for sale under competitive bidding following the cutting.
4. If a documented analysis shows that the young growth timber:
   (a) Does not meet stocking or value conditions discussed in FSM 2464.11.
   (b) Forms an understory to a well stocked stand of old growth and will not survive harvest of the old growth.
   (c) Occurs on a poor site and is of doubtful merchantability.
   (d) Occurs in scattered patches interspersed with merchantable timber and comprises, in the aggregate, less than 25 percent of the tract area.
5. The Forest Service retains the material for sale in log or other product form.

Forest Service analysis of these options (see FEIS Appendix D) has indicated that the likely methodology for disposition of the Federal, commercial grade timber would be via a Timber Settlement agreement. Timber would be sold to the proponent at a predicted bid (appraised) value. Quantity of commercial volume would be tracked within the two Forest Service Regions involved, as well as compliance with Region-specific requirements for timber disposition.

The rationale for a Timber Settlement Agreement is based on the needed flexibility to utilize generated material for erosion control, woody material, etc., as a priority over selling as a commercial product. This methodology also allows flexibility to coordinate other developmental activities such as utilizing helicopters to move in lift towers and materials. This method also increases the chance of operations being coordinated (i.e., timber yarding, decking and hauling), and that all timber related operations could be accomplished in one season. Forest Service analysis further shows that this methodology is likely to generate a comparable value to that which would be experienced in this type of timber utilizing a competitive bid process, and is likely to maximize the return to the Federal treasury for the value of the timber. All Federal requirements for designation and evaluation of timber, and administration of logging operations would be followed.

c. Slash Treatments

Many forested areas to be cleared would result in very light slash (residual tree material such as limbs, branches, etc.) loadings due to an existing low number of trees or volume/acre. In these areas, all slash from 1 to 8 inches in diameter (regardless of length), would be lopped back to a height not exceeding 18 inches above the duff (surface) layer, and scattered.

Where heavy concentrations of slash would prevent safe skiing/grooming operations, hand piling or mechanical chipping of excess would occur. Chipping could only occur where equipment access is available. Utilization of chipped material (beyond erosion control needs) would be at the discretion of the permittee/proponent.

Hand piling would involve material between 1 and 6 inches in diameter on the large end, and over 1 foot in length, which does not require equipment access. All material in excess of 6 feet in length would be bucked (by hand with chainsaws) before being piled. Hand piles would be a minimum of 4 feet in height and no greater than 6 feet in height. Hand pile widths would not exceed 6 feet. Material extending more than 2 feet beyond the general contour of the pile would be bucked and placed on the pile. Slash piles would be burned when conditions allow. Piles would be located so that subsequent burning would not cause damage to residual trees. Piles would be located in open areas, at least 10 feet from standing green trees, other vegetation and seedlings.

Fire managers would plan the dispersal of smoke away from designated areas in accordance with the State of Oregon Smoke Management Plan. The designated areas include the cities of Ashland and Medford. Efforts to reduce smoke emissions from prescribed fire would be implemented to lessen the effect on air quality. Seasonal burning would be utilized. Spring burning, for example, results in reduced fuel consumption and emissions due to higher fuel moistures. The spring season may also have unstable atmospheric conditions that can lead to better smoke dispersion.

Considering the three methods of slash treatment described, the Forest Service estimates that overall, chipping would occur on approximately 5 percent of the cleared areas, hand piling and burning would occur on approximately 10 percent of the areas, and lop and scatter would occur on approximately 85 percent of the cleared areas.

In the areas proposed for glading, lop and scatter would occur on approximately 50 percent of the gladed area. The following table displays the estimated acres of fuel treatments, based on these assumptions, associated with each alternative:

Table II-4. Estimated Fuel Treatments: Acres by Alternative

Alternative	Hand Pile & Burn	Lop & Scatter	Chipping
1 (No-Action)	0	0	0
2	7	58	3
3	4	58	2
4	6	48	3
5	2	27	1
6	6	56	3

G. ALTERNATIVES CONSIDERED IN DETAIL

Five Action Alternatives and a No-Action Alternative are analyzed in detail in this Final EIS. This includes an alternative based on the proposal received from MAA in March 2002, which is described as the Proposed Action (Alternative 2) throughout this document. See Section A of this chapter for changes made to alternatives since the 2003 DEIS. This range of alternatives is designed to provide a range of alternatives, organized as "packages" of alternative actions for consideration of ski area expansion at this time, consistent with the programmatic Master Plan decision made with the 1991 ROD/FEIS. The specific relationship of each component project to this Master Plan is discussed in the description of each component, Section E, this Chapter.

The Action Alternatives presented and analyzed herein (Alternatives 2 through 6) are designed to represent a reasonable scenario for authorization of ski area expansion. Final and exact facility, lift, ski run locations and other design features may be refined to a reasonable and logical extent during implementation (see Mitigation Measures for Action Alternatives). An operating plan is required and is updated annually prior to operations, and the operating plan would include authorization and scheduling of development activities. The annual operating plan includes the Summer Work Plan, and describes how MAA would carry out construction and operations in accordance with the terms of the SUP. This operating plan would also be in accordance with the Mitigation Measures required by any forthcoming decision, for each project or component projects selected. Actual construction would not occur until the Forest Supervisor or delegated Responsible Official approves the operating plan. Compliance with the operating plan would be monitored by the Ashland Ranger District staff and Forest Service resource specialists.

Identification of Preferred Alternatives or agency preference made in this Final EIS should not be construed as pre-decisional. The intent of its identification at this stage is to provide the reader with a sense of the direction in which the Forest Service is leaning at this time. The comments received during the Comment Period for the July 2003 Draft EIS will be a very important part of the decision process. Therefore, while the Forest Service has tentatively identified Preferred Alternatives (Alternatives 2 and 6), the final decision that would be incorporated in the Record of Decision (ROD), could include any one of the alternatives or a combination of elements or actions that have been analyzed in detail, from any of the alternatives considered.

1. The No-Action Alternative

As required by NEPA, a No-Action Alternative is included and analyzed in this Final EIS as a benchmark against which the Action Alternatives can be compared. In this analysis, it also serves as a vehicle for analyzing the effects of no future development within the MASA SUP area at this time. This alternative represents the current conditions and current state of development, with no additional expanded ski area features and facilities, other than those that may have already been analyzed and authorized under NEPA. Current uses (both winter and summer) would remain status quo.

If this alternative were selected under this analysis, future expansion or improvement proposals within the ski area could be presented by the Special Use Permit holder/proponent and would be subsequently analyzed by the Forest Service under NEPA regulations.

ALTERNATIVE 1 - (No-Action)

a. Function

Alternative 1 identifies and describes the baseline conditions of the physical, biological, social and economic environments within the present Mt. Ashland Ski Area. The term 'No-Action" means no change to present conditions; the current set of recreation and resource management activities would continue; no additional expansion, developmental activities or modification of existing facilities, or restoration activities would be authorized at this time, under this analysis.

Alternative 1 does not address the stated Purpose and Need (Chapter I) which includes terrain balance and diversity, guest access and circulation, updating and balancing guest services and facilities, skier safety, economic viability and longevity, and the trend of watershed recovery.

An additional function of this alternative is to provide an alternative that would not authorize ski area expansion or further developmental activities within the McDonald Peak Inventoried Roadless Area at this time (see Chapter III, Section E, 4, and this Chapter, Section C, 3). However, existing activities identified as occurring within less than one acre of the Inventoried Roadless Area would continue.

b. Description

The MASA is currently an existing winter sports recreation area located within the Siskiyou Mountains in Southern Oregon on National Forest System Lands and operated under special use authorization issued by the Rogue River-Siskiyou National Forest, Ashland Ranger District. MASA is located about 7 air miles south of the City of Ashland. MASA occupies the highest peak of the Siskiyou Mountain Range in Oregon and California. Access to the ski area is via Interstate 5 and the Mt. Ashland Access Road (County Road 1151 and Forest Road 20). Opened for skiing in the 1963-64 season, the current ski area has approximately 125 acres of developed skiing terrain, with four chairlifts, 23 primary ski runs, and one "Bowl" area. MASA's skiing terrain ranges in elevation between 7,475 and 6,330 feet, for a total vertical drop of about 1,145 feet**.** Skier facilities consist of a day lodge, a ski rental shop building, and a parking lot for approximately 550 to 600 vehicles. The following features are present within the current ski area:

Table II-5. Components and Features of the Current Ski Area – Alternative 1

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Buildings			Base Lodge Rental Shop Lift Shop Race Building Waste Water Treatment Facility
Parking			Current Parking Lot
Lifts	Chairlifts	LC-1 LC-2 LC-3 LC-4	Ariel Windsor Comer Sonnet
	Surface Lifts	LS-16	Rope Tow

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Infrastructure	Roads		Falstaff (occasional use) Sonnet Summer Work road Windsor/Ariel Summer Work Road Comer Summer Work Road Bull Gap Summer Work Road Ariel (occasional use)
	Power		Base Area Power, Rental Shop, Sonnet Lift, Windsor and Ariel Lifts, Lift Shop, Pumphouse
	Potable Water and Wastewater		Base Area Water and Wastewater Treatment Plant and Drainfield
Runs Runs with asterisk (*) have night lighting	Existing Runs	Ado All's Well Ariel Avon* Balcony Betwixt Blossom L. Bottom U. Bottom Bowl Caliban Circe Dan's* Dream Falstaff U. Juliet L. Juliet* Lodge* Pistol Poma Rodger's Way Romeo* Sonnet* L. Tempest* U. Tempest West Ridge Windsor L. Winter* U. Winter	Expert Intermediate Expert Intermediate Expert Advanced Intermediate Beginner Advanced Intermediate Expert Expert Advanced Intermediate Expert Intermediate Advanced Intermediate Advanced Intermediate Advanced Intermediate Novice Novice Advanced Intermediate Novice Advanced Intermediate Advanced Intermediate Beginner Intermediate Expert Expert Expert Advanced Intermediate Expert

The No-Action Alternative (the current ski area) has the following terrain distribution by skill level, displayed in acres and percent, as shown in Table II-6.

Table II-6. Existing MASA Terrain Distribution by Skill Level and Percent of Total

Skill Level	Existing (surface area acres)	Existing (percent)
Beginner	3.28	2.62
Novice	11.00	8.79
Low Intermediate	0	0
Intermediate	13.33	10.65
Advanced Intermediate	51.32	41.02
Expert	46.18	36.91
Total	125.11	

Currently, the MASA is primarily a day-use downhill ski area, drawing skiers from the Interstate 5 corridor in Southern Oregon and Northern California. Recent observations by MAA indicate that approximately 90 percent of the visitors originate from communities within 150 miles, while 10 percent come from more distant locations. Approximately 15% of the visits include an overnight stay at local accommodations (source NSAA & RRC Associates 2002).

With this alternative, it is assumed that present ski area management would be maintained and that the current infrastructure would be managed and maintained to adequately meet controlled visitor use and safety. Because no expansion activities would occur, site-specific conditions that are associated with the Significant Issues and the Other Issues would not change from their existing conditions or character.

Because the No-Action Alternative would not authorize expansion nor include any additional ground-disturbing activities other than those currently authorized, no expansion related mitigation measures, or watershed restoration projects are proposed. For a complete description of the current conditions associated with this alternative, refer to Chapter III, Affected Environment. Alternative 1 - No-Action (the current condition) is portrayed on Map II-2.

MAP II-2. Alternative 1 (No Action)

To view the alternative map, click on the following link:

http://www.fs.fed.us/r6/siskiyou/planning/mtashland/feis/v1e-chapter2-map-alt1.pdf

2. Action Alternatives

This section discusses alternatives that were considered by the Forest Service Responsible Official, as alternatives that propose "action" in the form of ski area expansion and development. Five Action Alternatives are analyzed in detail in this Final EIS. For purposes of this documentation under NEPA, the Proposed Action being analyzed is contained in Alternative 2. Additional Action Alternatives were developed to consider alternative ways to attain the stated Needs and the specific Purposes identified in Chapter I. This alternative range is also designed to address the significant resource and social issues identified during scoping as being associated with ski area expansion and/or Alternative 2.

3. ALTERNATIVE 2 - (Proposed Action)

a. Function

Alternative 2 is identified and defined herein as the Proposed Action. The term "Proposed Action" does not imply the action that has been selected; it is based on a proposal received from the proponent (MAA March 2002) that has caused the Forest Service to consider authorization and conduct analysis under NEPA.

Under the Proposed Action (Alternative 2), the Forest Service would authorize MAA to implement a variety of facilities improvements. Projects being proposed include: construction of a new chairlift and associated skiing terrain within the western portion (the Middle Fork area) of the Special Use Permit area, additional skier service facilities, a surface lift providing novice access to the proposed runs, a short chairlift in the vicinity of the Base Area to better utilize existing terrain, a snow tubing area, additional parking, necessary supporting infrastructure, and watershed restoration projects.

This proposal is based on the 1991 *Mt. Ashland Ski Area Final Environmental Impact Statement* (FEIS), and related *Record of Decision*, July 3, 1991 and the July 2003 *Mt. Ashland Ski Area Expansion Draft Environmental Impact Statement* (DEIS). In the 1991 FEIS and ROD, which programmatically approved ski area expansion pending site-specific review; the stated Purpose and Need for the improvements included the provision of additional Beginner and Intermediate skiing terrain, improvement of the existing facilities and customer services, enhancement of the economic viability of the area, and promotion of opportunities which increase the diversity of local winter recreational opportunities. The proposed projects are all designed to be address this Purpose and Need.

This proposal also incorporates proposed design and facilities based on extensive professional study of the existing facility and SUP area, as well as agency and public comment received on the February 2000 DEIS, scoping in 2002, and public comment on the 2003 DEIS. This proposal also incorporates improvements based on extensive public dialogue and recent developments in the snow sports business (such as the increase in snowboard use, and the advent of terrain parks and tubing areas).

From the viewpoint of the proponent, these proposed upgrades represent the logical progression of development at MASA and are specifically designed to complement and enhance the current skiing facilities allowing the MASA to better accommodate large numbers of skiers on peak days and to serve a wider variety of skiers, while protecting the environmental qualities and recreational attributes that make Mt. Ashland a unique, noteworthy place. The proposed upgrades would allow MASA to effectively accommodate the public demand currently being experienced at MASA, adding terrain currently missing, and providing a recreational environment suitable for a more diverse group of regional enthusiasts. Specifically, the projects are designed to provide improved terrain balance and diversity, improved guest access and circulation, updated and balanced guest services and facilities, provide for economic viability and longevity for MASA, enhance skier safety, and maintain or improve watershed conditions in the vicinity of the MASA SUP area.

b. Description

Under Forest Service authorization, MAA would construct two chairlifts, two surface lifts, and approximately 71 acres[3] of associated new ski run terrain primarily within the western half of the SUP area (the Middle Fork area), including widening of existing runs. There would be approximately 4 acres of clearing for lift corridors, and staging areas. In addition, this alternative would include a 4 acre tubing facility in the southern portion of the SUP area; three guest services buildings, a yurt, additional night lighting; additional maintenance access road segments; additional power, water lines and water storage tank, sewer lines; an additional snow fence, and an increase in parking by 220 spaces. Watershed restoration projects would be implemented, including structural storm water control, and non-structural controls, such as the placement of LWM and SWM. All proposed facilities would be developed within the existing SUP area, with the exception of some of the restoration projects.

Based on the description of components previously described in Section E of this Chapter, the following tables list features that are proposed under Alternative 2. **With this and all Action Alternatives, the existing components and features are also included, as listed by Table II-5**, displayed under Alternative 1. In addition, Alternative 2 includes the following proposed expansion components and features, and changes to the existing features, as noted. Existing and proposed components and features for Alternative 2 are shown on Map II-3.

Table II-7. Proposed Expansion Components and Features - Alternative 2

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Buildings		B-2a B-2b B-3 B-8 B-9	Ticket Building, Skier Plaza Arrival Services Building Moraine Lodge South Ridge Tubing Facility Yurt South Ridge Tubing Facility Toilets
Parking		P-1 P-3	Parking Lot Expansion South Ridge Tubing Facility Parking
Lifts	Chairlifts	LC-6 LC-14	Middle Fork Lift Poma Lift
	Surface Lifts	LS-12 LS-15	South Ridge Tubing Lift Rodger's Way

[3] Estimated surface or "actual" area, expressed in acres, not including the Tubing Facility.

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Infrastructure	Roads	IR-1 IR-5	Falstaff Summer Work Road South Ridge Tubing Facility Road
	Power	IP-1 IP-3 IP-5 IP-7 IP-8	Moraine Lodge/LC-6 Lift South Ridge Tubing Facility Poma Lift Rodger's Way Base Area Guest Services Buildings
	Potable Water and Wastewater	IW-1 IW-3 IW-4	Moraine Lodge Base Area Guest Services Buildings South Ridge Tubing Facility
	Night Lighting	IN-1.1 IN-2	Bottom South Ridge Tubing Facility
	Emergency Egress	R-18	Skiway
	Miscellaneous	IM-1	Circe Snow Fence
		IM-2	Lower Run 12 Creek and Wetland Crossing
Snowplay		S-1	South Ridge Tubing Facility
Runs	New Runs	R-9 R-10 R-10A R-11 R-12 R-12B R-13 R-14 R-15 R-16 R-16A R-17 R-18 R-20 R-20A	Low Intermediate/Novice Intermediate/Expert Intermediate Expert Novice Intermediate Novice/Intermediate Intermediate Expert Novice Intermediate Advanced Intermediate Novice Low Intermediate Novice
	Widening of Existing Runs	R-23 R-24 R-25 R-26 R-27 R-28 R-29	Sonnet/Blossom Lower Juliet Romeo Lower Winter Lower Tempest All's Well Lower Caliban
Restoration	Watershed Projects	WA-1 thru 13, WN-1 thru 7, WC-1 thru 3, WG-1	Ashland, Neil, Cottonwood and Grouse Creek Watersheds

This alternative would result in the addition of approximately 71 acres of new Beginner to Expert skill level skiing terrain. Constituting an approximate 57 percent increase, the proposed terrain enlargement would combine with 125 acres of existing ski runs to provide approximately 196 acres of total terrain at MASA. In total, ski run development would require approximately 68 acres of tree removal. This tree removal would generate approximately 1,822 thousand board feet of commercial grade timber.

Construction of the proposed ski runs would result in a revised terrain distribution, as shown in Tables II-8 and II-9.

Table II-8. Existing and Proposed Terrain: Acres by Skill Level - Alternative 2

Skill Level	Existing Terrain (surface area acres)	Total Terrain Existing + Proposed (surface area acres)	Change (surface area acres)
Beginner	3.28	3.60	+0.32
Novice	11.00	48.77	+37.77
Low Intermediate	0	7.97	+7.97
Intermediate	13.33	38.01	+24.68
Advanced Intermediate	51.32	41.68	-9.64
Expert	46.18	56.06	+9.88
Total	125.11	196.09	+70.98

Table II-9. Existing and Proposed Terrain: Distribution by Percent of Total - Alternative 2

Skill Level	Existing (percent)	Existing + Proposed (percent)
Beginner	2.62	1.84
Novice	8.79	24.87
Low Intermediate	0	4.06
Intermediate	10.65	19.38
Advanced Intermediate	41.02	21.62
Expert	36.91	28.59

Under Alternative 2, the ski area boundary would allow off-trail skiers to continue down the ridge to a point just above the lower switchback on the 300 Road where it would intersect the west edge of Run 12 at the top of the Upper Meadow area. It would follow the edge of Run 12 to LC-6. From that point, it would extend upward in an easterly direction along the edge of Run 9 and the Skiway Run (Run 18) to its junction with Rodger's Way. At that point, skiers would turn north into the Middle Fork area (see Map IV-8).

Implementation of these projects would be dependent upon an on-going analysis of the priority for each authorized project or group of associated projects (by MAA), and the availability of MAA's development and construction capital.

MAP II-3. Alternative 2 (Proposed Action)

To view the alternative map, click on the following link:

http://www.fs.fed.us/r6/siskiyou/planning/mtashland/feis/v1e-chapter2-map-alt2.pdf

4. ALTERNATIVE 3

a. Function

Alternative 3 is designed to address the Purpose and Need identified in Chapter I, with less resulting consequence in regard to factors associated with the identified Significant Issues. Specifically, Alternative 3 is primarily based on Alternative 2, with modifications that would not develop skiing terrain west of the proposed LC-6 Chairlift and would not develop additional parking except for the Tubing Facility and Bottleneck Widening (MAA would develop some type of shuttle system off of NFSL from Interstate 5 and/or the Rogue Valley). This alternative functions to address the Significant Issues in comparison to Alternative 2, by avoiding direct effects to Engelmann spruce, reducing direct effects to wetlands and Riparian Reserves, reducing effects to water quality, and reducing effects on Mt. Ashland Lupine and Henderson's horkelia. It would also reduce effects associated with the McDonald Peak Inventoried Roadless area over Alternative 2.

This alternative was developed by the Forest Service to be responsive to Purpose and Need and to address (reduce) environmental consequences over Alternative 2, with expansion in the Middle Fork area. Under this alternative, the Forest Service would authorize MAA to implement a variety of facilities improvements. Projects being proposed include: construction of a new chairlift and associated skiing terrain within the western portion (the Middle Fork area) of the SUP area and east of LC-6, additional skier service facilities, a short chairlift in the vicinity of the Base Area to better utilize existing terrain, a snow tubing area, additional parking (Tubing facility only), and necessary supporting infrastructure.

This proposal incorporates proposed design and facilities based on extensive professional study of the existing facility and SUP area, as well as agency and public comment received on the February 2000 DEIS, scoping in 2002, and comments received on the July 2003 DEIS. This proposal also incorporates improvements based on extensive public dialogue and recent developments in the snow sports business (such as the increase in snowboard use, and the advent of terrain parks and tubing areas).

b. Description

Under Forest Service authorization, MAA would construct two chairlifts, one surface lift, and approximately 42 acres of associated new ski run terrain primarily within the western half of the SUP area, including widening of nine existing runs. There would be an additional 2 acres of clearing for lift corridors and staging areas, and approximately 51 acres of gladed skiing terrain. In addition, a 4-acre tubing facility in the southern portion of the SUP area; three guest services buildings, a yurt, additional night lighting; additional maintenance access road segments; additional power, water lines and water storage tank, sewer lines; an additional snow fence, and an increase in parking by 20 spaces. Watershed restoration projects would be implemented, including structural storm water control, and non-structural controls, such as the placement of LWM and SWM. All proposed facilities would be developed within the existing SUP area, with the exception of some of the restoration projects.

Based on the description of components previously described in Section F of this Chapter, the following tables list features that are proposed under Alternative 3. With this and all Action Alternatives, **the existing components and features are also included, as listed by Table II-5,** shown for Alternative 1. In addition, Alternative 3 includes the following proposed expansion components and features, and any changes to the existing features, as noted. Existing and proposed components and features for Alternative 3 are shown on Map II-4.

Table II-10. Proposed Expansion Components and Features - Alternative 3

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Buildings		B-1 B-2a B-2b B-4 B-5 B-8 B-9	Existing Lodge Remodel Ticket Building, Skier Plaza Arrival Services Building Moraine Ski Patrol Building Moraine Toilets South Ridge Tubing Facility Yurt South Ridge Tubing Facility Toilets
Parking		P-1.1 P-3	Bottleneck Widening Only South Ridge Tubing Facility Parking
Lifts	Chairlifts	LC-6 LC-14	Middle Fork Lift Poma Lift
	Surface Lifts	LS-12	South Ridge Tubing Lift
Infrastructure	Roads	IR-1 IR-5	Falstaff Summer Work Road South Ridge Tubing Facility Road
	Power	IP-1 IP-3 IP-5 IP-8	Moraine Ski Patrol Hut & Toilets/LC-6 Lift South Ridge Tubing Facility Poma Lift Base Area Guest Services Buildings
	Potable Water and Wastewater	IW-3 IW-4	Base Area Guest Services Buildings South Ridge Tubing Facility
	Night Lighting	IN-1.1 IN-2	Bottom South Ridge Tubing Facility
	Emergency Egress	R-18	Skiway
	Miscellaneous	IM-1	Circe Snow Fence
Snowplay		S-1	South Ridge Tubing Facility
Runs	New Runs	R-9 R-10 R-10A R-16 R-16A R-17 R-18 R-19 R-20 R-20A	Low Intermediate/Novice Intermediate/Expert Intermediate Novice Intermediate Advanced Intermediate Novice Intermediate Low Intermediate Novice
	Widening of Current Runs	R-23 R-24 R-25 R-26 R-27 R-28 R-29 R-30 R-31	Sonnet/Blossom Lower Juliet Romeo Lower Winter Lower Tempest All's Well Lower Caliban Rodger's Way (Lower) Betwixt
	Glading	R-18G R-32G R-33G R-34G R-35G	Between Roger's Way and R-18 Between Windsor and Winter Between Ariel and Pistol Between Pistol and Dream West side of Caliban

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Restoration	Watershed Projects	WA-1 thru 13, WN-1 thru 7, WC-1 thru 3, WG-1	Ashland, Neil, Cottonwood and Grouse Creek Watersheds

This alternative would result in the addition of approximately 42 acres of new Beginner to Expert skill level skiing terrain. In addition, 51 acres of terrain would be gladed. Not including glading, this constitutes an approximately 34 percent increase in terrain and would combine with 125 acres of existing ski runs to provide approximately 167 acres of total terrain at MASA. In total, ski run development would require approximately 42 acres of tree removal. This tree removal would generate approximately 1,251 thousand board feet of commercial grade timber.

Construction of the proposed ski runs would result in a revised terrain distribution, as shown in Tables II-11 and II-12. Note: numbers in table below do not include glading.

Table II-11. Existing and Proposed Terrain: Acres by Skill Level - Alternative 3

Skill Level	Existing (surface area acres)	Total Terrain Existing + Proposed (surface area acres)	Change (surface area acres)
Beginner	3.28	3.34	+0.06
Novice	11.00	31.66	+20.66
Low Intermediate	0	8.79	+8.79
Intermediate	13.33	34.41	+21.08
Advanced Intermediate	51.32	40.48	-10.84
Expert	46.18	48.40	+2.22
Total	125.11	167.07	+41.87

Table II-12. Existing and Proposed Terrain Distribution by Percent of Total - Alternative 3

Skill Level	Existing (percent)	Existing + Proposed (percent)
Beginner	2.62	2.00
Novice	8.79	18.59
Low Intermediate	0	5.26
Intermediate	10.65	20.60
Advanced Intermediate	41.02	24.23
Expert	36.91	28.97

Since MASA opened in 1963, the ski area boundary has extended down the West Ridge within the SUP permit boundary to a point just above the upper switchback on Forest Road 300. This alternative would retain that ski area boundary (see Map III-13) along the West Ridge, then turn north and generally follow the subsidiary ridge where Run 12 is located in Alternatives 2 and 6.

Implementation of these projects would be dependent upon an on-going analysis of the priority for each authorized project or group of associated projects (by MAA), and the availability of MAA's development and construction capital.

MAP II-4. Alternative 3

To view the alternative map, click on the following link:

http://www.fs.fed.us/r6/siskiyou/planning/mtashland/feis/v1e-chapter2-map-alt3.pdf

5. ALTERNATIVE 4

a. Function

Alternative 4 is designed to address the Purpose and Need identified in Chapter I, with less resulting consequence with regard to some of the identified Significant Issues. Specifically, Alternative 4 would develop skiing terrain at this time in the eastern portion of the SUP, in and around the "Knoll" area. Development in this area was analyzed as part of the Master Plan and was programmatically authorized in the 1991 ROD/FEIS. This alternative functions to address the Significant Issues by avoiding effects to Engelmann spruce, reducing effects to wetlands and Riparian Reserves, reducing effects to water quality, and avoiding effects on Mt. Ashland Lupine and Henderson's horkelia.

This alternative was developed by the Forest Service to be responsive to Purpose and Need and to address (reduce) environmental consequences over Alternative 2. Under this alternative, the Forest Service would authorize MAA to implement a variety of facilities improvements primarily in the Knoll area, instead of in the Middle Fork area.

This proposal incorporates proposed design and facilities based on extensive professional study of the existing facility and SUP area, as well as agency and public comment received on the February 2000 DEIS, scoping in 2002, and public comment on the July 2003 DEIS. This proposal also incorporates improvements based on extensive public dialogue and recent developments in the snow sports business

b. Description

Under Forest Service authorization, MAA would construct five chairlifts, and approximately 66 acres of associated new ski run terrain primarily within the eastern portion of the SUP area, including widening of existing runs. In addition, there would be approximately 7 acres of clearing for lift corridors, staging areas, and emergency egress. Additional facilities include a Knoll area lodge, a vehicle/lift shop, maintenance access road segments, additional power, water lines and storage tanks, sewer lines; an additional snow fence, and a new parking lot providing 328 spaces. Watershed restoration projects would be implemented, including structural storm water control, and non-structural controls, such as the placement of LWM and SWM.

Based on the description of components previously described in Section F of this Chapter, the following tables list features that are proposed under Alternative 4. With this and all Action Alternatives, **the existing components and features are also included, as listed by Table II-5**, shown for Alternative 1. In addition, Alternative 4 includes the following proposed expansion components and features, and any changes to the existing features, as noted. Existing and proposed components and features for Alternative 4 are shown on Map II-5.

Table II-13. Proposed Expansion Components and Features - Alternative 4

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Buildings		B-6 B-7 B-10	Knoll Lodge Knoll Ski Patrol Building Knoll Vehicle/Lift Shop
Parking		P-2	Knoll Parking
Lifts	Chairlifts	LC-7 LC-8 LC-9 LC-10 LC-11	East Fork Lift Beginner Lift East Ridge Lift Novice Access Lift Interconnect Lift
Infrastructure	Roads	IR-2 IR-3 IR-4	Access Road Center Turn Lane Bull Gap Road Reconstruction Knoll Peak Road
	Power	IP-2	Knoll Facilities and Lifts
	Potable Water and Wastewater	IW-2	Knoll Lodge
	Helispots	IH-2	Bottom Terminal of LC-7
	Emergency Egress	IE-2	LC-7 to Bull Gap Road
	Miscellaneous	IM-1	Circe Snow Fence
Runs	New Runs	R-1 R-1A R-1B R-2 R-3 R-4 R-5 R-6 R-7 R-7A R-7B R-8 R-8A R-8B	Novice Novice Novice Low Intermediate Intermediate Advanced Intermediate Intermediate Intermediate Expert Novice Intermediate Beginner Novice Intermediate
	Widening of Current Runs	R-23 R-24 R-25 R-26 R-28	Sonnet/Blossom Lower Juliet Romeo Lower Winter All's Well
Restoration	Watershed Projects	WA-1 thru 13, WN-1, WN-3 thru 7, WC-1 thru WC-3, WG-1	Ashland, Neil, Cottonwood and Grouse Creek Watersheds

This alternative would result in the addition of approximately 66 acres of new beginner to expert skill level skiing terrain. Constituting an approximately 52 percent increase, the proposed terrain enlargement would combine with 125 acres of existing ski runs to provide approximately 191 acres of total terrain at MASA. In total, ski run development would require approximately 57 acres of tree removal. This tree removal would generate approximately 1,845 thousand board feet of commercial grade timber.

Construction of the proposed ski runs would result in a revised terrain distribution, as shown in Tables II-14 and II-15.

Table II-14. Existing and Proposed Terrain: Acres by Skill Level - Alternative 4

Skill Level	Existing Terrain (surface area acres)	Total Terrain Existing + Proposed (surface area acres)	Change (surface area acres)
Beginner	3.28	7.42	+4.14
Novice	11.00	33.83	+22.83
Low Intermediate	0	3.16	+3.16
Intermediate	13.33	36.75	+23.42
Advanced Intermediate	51.32	59.51	+8.19
Expert	46.18	50.03	+3.85
Total	125.11	190.70	+65.59

Table II-15. Existing and Proposed Terrain Distribution by Percent of Total - Alternative 4

Skill Level	Existing (percent)	Existing + Proposed (percent)
Beginner	2.64	3.89
Novice	8.79	17.74
Low Intermediate	0	1.66
Intermediate	10.65	19.27
Advanced Intermediate	41.02	31.21
Expert	36.91	26.24

Under Alternative 4, the current ski area boundary would remain the same within the current ski area portion of this alternative. From the current Lodge Run area, the boundary would extend down the lower edge of the Bull Gap Road to Run 7. From that point on it would follow the outside edge of Runs 7 and 4 to the Emergency Egress route (IE-2) where it would rejoin a reconstructed Bull Gap Road. From that point, the boundary would follow the road down to Run 3 and then up Run 1 to the Knoll Summit. It would then follow the south edge of LC-10 to the Knoll parking lot (see Map IV-8).

Implementation of these projects would be dependent upon an on-going analysis of the priority for each authorized project or group of associated projects (by MAA), and the availability of MAA's development and construction capital.

MAP II-5. Alternative 4

To view the alternative map, click on the following link:

http://www.fs.fed.us/r6/siskiyou/planning/mtashland/feis/v1e-chapter2-map-alt4.pdf

6. ALTERNATIVE 5

a. Function

Alternative 5 is designed to address the Needs and Purposes identified in Chapter I, with less adverse consequences with regard to some of the identified Significant Issues. Specifically, Alternative 5 would develop skiing terrain primarily within the currently developed portions of the SUP area. Many of the components being proposed under this alternative for development in this area were not specifically analyzed in the 1991 ROD/FEIS. This alternative is primarily designed to be responsive to public comments received on the 2000 Draft EIS, scoping in 2002, and public comment on the July 2003 DEIS. While many people commented on development of the current ski area, this alternative also functions to address the Significant Issues by avoiding effects to Engelmann spruce, reducing effects to wetlands and Riparian Reserves, reducing effects to water quality, reducing the effects on Mt. Ashland Lupine and Henderson's horkelia, and avoiding additional effects on the McDonald Peak Inventoried Roadless Area, as compared to Alternative 2.

This alternative was developed by the Forest Service to be responsive to Purpose and Need and to address (reduce) environmental consequences of other Action Alternatives that propose development in currently undeveloped areas. Under this alternative, the Forest Service would authorize MAA to implement a variety of facilities improvements primarily in the Current Facility area, instead of in the Middle Fork or the Knoll area.

This proposal incorporates proposed design and facilities based on extensive professional study of the existing facility and SUP area, as well as agency and public comment received on the February 2000 DEIS, scoping in 2002, and public comment on the July 2003 DEIS. This proposal also incorporates improvements based on extensive public dialogue and recent developments in the snow sports business (such as the increase in snowboard use, and the advent of terrain parks and tubing areas).

b. Description

Under Forest Service authorization, MAA would construct three chairlifts (including replacement of Ariel), two surface lifts, and approximately 20 acres of associated new ski run terrain within the central portion of the SUP area, including widening of eight existing runs. There would be approximately 2 acres of clearing for lift corridors and staging areas, an additional 44 acres of gladed terrain. In addition, this alternative includes a 4-acre tubing facility in the southern portion of the SUP area; three guest services buildings, a yurt, additional night lighting; additional maintenance access road segments; additional power, water lines and storage tanks, sewer lines; an additional snow fence, and an increase in parking by 180 spaces. Watershed restoration projects would be implemented, including structural storm water control, and non-structural controls, such as the placement of LWM and SWM. All proposed facilities would be developed within the existing SUP area, with the exception of some of the restoration projects.

Based on the description of components previously described in Section F of this Chapter, the following tables list features that are proposed under Alternative 5. With this and all Action Alternatives, the **existing components and features are also included, as listed by Table II-5**, shown for Alternative 1. In addition, Alternative 5 includes the following proposed expansion components and features, and any changes to the existing features, as noted. Existing and proposed components and features for Alternative 5 are shown on Map II-6.

Table II-16. Proposed Expansion Components and Features - Alternative 5

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Buildings		B-2a B-2b B-3 B-8 B-9	Ticket Building, Skier Plaza Arrival Services Building Moraine Lodge South Ridge Tubing Facility Yurt South Ridge Tubing Facility Toilets
Parking		P-1.1 P-3	Parking Lot Expansion South Ridge Tubing Facility Parking
Lifts	Chairlifts	LC1.1 LC-5 LC-13	Ariel Replacement North Ridge Windsor to Moraine
	Surface Lifts	LS-12 LS-14	South Ridge Tubing Lift Poma Lift
Infrastructure	Roads	IR-1 IR-5	Falstaff Summer Work Road South Ridge Tubing Facility Road
	Power	IP-1 IP-3 IP-4 IP-5 IP-6 IP-8	Moraine Lodge South Ridge Tubing Facility North Ridge Lift Poma Lift Windsor to Moraine Lift Base Area Guest Services Buildings
	Potable Water and Wastewater	IW-1 IW-3 IW-4	Moraine Lodge Base Area Guest Services Buildings South Ridge Tubing Facility
	Night Lighting	IN-1 IN-2	Bottom, Upper Juliet, Pistol, Dream, Caliban, and Rodger's Way South Ridge Tubing Facility
	Miscellaneous	IM-1	Circe Snow Fence
Snowplay		S-1	South Ridge Tubing Facility
Runs	New Runs	R-16 R-16A R-17 R-20 R-21 R-22	Novice Intermediate Advanced Intermediate Low Intermediate Novice Advanced Intermediate
	Widening of Current Runs	R-23 R-24 R-25 R-26 R-27 R-28 R-29 R-30	Sonnet/Blossom Lower Juliet Romeo Lower Winter Lower Tempest All's Well Lower Caliban Rodger's Way (Upper & Lower)
	Glading	 R-32G R-33G R-34G R-35G R-36G	Between Windsor and Winter Between Ariel and Pistol Between Pistol and Dream West side of Caliban Upper Winter

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Restoration	Watershed Projects	WA-1 thru 13, WN-1 thru 7, WC-1 thru 3, WG-1	Ashland, Neil, Cottonwood and Grouse Creek Watersheds

This alternative would result in the addition of approximately 23 acres of new Beginner to Expert skill level skiing terrain. In addition, 44 acres of terrain would be gladed. Not including glading, this constitutes an approximately 18 percent increase in terrain and would combine with 125 acres of existing ski runs to provide approximately 148 acres of total terrain at MASA. In total, ski run development would require approximately 17 acres of tree removal. This tree removal would generate approximately 391 thousand board feet of commercial grade timber.

Construction of the proposed ski runs would result in a revised terrain distribution, as shown in Tables II-17 and II-18. Note: numbers in table below do not include glading.

Table II-17. Existing and Proposed Terrain Distribution: Acres by Skill Level – Alternative 5

Skill Level	Existing (surface area acres)	Total Terrain Existing + Proposed (surface area acres)	Change (surface area acres)
Beginner	3.28	3.73	+0.45
Novice	11.00	32.38	+21.38
Low Intermediate	0	1.03	+1.03
Intermediate	13.33	20.83	+7.50
Advanced Intermediate	51.32	42.59	-8.73
Expert	46.18	47.15	+0.97
Total	125.11	147.72	22.63

Table II-18. Existing and Proposed Terrain Distribution by Percent of Total - Alternative 5

Skill Level	Existing (percent)	Existing + Proposed (percent)
Beginner	2.62	2.52
Novice	8.79	21.92
Low Intermediate	0	0.70
Intermediate	10.65	14.10
Advanced Intermediate	41.02	28.83
Expert	36.91	31.92

Under Alternative 5, the ski area boundary would remain substantially unchanged except for the area served by LC-5. The Bull Gap Maintenance Road and the Mt Ashland Access Road bound a finger-like extension north of the Radio Facility, and would help orient skiers in case they skied beyond the boundary (see Map IV-8).

Implementation of these projects would be dependent upon an on-going analysis of the priority for each authorized project or group of associated projects (by MAA), and the availability of MAA's development and construction capital.

MAP II-6. Alternative 5

To view the alternative map, click on the following link:

http://www.fs.fed.us/r6/siskiyou/planning/mtashland/feis/v1e-chapter2-map-alt5.pdf

7. ALTERNATIVE 6

a. Function

Alternative 6 is designed to address the Purpose and Need identified in Chapter I, with less consequence in regard to factors associated with the identified Significant Issues. Specifically, Alternative 6 is primarily based on Alternative 2, with environmental modifications that would reduce effects, but would not reduce skiing terrain as much as is proposed under Alternative 3. This alternative functions to address the Significant Issues by reducing effects to Engelmann spruce, reducing effects to wetlands and Riparian Reserves, reducing effects to water quality, and reducing effects on Mt. Ashland Lupine and Henderson's horkelia. It is also designed to provide an adequate range of alternatives considered in detail. Alternative 6 is somewhat of a blending of expansion components being considered within the Middle Fork area, except for parking expansion in the Knoll area.

This alternative was developed by the Forest Service to be responsive to Purpose and Need and to address (reduce) environmental consequences with expansion in the Middle Fork area, over Alternative 2. Under this alternative, the Forest Service would authorize MAA to implement a variety of facilities improvements. Projects being proposed include: construction of a new chairlift and associated skiing terrain within the western portion (the Middle Fork area) of the SUP area, additional skier service facilities, a chairlift providing access to Lower Caliban and Lower Dream as well as the LC-6 pod, a short surface lift in the vicinity of the Base Area to better utilize existing terrain, a snow tubing area, additional parking, and necessary supporting infrastructure.

This proposal incorporates proposed design and facilities based on extensive professional study of the existing facility and SUP area, as well as agency and public comment received on the February 2000 DEIS, scoping in 2002, and public comment on the July 2003 DEIS. This proposal also incorporates improvements based on extensive public dialogue and recent developments in the snow sports business (such as the increase in snowboard use, and the advent of terrain parks and tubing areas).

b. Description

Under Forest Service authorization, MAA would construct two chairlifts, two surface lifts, and approximately 65 acres of associated new ski run terrain primarily within the western half of the SUP area, including widening of six existing runs. There would be approximately 9 acres of clearing for lift corridors, staging areas, and emergency egress. This alternative also includes a 4-acre tubing facility in the southern portion of the SUP area; three guest services buildings, a yurt, additional night lighting; additional maintenance access road segments; additional power, water lines and storage tanks, sewer lines; an additional snow fence, and new parking areas providing 348 spaces. Watershed restoration projects would be implemented, including structural storm water control, and non-structural controls, such as the placement of LWM and SWM. All proposed facilities would be developed within the existing SUP area, with the exception of some of the restoration projects.

Under Alternative 6, the use of an excavator for run clearing (and other excavation work associated with clearing for lifts; lift towers and creek crossings, except where accessible by road) would be restricted to a lightweight, low ground pressure machine (e.g., a "spider"). This relatively light (16,000 pound) excavator can be air lifted in and out of construction sites. Under Alternative 6, the specified crossing of Lower Run 12 (IM-3) would use log footings, as opposed to excavated concrete footings (see component descriptions for IM-2 and IM-3 in Section F, this chapter).

Based on the description of components previously described in Section F of this Chapter, the following tables list features that are proposed under Alternative 6. With this and all Action Alternatives, the **existing components and features are also included, as listed by Table II-5**, shown for Alternative 1. In addition, Alternative 6 includes the following proposed expansion components and features, and any changes to the existing features, as noted. Existing and proposed components/features for Alternative 6 are shown on Map II-7.

Table II-19. Proposed Expansion Components and Features - Alternative 6

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Buildings		B-1	Existing Lodge Remodel
		B-2a	Ticket Building, Skier Plaza
		B-2b	Arrival Services Building
		B-4	Moraine Ski Patrol Building
		B-5	Moraine Toilets
		B-8	South Ridge Tubing Facility Yurt
		B-9	South Ridge Tubing Facility Toilets
Parking		P-2	Knoll Parking
		P-3	South Ridge Tubing Facility Parking
Lifts	Chairlifts	LC-6	Middle Fork Lift
		LC-13	Windsor to Moraine Lift
	Surface Lifts	LS-12	South Ridge Tubing Lift
		LS-14	Poma Lift
Infrastructure	Roads	IR-1	Falstaff Summer Work Road
		IR-2	Access Road Center Turn Lane
		IR-5	South Ridge Tubing Facility Road
	Power	IP-1	Moraine Ski Patrol Hut & Toilets/LC-6 Lift
		IP-3	South Ridge Tubing Facility
		IP-5	Poma Lift
		IP-6	Windsor to Moraine Lift
		IP-8	Base Area Guest Services Buildings
	Potable Water and Wastewater	IW-3	Base Area Guest Services Buildings
		IW-4	South Ridge Tubing Facility
	Night Lighting	IN-1.1	Bottom
		IN-2	South Ridge Tubing Facility
	Helispots	IH-1	Bottom Terminal of LC-6
	Emergency Egress	IE-1	LC-6 to Lower access road
	Miscellaneous	IM-1	Circe Snow Fence
		IM-3	Lower Run 12 Creek and Wetland Crossing
Snowplay		S-1	South Ridge Tubing Facility

COMPONENT CATEGORY		REFERENCE	DESCRIPTION
Runs	New Runs	R-9 R-10 R-10A R-12 R-12B R-13 R-14 R-15 R-16 R-16A R-17 R-19 R-20	Low Intermediate/Novice Intermediate/Expert Intermediate Novice Intermediate Novice/Intermediate Intermediate Expert Novice Intermediate Advanced Intermediate Intermediate Low Intermediate
	Widening of Current Runs	R-23 R-24 R-25 R-26 R-27 R-29 R-30	Sonnet/Blossom Lower Juliet Romeo Lower Winter Lower Tempest Lower Caliban Rodger's Way (Lower)
Restoration	Watershed Projects	WA-1 thru 13, WN-1 thru 7, WC-1 thru 3, WG-1	Ashland, Neil, Cottonwood and Grouse Creek Watersheds

This alternative would result in the addition of approximately 65 acres of new Beginner to Expert skill level skiing terrain. Constituting an approximately 52 percent increase, the proposed terrain enlargement would combine with 125 acres of existing ski runs to provide approximately 190 acres of total terrain at MASA. In total, ski run development would require approximately 65 acres of tree removal. This tree removal would generate approximately 1,757 thousand board feet of commercial grade timber.

Construction of the proposed ski runs would result in a revised terrain distribution, as shown in Tables II-20 and II-21.

Table II-20. Existing and Proposed Terrain: Acres by Skill Level - Alternative 6

Skill Level	Existing (surface area acres)	Total Terrain Existing + Proposed (surface area acres)	Change (surface area acres)
Beginner	3.28	3.34	+0.06
Novice	11.00	41.83	+30.83
Low Intermediate	0	8.81	+8.81
Intermediate	13.33	42.92	+29.59
Advanced Intermediate	51.32	41.67	-9.65
Expert	46.18	51.52	+5.34
Total	125.11	190.08	+64.97

Table II-21. Existing and Proposed Terrain Distribution by Percent of Total - Alternative 6

Skill Level	Existing (percent)	Existing + Proposed (percent)
Beginner	2.62	1.76
Novice	8.79	22.01
Low Intermediate	0	4.63
Intermediate	10.65	22.58
Advanced Intermediate	41.02	21.92
Expert	36.91	27.10

Under Alternative 6, the current roped ski area boundary would extend down the West Ridge to a point above the upper switchback on Road 300 (see Map III-13). It would turn north and follow the west edge of Run 15 where it would intersect the west edge of Run 12 at the top of the Upper Meadow area. It would follow the edge of Run 12 to LC-6. From that point, it would extend upward in an easterly direction along the edge of Run 9 and the Emergency Egress route (IE-1) to its junction with Rodger's Way (see Map IV-8).

Implementation of these projects would be dependent upon an on-going analysis of the priority for each authorized project or group of associated projects (by MAA), and the availability of MAA's development and construction capital.

MAP II-7. Alternative 6

To view the alternative map, click on the following link:

http://www.fs.fed.us/r6/siskiyou/planning/mtashland/feis/v1e-chapter2-map-alt6.pdf

8. Mitigation Measures Common to the Action Alternatives

This section discusses Mitigation Measures and management constraints that are applicable to all alternatives considered which propose "action" in the form of ski area expansion and development (**Alternatives 2 through 6**).

The Forest Service is required by the Council on Environmental Quality (CEQ) Regulations for implementing the procedural provisions of NEPA to identify all relevant, reasonable mitigation measures that could improve the project. Mitigation, as defined in the CEQ Regulations (40 CFR 1508.20) includes:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.
- Rectifying the impact by repairing, rehabilitating or restoring the affected environment.

Many potential effects have been eliminated or lessened through the design process (see Section D, 1 of this Chapter). Mitigation Measures identified herein are a part of all Action Alternatives and "will" (grammatical tense used in this Section) be enacted if selected and identified in a forthcoming ROD, if ski area expansion activities are authorized.

Note that some measures will be enacted only if certain future conditions exist that would require them (e.g., if a new nesting pair of spotted owls is discovered within 0.25 miles of a development area). Other mitigation (e.g., undulation of edges of ski run clearing) will be done to a feasible extent, with the precise extent of application of the requirement being unknown prior to implementation.

Proposed Mitigation Measures and Standard Operating Procedures designed to avoid or minimize adverse effects (or implement beneficial effects) for the Action Alternatives are identified by resource topic area, and in some cases, by the specific component or sub-component project within the proposed activity. These measures are specific to implementation of actions considered within this Final EIS. Standards and Guidelines and mitigation measures identified in the RRNF and KNF LRMPs are also incorporated by reference as required measures.

The effectiveness and feasibility of the Mitigation Measures are assessed based upon the following rating system. These ratings are applied to all Mitigation Measures, except the Standard Operating Procedures identified below. Each measure identifies the code for effectiveness and feasibility at the end of the statement or paragraph. Ratings were determined by agency resource specialists based on current scientific research and/or professional experience.

Figure II-1. Effectiveness and Feasibility of Mitigation Measures

EFFECTIVENESS (E)

E1	Unknown or experimental; little or no experience in applying this measure. May not substantially reduce effect.
E2	Usually reduces significant effects; often done in this situation.
E3	Almost always reduces effects substantially; almost always done in this situation.

FEASIBILITY (F)

F1	Unknown or experimental; little or no experience in applying this measure. May be technically difficult or very costly. May be legally or socially difficult.
F2	Technically probable; costs moderate to high in comparison to other options. Legally or socially acceptable with reservations.
F3	Technically easy; costs low in comparison to other options. Legally or socially expected.

a. Standard Operating Procedures

Introduction

A number of Mitigation Measures are basically Standard Operating Procedures (SOP) that would be employed by the Forest Service and those implementing authorized actions, pursuant to Federal and State regulations, and Forest Service Manual direction. These procedures would apply irrespective of the element or aspect of ski area expansion.

(**SOP-1**) Prepare and submit a phased development plan (annual operating plan or Summer Work Plan) for Forest Service approval prior to implementation of any authorized expansion component project. This plan will detail specifically how and when development of authorized activities will occur. The Mitigation Measures selected (identified in the ROD) and listed herein will be made a part of this plan. Implementation plans will be periodically updated to reflect changing conditions. **(E3, F3**)

(**SOP-2**) Construction documents will be prepared and stamped by a professional engineer, as required by law or regulation, and approved by the Forest Service. **(E3, F3)**

(**SOP-3**) For each project, an Implementation Plan will be prepared with a list of site specific Mitigation Measures (including those from this section and others as deemed appropriate). This plan will be approved by the Forest Service prior to implementation of any project. Construction will not begin until authorized by the Forest Service and approved by all applicable Federal, State and local agencies. **(E3, F3)**

(**SOP-4**) Comply with all Terms and Conditions and standards for protection of Threatened, Endangered and Sensitive species, in compliance with the Endangered Species Act. **(E3, F3).**

(SOP-5) Comply with all requirements and standards of the Clean Water Act. Comply with all requirements and standards of the Clean Air Act. **(E3, F3)**

(**SOP-6**) Pursuant to the American Disabilities Act of 1991, design and construct new and remodeled facilities on NFSL to meet the needs of the disabled. **(E3, F3)**

(**SOP-7**) Construct all structures to standards of the Uniform Building Code, National Plumbing Code, National Electric Code, and/or other recognized standards. **(E3, F3)**

(SOP-8) Construct all ski lifts and associated infrastructure to American National Safety (ANSI) standards. **(E3, F3).**

(SOP-9) Obtain all Federal, State, and local permits as required. **(E3, F3).**

(SOP-10) Provide for public safety at all times. **(E3, F3).**

b. Hydrology, Soils and Geology

Background

Mt. Ashland Association (MAA) has been successful in mitigating soil displacement and maintaining or enhancing soil fertility with previous actions. Areas opened for lifts and ski runs on lower Comer Lift utilized logs/limbs anchored with tree stumps across steep slopes to secure soils and to add woody material. Other mitigation examples occur on Dream, Winter, and Pistol Ski Runs where small trees, rocks and limbs were placed on contour to the ski runs that were widened or where obstacles were removed in the past ten years.

Erosion control practices applied by MAA along intermittent stream channels and gullies have included log and rock check dams, erosion control blankets, and vegetation planting. These practices have been successful in reducing soil movement in and along stream channels within the current ski area.

Effective mitigation is started during this EIS planning phase, is concentrated upon during the implementation and construction phase, and is continued with ongoing maintenance and attention to any problematic sites. To effectively mitigate for potential effects to water quality it is important to begin during the design phase of each component project. The erodible nature of the native granitic soils requires close oversight and monitoring of the location and construction methods associated with the proposed activities, in order to avoid and minimize effects to the environment and maintain high water quality.

Water Quality Best Management Practices

Best Management Practices (BMPs) as identified in *General Water Quality Best Management Practices* (USDA PNW 1988) contain mitigation measures that will be used to protect watershed conditions and water quality. All of these measures are rated **(E3, F3), in terms of effectiveness and feasibility.** While the terminology in these BMPs is dated (for example, Streamside Management Unit now falls under Riparian Reserve), they are still considered effective under today's management direction. Further BMP guidelines as detailed in *Ski Area BMPs - Guidelines For Planning, Erosion Control and Reclamation,* would also be followed where applicable (USDA Wasatch-Cache NF 2001g).

Specific Water Quality BMPs determined to be applicable to ski area expansion activities identified in the 1988 publication (identified above and incorporated by reference to this FEIS) are made required mitigation. These Mitigation Measures (including the clearing for ski runs and lifts which is similar to a timber harvest action, and maintenance road construction or reconstruction) include:

TIMBER HARVEST (T)

T-5 Limiting the Operating Period of Timber Sale Activities
T-7 Streamside Management Unit Designation
T-8 Streamcourse Protection
T-10 Log Landing Location
T-12 Suspended Log Yarding in Timber Harvesting
T-13 Erosion Prevention and Control Measures During Timber Sale Operations
T-14 Revegetation of Areas Disturbed by Harvest Activities
T-18 Erosion Control Structure Maintenance.
T-21 Servicing and Refueling Equipment

ROAD SYSTEMS (R)

R-1 General Guidelines for the Location and Design of Roads
R-2 Erosion Control Plan
R-3 Timing of Construction Activities
R-5 Road Slope and Waste Area Stabilization (Preventive)
R-9 Timely Erosion Control Measures on Incomplete Roads and Stream Crossing Projects
R-18 Maintenance of Roads

WATERSHED MANAGEMENT (W)

W-1 Watershed Restoration
W-3 Protection of Wetlands
W-4 Oil and Hazardous Substance Spill Contingency Plan and Spill Prevention Control and Countermeasures Plan
W-6 Control of Activities Under Special Use Permit
W-7 Water Quality Monitoring
W-9 Surface Erosion Control at Facility Sites

RECREATION (REC)

REC-1 Provide Safe Drinking Waters Supplies
REC-2 Documentation of Potable Water Supplies
REC-3 Management of Sanitation Facilities
REC-5 Assuring Proper Sanitation and Water Supplies for Special Use Permit Facilities

For actions applicable to the Klamath National Forest, BMP guidelines are found in Appendix D of the LRMP. For a more complete discussion of the actual practices, refer to the *Water Quality Management for National Forest Systems Lands in California*, 1979. This document and the applicable practices they prescribe are incorporated by reference and are part of Standard Operating Procedures on the Klamath NF portions of expansion activities.

Introduction

The following Mitigation Measures are common to all Action Alternatives and are designed to reduce surface erosion, sedimentation rates, and the risk for landslides, protect water quality, and maintain or enhance site/soil productivity.

Revegetation is one of the primary goals in minimizing erosion of disturbed sites. The subalpine environment at Mt. Ashland requires diligent care and attention for successful revegetation. It should be recognized that vegetation does not currently cover all of the ground surface, even where undisturbed. Within the SUP area, not all revegetation efforts will be immediately successful and 100% vegetation cover is not expected.

It is expected that soils will be stabilized that are prone to erosion or frost processes, to assist vegetation in gaining a foothold for vigorous growth. A number of erosion control measures are used to stabilize disturbed sites so that revegetation can have a greater likelihood of success. However, some erosion control methods such as rock blankets and rock-lined drain dips, and chipping and slash placement provide immediate protection without reliance on establishment of new vegetation.

Erosion Mitigation Measures are designed to perform a variety of tasks. One technique is to prevent the disturbed site from being exposed to the weathering and erosive forces of water and ice. Short-term stockpiling of topsoil and later re-placement over areas where topsoil has been removed is a mitigation that can accelerate site recovery. This can be further enhanced with the use of stabilizing erosion mulches or fabrics. These methods include the use of geotextile fabric in concert with rock blanketing or armoring of exposed slopes to prevent the direct erosive forces of running water from dislodging and carrying soil particles off site. Permanent and temporary styles of erosion control blankets work in a similar fashion. The blankets are manufactured with straw, coconut fibers, or synthetic fibers. Designing with erosion control blankets incorporates revegetation into the performance of the materials.

Other erosion control methods focus on slowing the velocity of runoff to prevent it from picking up soil particles and/or to cause the water to drop its sediment load. These include techniques such as water bars, drain dips, silt fences, straw bales, herringbone placement of logs on the ground, mulches, and lop-and-scatter treatments composed of slash generated during tree clearing. Some temporary erosion control measures are designed to function in or adjacent to a waterway to filter out or trap sediment. These include products such as silt fences placed down slope of the disturbance site, and sediment trap blankets that can be placed into the stream.

Proper construction methods are effective in providing for stability and erosion resistance to earthwork. Compaction of soil and rock associated with cut and fill slope construction performs a number of functions. Well compacted fills have higher stability and strength, lower water transmission, and higher resistance to erosion and frost effects. Coordination and inspection by Forest Service specialists experienced with construction practices provides additional control of construction activities, and is effective in minimizing adverse environmental effects.

As noted previously in this Chapter, optional methods of timber removal such as "over snow" clearing could occur, if authorized by the Forest Service, and if resource protection objectives are met (including protection of nesting wildlife species). Other methodology (e.g., use of low ground pressure tree shears to fall and bunch timber for helicopter turns) similarly could be authorized if resource protection objectives can be met.

Prior to Site Disturbance:

Erosion control plans, in concert with revegetation plans, and required permits will be submitted by MASA for Forest Service review and approval. Construction contract drawings, specifications and clauses will provide details of how, when and where Mitigation Measures are to be installed and maintained. Quality assurance plans will be required to ensure compliance with approved plans. Construction supervision by the contractor, with Forest Service inspections will be required. Sites with planned disturbances will be located on the ground, with the clearing and/or construction limits marked. Any required filtering mitigation such as silt fences, wattles, or straw bale systems will be installed prior to clearing. Develop revegetation plans that includes production of native seed and seedlings to be available for construction.

During Construction:

Utilize on-site logs and slash, where appropriate, for filter material, soil cover, water bars. Minimize clearing and soil disturbance. Provide for proper drainage to prevent ponding or concentrated overland storm flow over unprotected exposed soil slope. Monitor the local weather forecast for predicted storm events. Wherever practical, place temporary or permanent soil cover as construction proceeds. Install prescribed revegetation and erosion control measures.

After Construction:

Monitor the installations. Foster natural and cultivated revegetation of disturbed soils. Prior to the onset of fall rains, perform a site review to inventory and attend to any locations in need of additional erosion control efforts. During the spring melt, inspect the locations of concentrated runoff and assess the performance of erosion control installations. Provide for maintenance of existing installations. At sites where the prescribed erosion control measures are shown to be less effective than anticipated, install and maintain additional erosion control materials appropriate for the site conditions. Implement revegetation plan.

Specific Mitigation Measures

The following identifies more specific erosion control (EC) requirements for ski area construction activities that may be authorized by the Forest Service with a forthcoming ROD:

(EC-1) Construction/reconstruction of road segments, Runs 8, 12, 18, and Sonnet re-contouring, parking lots, and buildings will occur during dry weather conditions. (**E3, F3**)

(EC-2) Operations may occur outside of dry weather conditions, however, certain requirements must be met in order to have operations proceed during periods of wet weather. Compliance with Best Management Practices (BMPs) by MAA is necessary to meet water quality requirements, as agreed to between the State of Oregon and the Forest Service.

The following specific criteria are provided as standards for operating during wet weather conditions (**E3, F3)**:

- Operations will be diligently monitored by MAA and the Forest Service to detect changes that can occur during wet weather conditions. If detrimental effects to the transportation system, water quality, or soil resources are encountered by either party, immediate notification of designated personnel by either MAA, or the Forest Service will occur. The Forest Service will work together with MAA to select or develop actions to be implemented by MAA necessary to alleviate these effects.

- BMP guidelines dictate that no contaminant will flow into any stream courses from any facility used by MAA. Monitoring will occur.

- Mitigation measures (BMPs) will be implemented to prevent accelerated sedimentation to streams.

- On maintenance roads, snow will be removed without disturbing the road surface, cut bank, fill slope, or drainage structures. No soil should be intermixed with the side cast snow during plowing; at least 2 inches of snow will remain on the road surface after snow plowing.

- Frozen roads may be used if they support the weight of vehicles to be driven on it. If any part of the active road or work area thaws and mitigation such as rocking cannot be implemented to ensure protection of water quality, the road will not be used.

- After a precipitation event or at the beginning of operations following the wet season, it will be necessary to determine when conditions are dry enough for construction activities to resume. Local variations in soil type, hydro-geomorphology, and road composition will result in certain areas or road segments drying sooner than others. Therefore, discretion is required and universal determinations can rarely be made. In general, if the roadway or work area can support vehicles without causing rutting, soil displacement, damage to drainage structures, and with no sediment delivery to streams, it can be used.

(**EC-3**) Required road work will be accomplished by October 15 or prior to the onset of the wet season as determined by a Forest Service Hydrologist, Geologist, or Soil Scientist (**E2, F3**):

- Drainage structures and erosion/sediment prevention structures will be in place and functioning.

- Roads will be properly graded and ditched or out-sloped; saturated roads will not be graded.

(**EC-4**) Utilize low effect techniques to perform ground-disturbing activities. Use hand-operated equipment when feasible. Use helicopters to remove large trees that will not be used for mitigation needs. (**E3, F3**)

(EC-5) Road crossings and existing utility line trenched crossings of streams will be avoided where possible. Unavoidable stream crossings will be oriented perpendicular to the stream channel. If construction equipment must cross a channel, it will occur in an area that minimizes disturbance to the stream bed and banks. A temporary platform will be created to cross the channel, if necessary. The Forest Service will approve all stream crossing locations and proposed methods of crossing, prior to construction, and monitor. (**E2, F2)**

(EC-6) An Erosion Control Plan will be implemented as part of the construction documents. The plan will provide site-specific guidelines for erosion control, monitoring and an implementation schedule of approved projects. The plan will be reviewed and approved by the Forest Service. A maximum area of disturbance (that is, area of exposed and potentially erodible soil) will be established for any one operating season. Evidence of successful revegetation and/or other erosion control methods will be reviewed by the Forest Service prior to approval of additional ground-disturbing activities. (**E3, F3)**

(EC-7) All Action Alternatives will include an approved Stormwater Management Plan. This plan, which varies by EIS alternative in the location of specific facilities, will maintain or improve water quality, sediment retention, and in-stream flows relative to the existing condition. Concentrations of Total Suspended Solids (TSS) and petroleum hydrocarbons will be maintained or reduced, and sediment trap efficiency will be maintained or increased. Facilities will be designed to reduce instantaneous peak flows discharged from parking lots. This plan will be finalized prior to and at the time of implementation. **(E3, F3)**

Ski Runs and Lifts

Numerous alternatives to ski run locations have been assessed in the field and on planning maps to avoid ground disturbance, particularly adjacent to wetlands and waterways. The majority of ski runs have been located on stable ridges and spurs. Where slope stability was considered a potential hazard, detailed computer analysis was performed to model current and expected future conditions.

Where runs cross wetlands or meadows, they do so for short distances. Ski runs will be cleared of trees and high brush only, while maintaining the greatest possible amount of ground vegetation in an undisturbed state. Tree stumps will be left at a height that is adequate to retain logs left on the slopes. Logs left on the slopes are intended to retard soil movement and to break up possible runoff. Tree tops and limbs will be scattered over the ground for erosion control. Where concentrations of slash are excess to erosion control needs, localized hand piling and burning of slash may occur (see Section G, 8, this Chapter for specifications).

Where cut and fill excavation occurs (surface lifts and some of the runs) additional erosion control measures are planned. They may include the use of rock blankets, drain dips, revegetation, logging slash placement, contouring of logs at the toe of fill slopes, chipping, and erosion control blankets. Specific Mitigation Measures for ski runs and lifts (R&L) are as follows:

(R&L-1) A Forest Service Hydrologist and/or Geologist will provide oversight for the placement of logs and implementation of Mitigation Measures. (**E3, F3**)

(R&L-2) Logs, limbs, and stumps will be left on site for erosion control along steep slopes (50 to 65%) of Runs 10, 11, and 15. Trees with diameters of approximately 12 to 15 inches and smaller, will be anchored behind the stumps, dug at least four inches into the soils, and placed perpendicular to slopes to catch any sediment moving down slope. Limbs and logs, eight inches in diameter or smaller, will be utilized and placed perpendicular and/or herringbone along steep slopes. Stumps will be left at least 10 inches above the ground surface to retain trees placed behind them and sediment that may be transported on slopes above. (**E3, F3**)

(R&L-3) Run 11 crosses a 60-foot long section of an alder glade. The width of the run is approximately 60 feet at this location. Three to four logs (12 to 15 inches diameter) will be placed into the glade to assist in recruitment of woody material currently found at the site. To minimize down slope movement of surface soils toward the glade, 12 to 15 inch diameter, and smaller logs will be placed perpendicular and/or herringbone up-slope from this crossing. (**E3, F3**)

(R&L-4) Keep all mechanized equipment out of wet areas and wetlands, except in designated work areas (such as Run 12 creek crossings). (**E2, F3**)

Run 18 (Skiway)

In addition to the use of erosion control methods described for ski runs, additional efforts are anticipated for Run 18.

(R&L-5) The crossing of Pumphouse Creek will consist of stable, coarse rock that is not subject to erosion. To prevent runoff from traveling for any great distance along the Skiway Run, the run will be out sloped 5-10% to shed the water quickly. Drain dips will be placed at frequent locations to divert runoff from the run. These dips will be reinforced with coarse rock along the base of the dips and on the fill slopes below the dip outlets. Seeding and mulching may be required to accelerate revegetation of the disturbed slopes. Frequent monitoring and maintenance will occur to ensure that the anticipated level of erosion control is being achieved. (**E3, F2**)

(R&L-6) Dips will be located to prevent directing water from the Run 18 into landslide Hazard Zones 1 and 2, and areas of existing surface erosion below or along Run 18. (**E3, F3**)

Lift Terminals and Towers

All cut and fill slopes at the terminals will be required to have permanent erosion control measures such as rock blanketing, chipping, or other approved methods. Revegetation and erosion protection for other disturbed slopes will be implemented. Experience with the installation of the lower terminal for Comer Chairlift (located within 100 feet of the East Fork of the East Fork of Ashland Creek) revealed that such Mitigation Measures were very effective in minimizing sediment delivery to the surface waters.

(R&L-7) At the lower LC-6 terminal, additional erosion control methods during construction will be required. These may include installation of silt fences and/or straw bales between the construction limits and the stream banks, installation of near stream and/or in-stream sediment traps, and increased quality assurance inspection of construction. Long term erosion control methods such as the use of logs and clearing slash, revegetation, geotextiles, rock blanketing of cut and fill slopes, and permanent erosion control blankets will be required. (**E3, F3**)

(R&L-8) To reduce the potential for sediment delivery to streams, lift towers will be located to maximize their distance from active stream systems. To minimize ground disturbance and vegetation removal, construction materials will be brought in by helicopter. The excavated materials from the tower footings will be smoothed and graded by hand tools followed by revegetation and other erosion control methods, such as covering disturbed soils with rock blankets, geotextile material, and logging slash. To prevent off-site movement of soils from a possible tower located near the 6,700 foot elevation, removal of the excavated material by helicopter may be required. (**E3, F2**)

Lower Wetlands Ski Run and Bridge Crossing

A variety of ski run locations and wetland crossing alternatives were analyzed. A team of engineers and earth scientists were contracted by MAA to delineate the wetlands, identify potential effects and propose alternatives for crossing the lowermost wetlands and the Middle Fork of the East Fork of Ashland Creek.

The proposed design has the ski runs skirting the western edge of the wetlands and crossing the creek with a single bridge. As a result, the run crosses the creek where it is within well-defined banks. Potential effects and crossing distances to the wetland have been reduced by this layout. The design and mitigation efforts are anticipated to greatly reduce the potential for sedimentation to East Fork of Ashland Creek.

(R&L-9) As with the construction of the lower terminal, silt fencing and straw bales will be required between the excavation for bridge footings and the creek. A construction platform built from felled logs may be used to the extent operationally feasible to support the excavator and minimize effects to the soils. (**E3, F2**)

(R&L-10) A Forest Service Hydrologist or Geologist will provide oversight of construction and mitigation of the wetland crossing to ensure maximum protection of the wetland. Construction quality assurance inspection and supervision will also occur to ensure work is carried out as directed. Following construction, all disturbed ground will be revegetated and appropriate long-term erosion control methods will be in place. Monitoring of erosion control mitigation will occur to ensure it been implemented effectively. (**E3, F3**)

(R&L-11) For the Run 12 crossing over the unnamed tributary of the East Fork of Ashland Creek, the use of mechanized equipment (i.e., snow groomers and snowmobiles) will not be allowed prior to accumulation of at least 24 inches of snow within the stream crossing, either through natural accumulation or snow grooming techniques.

(R&L-12) Under Alternative 6, utilize a low ground pressure excavator, schedule the timber felling, limbing and bucking to occur in late winter or early spring, when the snowpack depth is receding. Monitoring of the snow depth and density will ensure that foot traffic and felling is completed with a two-foot (24 inches) minimum snow depth. (**E3, F2**)

Maintenance Roads

Soil stabilization may be appropriate along some of the steeper pitches of the maintenance roads. As with other highly disturbed sites, frequent monitoring and ongoing road maintenance will occur to sustain effective erosion control and minimize sediment delivery potential to surface waters.

Mitigation Measures are necessary to reduce the amount of potential surface erosion and sediment transport from new segments of the maintenance roads. Some or all of these mitigations may also be applied to existing segments of maintenance roads as determined to be necessary by a Forest Service Hydrologist, Geologist, or Soil Scientist. Specific Mitigation Measures for maintenance roads (MR) are as follows:

(MR-1) Drain dips will be spaced at distances necessary to divert surface water from the road without causing surface erosion within or below the road. (**E3, F3**)

(MR-2) Out-slope the road prism 2 to 4% to disperse surface water as much as possible between the drain dips. (**E3, F3**)

(MR-3) Plant native grass seed (or non-native seed approved by the Forest Botanist), brush species, and mulch along road fill slopes (in areas where rock is not utilized to stabilize the slope), in accordance with revegetation plans. **(E3, F3)**

(MR-4) Place riprap (coarse rock material), LWD and/or geotextile blankets over fill slopes as needed, and at drain dips and their outlets. (**E3, F3**)

Parking Lot Expansion

Reinforced fill construction methods have non-erodible slopes engineered into their designs and will be constructed in a manner to ensure long-term stability of the structures. Oversight by a Forest Service Geotechnical Engineer will be required for plan review, approval, and construction supervision and inspection to ensure long-term stability of the fill slope structures. Disturbed soil slopes will be stabilized with temporary and permanent erosion control methods and revegetated. Specific Mitigation Measures for parking lot expansion (PK) are as follows:

(PK-1) To prevent sediment from leaving construction boundaries, silt fencing, certified weed-free straw bales, or other mitigation approved for holding soils on site will be installed. (**E3, F2**)

(PK-2) During periods of construction, potential storm water will not be allowed to concentrate on freshly exposed soils or unprotected fill slopes. (**E3, F2**)

(PK-3) Vegetative plantings will be incorporated into the design of the retaining structures in the fill slopes of the parking lot(s), where it is feasible and appropriate. (**E3, F3**)

(PK-4) Avoid concentrating surface water from the parking lots, except where designed to resist/handle extra forces from higher flows. (**E3, F3**)

(PK-4) Install storm water detention structures to reduce peak flows from parking lots that discharge into drainage channels. **(E2, F2)**

Moraine Lodge and/or Toilet and Ski Patrol Facilities

The location of these skier services facilities on slopes of approximately 35 percent or less, and the large distance (about 1,000 feet) from surface water, provides inherent mitigation for reducing the potential for sediment delivery to streams. Specific Mitigation Measures for these and other facilities (FAC) is as follows:

(FAC-1) All disturbed slopes will require stabilization and revegetation. Fill slopes will be protected with native rock or other suitable permanent erosion control methods (**E3, F3**)

Knoll Lodge

The location of the Knoll Lodge (over 1,000 feet from surface water) and the gentle slopes (approximately 15 to 20%) will provide mitigation for reducing the potential for erosion and sediment delivery to streams.

(FAC-2) All sites disturbed in association with the Knoll Lodge will require erosion control measures, stabilization, and revegetation. Any fill slopes created will be protected with native rock located in County road clearing stockpiles nearby and/or with other permanent erosion control mitigation. **(E3, F3)**

Underground Water Storage Tank

The location and design of the underground water storage tank in a previously excavated area, excavation in rock material (less erosive), the small area excavated, and the distance from surface water (about 500 feet), inherently mitigates the potential for sediment delivery to streams. Rock excavated can be utilized for erosion control measures here, or at other disturbed sites.

(FAC-3) Erosion control during construction, and revegetation and erosion control following construction of the underground water storage tank will be implemented. (**E3, F3**)

c. Avalanche and Natural Hazards

Since 1963, the Mt. Ashland Ski Patrol has demonstrated a high level of expertise in (a) preventing and controlling avalanches and (b) recognizing and controlling natural hazards. That experience, combined with Forest Service expertise, is expected to continue. The following avalanche and natural hazard (AH) Mitigation Measures are applicable to the Action Alternatives:

(AH-1) Provide adequate avalanche protection and control according to an operation plan to be reviewed annually by the District Ranger. (**E3, F3**)

(AH-2) As part of the annual operation plan, develop a plan for skier management in the East Fork basin between LC-6, and the ski runs located to the west. (**E3, F3**)

(AH-3) Locate lift terminals, utilities, and facilities outside of avalanche hazard zones to the extent possible. (**E3, F2**)

(AH-4) Store explosives in a location not readily accessible to the public, and in accordance with Federal regulations. (**E3, F3**)

(AH-5) Utilize avalanche diversion techniques as appropriate for the possible runout zone near the Moraine Lodge or Moraine Toilets. (**E2, F2**)

d. Engelmann Spruce - Stand Health

An important objective for the Engelmann spruce stand in the Middle Fork area is to avoid exacerbating insect and disease effects. Although *Heterobasidion annosum* (cause of *annosus* root disease) was not detected during surveys of the Mt. Ashland spruce stand, it is one of the most common root diseases of spruce in the Cascades. Since it can be spread over long distances via windborne spores that infect through freshly-cut stumps, stump treatment is good insurance. The following spruce (SP) Mitigation Measures apply to this objective:

(SP-1) If trees are cut in or at the edge of the spruce stand, treat stumps over 14 inches in diameter with Sporax® within 48 hours of cutting[4]. Treat stumps of true firs as well as Engelmann spruce. Sporax treatment will prevent infection of cut stumps by *Heterobasidion annosum* (cause of *annosus* root disease). Sporax will not be used in or adjacent to streams or areas of surface water. **(E3, F3)**

(SP-2) Remove all spruce logs greater than 12 inches DBH that are felled during ski area development from the site within one year of cutting, to prevent infestation and population build-up of spruce beetle. **(E3, F3)**

[4] Sporax® (sodium tetraborate decahydrate) is a contact preventative fungicide used to limit the spread of *Heterobasidion annosum*, the cause of annosus root disease by prohibiting germination and infection by spores. Sporax application will be done according to label directions and will not take place in areas of running water.

e. Botanical Resources

Specific Mitigation Measures applicable to vegetation or botanical (BOT) resources are as follows:

(BOT-1) Seed and nursery stock used for revegetation will be local stocks of native species. Non-local stocks of native plants materials available on the commercial market will not be used. Suitable non-invasive non-native plant materials will be designated by the Forest Service when local stocks of native species are not available, are impractical, or are not performing well. (**E3, F2**)

(BOT-2) Partially as mitigation and partially as a management experiment, MAA will collect seed cones, grow seeds and plant seedlings and/or transplant Engelmann spruce. Revegetate on suitable sites unaffected by expansion activities and monitor. (**E2, F2**)

(BOT-3) Partially as mitigation and partially as a management experiment, MAA will collect seeds, grow seed and plant seedlings and/or transplant Mt. Ashland Lupine and Henderson's horkelia. Revegetate on suitable sites unaffected by expansion activities and monitor. This may also be viewed as insurance for population viability. (**E2, F2**)

(BOT-4) For any authorized construction, equipment, vehicles, and staging/gathering areas will be prohibited in the large meadow adjacent to the Engelmann spruce grove when the ground is not snow covered (to maintain the native meadow plant community). Non-native seed will not be used within or adjacent to this meadow. (**E3, F3**).

(BOT-5) Ground disturbance will be minimized in the meadow in the upper half of proposed Run 12 (to maintain the existing plant species composition). Non-native seed will not be used in this meadow. (**E3, F3**)

(BOT-6) Disturbance in the spruce wetland area will be confined to the ski run corridor and lift line corridor. (**E3, F3**)

(BOT-7) Extend roped boundary down the West Ridge and prohibit alpine skiers (those who have purchased a lift ticket) from crossing the ski area boundary, to minimize possible effects on the Mt. Ashland lupine population. (**E2, F3**)

(BOT-8) In concert with the Conservation Agreement, to minimize effects of summer recreation activities on the Mt. Ashland lupine and Henderson's horkelia habitat, install and/or maintain barriers (logs, posts, rocks, dirt berms, etc.) or other devices that control and direct vehicle, bicycle, and pedestrian traffic near Rabbit Ears rock outcrop and at the summit of Mt. Ashland. Use educational signs to foster awareness of the rare plant protection effort. (**E2, F3**)

(BOT-9) Snow fences at the summit and West Ridge will be limited in number, placement, size and/or design so that no substantial acreage of the Mt. Ashland lupine population south of the West Ridge ski run will experience increased snow deposition (above natural snow deposition). (**E2, F2**)

(BOT-10) Under Alternatives 5 & 6 that include ski lift LC-13, the top terminal will be adjusted slightly upslope to avoid both whitebark pines. (**E2, F3**)

(BOT-11) If monitoring shows a need, markers and rope will be used to mark and protect the two north side whitebark pines from damage by skiers and snow groomers. (**E2, F3**)

(BOT-12) There is an opportunity to enhance the viability of the whitebark pine population on Mt. Ashland by collecting seeds from the three Mt. Ashland trees and propagating seedlings from them, to be planted elsewhere on the mountain, away from existing and proposed developments. (**E2, F3**)

(BOT-13) During construction of buildings, lifts, and ski runs in the vicinity of the whitebark pines, the two north side trees will be identified and protected to avoid damage. (**E2, F3**)

(BOT-14) Under all alternatives that involve construction in and around the moraine at the base of the Bowl, the small population of Henderson's horkelia will be identified and protected to avoid damage. Additional mitigation will include fencing off the population and notification of construction workers and ski area personnel that the area must be avoided. (**E2, F3**)

f. Invasive Non-native Plants

Specific Mitigation Measures for control of invasive non-native plants (noxious weeds [NW]) are as follows:

(NW-1) To prevent the introduction of noxious weeds and other non-native plants, earth-moving equipment will be cleaned of dirt, mud, and plant parts before arriving to the project area. (**E3, F2**)

(NW-2) Any new ski runs and lift corridors authorized for construction will be surveyed for noxious weeds and other invasive non-native plants during the second summer or autumn after construction occurs. If noxious weeds are detected, appropriate action will be taken, in accordance with the RRNF Integrated Noxious Weed Plan (for the RRNF and KNF). (**E3, F3)**

(NW-3) All activities will comply with the Best Management Practices for Noxious Weed Prevention and Management, Port-Orford-cedar Root Disease Prevention and Management, Sudden Oak Death Prevention and Management – Interim Direction for the Rogue River and Siskiyou National Forests, February 15, 2002. **(E3, F3)**

This Final EIS document incorporates by reference the Region 6 FEIS for Managing Competing and Unwanted Vegetation (December 1988b), its Record of Decision and the terms of a Mediated Agreement (March 1989), which provides the basis for the *Rogue River National Forest's Integrated Noxious Weed Management* EA (1999d).

This Final EIS also incorporates by reference the Decision Notice signed by J. Michael Lunn, Forest Supervisor, on September 1, 1999 for the Environmental Assessment for Integrated Noxious Weed Management Plan (Weed Plan) on the Rogue River National Forest. Under this decision, a list of all Forest infestations and locations are maintained in the Weed Plan.

(NW-4) Under the terms of the Weed Plan and the Special Use Permit, the ski area operator (MAA) is required to help prevent new infestations, limit the expansion of existing populations, and report new sites. **(E3, F3)**

g. Wildlife

Specific Mitigation Measures for terrestrial wildlife (WL) are as follows:

Mitigation Measures to protect <u>northern spotted owl pair activity centers</u> (PACs):

Any of the following mandatory Mitigation Measures may be waived in a particular year if nesting or reproductive success surveys conducted according to US FWS-endorsed survey guidelines reveal that spotted owls are non-nesting or that no young are present that year. Waivers are valid only until March 1 of the following year. With previously known sites, activity centers are assumed occupied unless protocol surveys indicate otherwise.

(WL-1) Work activities (such as tree felling, yarding. road construction, hauling on roads not generally used by the public, blasting) that produce loud noises above ambient levels, will not occur within specified distances (see Table II-22 below) of any nest site or activity center of known pairs and resident singles between 1 March and 30 June (or until two weeks after the fledging period) - unless protocol surveys have determined the activity center to be not occupied, non-nesting, or failed in their nesting attempt. **(E3, F3)**

March 1 - June 30 is considered the critical early nesting period. A Forest Service Biologist has the option to extend the restricted season to as late as 30 September during the year of activity, based on site-specific knowledge (such as a late or recycle nesting attempt). The restricted area is calculated as a radius from the assumed nest site (point).

Table II-22. Northern Spotted Owl Restrictions

Type of Activity	Zone of Restricted Operation
Blast of more than 2 pounds of explosive	I mile
Blast of 2 pounds or less of explosive	120 yards
Impact pile driver, jackhammer or rock drill	60 yards
Helicopter or single-engine airplane	120 yards
Chainsaws (vegetation clearing, tree felling, etc.)	65 yards
Heavy equipment	35 yards

Mitigation Measures to minimize effects to goshawks:

(WL-3) If a goshawk nest site is detected within the SUP area, a Forest Service Wildlife Biologist will determine nesting status (presence or absence of young). If young are determined to be present, activities will be restricted within 0.25 mile of the nest site until August 31 or a Forest Service Wildlife Biologist determines young to be successfully fledged from the nest. (**E3, F3**)

Mitigation Measures to minimize effects to great gray owls:

(WL-4) If a great gray nest is discovered during project implementation activities, protect nest site with a 0.25 mile no activity buffer around the nest site and a 300 foot no activity buffer around natural meadows and openings. (**E3, F3**)

Mitigation Measures to minimize effects to bat species:

(WL-5) Retain all standing hard snags that are not immediate hazards to human safety in the vicinity of the ridge associated with Run 12. (**E3, F3**)

(WL-6) Although not a Northwest Forest Plan requirement, there is an **opportunity** to protect snags and large trees that may be used as maternity sites by restricting tree removal activities on Run 12 (if authorized) from December 1 to July 30. This would allow time for young bats to begin to fly and leave the maternity roost, based on Forest Service Wildlife Biologist determination of actual trees or snags used by bats. (**E3, F2**)

Mitigation to minimize effects to arctic blue butterflies:

(WL-7) To minimize effects to important meadow resources including the arctic blue butterfly, no ground disturbance is planned within the wet portion of the Upper Meadow associated with proposed Runs 12 and 13. A designated route and stream crossing will be established by a Forest Service hydrologist, in coordination with other Forest Service resource specialists. This will provide protection for the only known host plant of arctic blue butterflies, the shooting star of the genus *Dodecatheon (*E3, F3), to minimize effects to important meadow resources, including the arctic blue butterfly. (**E3, F3**)

Mitigation to minimize effects to neotropical migratory birds:

(WL-8) If operations are planned to occur between December 1 to July 30 in the alder glade crossing associated with Run 11, a Forest Service Wildlife Biologist will determine presence of nesting neotropical migratory birds in the alder glade. If nesting birds are found, a Forest Service Wildlife Biologist will provide recommendations based on species present and proximity to planned activities. (**E3, F3**)

Mitigation for down woody material habitat:

(WL-9) For wildlife habitat, directionally fall and leave large woody material (logs greater than 24 inches DBH) landing outside and adjacent to cleared areas. Material to be removed can be cut into logical log lengths. (**E3, F3**)

h. Scenic Quality

The scenic quality (SC) Mitigation Measures will be done to the maximum extent feasible, with the precise actual extent of application of the measure being unknown prior to final design and implementation.

Mitigation to minimize scenic effects from Ski Runs:

(SC-1) Minimize overall clearing widths for ski runs whenever possible, and not exceeding proposed design. (**E3, F3**)

(SC-2) Use undulation techniques (selective removal to allow for irregular or clumping of trees) within and along edges of ski runs. (**E3, F3**)

(SC-3) Revegetate cleared and soil disturbed areas as soon as possible to reduce erosion and contrast. (**E3, F3**)

(SC-4) As discussed under Tubing Area section below, use "warm" color/shades of lighting. Make use of latest available lighting technology to minimize lighting effects. **(E3, F3)**

Mitigation to minimize scenic effects to the Snowplay/Tubing Area:

(SC-5) Retain screening provided by existing trees along Crest (Access) Road. Gradually feather the edges of the opening approximately 75 feet beyond the opening, to minimize wind throw of trees on this ridgeline location (retain open grown trees with greatest root structure, least wind mass, etc.). The surface lift towers should be lower than the skyline of trees. (**E3, F3**)

(SC-6) Coloration of tower structures should be dark gray, green or brown. Locate lighting on the east side of the snowplay opening instead of the west, to better direct the light generally westward away from potential I-5 viewpoints. "Warm" colors/shades of light are less obtrusive in the night sky, identify latest available technology for both aesthetics and energy savings, for use throughout the snowplay area. (**E3, F3**)

Mitigation to minimize scenic effects from Parking Expansion:

(SC-7) Minimize the extent of clearing and construction for parking as much as possible (**E3, F3**)

(SC-8) Reinforced fill slopes will be seeded after construction for establishment of native grasses, forbs, and shrubs necessary to reduce the contrast with the surrounding slopes. The location, distribution, and timing of plantings should be done under the guidance of a Forest Landscape Architect. Fill slopes will be seeded and irrigated as necessary to establish grass coverage within three years of construction completion. (**E2, F2**)

(SC-9) Plant indigenous trees and shrubs below the toe of new fill slopes for screening and additional slope stabilization. Location and extent of planting should be determined through the guidance of a Forest Landscape Architect. (**E2, F2**)

(SC-10) Fresh cut slopes created at the "bottleneck" portion of the Crest Road will be mulched and revegetated with native grasses and shrubs unless rock content is too high for plant survival. Location and extent of planting should be determined in consultation with a Forest Landscape Architect. Reduce unnatural contrasts on new cut slopes by irregular texture reflecting rock strata; consider permanent weathering agent dyes to better match weathered rock surfaces in the area. Grass establishment should be achieved within three years after construction activities are completed. (**E2, F2**)

(SC-11) Revegetate selected portions of the existing cut slopes above the main parking area (adjacent to current maintenance buildings). These slopes contain more surface soil than neighboring slopes and have a better chance of establishing native plant species. These slopes are presently the greatest contrast in views along the Crest Road and from the California viewshed. Revegetation should be done in consultation with a Forest Landscape Architect and be completed within the same timeframe as the seeding of new fill slopes. (**E2, F2**)

(SC-12) Protect existing and residual trees, rock outcrops and other natural features from damage during construction activities. (**E3, F3**)

Mitigation to minimize scenic effects from <u>Structures and Buildings:</u>

(SC-13) Consistently apply (across all structures and signs) the principles of aesthetic compatibility with the setting (architectural character, "natural" colors, shapes, materials, consistent with "Cascadian" themes of the North Pacific Province (see *The Built Environment Image Guide*, USDA FS-710, December 2001), also consider long term cost effectiveness and energy efficiency. (**E3, F3**)

(SC-14) Design Moraine Lodge and other facility expansion/construction to incorporate, as much as possible, native materials. The color, form, and texture of the facades of these structures should borrow from valued attributes of the surrounding landscape. (**E3, F3**)

(SC-15) Use non-reflective materials for roof and facades of structures. Use non-reflective paint on new ski lift towers to minimize reflectivity. Paint new (and existing) structures with earth tone colors that borrow from the surrounding landscape. (**E3, F3**)

i. Cultural Resources

Specific Mitigation Measures for cultural (heritage) resources (CR) are as follows:

(CR-1) Continue ongoing survey by a certified Cultural Resource Technician within the "area of potential effect" before, during, and after project implementation. (**E3, F3**)

(CR-2) Notify Forest Archaeologist of any heritage resources discovered during project implementation. If a cultural resource is found, cease construction activities at that location until site evaluation and determination of effect have been completed. (**E3, F3**).

(CR-3) Encourage interpretive activities (brochures, signs, programs), through cost-share agreements that describe the human story at Mt. Ashland. (**E3, F3**)

(CR-4) Maintain strict confidentiality of the location of any identified heritage sites within project areas by designating them as "avoidance areas". No equipment transport, work-crew "lunch camps," or other activities will be permitted in avoidance areas. (**E2, F3**)

j. Air Quality

Specific Mitigation Measures for air quality (AQ) is as follows:

(AQ-1) Site improvements will be installed promptly in order to reduce the potential for dust emissions. The area disturbed by clearing, earth moving, or excavation activities will be kept to a minimum at all times, allowing improvements to be implemented in phases. (**E3, F2**)

(AQ-2) Limit the amount of slash that requires burning by using an excavator to crush and distribute slash across the width of the ski trails, chipping where access allows, and lopping and scattering of small woody material. (**E3, F2**)

(AQ-3) Investigate opportunities for combustion of any slash at regional biomass co-generation facilities. (**E3, F3**)

(AQ-4) Stage burn hand piles to reduce the volume of smoke being produced at one time. (**E3, F3**)

(AQ-5) Time burning to ensure that heavy fuels are as dry as possible. (**E3, F3**)

(AQ-6) Implement prescribed burning of slash piles during periods when the atmospheric conditions will transport smoke in a southerly direction away from the Medford Air Quality Management Area. (**E3, F3**)

(AQ-7) Apply water at helicopter landing areas to reduce dust formation caused by rotor wash. (**E3, F3**)

(AQ-8) Use "track out" control, a method to avoid mud being tracked out from construction areas onto roads where it dries and becomes airborne dust. This is generally accomplished by washing off vehicle tires before entering a paved road. (**E3, F3**)

(AQ-9) Require prompt revegetation of all disturbed areas to minimize dust and wind erosion. Erosion control and revegetation efforts will commence immediately following construction as per Forest Service BMPs and an approved Erosion Control Plan. (**E3, F3)**

(AQ-10) Use only dry, cured firewood in the Moraine Lodge, or Knoll Lodge and/or other wood-burning sources. (**E3, F3**)

(AQ-11) Maintain emission control devices on all MAA vehicles. MAA is encouraged to continue and expand the past practice of subsidizing bus trips and employee van shuttles to MASA, which results in reduced vehicle emissions. (**E3, F3**)

k. Recreation

Specific Mitigation Measures for recreation at MASA (RecM) are as follows:

(RecM-1) Design, construct, maintain, operate, and inspect all ski lifts in accordance with American National Standard Safety Requirements for Passenger Ropeways--Aerial Tramways, Aerial Lifts, Surface Lifts, Tows, and Conveyors (ANSI B77.1) (**E3, F3**).

(RecM-2) Maintain area closure to mountain bikes, snowmobiles, and motorized vehicles. MAA will assist Forest Service in monitoring and enforcing these closures. (**E2, F2**).

(RecM-3) Provide full public access to hikers within the SUP area. MAA will assist Forest Service in monitoring use in sensitive wetland areas. (**E3, F2**)

(RecM-4) Enhance public understanding of the Siskiyou Crest environment through interpretation (signing, publications, and tours). Develop partnership with community interests to implement interpretive plan. (**E3, F3**)

(RecM-5) Maintain roped ski area boundary down the West Ridge to minimize possible conflicts with Nordic skiers. (**E3, F3**).

(RecM-6) Prohibit lift-served skiers from using the Summit spur of Grouse Gap Nordic Ski Trail (Road 300) on the southwest side of Mt. Ashland in order to minimize conflict with Nordic skiers. (**E2, F2**)

(RecM-7) Update ski area boundary management plan with participation of MAA, Forest Service, Southern Oregon Nordic Club, and other interested parties. (**E3, F2**)

(RecM-8) Narrow the south to southeast facing slopes of Run 14 to greatest extent possible to limit sun exposure on this run (Alternative 6). (**E2, F3**)

(RecM-9) Develop safety plan for ski run junction near outlet from Bowl. This plan will be developed as part of the annual Area Safety and Operating Plan (Alternatives 2, 3, 5, and 6). (**E3, F3**)

(RecM-10) Post temporary signage to warn recreation users of construction activities, and if necessary, alternative routes will be provided. (**E3, F3**)

l. Noise

The primary Mitigation Measure for noise (N) is as follows:

(N-1) Establish construction zones (including helicopter use), construction timing, and staging areas based on mitigation and management requirements established for the protection of wildlife species under the ESA, Northwest Forest Plan, or Rogue River and Klamath National Forest Plans. (**E3, F3**)

m. Transportation

The primary mitigation for transportation (TR) is as follows:

(TR-1) Provide incentives to carpooling and the use of public transit services by employees and guests (MAA responsibility). Example programs might include provisions for preferred parking for high occupancy vehicles, private coaches, and reduced lift ticket pricing. (**E3, F3**)

n. Safety

A summary of the specific mitigation for human safety (S) is as follows:

(S-1) Implement area closure in vicinity of helicopter operations but allow for public viewing areas where possible. Permit vehicle traffic to proceed through parking lot with minimal delay during helicopter operations. (**E3, F3**)

(S-2) Restrict hunting within the ski area boundary during summer and fall maintenance seasons. (**E3, F3**)

(S-3) Install netting over Mt. Ashland Access Road where LC-11 crosses roadway (Alternative 4) to capture potentially dropped skis, snowboards, ski poles, gloves, etc. on passing vehicles. (**E3, F3**)

9. Monitoring

Monitoring of all construction and development activities is a required element of all Action Alternatives and will be carried out according to the Monitoring Plan. **A detailed Monitoring Plan will be incorporated by reference and made an attachment to the Record of Decision, if an expansion alternative is selected**. This will allow it to be developed specifically to the alternative and the expansion components it may contain, and be specific to the area(s) where expansion is being authorized (i.e., Middle Fork, Knoll, or Current Facility areas and/or the sub-watersheds in which components would be authorized).

The objectives of the Monitoring Plan are to monitor the implementation of authorized actions, the use of Mitigation Measures, and the effectiveness of required mitigation. The plan includes monitoring at the Project Scale (where actions occur), at the Site Scale (an area slightly larger than the SUP), and at the Watershed Scale Analysis Areas (if changes are detected at the Site Scale).

10. Phasing

A detailed listing of implementation phasing by alternative is **not** included in this Chapter of the FEIS; it is now discussed in the financial analysis appendix (FEIS Appendix I). This was done because scenarios for phasing are for analysis only. The primary use for scheduling and phasing is in predicting financial and economic consequences; phasing in these exact scenarios is not necessarily being proposed, would not be prescribed by the Forest Service (except for watershed restoration), and would be the responsibility of and at the discretion of the proponent if an expansion alternative were selected.

Actual implementation progression, timing of the individual projects, interim project 'steps', and determination of necessity for individual projects within the alternatives would be dependent upon an ongoing analysis of the priority for each project or group of associated authorized projects (by MAA) and the availability of construction capital. It is possible that some projects would be moved to later phases, or not implemented at all after further analysis or experience. Overall completion under any expansion alternative may take ten or more years.

For purposes of analysis, the phasing documented in Appendix I assumes that both mitigation and monitoring are ongoing, and that environmental systems are functioning as stated in this Final EIS. The actual approval of projects on an annual basis would hinge upon review by the Forest Service or appropriate specialists, and approval by the authorized officer, commensurate with the success of Mitigation Measures as determined by monitoring (see Monitoring, above).

As discussed in Section G, 7, this Chapter, if the Responsible Official chooses an expansion alternative, all restoration projects would be completed prior to or concurrent with the first development phase in the first year. Some restoration projects require that material (such as large logs/woody material) be brought in and/or placed, which would require equipment (such as helicopters). This equipment would be more readily available with concurrent construction or development activities. Further, some material for restoration (e.g., large woody material) would come from clearing activities associated with lifts or runs in proximity. The Forest Service believes that restoration activities can be accomplished most efficiently from a labor and materials standpoint, as well as environmental effects, if done concurrently with new construction, while still contributing to watershed recovery.

H. COMPARISON OF ALTERNATIVES

This Section compares the alternatives considered in detail, based on information presented in this Chapter, as well as environmental consequences presented in Chapter IV. Table II-23 contains a comparison of the components and actions for all alternatives considered in detail; Table II-24 contains a response to the Purpose and Need; Table II-25 contains a comparison of some of the indicators relevant to the Significant Issues for the environmental consequences, and Table II-26 contains a response of the alternatives to Other Issues.

Table II-23. Comparison of Alternative Components

Alternative Components (Reference Chapter II, Section F)		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Acres Of Terrain By Ability Level	Beginner	3.28	3.60	3.34	7.42	3.73	3.34
	Novice	11.00	48.77	31.66	33.83	32.38	41.83
	Low Intermediate	0	7.97	8.79	3.16	1.03	8.81
	Intermediate	13.33	38.01	34.41	36.75	20.83	42.92
	Advanced Intermediate	51.32	41.68	40.48	59.51	42.59	41.67
	Expert	46.18	56.06	48.40	50.03	47.15	51.52
	Total acres new terrain	0	70.98	41.96	65.59	22.61	64.97
Number Of Ski Lifts	Chair lifts	4	6	6	9	6	6
	Surface lift	1	3	2	0	3	3
Number Of New Buildings		0	5	6	3	5	6
Acres Of Parking (Number of Spaces; current, plus new, plus Tubing Facility)		4.2 acres (550)	5.9 acres (771)	4.4 acres (570)	6.7 acres (878)	5.6 acres (727)	6.7 acres (878)
Miles Of New Road Construction		0	0.44	0.44	0.27	0.44	0.44
Miles Of New Road Reconstruction		0	0.44	0.44	0.93	0.44	0.44
Area Served By Night Lighting	Acres	38	44	44	38	83	44
Comfortable Carrying Capacity	Total Guests (Table IV-38)	1,733	2,898	2,877	3,570	2,541	3,444
Vertical Drop	Feet (Table IV-41)	1,145	1,584	1,516	1,655	1,141	1,584
Area Within Ski Area Boundary	Acres (Table IV-41)	238	506	489	391	255	498
Longest Groomed Run	Feet (Table IV-41)	5,501	8,216	8,136	5,501	5,671	8,307

Table II-24. Comparison of Alternatives Relative To Purpose and Need

Purpose (Chapter I, Section E)	Purpose Element	Unit of Measure		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Terrain Balance and Diversity	Balance Of Terrain By Ability Level	Distribution of terrain by percent (Table IV-40)	Beginner	2.6	2.0	2.4	3.9	2.7	2.1
			Novice to Intermediate	19.4	48.2	44.6	38.7	36.7	49.1
			Advanced Intermediate to Expert	77.9	49.7	53.0	57.4	60.6	48.9
	Suitable Terrain For Beginners	Acres of Beginner terrain (Table IV-40)		3.28	3.99	3.99	7.42	3.99	3.99
		Grading of existing Beginner terrain to reduce slope gradient (Chapter II, Section F)		No change	Includes Grading	Includes Grading	No change	Includes Grading	No change
	Accessibility Of Existing Lower Level Terrain	Acres of existing ski runs where ability level changes to lower rating (Table II-2)		0	15.4	15.4	0	16.9	15.4
	Terrain For Special Programs And Competitions At MASA	Total acres of new cleared terrain (Chapter II, Section F)		0	71	42	66	23	65
	Diversity Of Non-Traditional Terrain At MASA	Total acres of new gladed terrain (Chapter II, Section F)		0	0	51	0	44	0
	Recreational Opportunities For Non-Skiers	Development of new facilities for non-skiers (Chapter II, Section F)		No change	Develops tubing facility	Develops tubing facility	No change	Develops tubing facility	Develops tubing facility
Guest Access and Circulation	Lift Access	Access to western portion of current ski area (Chapter II, Section F)		No change	Improves access to west side of MASA via LS-15 and LC-6	Improves access to west side of MASA via Betwixt, R-18 and LC-6	No change	Improves access to west side of MASA via LC-13	Improves access to west side of MASA via LC-13
	Skier Density And Access To Facilities	Estimated percent change in skier density first ten years (Table IV-42)		+9%	-29%	-8%	-26%	-3%	-24%

Purpose (Chapter I, Section E)	Purpose Element	Unit of Measure	Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
		Skier facilities in proximity of Ariel Lift (Chapter II alternative maps)	No change	Full service Moraine Lodge	Restrooms only	No change	Full service Moraine Lodge	Restrooms only
Update and Balance Guest Services and Facilities	Proportionately Sized And Efficient Skier Service Facilities	Resultant square footage of guest services facilities (Table IV-43)	14,900	27,100	23,950	23,410	27,100	23,950
		Resultant parking spaces (Table IV-43)	550	751	570	878	707	878
	Accessibility Of Skier Service Facilities	Number of full service skier facilities (Chapter II, Section F)	1	4	3	2	4	4
Skier Safety		Relative ranking based on skier density and number of safety improvements enacted	6	1 (Best)	3	2	3	2
Economic Viability and Longevity	Augment And Modernize MASA Facilities	Relative ranking based on amount of new skier terrain and facility improvements	6	1 (Best)	3	3	3	2
	Customer Awareness And Regional Competition	Relative ranking in terms of most opportunities provided	6	1 (Best)	4	3	5	2
Maintain and Improve Trend of Watershed Recovery		Number of watershed restoration projects implemented	0	23 (Does not include WA-5)[5]	24	23 (Does not include WN-2)[6]	24	23 (Does not include WN-2)[7]

5 The original channel configuration aspect of this project would not take place under Alternative 2, due to construction of the Rodger's Way Surface Lift at this location.

6 This project would not take place under Alternative 4 due to construction of the Knoll Parking Lot at this location.

7 This project would not take place under Alternative 6 due to construction of the Knoll Parking Lot at this location.

Table II-25. Comparison of Alternatives Relative To Significant Issues

Significant Issues (Chapter I, Section J, 2)	Issue Element	Unit of Measure		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Effects on Soils and Site Productivity	Direct and Indirect Effects Of Sedimentation	Increase in cubic yards of sediment delivery first 2 years - Site Scale (Figure IV-2)	Ashland watershed	Baseline 2.6 cu/yr	6.50	3.70	0.65	2.78	4.80
			Neil watershed	Baseline 0.004 cu/yr	0	0	1.32	0	0
			Grouse watershed	Baseline 0.27 cu/yr	0	0	0	0	0
			Cottonwood watershed	Baseline 7.4 cu/yr	3.96	1.11	0	3.81	1.01
	Effects On Site Productivity	Total acres of detrimental soil effects (compaction, loss of site organic matter and topsoil) (Table IV-7)		0	15.8	12.2	12.1	9.9	11.9
		Total estimated percent detrimental conditions of developed areas (Table IV-7)		0	20%	25%	17%	38%	15%
Effects on Hydrologic Function	Effects To Streams And Wetlands	Number of new stream crossings by ski runs, emergency egress (Table IV-8)		0	8	1	2	1	7
		Number of bridges constructed (Table IV-8)		0	1	0	0	0	1
		Acres of wetlands affected (Table IV-10)	Currently 42.5 acres of wetlands within Site Scale	0	0.83	0	0.21	0.16	0.54
	Effects To Riparian Conditions	Percent change in forested cover within Riparian Reserves (Table IV-13)	Currently 218.7 acres of forested cover within Riparian Reserves at the Site Scale	0	-3.5%	-1.4%	-1.5%	-0.3%	-2.3%
	Effects on Stream Flow And Runoff	(Chapter IV, Section C, 9)		No Change	Modeling indicates that under a "worst case" scenario, average annual flow would increase in the East Fork of Ashland Creek by 0.4% and in Neil Creek by 0.1%. (This was based on modeling Alternatives 2 and 4)				

Significant Issues (Chapter I, Section J, 2)	Issue Element	Unit of Measure		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Effects on Water Quality	Effects On Water Chemistry	(Chapter IV, Section C, 9)		No change	Based on implementation of Mitigation Measures, any effects to water chemistry would be very low and not measurable				
	Cumulative Watershed Effects	Resultant risk ratio compared against baseline (Alternative 1) (Table IV-12 and Appendix C; Table 14 a, and 14b)	Upper Ashland watershed	0.255	0.268	0.263	0.264	0.257	0.265
			Cumulative effect including AFR[8]	0.489	0.502	0.497	0.498	0.491	0.499
			Upper Neil watershed	0.938	0.939	0.939	0.942	0.939	0.939
			Cumulative effect including AFR	0.976	0.977	0.977	0.079	0.977	0.977
			Grouse watershed	0.884	0.884	0.884	0.884	0.884	0.884
			Upper Cottonwood watershed	0.727	0.733	0.728	0.727	0.728	0.728
Effects to Engelmann Spruce	Direct Effects	Acres cleared within SUP (Chapter IV, Section D, 2)	18.2 acres of spruce within SUP	0	1.84	0	0	0	1.00
		Total number of trees removed (Tables IV-17 and IV-18)		0	55	0	0	0	37
	Stand Health	Risk of adverse effects (Chapter IV, Section D, 2)		No change	Low risk	No change	No change	No change	Low risk
Effects to Mt. Ashland Lupine and Henderson's Horkelia	Direct And Indirect Effects	Direct effects to populations (Chapter IV, Section D, 4)		No change	Construction of snow fence under all the action alternatives would affect less than 0.02 acres of habitat				
		Indirect effects of increased skier use (Chapter IV, Section D, 4)		No change	Increased skier traffic	Increased skier traffic	Decreased skier traffic	Increased skier traffic	Increased skier traffic
	Long Term Viability	Risk of adverse effects (Chapter IV, Section D 4)		No change	May impact individuals or habitat but not likely to lead to loss of population viability or Federal listing		No change	May impact individuals or habitat but not likely to lead to loss of population viability or Federal listing	

[8] Ashland Forest Resiliency (AFR) is a reasonably foreseeable project that would reduce hazardous fuel conditions and protect values at risk in and around the Ashland Municipal Watershed. The AFR project proposes to treat approximately 8,150 acres of hazardous fuels with various treatments including density management, prescribed fire, and vegetation treatments, within Ashland and Neil Creek watersheds.

Significant Issues (Chapter I, Section J, 2)	Issue Element	Unit of Measure		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Effects Associated With Human Social Values	Direct Effects To Inventoried Roadless Areas	Acres/percent of inventoried roadless area affected (Table IV-29)	McDonald Peak Inventoried Roadless Area is 9,425 acres	No change	41.0 acres 0.44%	14.6 acres 0.16%	13.1 acres 0.14 %	No change	36.8 acres 0.39%
	Effects To Undeveloped Areas	Total acres of undeveloped area affected (Table IV-29)	Total undeveloped area within SUP is 578 acres	0	59.0	29.5	56.2	0	56.2
	Effects To Spiritual Values	Acres of change in late-successional forest (Table IV-19)	Currently 570 acres of late-successional closed forest at the Site Scale	No change	-34	-21	-38	-3	-32
Effects Associated With Economics	Effects Related To Skier Demand	Short-term visitation growth rate (Table IV-45)		0.5-1.0%	1.2-1.7%	1.2-1.7%	1.2-1.7%	1.0-1.5%	1.2-1.7%
	Long Term Operational Ski Area Feasibility	Financial feasibility analysis (Table IV-53)	Based on "expected" visitation trend and Net Present Value	NA	$42,697	-$184,687	-$2,576,676	-$631,284	-$154,741

Table II-26. Comparison of Alternatives Relative To Other Issues

Other Issues (Chapter I, Section I)	Unit of Measure		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Climatic Change and Snowfall	Expected snow levels (Chapter IV, Section C, 1)		It is expected that there will be sufficient snowfall to operate the existing ski area, as well as an expanded ski area that would include terrain at lower elevations than current ski area facilities and operations.					
Avalanche and Natural Hazards	Risk of increased avalanches (Chapter IV, Section C, 2)		No change	Low risk	Low risk	No change	Low risk	Low risk
Geology-Slope Stability	Increased acres within Landslide Hazard Zones 1 and 2 (Table IV-1)		0	16.0	5.1	12.8	4.7	13.5
Other Hydrologic Processes	Effects related to increased access to meadows, ability to filer water and status of 303(d) listed waterbodies (Chapter IV, Section C, 8)		No change	There would be minimal effects from increased access to meadows; no effects on the ability to process domestic water, and no change to current 303(d) listed waterbodies under all Action Alternatives				
Air Quality	Estimated particulate matter emissions by slash burning (Table IV-16)	PM_{10}	0	1.6-3.2	0.9-1.8	1.4-2.8	0.5-0.9	1.4-2.8
		$PM_{2.5}$	0	1.5-3.1	0.9-1.7	1.3-2.6	0.4-0.9	1.3-2.6
Landscape Ecology	Effect to landscape scale connectivity (Chapter IV, Section D, 1)		No change	The construction of new ski runs is not likely to be a significant limiting factor affecting landscape dispersal and migration processes				
Other Botanical Resources	Effects to elements of biological diversity (Chapter IV, Section D, 6)		No change	Mitigation Measures proposed under all of the Action Alternatives would reduce or eliminate effects to species locally important to biodiversity (including whitebark pine).				
	Bryophytes, lichens and fungi (Chapter IV, Section D, 5)		No change	Alternatives 2 and 6 would have the most effect due to ski run construction in the Lower Wetland area. However, none of the Action Alternatives would affect population viability.				
	Effects to outstanding or unusual plant communities (Chapter IV, Section D, 7)		No change	None of the Action Alternatives would affect any part of the Mt. Ashland Candidate Botanical Area on the RRNF or the Botanical Area on the KNF.				
Non-native Plants	Risk of introduction of non-native species (Chapter IV, Section D, 8)		No change	Effects of invasive non-native species, under all action alternatives, are expected to be mitigated to acceptable levels.				

Other Issues (Chapter I, Section I)	Unit of Measure		Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Wildlife	Northern spotted owl (Percent of suitable habitat within 13 miles of activity center) Table IV-25	Owl site 2052	No change	41 acres -1.3%	22 acres -0.7%	18 acres -0.6%	3 acres -0.1%	38 acres -1.2%
		Owl site 2019	No change	0	0	53 acres -1.9%	0	0
		Owl site 2024	No change	0	0	53 acres -21%	0	0
		Owl site KL 187	No change	3 acres -0.1%	3 acres -0.1%	27 acres -0.8%	3 acres -0.1%	3 acres -0.1%
	Effects to Forest Service Sensitive species (Table IV-24)		No change	Under all Action Alternatives the worst case conclusion of effects (on five species) is: May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species. For other species, the determination is No Impact.				
	Effects to Management Indicator Species and wildlife Assemblages (Chapter IV, Section D, 11)		No change	American marten discussed above under Sensitive species. For all other species and assemblages, there is minimal effect associated with all Action Alternatives.				
Fish and Aquatic Habitat	Effects to listed species (SONC coho salmon - Threatened) Table IV-26		No change	Under all Action Alternatives the worst case conclusion of effects is: May Effect, Not Likely to Adversely Affect				
	Effects to Sensitive species (SOCC coastal cutthroat trout, KMP steelhead, and SONC chinook salmon) Table IV-26		No change	Under all Action Alternatives the conclusion of effects is: May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species.				
Scenic Quality	Effects to visual quality (Chapter IV, Section E, 1)		No change	New visual effects would be limited to the area where development occurs. The majority of the SUP would be retained in its natural state. No unacceptable adverse effects are anticipated.				
Heritage Resources	(Chapter IV, Section E, 2)		No change	The Mt. Ashland Ski Expansion is determined to be a "no effect" undertaking relative to 36 CFR 800 and to the Forest Service/SHPO Programmatic Agreement.				

Other Issues (Chapter I, Section I)	Unit of Measure	Alt. 1 (No-Action)	Alt. 2 (Proposed Action)	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Recreation	Effects to non-skier recreation use (Chapter IV, Section E, 10)	No change	Changes in overall summer and winter use patterns are expected to remain about the same for all Action Alternatives. Summer use would likely increase proportional to changes in population growth and tourism.				
Noise	(Chapter IV, Section E, 11)	No change	Under all action alternatives, noise levels associated with activities related to construction of new runs would be the most pronounced and create the greatest on and off-site effects.				
Fire Risk and Hazard	(Chapter IV, Section 3, d; Table IV-21)	No change	The current condition Fuel Model has a rate of spread of 31.9 chains/hour and a flame length potential of 9.7 ft. Under all Action Alternatives, a custom fuel model predicts a rate of spread of 15.5 chains/hour and a flame length potential of 4.3 ft., after required fuel treatments. Risk would increase slightly due to increased human presence and ski area operations and maintenance.				
Public Safety	(Chapter IV, Section F, 1)	No change	The application of Mitigation Measures designed for the protection of forest visitors would minimize the risk to public safety.				
Commercial Timber	(Chapter II, Section F)	NA	Forest Service analysis has indicated that the likely methodology for disposition of the Federal, commercial grade timber would be via a Timber Settlement agreement. Timber would be sold to the proponent at a predicted bid (appraised) value. All material 12 inches and smaller would be left on site for erosion control, stabilization, and soil building. Ten percent of the trees greater than 12" DBH would be left on site for erosion control measures or as woody material. Commercial volume to be removed ranges from approximately 400 to 1,850 thousand board feet.				