II. DESCRIPTION OF ALTERNATIVES

A. INTRODUCTION

Chapter II describes the alternatives considered within this environmental analysis and summarizes the environmental consequences associated with implementing them. As required by the Council on Environmental Quality (CEQ),[1] the alternatives considered are presented in comparative form. Chapter II defines the issues and provides both the deciding officer and the public with a clear basis for choice between alternatives. Mitigation measures, which would lessen or avoid impacts that may result from implementation of the action alternatives, are also outlined.

B. PROCESS USED TO DEVELOP ALTERNATIVES TO THE PROPOSED ACTION

The process used to develop alternatives to the Proposed Action followed public and agency scoping (described in Chapter I) as well as internal Forest Service scoping. Accordingly, both public and governmental entities identified key issues for consideration within this analysis. These issues were utilized to determine the need for alternatives to the Proposed Action.

The National Environmental Policy Act (NEPA) requires that an environmental analysis examine a range of alternatives that are "reasonably related to the purpose of the project."[2] Both CEQ Regulations and Forest Service Handbook direction emphasize that alternatives must meet the "reasonableness" criteria in order to warrant detailed analysis. Alternatives that have been considered but are not reasonable should be eliminated from detailed study with a brief discussion of the reasons for their elimination.[3]

Both the Federal courts and CEQ have directed agencies to consider the project proponent's goals in developing alternatives.[4] In addition, to be worthy of consideration, each alternative to the Proposed Action must have the potential to minimize or avoid environmental impacts, while achieving the same project purpose. Section 404(b)(1) guidelines[5] as well as Executive Order 11990 also indicate that feasible and practicable alternatives that avoid or minimize adverse impacts to jurisdictional wetlands should be identified. The term "practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes.[6]

Alternatives were formulated in accordance with the following three-step process:

1. Identify the basic purposes, objectives, and environmental issues related to the Proposed Action.

[1] 40 CFR 1502, 1997
[2] 40 CFR 1502.14a
[3] CEQ: "40 Most Asked Questions" 46 Fed. Reg. 18026, March 23, 1981, as amended
[4] 48 Federal Register 34,263 and 34,267, July 28, 1983
[5] 33 CFR 230, 1997
[6] 40 CFR 230.3(q), 1997

Identify alternate ways in which these purposes and objectives could be met or ways in which potential environmental impacts might be reduced.

2. Of the potential alternatives identified, retain those which could reasonably fulfill project purposes and which have potential to address key issues associated with the proposal, along with avoiding or minimizing environmental impacts.

ISSUES WARRANTING ALTERNATIVE FORMULATION

The following key issues were identified through the scoping process and were utilized in formulating alternatives to the Proposed Action:

Forest Service Regional Sensitive Botanical Species

Field surveys conducted in 2001 and 2002 identified the presence of Tahoe draba *(Draba asterophora var. asterophora)* within the project area. Tahoe draba is currently listed as a Regionally Sensitive species by Region 4 of the Forest Service. Portions of the proposed projects have the potential to impact Tahoe draba individuals and/or aggregations.

Extent of Overall Ground Disturbing Activities

The Proposed Action entails areas of ground disturbance that would result from the installation of snowmaking infrastructure, ski trail re-contouring, construction of the proposed snowmaking water storage pond, and enlargement of parking areas. The extent of general ground disturbing activities was raised as an issue warranting the analysis of an alternative which reduces ground disturbances while striving to meet the project Purpose and Need.

C. ALTERNATIVES AND DESIGN COMPONENTS CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Two alternatives and/or significant design components were considered but eliminated from detailed analysis within this environmental assessment. These alternatives/elements were eliminated from further review for several reasons including regulatory infeasibility, technical constraints, and/or redundancy with other alternatives to be analyzed. The following section presents a brief synopsis of these project components/alternatives and the rationale for their elimination.

LIMITED GROUND DISTURBANCE AND TREE REMOVAL

On August 8, 2002 the project Interdisciplinary Team (ID Team) met to discuss the alternatives to be analyzed within this environmental analysis. The ID Team considered an alternative, which would not involve any ground disturbing activities or activities requiring tree removal. An alternative adhering to these parameters was identified as including the following project elements:

- Replace the existing East Bowl Day Lodge (on Washoe County Land)
- Upgrade the existing Zephyr Lift to a high speed, detachable chairlift (utilizing the same alignment as the current lift)
- Re-grade and expand the East Bowl parking lot to facilitate on-grade access to the Zephyr Lift and day lodge and to accommodate additional vehicles (on Washoe County Land)
- Amend the current Mt. Rose SUP to include The Chutes terrain (without constructing the

Chutes Return Lift)
- Construct a mountain-top restaurant between the tops of the Northwest Magnum 6 and Lakeview lifts (on private land)
- Construct two 500 square foot viewing/picnic decks (one on private land/one on NFS lands)

This alternative would not include the following major project elements:

- Installation of snowmaking within the East Bowl
- Terrain grading in the East Bowl
- Development of a Terrain Park and surface lift in the East Bowl
- Construction of the Chutes Return Lift
- Construction of the East Bowl/Chutes skiway

Additionally, it was determined that a comprehensive analysis of this alternative would not specifically benefit the decision process. Based on the rationale detailed below, the ID Team concluded that this alternative would not meet the established project purpose and need. The following text details the rationale as to why this alternative was eliminated from detailed analysis:

- Mt. Rose would likely not replace the East Bowl day lodge without other enhancements to the East Bowl side. It would remain unable to open during the early season or low snow conditions due to the absence of snowmaking capability. The inability to grade and smooth the existing East Bowl terrain would also limit opening times. An established goal of the project purpose and need is to increase utilization of the East Bowl by improving the skiing experience, extending the length of the season, and enhancing facilities provided.

- Similarly, the replacement of the Zephyr Lift would likely not occur if authorized. Without the proposed snowmaking capability, the proposed terrain improvements, and the development of a terrain park, there would be no need for additional lift capacity particularly within an already underutilized portion of the ski area; therefore, replacement of the Zephyr Lift would not occur.

- The re-contouring and expansion of the East Bowl parking lot would not likely occur. If the amenities within East Bowl were not improved, no additional guests would be attracted to that portion of the ski area; therefore, the re-contouring and expansion of the lot would likely not occur.

- The development and operation of the terrain within The Chutes area would not function properly without the proposed Chutes Return Lift. No lift service means that an alternate method of transporting guests would have to be developed. There is not an acceptable bus stop and/or turnaround available at the base of The Chutes area. Nevada Department of Transportation (NDOT) standards do not allow for skiers to be picked up in an area without adequate areas for bus turnouts and turning movements. Therefore, an alternative that does not include the construction of the Chutes Return Lift would

effectively eliminate the opening of The Chutes terrain. An established element of the project Purpose and Need is to provide additional expert level terrain at Mt. Rose.

The ID Team evaluated the necessity of the Limited Ground Disturbance and Tree Removal Alternative within the overall range of alternatives. It was determined that these particular project elements are adequately represented through the analysis of the No Action Alternative (Alternative 1), the Proposed Action (Alternative 2), and Alternative 3 and would not meaningfully contribute to the range of alternatives, nor enhance the contrast of the potential effects being analyzed. Additionally, in rendering a final decision on the project, the Forest Supervisor has the authority to choose from among the analyzed project elements and is not required to select a singular alternative. For these reasons, this alternative was dropped from further analysis within this environmental assessment.

PROVISION OF ADDITIONAL WATER RIGHTS BY THE FOREST SERVICE FOR SNOWMAKING USE

An alternative that considered the utilization of additional water for snowmaking via existing water rights held by the Forest Service was originally considered. Mt. Rose currently holds water rights that allow 100 acre-feet of annual use for snowmaking purposes. While this right is sufficient to provide snowmaking coverage as proposed under alternatives 2 and 3, it would only allow minimal coverage depths (12 inches) on most areas. The provision of 20 to 40 acre-feet of additional water rights by the Forest Service would allow Mt. Rose to increase machine-produced snow coverage depths by as much as six inches on both the East Bowl and Mt. Rose terrain. It was determined that this additional coverage would increase the reliability and duration of the operating season as well as potentially enhancing the quality of the skiing experience.

The ID Team consulted the Government Accounting Office regarding the prospective use of government held water rights for a special use permittee. Such a transfer of water rights would require that the transaction provide a demonstrated financial benefit to the United States. As such, the examination of this alternative analyzed how operating patterns, opening dates, annual visitation, and season length could potentially affect SUP fees paid to the United States government. This particular analysis investigated the connection between these variables and how the provision of additional water rights by the Forest Service for snowmaking could potentially lead to an increase in SUP fees paid by Mt. Rose.

The analysis concluded that, while the data analyzed does not empirically show that additional snowmaking coverage depths at Mt. Rose would directly translate to an increase in SUP fees paid, it does strongly support the intuitive assumption that a more reliable operating season coupled with a higher quality recreation product could lead to a general increase in resort visitation and revenues, and therefore to an increase in SUP fees paid. However, the ID Team concluded that a qualitative increase in the recreation amenity alone did not strongly demonstrate a financial benefit to the United States government. For this reason, this alternative was eliminated from further analysis.

CONSTRUCTION OF A WATER TANK INSTEAD OF AN OPEN IMPOUNDMENT

The geotechnical analysis on the feasibility and associated hazards of constructing a water

impoundment above the *Zephyr Traverse* included the alternate feasibility of constructing a two million gallon steel water storage tank. This was done to address the potential safety risks associated with an embankment failure at the water impoundment, leading to the occurrence of a dam breach flood and associated risk to human safety. While the "risk" (probability of a failure) associated with constructing a two million gallon water tank would have been the same as for the water impoundment, the "hazard" (ramifications were a failure to occur) was determined to be greater for the water tank option. The higher hazard rating is a result of the anticipated duration of a breach, were it to occur. The failure mechanics of a tank would likely result in an effectively instantaneous failure as opposed to a relatively slower failure with a pond. Based on the analysis completed, an alternative analyzing installation of a tank rather than a water impoundment was not anticipated to result in a lower hazard and was dropped from further analysis.

D. ALTERNATIVES CONSIDERED IN DETAIL[7]

ALTERNATIVE 1 - NO ACTION

The No Action Alternative reflects a continuation of existing management practices without changes, additions, or upgrades to the portions of the ski area operating on NFS lands. Given that no new facilities or trail improvements would occur on NFS lands under the No Action Alternative, this alternative provides a baseline for comparing the effects of the two action alternatives. Alternative 1 is described below.

Special Use Permitting

Mt. Rose currently operates under a combination of three SUPs from the Forest Service and a Lease and Concession Agreement from Washoe County. Additionally, a significant portion of the resort is located on private land owned by Mt. Rose.

Currently, the East Bowl portion of the resort is permitted under a 40-year SUP, which encompasses approximately 560 acres. Additionally, a 30-acre parcel located along the south edge of the Mt. Rose property is permitted under a separate, shorter duration, SUP. A temporary SUP has been issued on an annual basis allowing Mt. Rose to continue avalanche control programs and site evaluations within the 131-acre Chutes area. The No Action Alternative would not alter the status of Mt. Rose's existing SUPs.

Resort Carrying Capacity

The carrying capacity of a resort is described as the Comfortable Carrying Capacity (CCC). CCC is *not* a cap on visitation, but is rather a design standard defined as the number of daily visitors a resort can *comfortably or efficiently accommodate* at one time without overburdening the resort infrastructure. CCC reflects uphill and downhill capacities at a resort, and can reflect constraining capacities associated with access, parking, wastewater treatment, water supply, day lodge square footage, etc. At Mt. Rose, the CCC reflects the uphill (i.e., lift network) capacity of 3,720. Although minor improvements to the resort would likely continue to occur on the private

[7] See Table II-3 Alternatives Matrix for a comparison of the differences between the three alternatives.

land portions, the overall capacity of the resort would not increase perceptibly.[8]

East Bowl Side

The East Bowl side of the resort encompasses the area east of Slide Mountain proper and the nine skiing trails leading to the eastern base area. Base area facilities at East Bowl include a small day lodge, a large parking area, and a small maintenance shop. This infrastructure, including the bottom terminal of the Zephyr Lift, is located on Washoe County land. Under the No Action Alternative the East Bowl portion of the resort would remain underutilized and unable to open until after the peak holiday period.

Buildings

The existing day lodge at the base of the East Bowl is an antiquated facility, which provides seating for 96 people. Two existing wells provide domestic water for the East Bowl day lodge. Located on county land, improvements to the East Bowl base area infrastructure could proceed under the No Action Alternative. However, without the accompanying up-mountain improvements, base area improvements may not be warranted.

Lifts

The existing Zephyr Lift was installed in 1989 as a fixed-grip, four-place chair. The lift is approximately 3,905 feet long and provides an hourly capacity of 2,400. Under the No Action Alternative, the Zephyr Lift would not be replaced.

Terrain

Mt. Rose and Slide Mountain currently provide approximately 258 acres of named, maintained ski trails. Under the No Action Alternative, Mt. Rose could continue to improve the existing trail network on private land, but the resort would not be permitted to make changes on NFS lands.

Snowmaking

Mt. Rose currently provides snowmaking coverage on approximately 84 acres of terrain within the Mt. Rose portion of the ski area (on private land). This alternative would allow the private land portions of the snowmaking system to be expanded and improved. However, the development of snowmaking capabilities would not occur within the East Bowl, which is comprised of NFS lands.

Parking

Roughly 651 parking spaces are available within the East Bowl base area. While improvements to the East Bowl parking lot, located on Washoe County land, would be allowed under this alternative, they would likely be unnecessary without the proposed improvements to the East Bowl terrain and the installation of snowmaking infrastructure on the East Bowl side.

[8] It is typical for a resort to experience days of peak visitation throughout the season (peak weekends and holidays) in which the guest attendance levels exceed the CCC by anywhere from five to 50 percent. It is expected that various resort facilities will be overtaxed on these days, resulting in shortages of parking and seating capacity, as well as longer lift lines.

Chutes Area

Mt. Rose provides snow safety (avalanche control) services in The Chutes terrain for the protection of the Mt. Rose Highway (SR 431) under an agreement with NDOT and permitted by the Forest Service. This would likely continue with implementation of Alternative 1. Mt. Rose and the Forest Service would work together to ensure the continuation of avalanche control activities within the Chutes area under a separate SUP issue via a subsequent process. The terrain within The Chutes area is currently closed to skiing and would remain so under the No Action Alternative.

Mt. Rose Side

Many of the projects detailed within the Proposed Action for the Mt. Rose side of the ski area would be located on private land. Under the No Action Alternative, Mt. Rose would not require Forest Service authorization to implement those projects wholly located on private land. Implementation of these project elements on private land may occur with selection of Alternative 1.

Buildings

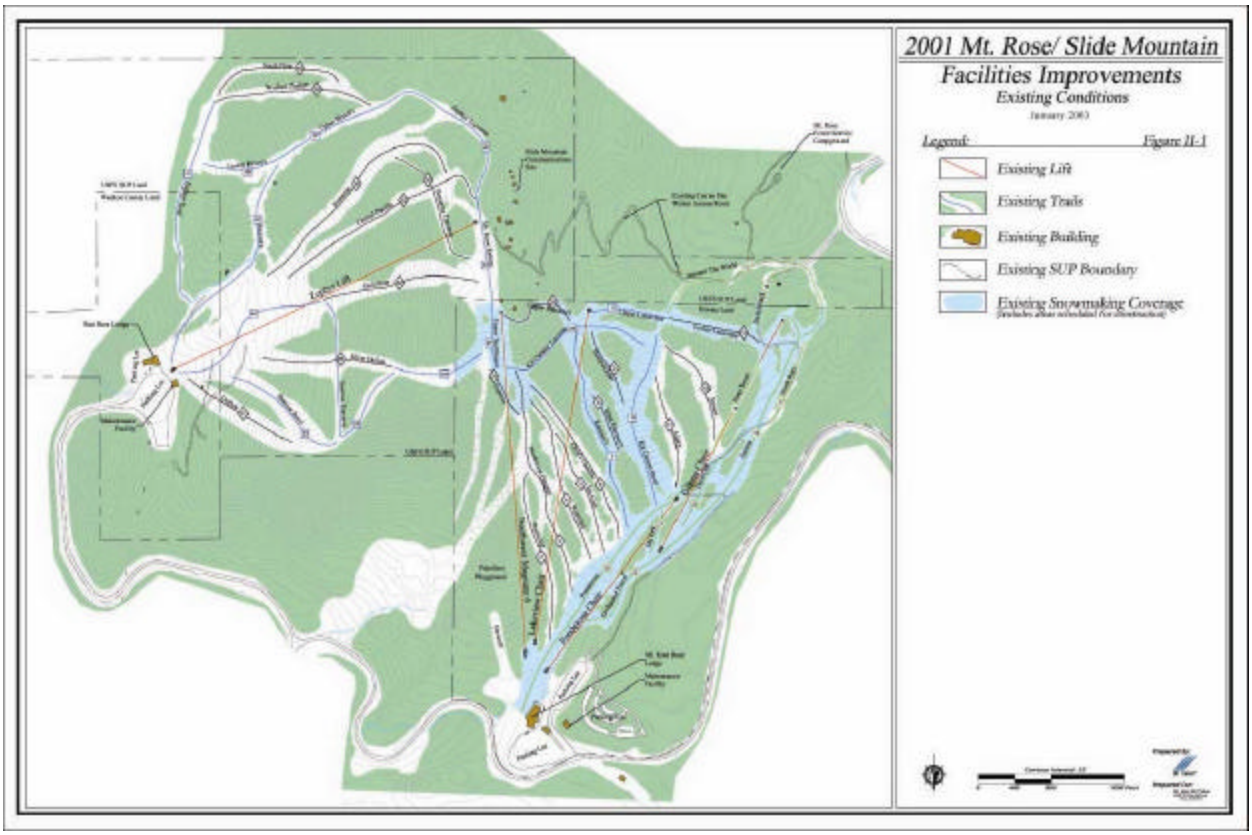
A mountain-top restaurant and skier services facility is proposed between the tops of the Northwest Magnum and Lakeview chairlifts. This facility would be sited on private land, and the exact size and specifics have not yet been developed. Conceptually, this facility would provide 100 indoor and 75 outdoor seats.

A view/picnic deck is proposed along the skier's left side of *Enchanted Forest*, just below the base of the Galena Chairlift. This 500 square foot deck would be two-to-three feet off grade and would be equipped with handrails, and picnic tables.[9] On sunny days, Mt. Rose may provide limited food service, such as a barbeque, which would be transported to the site via snowcat or snowmobile. There would not be any permanent utilities installed to this structure.

Parking

A majority of the resort's parking is provided within the Mt. Rose side parking lots. In order to facilitate circulation, Mt. Rose currently provides shuttle service between the East Bowl and Mt. Rose base area lots. This would likely continue. The resort recently completed an expansion of the Mt. Rose parking area providing approximately 325 additional spaces on private land, and has received approval to ultimately provide a total of 500 new spaces, which could be constructed under Alternative 1.

[9] This facility would meet the Americans with Disabilities Act (ADA) accessibility requirements.


2001 Mt. Rose/ Slide Mountain
Facilities Improvements
Existing Conditions
January 2003
Legend:
Figure II-1
Existing Lift
Existing Trails
Existing Building
Existing SUP Boundary
Existing Snowmaking Coverage

ALTERNATIVE 2 - PROPOSED ACTION

Alternative 2, the Proposed Action, represents the logical progression of development at Mt. Rose and is designed to complement and enhance current skiing facilities and guest opportunities. Additionally, this proposal is intended to establish the planning and development direction for the resort over the next five-to-seven years. Subsequent to this site-specific environmental review, projects ultimately receiving approval will be incorporated into an "approved" Mt. Rose/Slide Mountain Master Development Plan.

Special Use Permitting

The Proposed Action would amend Mt. Rose's existing 40-year SUP to incorporate the 30-acre area currently under separate permit, to add approximately 131 acres encompassing The Chutes terrain, and add a 25-acre area located to the southwest of the ski area. Once consolidated, the single Mt. Rose SUP area would encompass approximately 746 acres of NFS land.

Resort Carrying Capacity

The proposed projects have been designed, to more efficiently accommodate the existing level of daily visitation. However, upgrading lifts and increasing available parking[10] would entail an increase in CCC from 3,720 to 4,220, which is approximately a 13 percent increase.

East Bowl Side

Due to a current lack of snowmaking, inordinately rocky and irregular terrain, and antiquated base area facilities, the East Bowl portion of the resort is significantly underutilized and frequently does not open until after the peak holiday period. Upgrading existing infrastructure and terrain and adding snowmaking capabilities would serve to enhance the guest experience within the East Bowl. The improvements proposed for the East Bowl are intended to energize this portion of the resort and alleviate overcrowded conditions on the Mt. Rose side.

Buildings

The existing day lodge would be razed and replaced with a more modern facility that would accommodate approximately 300 seats. This building would be located in approximately the same area as the existing lodge, but it would entail additional grading to facilitate on-grade access to skiing terrain, parking, and the Zephyr Lift.

Two existing springs provide domestic water for the East Bowl day lodge. Alternative 2 proposes to upgrade the existing water line and storage tank located along the skier's right edge of *Fremont*. The capacity of the new tank would be approximately 250,000 gallons. The proposed capacity increase at the East Bowl Day Lodge would also necessitate a replacement of the existing East Bowl septic system.

Lifts

Under Alternative 2, the existing Zephyr Lift would be upgraded with a six-person, detachable lift with a ride time of less than four minutes and a capacity of 2,400 to 2,800 skiers per hour.

[10] Mt. Rose's parking facilities are not located on NFS lands and are therefore not subject to review under the NEPA process. Mt. Rose received County approval to expand parking facilities on private land at the Mt. Rose side by 500 spaces

The lift would retain its current alignment; however, the bottom terminal would be lowered to facilitate on-grade access from the parking and day lodge areas. The top terminal would be raised in elevation to allow improved skiing grades to south and north of the lift.

The Terrain Park surface lift would run parallel to and immediately beneath the Zephyr Lift. The bottom terminal of this surface lift would be above the East Bowl base area, and would relieve congestion at the bottom terminal of the Zephyr lift. At 1,200 feet in length, this lift would provide access within the proposed terrain park.

Terrain

Under Alternative 2, two new trail segments are proposed on the East Bowl side. Each of these trails would enhance access to additional skiing terrain.

The *Zephyr Traverse* has grades that are too flat for most skiers – and particularly snowboarders – to gain ready access to the ski trails south of the Zephyr Lift. Under the Proposed Action, this traverse would be graded to create an average slope gradient of approximately ten percent from the lift terminal to the top of *Upper Bruce's*. To facilitate a functional traverse, an additional trail segment would be created that bypasses one of the larger curves along the existing traverse. This trail segment would be approximately 40 feet wide and 500 feet long; it would require approximately 0.4 acre of vegetation removal and grading. Fill necessary for construction of this trail segment would be translocated from the water impoundment site.

A terrain park is proposed for the skier's left edge of the East Bowl, beneath the Zephyr Lift. The park features themselves would be constructed entirely of snow, allowing the design of the terrain park to change seasonally with user preferences. Surface grading is proposed for this area to create a smooth surface on which to construct the park.

As previously mentioned, much of the skiing terrain within the East Bowl is rocky and irregular and requires extensive snow accumulation prior to opening. Although snowmaking is proposed for much of this terrain, limited water availability and conservation will constrain the depth of machine-produced snow. In order to provide a quality and reliable skiing product, grading or stumping/smoothing approximately 72.5 acres of terrain within the East Bowl is proposed.

Grading of these trails would involve disturbance of the soil to affect a change in slope contours. Under the grading scenario topsoil (where present) would be removed and stockpiled, and large rocks would be removed with equipment or explosives and buried along with stumps. Slopes would be re-contoured, and topsoil would be replaced prior to fine grading, fertilizing, seeding, and mulching. This prescription is proposed in areas with large boulders, exposed bedrock, terrain with steep side-slopes, and at intersections or other areas needing more complete surface preparation. The edges of the grading areas would be feathered and smoothed to blend with the surrounding undisturbed terrain. Specific trails proposed to receive grading include: *Bonanza, Bonanza Traverse, Central Pacific, Fremont, Mt. Rose Return, Silver Dollar, Upper Bruce's, Zephyr Trail,* and *Zephyr Traverse*. The area proposed for grading would result in approximately 55.8 acres of ground disturbance.

The stumping/smoothing and rock blasting method is proposed in areas where contours would

not need to be changed but where the removal of rocks and/or stumps would significantly enhance the skiing product. In such areas, rocks may be removed with explosives and hauled off-site or buried with stumps. The slope surface would be smoothed, but grading would generally not extend through the topsoil or surface layer. Slope contours would remain relatively intact. Seeding, mulching, and fertilizing would be conducted promptly following disturbance. Specific trails proposed to receive stumping/smoothing include: *Gold Run, South Rim,* and the *Washoe Zephyr* and would total approximately 16.6 acres.

Snowmaking

Ensuring a reliable and quality skiing product within the East Bowl is critical to the development of the resort as a whole, as well as for drawing guests away from the overburdened Mt. Rose side trails and onto the relatively underutilized terrain within the East Bowl. In conjunction with the proposed terrain modifications, the installation of snowmaking infrastructure to accommodate approximately 65 acres of snowmaking coverage on NFS lands within the East Bowl is proposed.[11] Specifically, snowmaking is proposed on: *Bonanza, Bonanza Traverse, Fremont, the East Bowl, Mt. Rose Return, Silver Dollar, Central Pacific, Upper Bruce's,* and the *Zephyr and Sunrise* traverses.

Water is currently drawn from wells located on private land and pumped throughout the existing snowmaking system on the Mt. Rose portion of the resort. In conjunction with the development of the proposed snowmaking, a water impoundment to the skier's right side of the *Zephyr Traverse* above *Bonanza* would be constructed. The proposed pond would have a storage capacity of five-to-seven acre-feet (approximately 1.6 to 2.2 million gallons).[12] Mt. Rose currently holds water rights adequate to supply both the existing and proposed snowmaking coverage areas.

Most of the proposed buried snowmaking lines would lay within areas also proposed for terrain modification. Where underground snowmaking lines would not be placed in such areas, the disturbance would result in approximately 7.3 acres – producing an effect similar to slope grading. Snowmaking lines would generally be buried to a depth of between six and eight feet – to reduce the risk of freezing – and would generally be buried on the skier's left (windward) side of each trail. Disturbance widths would be approximately 40 feet. When burying lines, topsoil or surface layers would be removed, stockpiled, and used during revegetation. The disturbance corridor for line installation would be blended into the surrounding trail area. Seeding, mulching, and fertilizing would be conducted immediately following site disturbance.

Parking

Approximately 651 parking spaces are currently available within the East Bowl base area. Minor improvements are proposed to improve pedestrian flow and functionality. Regrading the entire East Bowl parking lot is proposed. This would reduce the knob located near the existing day lodge and would facilitate on-grade access to the Zephyr Lift and the proposed day lodge. In

[11] Current water rights at the Big Springs Well limit snowmaking diversions to a total of 100 acre-feet per year for both existing (84 acres) and proposed (65 acres) terrain coverage.

[12] The proposed water impoundment would also provide reserve water for wildland fire fighting during the summer, should the need arise.

conjunction with proposed on-mountain improvements to NFS lands at the East Bowl, the Proposed Action would expand the north and west margins of the parking lot on County land by approximately 1.75 acres, which would provide approximately 225 additional parking spaces.

The US Hang Gliding Association recognizes the knob on the easternmost edge of the East Bowl parking lot as a premier launch site for hang gliders. Alternative 2 would allow summer parking in the upgraded parking lot and would provide improved access for existing hang gliding users.

Chutes Area

Approximately 18 acres of the area locally referred to as The Chutes is currently within the Mt. Rose SUP area. An additional 42 acres of The Chutes terrain lies on Mt. Rose private land. The Forest Service acquired the remaining 131 acres of The Chutes as a portion of the 3,700-acre Galena land exchange. A portion of Alternative 2 proposes to amend the existing SUP by incorporating the 131 acres of NFS land making up The Chutes into the ski area SUP.

Chutes Return Lift

The Chutes Return Lift would be installed as a four-person, fixed-grip chairlift with a top-drive terminal. An electric distribution spur from the bottom terminal of the Northwest Magnum Lift would supply power to the top terminal, which would be located on private land. The lift profile would be approximately 1,600 feet in length, extending from the bottom of the proposed East Bowl/Chutes Skiway to the top of *Showoff*, on the Mt. Rose side. Ride time would be approximately three minutes; skiers would then ski to the bottom of the Northwest Magnum 6 Lift and have easy access to the gladed Chutes terrain.

The top terminal, upper one-third of the lift (approximately 550 feet), and roughly three towers would be sited on private land. The remainder of the lift, the bottom terminal, and approximately four towers would be located on NFS lands. Preparation of the bottom terminal site would require grading roughly one-third of an acre to create a milling, maze, and loading area. Vegetation removal for the lift would be limited, with approximately 0.7 acres of clearing for the lift corridor. All towers would be painted in light green color to minimize their appearance on the landscape. Refer to Figure III-2 for a visual simulation of the proposed Chutes Return lift and terrain.

Terrain

While no snow safety program can completely eliminate all related hazards, Mt. Rose, in cooperation with the Forest Service and the NDOT, has demonstrated a level of avalanche control well within regional and national norms. With approval of the Proposed Action, the level of avalanche control activities within the Chutes terrain would increase proportionately to ensure the safety of skiers. The focus of the snow safety program would shift from protecting the Mt. Rose Highway to protecting the skiing public. This effort would be appreciably aided by the introduction of frequent snowpack compaction provided by regularly skiing of the area. The current snow safety program results in smaller, more frequent, and less damaging slides. Avalanches originating within The Chutes have not reached the Mt. Rose Highway since 1983. With the elimination of virtually all large, destructive avalanches, small reproductive vegetation has reestablished within The Chutes. Approximately 12 of the existing chutes within this area are proposed to receive thinning and incidental trimming of vegetation. Vegetation removal

would be minimal; ground cover and small stands of large/mature clumps would not be disturbed. Tree removal would be primarily focused on the smaller diameter reproductive growth, which has occurred since the cessation of historic large avalanches, and on insect damaged and/or dead timber. The proposed glading would be implemented in a manner that effectively connects and links the existing openings, creating continuous and consistent skiing lines. Vegetation removal efforts would strive to maintain healthy trees and large/mature clumps wherever possible. All slash generated from trail construction can be chipped and scattered, and the timber with structural value can be sold to a local mill, all the rest can be stored for use as fire wood in lodges.

Additionally, routine skiing of The Chutes terrain would have the accompanying benefit of increasing snowpack stabilization by providing consistent skier compaction of the snow. Nine of these trails would originate from the East Bowl side, while the remaining three would be extensions of trails from the Mt. Rose side. Vegetation thinning for The Chutes is described by percentage of glading, and is proposed as follows:

Table II-1
Chutes Area Vegetation Thinning

Treatment Type	**Area** (acres)
Incidental Trimming	4.8
5 to 10 Percent Glading	13.7
10 to 20 Percent Glading	11.4
25 Percent Glading	0.8
50 Percent Glading	0.9
75 Percent Glading	4.9
80 to 100 Percent Removal	1.9
100 Percent Removal	0.3
Total Area Treated	*38.7*

The proposed *East Bowl/Chutes Skiway* would facilitate access to the Chutes Return Lift. The trail would start at the northern edge of the East Bowl parking lot and extend to the proposed bottom terminal of the lift. This 2,700 foot skiway would additionally allow skiers to park in the East Bowl parking lot and to ski to the bottom of the proposed Chutes Return Lift, enabling easy access to The Chutes area and the Mt. Rose base area. Additionally, the skiway would facilitate lift maintenance and ski patrol access to the base of The Chutes area. Construction of this trail would require full clearing and the development of a benched skiway, with a partial cut and fill. The skiway would be out sloped at approximately five-to-seven percent, necessitating a smaller disturbance area and improving drainage. The *East Bowl/Chutes Skiway* would be developed as a 25-30 foot wide groomable trail. As winter progresses, the skiway would be incrementally widened using snow to achieve a mid-winter skiable width of roughly 40 feet. Ground disturbance for the skiway would total approximately 4.5 acres.

Mt. Rose Side

Some of the project elements proposed on the Mt. Rose side would occur on private lands. Although the projects proposed on private lands do not require NEPA analysis or Forest Service approval, they are disclosed here as portion of the improvements proposed for the overall resort.

Buildings

A mountain-top restaurant and skier services facility is proposed between the tops of the Northwest Magnum 6 and Lakeview chairlifts. This facility would be sited on private land, and the exact size and specifics have not yet been developed. Conceptually, this facility would provide 100 indoor and 75 outdoor seats.

A view/picnic deck is also proposed along the skier's left side of *North Rim*, just below the base of the Galena Chairlift. A second deck is proposed to the skier's right edge of the proposed *Lakeside Trail*. Both of these 500 square foot decks would be two-to-three feet off grade and would be equipped with handrails, and picnic tables.[13] On sunny days, Mt. Rose may provide limited food service, such as a barbeque, which would be transported to the site via snowcat or snowmobile. There would not be any permanent utilities installed to these structures.

Lifts

The top terminal of the Lakeview Chairlift would be extended onto NFS lands. The current top terminal is on private land; extending the chair would enhance the skiability of the terrain in this area by enabling access to both the north and south.

Terrain

A small connector trail is proposed on private land to provide skiers disembarking from The Chutes Return Lift with ready access to the Northwest Magnum 6 Chairlift via *Showoff*. Development of this trail segment would require approximately 0.5 acres of vegetation clearing.

A new trail, tentatively named *Jim's Run*, is proposed on the southwest side of Slide Mountain. Requiring hike-to access, this run would originate approximately halfway across the *Zephyr Traverse* on the south side of the Slide Mountain Communications Site (SMCS). Offered as an "off-piste" style experience, skiers would have access into this sparsely treed area exiting onto the proposed *Lakeside Trail* and then traversing to *Around the World* on the Mt. Rose side of the resort. While implementation of this trail would not require any ground disturbance, an area of approximately 4.2 acres would be lightly gladed, with removal of five-to-ten percent of the existing trees. Approximately half of this trail would be constructed within the aforementioned 25-acre SUP boundary expansion area.

Currently, six or more over-the-snow vehicles access the SMCS daily for maintenance purposes. A winter access "snow road" parallels *Around the World*, traverses a portion of the proposed Jim's Run, and it follows the existing summer road to the communication site. A short winter access road re-route is proposed to prevent future skier/snow vehicle conflicts. This re-route would require minimal tree removal and the blending of two existing cut/fill banks. The proposed re-route would cross the junction of the proposed *Jim's Run* and *Lakeside Trail* at a right angle. Signs would be placed at, and in advance of, this intersection to alert both skiers and snow vehicle drivers.

The *Lakeside Trail* is proposed from the top of the extended Lakeview Chairlift, down the south face of the Mt. Rose side connecting with *Around the World*. Developed as a gladed trail,

[13] Both facilities would meet the Americans with Disabilities Act (ADA) accessibility requirements.

approximately 10-20 percent of the vegetation within this sparsely treed area would be removed, for a total area of 4.0 acres.

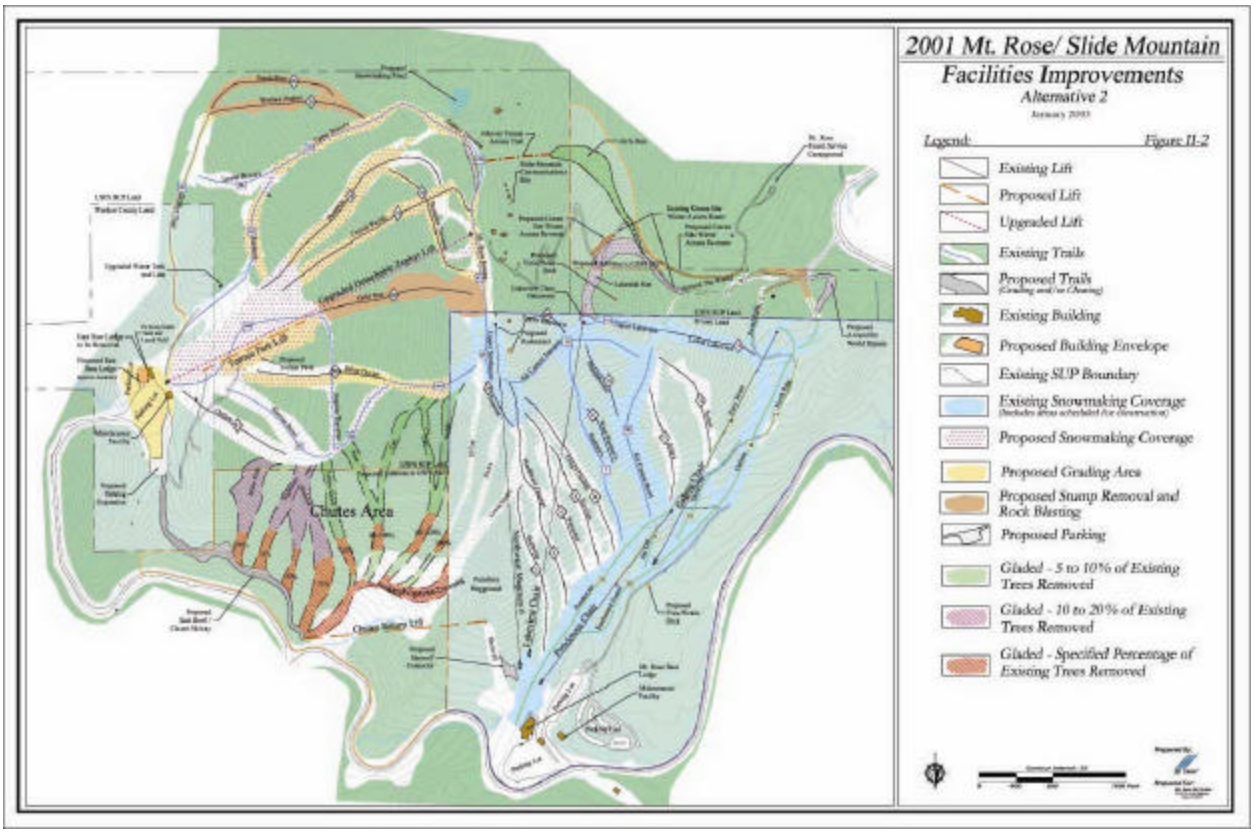
The proposed *Around the World Bypass* would provide an easier way down for low-level skiers who currently utilize *Around the World*. Currently, *Switchback* is the easiest way down, and it is too steep for beginners. The proposed bypass would have an average slope angle of approximately 14 percent, and would entail tree clearing and ground disturbance over a 0.8-acre area.

A portion of *Around the World* is proposed for re-grading and widening. The trail is a beginner level trail that enables novice skiers to get from the top of Mt. Rose to the bottom with an "easiest" way down. However, one short section of the trail currently has a slope of almost 20 percent, which poses a significant challenge to low level skiers. Additionally, in summer months a portion of this trail is used as an access road between the Mt. Rose Highway and the existing communications site, located on top of the mountain. The slope is too steep for large vehicles needing access to the SMCS. Therefore, many vehicles circumvent the steep road and access the SMCS via the Mt. Rose Campground, located just south of the ski area. As many as six or more large vehicles per day utilize the campground, creating an unacceptable situation for the Forest Service.

The proposed project would re-grade the trail to a wider and more desirable slope, enhancing the skiers' experience and enabling better summer vehicular access to the SMCS. The slope would decrease from approximately 20 percent to 10 percent, providing terrain much more suitable to beginner level skiers and large maintenance vehicles. The project would require a cut into the slope above (south of) the existing access road and fill placement adjacent to the access road. The overall area of disturbance would be approximately 1.8 acres.

Snowmaking

Additional snowmaking is proposed for *Around the World* as well as the proposed *Around the World Bypass* and *Lakeside Trail*. These coverage areas would be developed via connecting spurs off of the existing snowmaking system and would add approximately 8.5 acres of new snowmaking coverage to the Mt. Rose side.


2001 Mt. Rose/ Slide Mountain
Facilities Improvements
Alternative 2
Legend:
Figure II-2
Existing Lift
Proposed Lift
Upgraded Lift
Existing Trails
Proposed Trails
Existing Building
Proposed Building Envelope
Existing SUP Boundary
Existing Snowmaking Coverage
Proposed Snowmaking Coverage
Proposed Grading Area
Proposed Stump Removal and Rock Blasting
Proposed Parking
Glades - 5 to 10% of Existing Trees Removed
Glades - 10 to 20% of Existing Trees Removed
Glades - Specified Percentage of Existing Trees Removed
Chutes Area

ALTERNATIVE 3

As detailed in Section B of this chapter, two key issues were identified as warranting the formulation of an additional alternative for detailed analysis: the presence of the Tahoe draba (a Forest Service Regional Sensitive Species) and the general extent of ground disturbing activities. Alternative 3 was developed to respond to these two issues by proposing a substantial reduction of grading and stumping/smoothing within the East Bowl skiing terrain area.

Alternative 3 includes all aspects of Alternative 2, as detailed above, with the following key modifications:

Special Use Permitting

Alternative 3 would amend Mt. Rose's existing 40-year SUP (560 acres) to incorporate the 30 acre area currently under separate permit, to add approximately 131 aces encompassing The Chutes terrain, and to add a 25-acre area located to the southwest of the ski area. However, in Alternative 3, the additional 156 acres (131 + 25) of new terrain would be offset through a proportionate reduction of an unutilized portion of the SUP below the East Bowl base area, which would be removed from the SUP. As such, under Alternative 3, Mt. Rose's single, consolidated SUP would not increase in total area and would include a total of 590 acres (560 + 30) of NFS land.

East Bowl Side

Snowmaking

Ground disturbance associated with installation of snowmaking (outside of areas proposed for terrain recontouring) would increase for 7.3 acres in the Proposed Action, to approximately 9.0 acres under Alternative 3.

Terrain

Alternative 3 would decrease the number and extent of ski trails proposed for grading or stumping/smoothing. This alternative allows grading on only the minimum number of trails necessary to create a balance between the uphill capacity of the proposed upgraded Zephyr Lift and the downhill capacity of the ski trails. This balance was calculated as the resort would function in a low snow year or in the early part of the season. Alternative 3 would ensure that four main trails (and attendant traverses) within the East Bowl would be skiable under low snow conditions.

Specific trails and traverses proposed to receive grading under Alternative 3 include: *Bonanza, Bonanza Traverse, Central Pacific, Fremont, Lower Silver Dollar, Upper Bruce's, Zephyr Trail,* the *Zephyr Traverse,* and *Around the World*. Overall, the area proposed for grading would result in approximately 42 acres of ground disturbance. A 2.8-acre area atop *Gold Run* is the single area proposed to receive stumping/smoothing.

As a whole, the grading and stumping/smoothing of skiing terrain proposed under Alternative 3 would total 64.4 acres (42 acres for grading, 2.8 acres for stumping/smoothing and 19.6 acres for

miscellaneous grading[14]). Alternative 3 represents a net reduction in ground disturbance of approximately 29 percent over the Proposed Action.

Additionally, the ski trails proposed for grading have been divided into three categories based on the presence of Tahoe draba aggregations. The three categories, and areas of each, are as follows:

Table II-2
Alternative 3 Grading Categories

Grading Category	**Area** (acres)
Proposed grading, no Tahoe draba present	29.5
Proposed grading "test area," Tahoe draba present	4.2
Proposed grading, Tahoe draba present, contingent upon the success of the "test areas"	8.4
Total	*42.1*

The categories of grading were devised in an effort to minimize the total effects to Tahoe draba, while still meeting the Purpose and Need for the project. Areas proposed for grading with no Tahoe draba present would not be subject to any special conditions. Within the 4.2 acres of terrain proposed as "test areas," a professional botanist for the Tahoe draba would develop a site-specific Species Conservation Plan. This plan would detail transplanting, reseeding, and irrigation/maintenance. Subsequent to disturbance, the "test areas" would be regularly monitored by professional botanists and evaluated against established performance criteria for both transplants and seed establishment. Provided that the "test areas" meet the performance criteria within the specified period (five years), the remaining 8.4 acres of terrain, categorized as "contingent upon the success of the test areas," would be approved for grading and Tahoe draba reestablishment. Overall, Alternative 3 represents a disturbance to 92 identified individuals/aggregations of Tahoe draba – a 25 percent reduction over the Proposed Action (which would affect 124 identified individuals/aggregations). The referenced Species Conservation Plan is provided as Appendix A.

[14] Miscellaneous projects include: the Chutes Return Lift terminals, trail construction, parking additions, the snowmaking impoundment, and snowmaking lines outside of other graded areas.

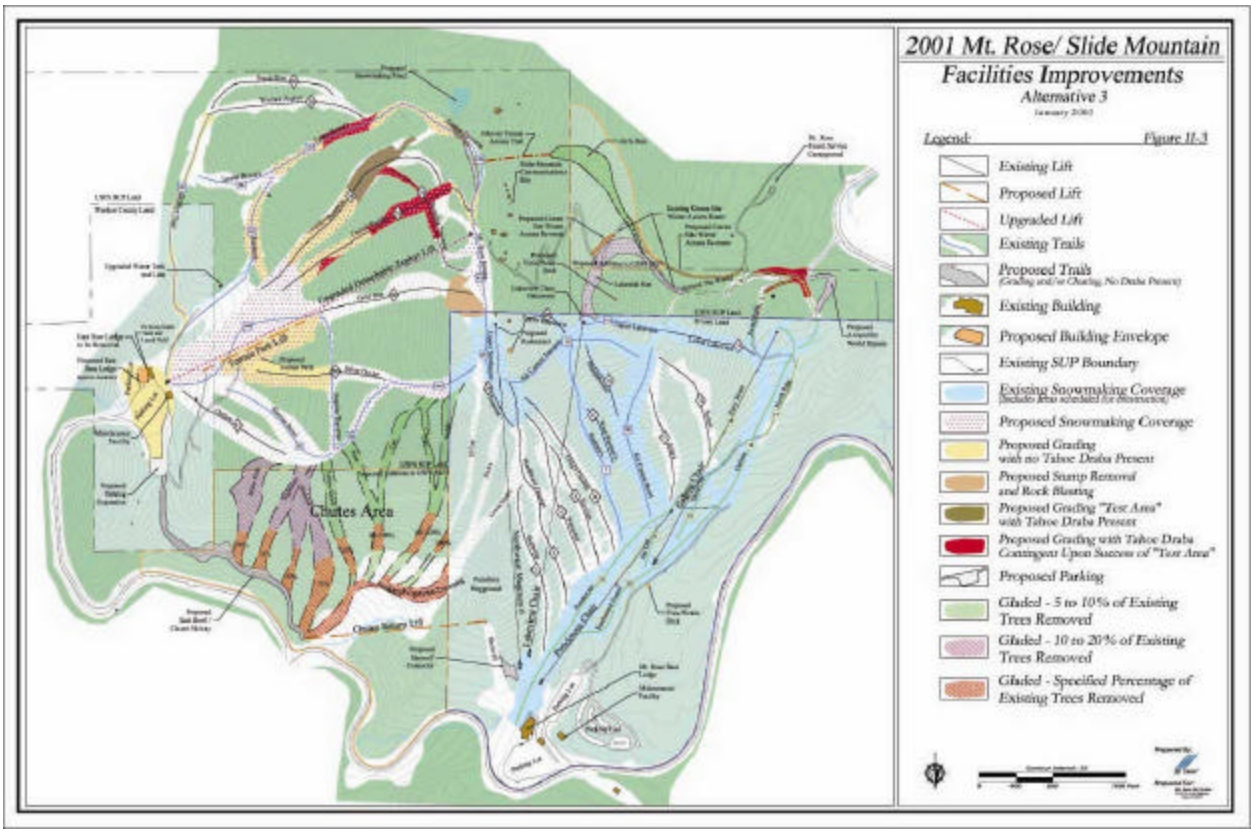

2001 Mt. Rose/ Slide Mountain
Facilities Improvements
Alternative 3
Legend:
Figure II-3
Existing Lift
Proposed Lift
Upgraded Lift
Existing Trails
Proposed Trails
Existing Building
Proposed Building Envelope
Existing SUP Boundary
Existing Snowmaking Coverage
Proposed Snowmaking Coverage
Proposed Grading with no Tahoe Draba Present
Proposed Stump Removal and Rock Blasting
Proposed Grading "Test Area" with Tahoe Draba Present
Proposed Grading with Tahoe Draba Contingent Upon Success of "Test Area"
Proposed Parking
Gladed - 5 to 10% of Existing Trees Removed
Gladed - 10 to 20% of Existing Trees Removed
Gladed - Specified Percentage of Existing Trees Removed
Chutes Area

Table II-3
Alternatives Matrix

Project Component	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
SPECIAL USE PERMITTING			
Number of SUPs Issued	3	1	1
Total acreage	721	746	590
ON-MOUNTAIN CCC	3,720	4,220	4,220
TERRAIN			
Total Skiable Acres	~258	~442	~442
Terrain Parks	2	3	3
NEW CONSTRUCTION-RELATED GROUND DISTURBANCE (ACRES)			
Grading	0	~56	~42
Stumping	0	~17	~3.0
Miscellaneous	0	~18	~20[a]
Total	*0*	*~91*	*~65*
LIFTS			
Surface	1	2	2
Aerial Lifts	5	6	6
Total	*6*	*8*	*8*
SNOWMAKING COVERAGE (ACRES)			
Mt. Rose	84	92.5	92.5
East Bowl	0	65	65
Total	*84*	*157.5*	*157.5*
SNOWMAKING INFRASTRUCTURE			
2.2 million gallon water impoundment at East Bowl	No	Yes	Yes
PARKING (PRIVATE AND COUNTY LAND, PROVIDED IN TERMS OF VEHICLE CAPACITY)			
Mt. Rose Side[b]	1,442	1,617	1,617
East Bowl Side	651	876	876
Total	*2,093*	*2,493*	*2,493*
GUEST SEATING (PRIVATE AND COUNTY LAND)			
Mt. Rose Day Lodge	800 (indoor and outdoor)	800 (indoor and outdoor)	800 (indoor and outdoor)
East Bowl Day Lodge	96 (indoor)	300	300
Mountain Top Restaurant at Mt. Rose[c]	175 (indoor and outdoor)	175 (indoor and outdoor)	175 (indoor and outdoor)
Total	*1,071*	*1,275*	*1,275*

[a] Because grading associated with trail construction is less in Alternative 3 than under the Proposed Action, miscellaneous grading – including that associated with snowmaking line installation, is greater.
[b] 175 additional, approved spaces on County land at the East Bowl would likely not be necessary under Alternative A, however they would be constructed under the action alternatives.
[c] This facility has *not* been constructed, but it likely would be under the No Action Alternative.

E. REVISIONS MADE TO THE PROPOSED ACTION

The Proposed Action was modified prior to the initiation of the NEPA process. Modifications occurred in response to resource data, through site-specific fieldwork, analyses, and aerial mapping. This section outlines how the Proposed Action was revised to specifically respond to resource constraints.

EAST BOWL GRADING

Original planning concepts for the project proposal contemplated a more extensive grading scenario within the East Bowl terrain. Specifically, the trails on the north side of the East Bowl, Outlaw and Sunrise, were evaluated for re-contouring and grading. In comparison to the other skiing terrain within the East Bowl, these trails are covered with relatively lush natural vegetation. In order to preserve as much of the existing natural vegetation as possible, other more sparsely vegetated trails within the East Bowl were selected to provide early season or low snow year skiing opportunities.

PROPOSED SNOWMAKING PIPELINE ALIGNMENTS

Subsequent to the identification of the specific locations of Tahoe draba plant communities, each of the proposed snowmaking pipeline alignments was evaluated and realigned to achieve maximum avoidance.

ALTERNATE CHUTES RETURN LIFT ALIGNMENTS

Several alternative lift alignments were evaluated for serving The Chutes area. Specific evaluation parameters included: the visual prominence of the lift, the effects of wind on the operation of the lift, protecting the lift equipment during avalanche control operations, and controlling skier densities within The Chutes terrain.

Potential alignments running up the middle of The Chutes to the top of the mountain were readily eliminated based upon conflicts with all of the established criteria. The proposed Chutes Return Lift alignment was specifically selected for its ability to blend with the surrounding terrain and timber and for its low visibility from the Mt. Rose Highway. Additionally, skiers would intentionally be required to ride both the Chutes Return and the Northwest Magnum 6 lifts in order to make round-trips within The Chutes terrain.

CHUTES RETURN LIFT TOWER PLACEMENT

A preliminary design of the Chutes Return Lift had two support towers placed within a wetland, constituting a fill. However, it was determined that strategic placement of these towers, spanning the entire length of the wetland, would enable Mt. Rose to place the lift towers outside of identified wetland areas.[15] Wetland losses as a result of these alternatives would be minimized.

F. COMPARISON OF CONSEQUENCES BY ALTERNATIVE

For the purpose of comparison, the environmental consequences associated with implementation of the previously described alternatives are summarized in Table II-4. For detailed discussions of potential effects resulting from implementation of either of the alternatives, including cumulative effects, see Chapter III.

[15] Foundations for these towers would be constructed by hand, and towers would be placed by helicopter in order to eliminate construction-related impacts to this wetlands complex.

Table II-4
Summary of Environmental Consequences

	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
AIR QUALITY			
State & Federal NAAQs and PSD compliance	Compliance	Compliance	Compliance
SOILS			
Proposed Grading (acres)	0	~55.8	~42
Proposed Stumping/Smoothing (acres)	0	~16.6	~2.8
Proposed Miscellaneous Disturbance	0	~17.9	~19.6
Total Disturbance (acres)	*0*	*~90.3*	*~64.4*
WETLANDS AND RIPARIAN AREAS			
Acreage of vegetation clearing in wetlands/riparian areas:			
Construction of East Bowl/Chutes Skiway & Chutes Return Lift	0.0	1.6	1.6
Construction of Chutes runs	0.0	3.9	3.9
Ground disturbance in willow/alder/aspen habitat (acres)	0.0	0.2	0.2
Impacts to jurisdictional wetlands (acres)	0.0	0.0	0.0
Impacts to isolated wetlands (acres)	0.0	0.04	0.04
VEGETATION			
Tahoe draba:			
Individuals/aggregations[a] identified across the project area (NFS and private lands)[b]	~556	~556	~556
Individuals/aggregations affected by grading	N/A	105	1
Individuals/aggregations affected by stumping/smoothing	N/A	17	N/A
Individuals/aggregations affected by snowmaking line construction	N/A	2	7
Individuals/aggregations existing in test areas	N/A	N/A	32
Individuals/aggregations existing in contingent areas	N/A	N/A	52
Total individuals/aggregations affected	N/A	*124*	*92*
Acres of disturbance (NFS land) to Galena Creek Rockcress	0.0	0.0	0.0
Overstory vegetation removal (acres):			
Full clearing	0	10.2	10.2
20-80% clearing	0	13.7	13.7
10-20% clearing	0	11.4	11.4
5-10% clearing	0	18.0	18.0
Total	*0*	*53.3*	*53.3*

Table II-4
Summary of Environmental Consequences

	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
FISHERIES AND WILDLIFE			
Effects to listed T, E&S species[c]			
Lahontan Cutthroat Trout (T)	No effect	No effect	No effect
Townsend's Big-eared Bat (S)	NI	NI	NI
Spotted Bat (S)	NI	NI	NI
N. American Wolverine (S)	NI	NI	NI
Fisher (S)	NI	NI	NI
Northern Goshawk (S)	NI	NI	NI
Mountain Quail (S)	NI	MIIH	MIIH
Flammulated Owl (S)	NI	NI	NI
White-headed Woodpecker (S)	NI	NI	NI
Great Gray Owl (S)	NI	NI	NI
California Spotted Owl (S)	NI	NI	NI
Direct effects to wildlife in the project area	No additional effects	Dispersal of wildlife due to construction-related noise and increased human activity	Dispersal of wildlife due to construction-related noise and increased human activity
Indirect effects to wildlife in the project area	No additional effects	Indirect effects due to a reduction or alteration of available habitat within the SUP.	Indirect effects due to a reduction or alteration of available habitat within the SUP.
VISUALS RESOURCES			
Compliance with Retention and Partial Retention VQOs	Existing trails and facilities are in compliance with Partial Retention VQO from US 395, Non-compliance with Retention VQO from Mt. Rose Highway	Non-significant Forest Plan Amendment – existing and proposed trails and facilities would meet Partial Retention VQO	Non-significant Forest Plan Amendment – existing and proposed trails and facilities would meet Partial Retention VQO
GEOTECHNICAL			
Forest Service Hazard Classification	N/A	Water Impoundment - High	Water Impoundment - High
HERITAGE & CULTURAL			
Effects to NRHP eligible resources	None	None	None

Table II-4
Summary of Environmental Consequences

	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
WINTER RECREATION			
Ski area CCC	3,720	4,220	4,220
Expected annual visitation	Commensurate with projected regional population growth, however, fluctuates due to lack of improvements and variable weather	Likely increases slightly beyond projected regional population growth due to more reliable snowpack and improvements at East Bowl	Likely increases slightly beyond projected regional population growth due to more reliable snowpack and improvements at East Bowl
TRANSPORTATION			
Increase in AADT on the Mt. Rose Highway	Historic data indicates that AADT has increased each year, and would likely continue to increase under the No Action Alternative.	The projected increase of *up to* approximately 210 vehicles/day would remain well below the existing year-round and summer average daily traffic levels.	The projected increase of *up to* approximately 210 vehicles/day would remain well below the existing year-round and summer average daily traffic levels.
SOCIO-ECONOMICS			
Year-round full-time employees	25	26	26
Seasonal full-time employees	100	115	115
Seasonal part-time employees	300	300	300
Ski Area Permit Rental Charge Fees paid to Forest Service	Increases in SAPRC fees contingent upon lift ticket and ski school sales	Minor increase in vertical transport feet, as well as projected increases in lift ticket and ski school sales would potentially increase SAPRC fees	Minor increase in vertical transport feet, as well as projected increases in lift ticket and ski school sales would potentially increase SAPRC fees

[a] The term "aggregation" is used in conjunction with individual plants and refers to discreet assemblages of plants, separated from another such assemblage by a distance of unoccupied habitat sufficient to reference with GPS technology.
[b] Although locations of individuals/aggregations on NFS lands in The Chutes were not GPSed during the 2000 survey, it is estimated that approximately 80 locations would have been identified had this technology been used.
[c] **NI** = No Impact, **MIIH** = May Impact Individuals or Habitat (but will not likely contribute to a trend towards federal listing or loss of viability to the population or species)

G. MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

NEPA and CEQ regulations require the identification of all relevant, reasonable mitigation measures that could reduce the impacts of the project, even if those measures are outside the jurisdiction of the Forest Service. Mitigation, as defined in the CEQ regulations includes the

following:[16]

- 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 the impacts by repairing, rehabilitating, or restoring the affected environment
- Reducing 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

Mitigation measures are provided as a means to minimize the extent of the effects associated with implementation of the Proposed Action. Where appropriate, mitigation measures are listed within each resource area. When the effects of the mitigation measures are applied, the results are expected to limit the degree and magnitude of adverse impacts associated with the action. They are also expected to rectify impacts through repairing, rehabilitating, or restoring the affected environment and to reduce or eliminate impacts over time by preservation and maintenance operations during the lifetime of the action.

In addition to the mitigation measures prescribed below for each resource area, Mt. Rose would be required to prepare and submit, for Forest Service approval, the following documents:

- Project construction and grading plans
- Pre-construction erosion control/drainage management plans
- Post-construction erosion control plans
- Post-construction revegetation plans

These plans will incorporate the mitigation measures discussed below. Annual Summer Operating Plans will include strategies for monitoring compliance with required mitigation measures and their effectiveness. Failure to comply with mitigation required in any of the above mentioned plans or that required by the Decision Notice would constitute a breach of the project approval and could temporarily suspend implementation of approved projects.

Mitigation measures proposed for implementation at Mt. Rose are based upon standard practices and operating procedures that have been employed and proven effective in similar circumstances and conditions on the HTNF, including Mt. Rose and other ski areas in the region. It is assumed within this EA that standard practices have been, and would continue to be, applied as needed to reduce the impacts of development activities. Standard practices fall into four general areas:

1. General Project Design - Standard practices dictate avoidance and minimization as an integral part of general project design. Specifically, impacts to wetlands and Tahoe draba

[16] 40 CFR 1508.20, 1997

habitat are critical components in determining the alignment of ski trails, lifts, snowmaking pipeline corridors, and the placement of lift terminals and towers.

2. Forest Plan Requirements - Forest Plan standards, guidelines, and management directions provide a starting point for initial development planning and the generation of mitigation measures.

3. Best Management Practices - Best Management Practices (BMPs) are an integral part of any mitigation plan and are included in the operating, construction, drainage, erosion control, and revegetation plans. The Forest Service and Mt. Rose would develop these plans jointly. The BMPs contained in these plans have proven effective over time on similar projects and would apply to all development actions described in this EA.

4. Statutory and Regulatory Constraints - In addition to the mitigation measures outlined above, Mt. Rose must comply with all applicable federal, state, and local laws and regulations as well as all terms and conditions contained within the Forest Service-issued SUP.

A number of elements incorporated within the design of the Proposed Action effectively serve to mitigate potential adverse effects. The following mitigation section prescribes measures that would further avoid, minimize, or mitigate the potential effects identified in Chapter III. Mitigation measures that would be required with the implementation of the proposed action are shown in Table II-5.

The effectiveness and feasibility of the mitigation measures are assessed based on the following rating system, and they are applied to all mitigation measures.

Effectiveness

E1 Unknown. Little or no experience exists in applying this measure.
E2 Low. May not significantly reduce the level of impact.
E3 Moderate. Usually results in a significant reduction in impacts. Commonly applied.
E4 High. Almost always reduces impacts significantly. Commonly applied.

Feasibility

F1 Unknown or experimental. Little or no experience exists in applying this measure.
F2 May be technically difficult or very costly. May be legally or socially difficult.
F3 Technically probable. Costs moderate in comparison to other options. Legally or socially acceptable.
F4 Technically easy. Costs high in comparison to other options. Legally or socially acceptable.
F5 Technically easy. Costs low in comparison to other options. Legally or socially acceptable.

Table II-5
Potential Effects to be Mitigated and Proposed Mitigation Measures

AIR QUALITY	
Fugitive dust	1. To the extent feasible, 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 would be kept to a minimum at all times, allowing improvements to be implemented in sections. (E4, F5) 2. All base area grading, including buildings, and lift terminal areas, will be sufficiently watered to prevent excessive amounts of dust. In the absence of natural precipitation, watering of these areas will occur at least twice daily with complete coverage. (E4, F5) 3. Erosion control and revegetation efforts will commence immediately following construction as per Forest Service BMPs and an approved Erosion Control Plan. (E4, F5)
Slash disposal	Burning of slash is not proposed or permitted. Slash may be lopped and scattered or chipped. (E4, F5)
SOILS	
Slope Stabilization	On steeper slopes, areas exposed by grading will require installation of jute-netting or other appropriate geo-textiles to further stabilize disturbed soils. (Jute-netting or geo-textile stabilization should not occur in areas where Tahoe Draba is present or being re-established.) Installation includes: (E4, F3) 1. Seed and mulch the disturbed area. 2. Bury the top end of the netting in a trench at least four inches deep and eight inches wide. The trench shall be backfilled and tamped. 3. The netting shall extend beyond the edge of the mulched and/or seeded area at least one foot on the sides and three feet on the top and bottom. 4. The netting will be rolled down the slope and secured with staples. 5. Overlap the netting at least four inches on the sides and secure with staples 5 feet apart along the overlap. 6. Overlap lower end of uphill strip over downhill strip at least one foot and secure with staples one foot apart
Soil erosion initiated by clearing, grading, and construction activities	1. Prior to construction, an Erosion Control Plan will be developed, submitted for review, and approved by the Forest Service. (E3, F4) 2. Steep, erosive slopes will be avoided to the maximum extent possible. (E3, F5) 3. Revegetation measures will occur in all disturbed areas. (E3, F5) 4. A grading plan will be developed and submitted to the Forest Service for review and approval prior to implementation of proposed project elements. (E3, F4) 5. Mt. Rose and the Forest Service will specifically review each area proposed for stumping/smoothing to explore the potential use of alternate construction techniques such as the use of a "hammer hoe" and/or stump grinders. (E2, F3) 6. Mt. Rose and the Forest Service will explore the potential use of slash chipping within areas to be cleared. Additionally, the use of the chips may be explored as a means of reducing the extent of areas to be graded and filled. (E3, F3)
Loss of topsoil and soil mixing	1. Water bars, rolling dips, and other drainage structures for erosion control will be placed within the minimum required spacing. (E4, F5) 2. In all areas where grading or soil disturbance will occur (excluding flush

Table II-5
Potential Effects to be Mitigated and Proposed Mitigation Measures

	cut lift corridors), stockpile and re-spread topsoil following slope grading and prior to re-seeding. (E4, F5) 3. Avoid soil-disturbing activities during periods of heavy rain or wet soils. (E4, F4)
Waterbars	1. Waterbar spacing should generally be 75-100 feet, on steeper slopes a closer spaced interval of 50 feet may be necessary. (E4, F5) 2. Waterbars should drain into armored, energy-dissipating infiltration basins of appropriate size wherever feasible. In places where topography and slope makes it practical, more than one waterbar may drain into a basin of appropriate size. (E4, F5) 3. Water bars and drainage basins should be inspected seasonally, and maintained and cleared of sediment at regular intervals and as necessary. (E4, F5)
Soil compaction	Areas determined to have been compacted by construction activities may require mechanical subsoiling or scarification to the compacted depth to reduce bulk density and restore porosity. (E3, F3)
VEGETATION RESOURCES	
Revegetation Irrigation	1. Generic slope re-vegetation irrigation will not be employed in areas where Tahoe Draba is present or being re-established. 2. The frequency and quantity of irrigation is a function of species, site conditions, and precipitation. Deep watering is more effective than shallow watering and helps to conserve water supplies. Water should percolate at least two inches below the root zone during each watering. Watering must be conducted as needed, and not restricted to specific quantities or schedules. Coordinate working with weather predictions to avoid overworking, which can cause erosion. (E4, F5) 3. Irrigation water distribution may be conducted with either sprayers or dripline systems. (E4, F5)
Seeding Mix	Mt. Rose will work with the Forest Service in developing an appropriate weed-free, native seed mix. The seed mix will be site specific and based on: 1. elevation of Mt. Rose, 2. existing habitat/vegetation, and 3. recent reseeding success by Mt. Rose. 4. preference for native species
Tahoe draba[a]	1. Applying mulch or seeding ground cover species should not be done in Tahoe draba habitat because the plants appear to do best in nearly bare substrate. (E1, F1) 2. Because Tahoe draba is capable of sprouting from root and rhizome fragments in the substrate, the surface layer (one to two feet) of disturbed areas should be stockpiled and then applied over the new surface. This will ensure that viable root and rhizome fragments remain close enough to the surface to sprout and produce new plants. (E4, F5) 3. Collection and banking of seed from Tahoe draba plants in the project area will be pursued as a contingency for unsuccessful plant reestablishment. The banked seeds would preserve the existing genetic diversity of the population. This task would be completed in cooperation with the Center for Plan Conservation. (E1, F1) 4. Transplanting of Tahoe draba plants prior to disturbance has had some success at Heavenly Ski Area. This approach may be attempted in areas where Tahoe draba plants will be destroyed. Plants may also be stockpiled and then transplanted back to disturbed areas to augment regeneration from roots and rhizomes. Probably the best time to transplant would be in late fall so that flowering is completed and

Table II-5
Potential Effects to be Mitigated and Proposed Mitigation Measures

	transplants can take advantage of the spring snow melt. Transplanting should be done as soon as possible after plants are removed in order to prevent desiccation. Taking as much of the root and rhizome mass as possible with transplants should increase the chance of success. Transplanting will be conducted in accordance with the Species Conservation Plan presented in Appendix A. (E1, F1) 5. Because little quantitative data is available on the response of Tahoe draba to disturbance, monitoring of existing populations (as controls), as well as disturbed and mitigation areas, has potential to benefit the species in the long term and lead to more informed management decisions. (E1, F1) 6. Terrain grading and smoothing will be conducted to ensure that general habitat affinities (soil type, slope angle and surface cobble) are not altered to the extent of rendering the habitat unsuitable to Tahoe draba. (E4, F5) 7. Prior to commencing ground disturbing activities in the East Bowl and selective hand vegetation removal in The Chutes, Tahoe draba surveys would be conducted and individuals/aggregations flagged in order to avoid unintentional disturbance to individuals/aggregations. Hand removal of overstory vegetation would be utilized to construct terrain in The Chutes. (E4, F3) 8. Prior to the initiation of construction activities, Mt. Rose will provide species recognition training for all construction personnel. (E4, F5)
Galena Creek Rockcress	1. No heavy equipment would be used for construction activities in areas where Galena Creek rockcress were identified in the 2000 survey. 2. Prior to commencing ground disturbing activities in the East Bowl and selective hand vegetation removal in The Chutes, Galena Creek Rockcress surveys would be conducted and individuals/aggregations flagged in order to avoid unintentional disturbance. Hand removal of overstory vegetation would be utilized to construct terrain in The Chutes. (E4, F3) 3. Prior to the initiation of construction activities, Mt. Rose will provide species recognition training for all construction personnel. (E4, F5)
NOXIOUS WEEDS[b]	
	1. Work cooperatively with California and Nevada State agencies and individual counties to: (1) prevent the introduction and establishment of noxious weed infestations and (2) control existing infestations. (E4, F5) 2. As part of project planning, conduct a noxious weed risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities. (E4, F5) 3. Require off-road equipment and vehicles (both Forest Service and contracted) used for project implementation to be weed free. (E4, F5) 4. Conduct follow-up inspections of ground disturbing activities to ensure adherence to the Regional [5] Noxious Weed Management Strategy. (E4, F5) 5. Routinely monitor noxious weed control projects to determine success and to evaluate the need for follow-up treatments or different control methods. Monitor known weed infestations, as appropriate, to determine changes in weed population density and rate of spread. (E4, F5) 6. Use certified weed free hay and straw. (E4, F5)
WETLANDS AND RIPARIAN AREAS	
Construction/implementation impacts to wetlands.	1. During construction of project elements approved in this EA, no vehicular traffic will be permitted in wetland areas. (E4, F5)

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	2. Lift towers to be installed for the proposed Chutes Return Lift that occur in upland inclusions surrounded by wetlands will be hand excavated. Tower installation will occur via helicopter for these wetland sensitive locations where vehicular access is not possible without wetland impacts. (E4, F5) 3. To the extent practicable, vegetation clearing/modification of proposed ski trails within riparian areas (i.e. willow communities) will give preference to thinning and trimming instead of complete vegetation removal. (E4, F5)
Riparian Conservation Areas	1. Physically identify and flag/fence construction limits on the ground prior to construction. (E4, F5) 2. Avoid soil-disturbing actions during periods of heavy rain or wet soils. Apply travel restrictions during these time periods to protect soil and water. (E4, F5) 3. Seed, fertilize and mulch over disturbed areas within five days of completion of construction activity, weather permitting. In following years, seed, mulch, and fertilize areas where re-vegetation efforts have not attained coverage comparable to the adjacent, un-disturbed areas. (E4, F5) 4. Trap sediment on-site to the fullest extent possible using straw bales, filter fence, and sand bags as soon as possible. Eliminate direct channel or indirect connection of disturbed areas from nearby drainages. (E4, F5)
Vegetation Removal in Riparian Conservation Areas	1. Wetland areas will be clearly marked/fenced and avoided during construction. Heavy equipment will be excluded from the wetlands sites. (E4, F5) 2. Fell trees away from riparian areas. (E4, F5) 3. No mechanical disturbance will be authorized in riparian areas. Tree clearing and removal will be done by hand or over snow. (E4, F5) 4. Flush-cut trees without removing stumps or roots within wetlands and riparian areas. (E4, F5) 5. Follow all USACE guidelines as specified in U.S. Army Corps of Engineers *Section 404 Permit* (#COW-199875119-USACE). If new permits are issued, the USACOE may stipulate more conditions. (E4, F5) 6. Flush-cut trees. With the exception of one area, no grading or stump removal permitted. (E4, F5) 7. Where possible, unless trees present a safety hazard, tress shall be left on the forest floor to contribute to coarse woody debris. Larger diameter trees can be removed since they create safety hazards to skiers. Large branches can be trimmed off felled trees to allow for skiing with adequate snow cover. (E4, F5) 8. Move logs and logging debris by methods that minimize dragging or pushing through the soil to minimize soil disturbances. (E4, F5) 9. Conduct activities in such a manner as to avoid soil compaction and to maintain soil tilth. (E4, F5) 10. Do not dispose of logs or logging debris adjacent to streams or other water bodies. (E4, F5) 11. Maintain natural contour of the site and ensure that activities do not immediately or gradually convert the wetland to a non-wetland. (E4, F5) 12. Conduct activities with appropriate water management to minimize off-site water quality impacts. This includes: (E4, F5) A. Silt fence, properly entrenched, should be installed down-gradient of

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	the disturbed soils to minimize potential sediment introduction into connected wetlands areas. 13. Cutting or trimming of willows will be avoided except for pruning which results from normal skiing and grooming activities. (E4, F5) 14. Trees will be cut into lengths that can be removed from the site by hand or other non-obtrusive methods. Tractors, skidders or other similar vehicles will not be allowed within wetland areas. Towers for the Chutes Return lift will be installed with a helicopter. (E4, F5)
Riparian and Wetland General Construction BMPs	1. Prior to disturbing any intermittent drainages and wetland vegetation, any flow in the drainages will be diverted around the site in flexible pipe. Once the site is dry, construction can commence. (E4, F5) 2. Silt fences shall be installed below drainage crossings to prevent sediment movement offsite. The fencing will be placed perpendicular to the drainage, extending 25 feet on either side of the channel. (E4, F5) 3. Disturbed areas should be mulched and fertilized, utilizing certified weed-free seed mix and mulch. Re-vegetation should commence within five days of completion of ground disturbing activities. (E4, F5) 4. Where slopes are steep and/or risk of slumping or sloughing exists, re-seeded areas should be additionally stabilized using fiber netting, geotextile fabric, or other stabilization mesh. (E4, F5) 5. Mt. Rose staff should complete site inspections at least once every two weeks and following any significant precipitation event to ascertain that temporary BMPs are being followed and are performing effectively, and that re-stabilization and re-vegetation efforts are proceeding satisfactorily. (E4, F5)
WILDLIFE	
Effects to migratory birds	The effects to nesting migratory bird species would be minimized by trimming and cutting vegetation outside the avian breeding season, which is approximately from April 1 through August 31. Trimming and cutting of vegetation during the avian breeding season may be done if the work area is declared clear of nesting birds by a qualified biologist.
Wildlife mortality at snowmaking reservoir	Exposed plastic on a 2:1 or 3:1 slope is exceptionally slippery and presents a hazard for wildlife. The water in the pond would almost certainly attract local wildlife as a watering hole. An expandable geocell grid filled with the local sand and gravel will keep the soil in place and provide a surface conducive to both wildlife and operating personnel. The geocell surface would also provide a buffer against the greatest post-construction puncture risk, which is ice loading. (E4, F3)
VISUAL RESOURCES	
Visual effects of construction of the proposed improvements	1. Use helicopters for transport of ski lift components (e.g., towers), construction equipment, and other construction materials where areas cannot be accessed by existing roads. (E3, F4) 2. Minimize soil disturbance due to construction activity and revegetate disturbed areas promptly. (E4, F5) 3. Structures should be constructed of materials that blend with the landscape character. Lift components shall meet FSM 2380 policy for color and reflectivity, which is 4.5 on the Munsell neutral value color scale. Colors and building design plans will be submitted to the Forest Service for approval prior to the beginning of construction. (E3, F4) 4. The appearance of human-made openings should simulate existing natural openings in the forest, such as those that occur in the project area. For example, edges should be non-linear, and changes in tree heights along the edges of openings should be gradual rather than abrupt.

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	(E3, F5) 5. Install utilities underground in road corridors or in previously disturbed areas where terrain and mountain management permit. (E4, F5)
Visual impacts due to lift corridor construction	Soften hard edges by selective removal of trees of different ages and heights to produce irregular corridor edges. (E4, F5)
Visual impacts from building design	1. Follow FSM guidelines (Section 2380): (E3, F4) 2. The scenic character will be protected through appropriate siting of buildings and the use of low-impact materials and colors (e.g., indigenous construction materials, such as stone and wood, as well as non-reflective glass and roofing materials) 3. Remain in context with the landscape (i.e., rustic, craftsman, and country lodge styles). (E3, F3)
CULTURAL RESOURCES	
Discovery of unidentified historic properties	If undocumented historic and/or prehistoric properties are located during ground disturbing activities or planning activities associated with construction activities, they will be treated as specified in 36 CFR 800.11 concerning Properties Discovered During Implementation of an Undertaking. (E4, F4)
STABILITY OF WATER IMPOUNDMENT	
Reduce risks associated with piping[c]	1. A composite liner system consisting of HDPE liner above a minimum six-inch thick bedding of compacted clay would restrict the flow volume sufficiently to prevent saturation of the foundation and embankment soils and create enough head loss to reduce high exit gradients in the toe area of the dam. (E4, F2) 2. Grout any open fractures exposed during excavation prior to covering with the local sand bedding and the HDPE liner. The plugging of these fractures would either prevent the entry of water into the fractures or at least create enough head loss to reduce exit pressures at the embankment site. (E4, F3) 3. Injection grouting beneath the embankment foundation. (E4, F3)

[a] See Appendix A – Species Conservation Plan, for additional information.
[b] Forest Service Manual 2080 direction pertaining to integrated weed management would be followed.
[c] Piping involves the transport of solid particles from within an embankment or foundation soil in response to high seepage pressures or seepage velocities.