



United States  
Department of  
Agriculture



Forest  
Service

July 2005

## Environmental Assessment

### Las Vegas Ski and Snowboard Resort Snowmaking System and Lower Area Parking Improvements



Spring Mountains National Recreation Area  
Humboldt-Toiyabe National Forest

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## 1.0 Introduction

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The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives.

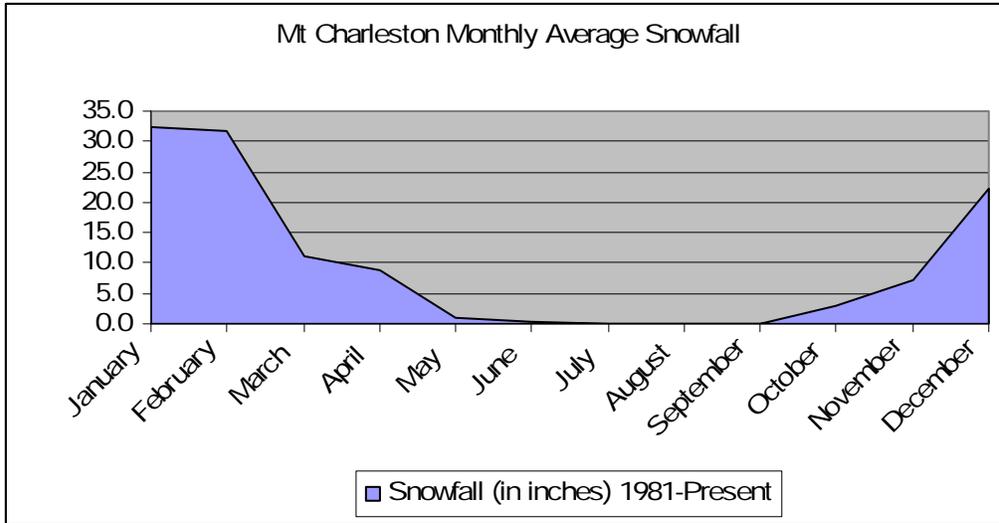
## 1.1 Purpose and Need for Action

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The purpose of this initiative is to facilitate meeting US Forest Service (Forest Service) goals and objectives in the SMNRA General Management Plan (Forest Service 1996). These include:

- Increase recreation opportunities, especially in the Spring Mountains
- Manage lands within the Spring Mountains NRA to provide a range of developed recreation opportunities with an emphasis on opportunities not available on private lands.
- Optimize public benefits in commercial and public service opportunities, where consistent with the protection of natural resources and values.
- Develop or improve facilities for resource management and health and safety.
- Provide user safety, convenience, and land management efficiency.
- Ensure public safety while providing additional winter recreation opportunities and reducing user conflicts.

There is a demonstrated need to improve snowmaking capability. This action is needed because the peak demand for winter recreation from residents and visitors is highest during the Christmas holiday season in Southern Nevada (SE Group, 2003) and this is the only operating ski area within 200 miles of Las Vegas and Clark County. However, the existing 1.9 million gallon pond holding water for snowmaking only has the capacity to service 40% of the existing ski runs. In addition, early season snowfall does not reliably provide sufficient snow cover to support ski and snowboard recreation activities. A summary of Mt Charleston Fire Station weather data (below) shows that November typically averages 7.1 inches, with heavier snows following in December and January at 22.4 inches and 32.5 inches, respectively (Personal communication, K. Runk, National Oceanic and Atmospheric Administration, March 2005).



Improving the snowmaking capability is needed because the peak demand for winter recreation occurs before there is enough natural snow to consistently and reliably satisfy the winter sport recreation demands.

There is a need to reduce unsuitable parking practices. During peak demand, the parking for recreational users exceeds capacity causing overflow which results in uncontrolled parking that does not fully meet Forest guidelines and raises safety concerns. The Las Vegas Ski and Snow Resort Master Plan (LVSSR) (SE Group 2003) reports that the lower area is used by visitors coming into the canyon for non-skiing activities and results in an estimated loss of 25% of the available parking for skiers on weekends and holidays.

There are approximately 40 tree stumps that were left from past construction and/or maintenance activities on LVSSR. The stumps are located in areas routinely skied by the public. The identified stumps need to be removed to improve grooming efficiency and decrease potential skier/stump collisions at certain snow depth.

In addition to facilitating winter recreation, the Forest Service is responsible for meeting goals and objectives for protecting biological resources. The project area is entirely located within an area designated as Management Area 11- Developed Canyons in the General Management Plan (Forest Service 1996) that includes an area designated as a Biodiversity Hotspot. Hotspots are areas with high concentrations of special or rare species and/or a number of species of concern and are protected under the Forest Plan, a Conservation Agreement (CA) (Forest Service 1998), and a Clark County Multispecies Habitat Conservation Plan (MSHCP) (RECON 2000). Within the Management Area, the Conservation Agreement specifically places *“high emphasis on protection of native species, ecological processes and incorporating these considerations into the management of recreation areas”*.

Projects must be compatible with specific Forest-wide and Developed Canyons’ biological objectives including the responsibility to maintain or enhance ecosystem health, function, sustainability, and diversity (plant, animal, and community)

## 1.2 Proposed Action

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The FS proposed to permit LVSSR to: 1) increasing the size of an existing snowmaking water storage pond from an existing full pond water surface of 0.6 acres to approximately 1.2 acres of water surface area and install associated snowmaking buried utility line extensions on existing ski runs; 2) improvements that would add 200 parking spaces and expand the lower parking area from 2.4 acres to 4.2 acres (with associated drainage control); 3) stump removal off an estimated 4.0 acres of existing ski runs. LVSSR has operated continuously since 1962 entirely on National Forest Service lands under a Ski Area Term Special Use Permit. All project-related improvements would occur within the permit area. If the project were approved, construction would likely begin in spring 2006 and be completed in time for the winter 2006 ski season (see Section 2.2 for a detailed description).

## 1.3 Decision Framework

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- Based on the environmental analysis in this EA, the Forest Supervisor with signature authority of the Humboldt-Toiyabe National Forest would decide:
- whether or not to authorize the construction, operation, maintenance of an expanded snowmaking system including a pond, and related utility lines, and;
- whether or not to authorize the addition of 200 parking spaces in the Lower Parking area, with the associated intersection improvements, and related drainage improvements;
- whether or not to remove the 40 stumps from ski runs;
- and, ultimately, whether this action: 1) responds to the recreation and safety subset of the General Management Plan goals and objectives; 2) would help move the project area towards certain desired conditions described in that plan, and; 3) would be compatible and consistent with the biological goals.

## 1.4 Public Involvement

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The project proposal was provided to the public and other agencies for comment during a 30-day scoping and comment period from December 23, 2004 through January 21, 2005. In addition, as part of the public involvement process, the agency prepared and mailed a scoping and comment document, and published a Legal Notice inviting public comment on December 23, 2004 in the newspaper of record, the Las Vegas Review-Journal. In a public location at the resort, LVSSR also posted a copy of the document inviting comment.

Using the comments from the public, other agencies, an interdisciplinary project team determined the substantive issues that needed to be addressed.

A summary of the questions and issues raised during public scoping and the responses are shown in Appendix B.

## 1.5 Issues

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The Forest Service separated the issues into two groups: significant (substantive) and non-significant (non-substantive). Significant issues are defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..."

The only significant or substantive resource issue potentially affected for this project was determined to be biological resources. The indicators to be considered in this document were identified by the Forest Service through internal and public scoping and are described below:

### **Biological Resources**

There are potential effects to species and habitat that are protected or of special interest such as: Forest Service sensitive wildlife species; special status species such as Clark County Multiple Habitat Conservation Plan covered species; Nevada species of concern; and neo-tropical migratory bird species. The impact threshold or indicator for biological resources was determined to be a loss of individuals, habitat, or biodiversity hotspot acres, but would not be likely to cause a trend toward federal listing or loss of viability.

Biological issues were responsible for many of the Project Conservation and Recovery Measures (EA, Table 3) developed for the project. These projects as well as past and future projects were responsible for the development of the LVSSR Adaptive Management Vegetation Plan. These measures will assure that the effects of the projects on biological resources are minimized. No new alternatives were developed to address biological resource issues.

## 2.0 Alternatives, including the Proposed Action\_\_\_\_\_

This chapter describes and compares the alternatives considered for this project. It includes a description and map of each alternative considered, including a Project Vicinity Map (Figure 1). This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice by the decision maker. A summary of the alternatives considered, but eliminated from detailed analysis is included along with the rationale for their elimination.

### 2.1 No Action Alternative\_\_\_\_\_

Under the No Action alternative, current management plans would continue to guide management of the project area. No construction of additional snowmaking facilities or parking would be implemented to accomplish project or Forest goals.

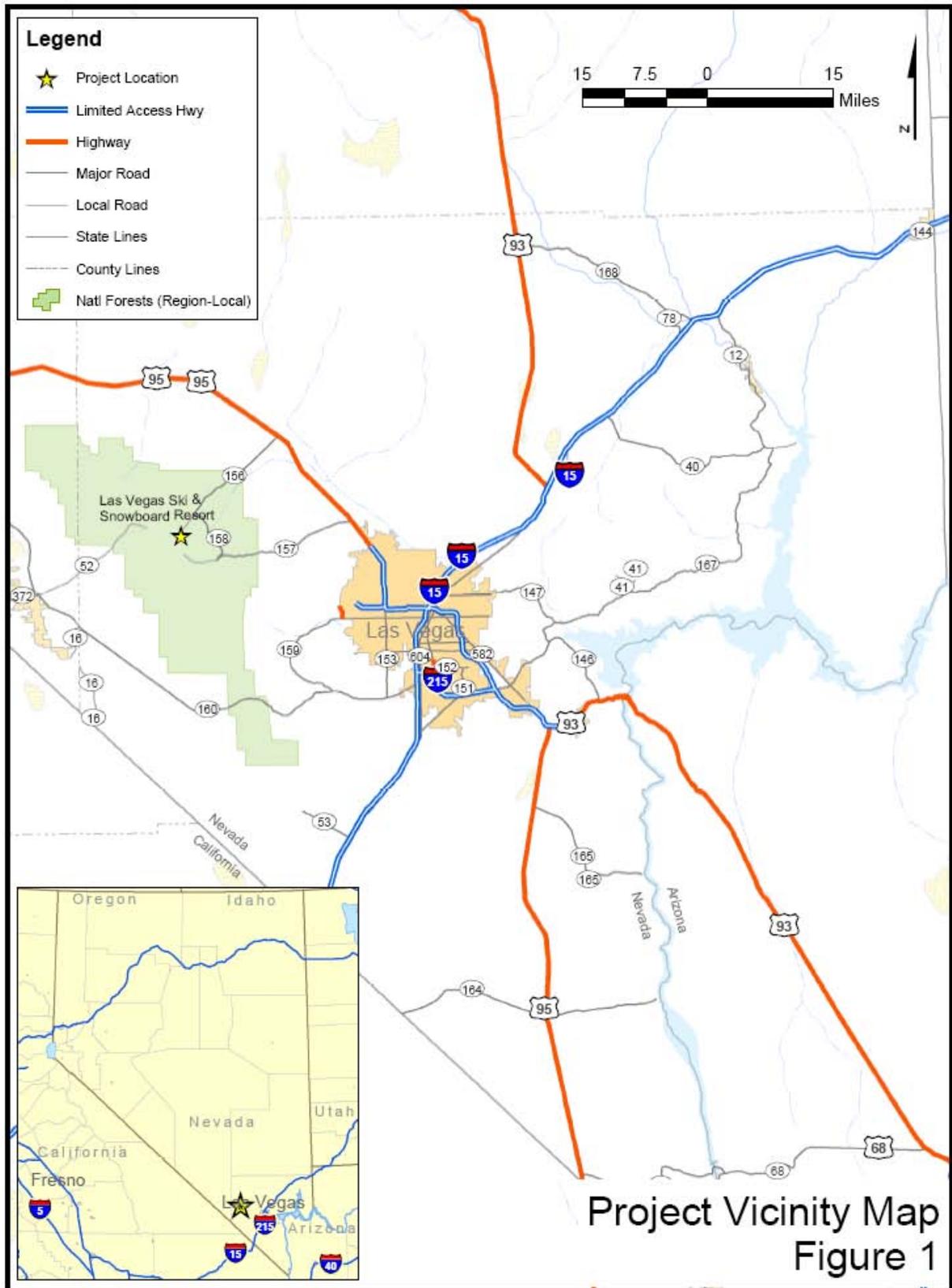
### 2.2 Proposed Action\_\_\_\_\_

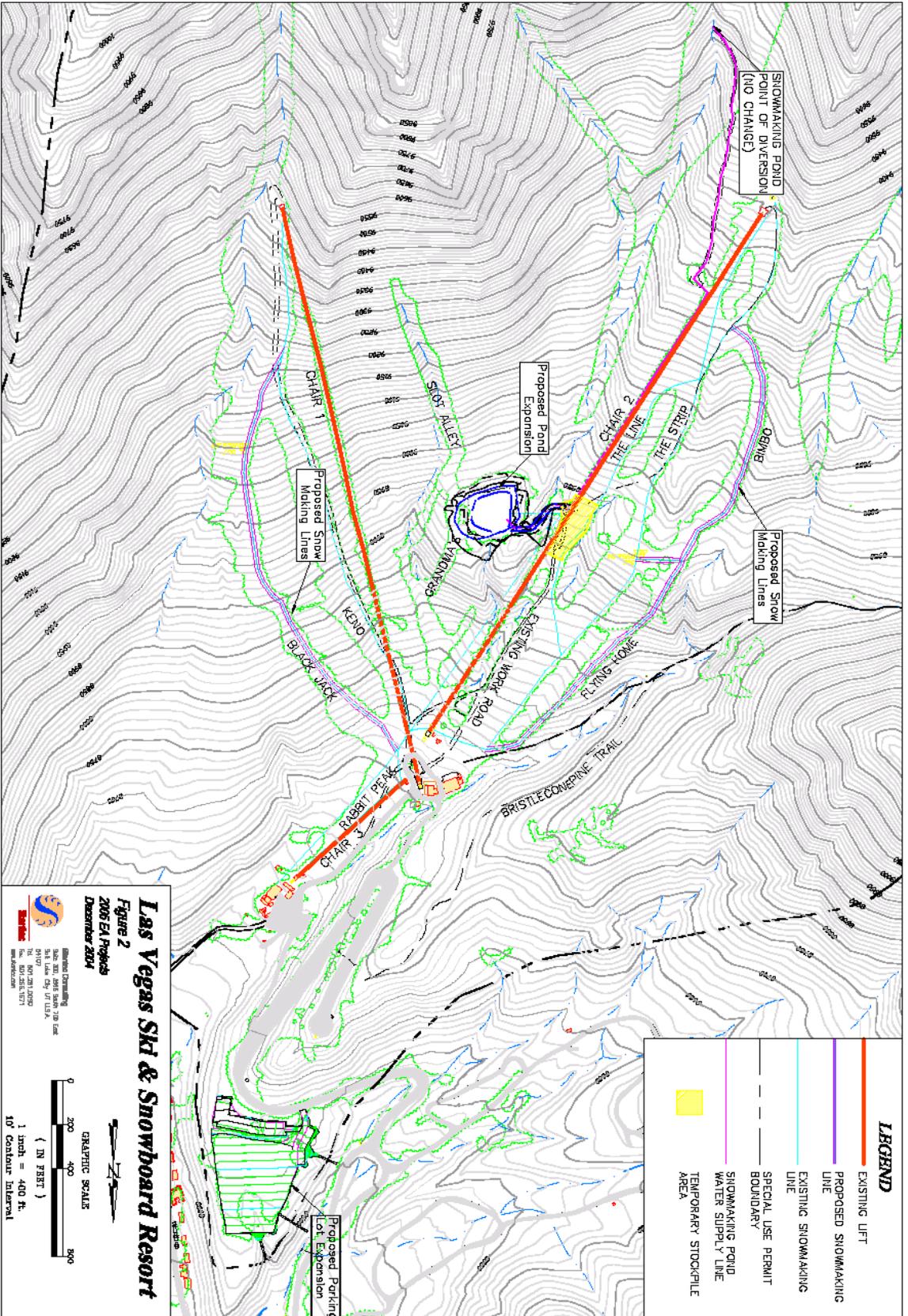
The three elements proposed of this project are: expansion of the existing snowmaking system; removal of approximately 40 stumps from skiable terrain; and establishment of additional parking (Figure 2, 2005 Projects). Best Management Practices (BMPs) are an inherent part of the proposed action and cover a wide range of topics. Soil and Water BMP's would be applied per the Forest Service Soil and Water Conservation Handbook 2509.22, January 1990.

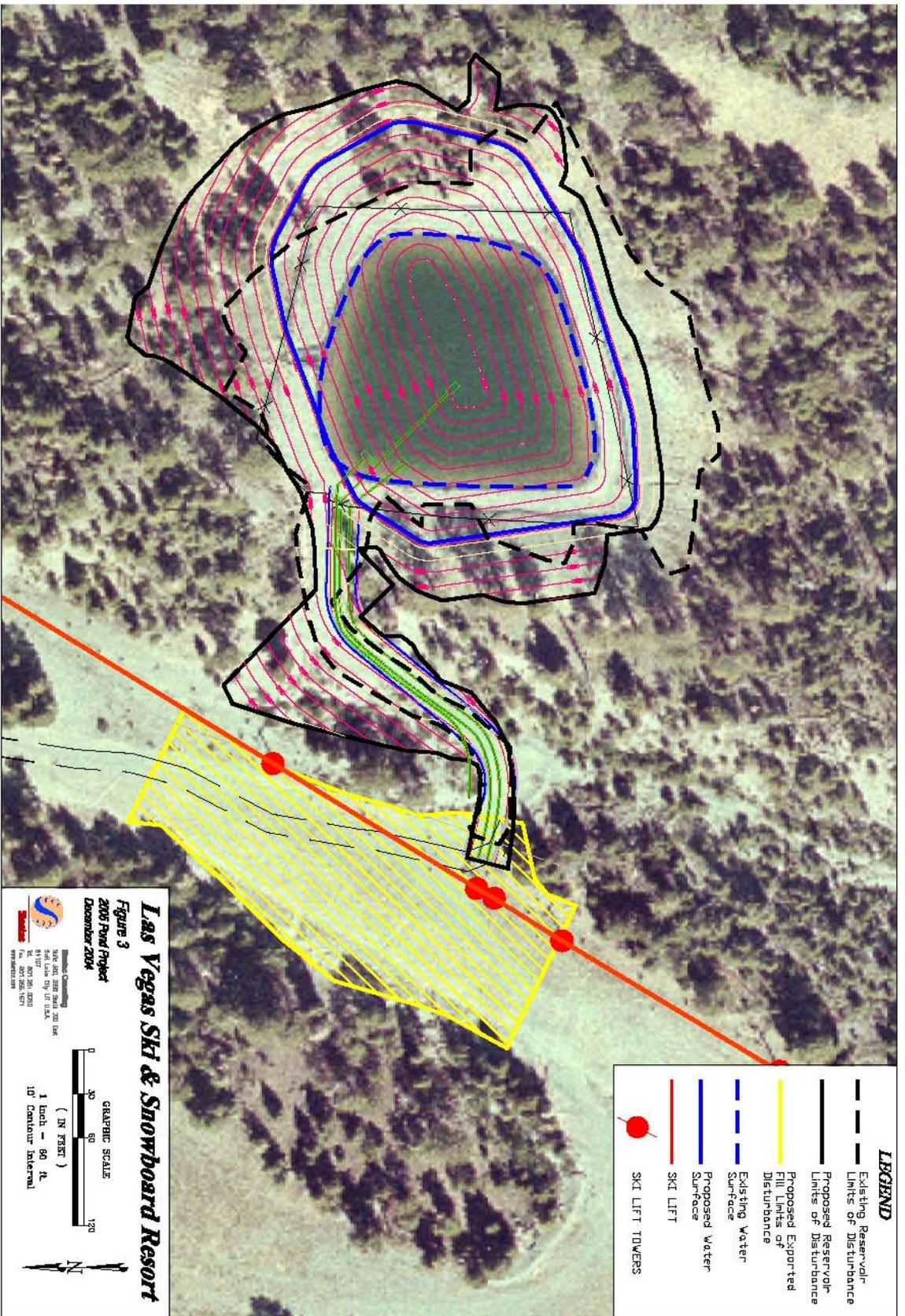
#### 2.2.1 Snowmaking System Improvements

An existing snowmaking water storage pond with a 0.6-acre water surface would be enlarged to about 1.2 acre water surface (when full). The pond depth would be increased by approximately 15 feet and the northern embankment would be increased by about 15 feet. The finished full pond water elevation would be 2,727 meters (8,948 feet) above sea level. Water storage capacity would be increased from 1.9 million to 8.5 million gallons (Figure 3).

The pond would be drained via the existing snowmaking drain channel, current piping, and outlet system. An existing pond liner would be removed and disposed at an appropriate permitted landfill. Materials excavated during deepening of the pond would be stockpiled and handled entirely within areas previously disturbed during construction on the adjacent existing ski run. Because the excavated materials would be used in the new pond embankment, additional fill material would not be required.







New outlet piping would be installed and the water supply line from the pond to the snowmaking pump system would be replaced in their current locations. An existing chain-link fence bordering the pond would be replaced with a new 6-foot high wire mesh security fence. The new fence would be installed within an area disturbed by pond construction and at the greatest feasible distance from the pond allowed by site topography, not less than approximately 30 feet at the nearest points. To reduce possibility of pond-related animal mortality, a ladder/ramp of chain link fencing, wood, or other material will be installed to facilitate the escape of wildlife that goes over or through the 6-foot high mesh fence.

The existing gravel access road to the fence gate, occupying about 0.16 acres, would be expanded to 0.34 acres.

Snowmaking system buried utilities consisting of water, air and electrical distribution lines and hydrants would be installed on the *Black Jack*, *Bimbo* and *Flying Home* existing ski runs. One trench per ski run will hold all utilities. Energy-efficient snowmaking guns would be installed at hydrant locations. The trenches and construction areas for system installation would be located within the areas disturbed for previous ski run construction and operation (total re-disturbance would be 6.89 acres). The snowmaking utility lines would be buried in 5-foot deep by 4-foot wide trenches. The area of disturbance required for construction of the trenches and installation of the snowmaking system is 25 feet x 2108 feet (1.2 acres, *Blackjack* ski run), 25 feet x 1450 feet (0.83 acres, *Bimbo* ski run) and 25 feet x 1491 feet (0.86 acres, *Flying Home* ski run) inclusive of space for excavated material stockpile and equipment access.

### 2.2.2 Stump Removal

Within the project construction zone, areas with debris from previous tree removal (stumps and branches) that protrude from the ground surface would be recontoured and have the debris removed. This work would disturb an additional 1.0 acre on *Blackjack* ski run; 1.0 acre on *Bimbo* ski run and up to 2.0 acres on *Flying Home* ski run. This work would be accomplished by a single backhoe. The backhoe would pull the stumps and position them in the nearest forested edge to create snag-type habitat and cover sites or, if feasible without creating additional disturbance, stockpiled on a previously disturbed area for use in other habitat enhancing activities. The equipment would not enter the woods, but use the arm to place the stumps. A biologist would escort the equipment and/or flag disturbance and avoidance areas occurring between work locations. The total disturbed area from this remediation work is estimated to be 4.0 acres.

Table 1 shows the total disturbance for all elements of the proposed action associated with the Snowmaking System Improvements, which includes; both the current and proposed pond area and access road, stump removal, a stockpile and sorting area in the existing adjacent ski run, the replacement and improvement of the snowmaking supply lines, and replacement of piping from the pond to the pump house.

**Table 1 Project- Related Surface Disturbance**

Proposed Actions <sup>3</sup>		Proposed Construction in Existing Disturbed <sup>1</sup> Areas (acres)	Proposed Construction in Undisturbed <sup>2</sup> Areas (acres)	Total Surface Disturbance (acres)
<b>Snowmaking System Improvements</b>				
1	Snowmaking pond excavation	0.7	0	0.7
2	New outlet piping and water supply line from pond to snowmaking pump system	1.28	0	1.28
3	Pond expansion	1.53	0.48	2.01
4	Expanding gravel access road to pond	0.16	0.18	0.34
5	Trenches and construction areas for system lines and hydrants	2.89	0	2.89
6	Material stockpile and handling	0.75	0	0.75
7	Removing protruding stumps from ski runs	4	0	4
		<b>11.31</b>	<b>0.66</b>	<b>11.97</b>
<b>Parking Improvements</b>				
8	Expanding lower parking area	2.4	0.6	3.0
9	Create upper parking area	0	0.7	0.7
10	Create side parking area	0	0.3	0.3
11	Repair gully/install off-site drainage	0	0.21	0.21
<b>Subtotal for Lower Parking Area Improvements</b>		<b>2.4</b>	<b>1.81</b>	<b>4.21</b>
<b>Project Totals</b>		<b>13.71</b>	<b>2.47</b>	<b>15.43</b>
<sup>1</sup> Disturbed acres include any areas with prior human-caused mechanical surface disturbance. This includes grading, blading, contouring, and vegetation removal. The areas may currently be disturbed or in an early stages of successional recovery.				
<sup>2</sup> Undisturbed is defined as never having human-caused surface disturbing activities using construction equipment.				
<sup>3</sup> Rehabilitation would occur on temporarily disturbed areas (10.39 acres) which includes all elements except the hardened parking surfaces, access improvements, and new pond surface (4.0 acres, 0.34 acres, 0.6 acres, respectively).				

Open construction trenches would be equipped with escape routes (e.g., boards, poles, ladders, or earthen ramps) for use by small mammals and reptiles. These would be spaced no further than 500 feet apart.

Construction is proposed to begin in the spring, 2006 and be completed by summer. This schedule would allow time for the pond to fill prior to the mid-November snowmaking start. All areas, including the areas of the ski run used for material stockpiles, would receive erosion controls, following BMPs during construction and permanent controls after construction.

### 2.2.3 Parking Area Improvements

Two hundred parking spaces would be added through expansion of an existing 2.4-acre parking area (referred to as the Lower Parking) and creation of adjacent new parking to the south and southwest sides (Figure 4).

Lower Parking would be expanded by 0.6 acres by extending about 50 feet to the north. Concurrent with this work, an existing disturbed area dividing the current parking area would be filled. Final grading and contouring would provide the source of the fill material.

The southern expansion would require about 0.7 acres of new disturbance located between the state highway and Lower Parking. This parking area would be 60-feet wide and would be buffered from the highway by an approximately 30 – 60 foot-wide belt of native vegetation. The elevation of the new parking terrace would be 3 – 5 feet below the highway elevation to reduce the visibility of the parking area and parked cars.

Together with development of the southwestern parking area, the entrance road to the parking areas would be improved and widened to 25-feet. The improved entrance road lanes would be oriented to a 90-degree intersection with the state road. Areas adjacent to the entrance road would be graded to match the entrance road grade and surfaced for parking. A total of 0.3 acres of new disturbance would be required for these improvements.

The entrance road and all parking areas would be asphalt paved in phases, to create a more stable parking surface and reduce erosion from the current native gravel surfaces. All parking areas would receive erosion control during construction activities and permanent controls after construction activities.

New parking areas would be graded to collect snowmelt and runoff on the north and west perimeter to remediate the existing erosion gullies. Depending on final engineering design, stormwater runoff would be collected in an unlined channel or 2 - 3 concrete collection boxes. Runoff would then be conveyed down the slope to an area designed to reduce runoff velocity before discharge to existing runoff channels. The primary drainage would have an erosion control mat installed with downed woody material placed on gully slopes and across gully bottoms to replicate natural patterns, stabilize the side slopes and reduce slope lengths on gully bottoms. Cut and fill material would be distributed on site and no export of material is planned. The total area disturbed during construction activities of the drainage control would be about 0.21 acres.

The total area of disturbance for all proposed parking areas and the entrance road (4.0 acres) and flood control (0.21 acres) would be 4.21 acres. Erosion control measures would be implemented on all disturbed areas, except hardened parking surfaces, during and after construction.



**LEGEND**

- PROPOSED UNITS OF DEVELOPMENT
- PROPOSED PARKING LOT
- PROPOSED CONTOURS
- APPROXIMATE GULLY REPAIR LOCATION

**Las Vegas Ski & Snowboard Resort**

**Figure 4**  
**2006 Parking Lot Project**  
**March 2008**

**PROJECT INFORMATION**  
 300 N. SUN VALLEY BLVD  
 LAS VEGAS, NV 89119  
 PHONE: (702) 735-1234



## 2.2.4 Monitoring

Monitoring would be accomplished as an integral part of the proposed action. Where undesirable effects are identified during monitoring, specific mitigation measures would be employed. Project monitoring elements built into the proposed action includes the following:

A series of questions have been developed as part of the Adaptive Management Vegetation Plan for monitoring the effects of projects and revegetation efforts on LVSSR. In addition, the 2005 Program of Work for the LVSSR directs the area to develop and implement a long term implementation and effectiveness monitoring plan. Since the above ‘plans’ are adaptive in nature, these monitoring efforts are critical to the long term management of the ski area and the ability of LVSSR and the FS to demonstrate the ability to meet the objectives of the Conservation Agreement and the Multiple Species Habitat Conservation Plan. (Adaptive Management Vegetation Plan, Section 4.0, Monitoring; and the 2005 Program of Work, Section III, C, 3)

## 2.2.5 Conservation and Recovery Measures

This section displays Conservation and Recovery Measures (conservation measures), which are elements of the Proposed Action specifically designed to eliminate potential undesirable impacts. (EA, Table 3)

The FS uses standard and project-specific conservation measures during planning and implementation of land management activities. These conservation measures were developed during project planning and are informed by the Forest Plan and recommendations from the U.S. Fish and Wildlife Service (FWS), and would be implemented throughout all stages of the project. Key conservation measures specific to this project focus on soil excavation and grading operations, which could contribute to runoff pollution, and other methods designed to protect biological resources. In addition, the project includes conservation measures for the control of wild horses that could spread weeds and graze on areas being restored and revegetated.

Although some of these conservation measures relate to physical resources, the primary issue(s) addressed are biological in nature. More specifically, these conservation measures address potential impacts to plant and wildlife resources, communities, habitats, species and individuals as discussed in Chapter 3.

In addition to these Conservation and Recovery Measures, this project includes an “Adaptive Management Vegetation Plan” and a “2005 Program of Work” for the LVSSR.

**Table 2. Project Conservation and Recovery Measures**

Measure	Potential Impacts Addressed
1. Best Management Plans (BMPs) (FSH 2509.22) would be used where ground-disturbing activities occur. These BMPs would be applied to protect soil, water, and vegetation resources where construction activities would occur in sensitive areas and would be described for site-specific conditions within the erosion and drainage control plan developed prior to project construction and in consultation with permitting agencies.	Erosion, slope stability, spread of noxious weeds. Sediment is the most common pollutant from work sites. Loosening soil could cause sediment to flow into downstream water courses and waters.
2. Downed trees would be salvaged as stockpile material for use primarily on drainages, which would be lined with woody material. Downed woody material would be placed on gully slopes and across gully bottoms, replicating natural patterns to stabilize gully sides and reduce slope lengths on gully bottoms. Locations would primarily be at the pond overflow site and within washes adjacent to the parking area, but other off-site project areas may be considered in coordination with the FS.	Erosion, slope stability
3. At least two of the largest trees that are to be removed as a result of proposed project activities at each site (the pond and the parking lot) would be felled away from the facilities, trimmed and left in place as downed wood for Palmer's chipmunks and for other wildlife use.	Loss of Palmers chipmunk and other wildlife habitat
4. Avoid tree or shrub removal if possible. Avoid sensitive plants when removing stumps by pre-surveying and limiting routes to stumps.	Loss of individual sensitive plants, loss of habitat
5. The newly constructed parking area will gated closed when not in use for LVSSR activities and will be fenced where appropriate to reduce pedestrian and snow play traffic in adjacent forested areas.	Degradation of habitat and loss of sensitive plants
6. Construction activities would be limited to the greatest extent possible in sensitive species habitat and/or undisturbed areas.	Loss of habitat and loss of sensitive plants
7. Temporary equipment staging areas would be located in previously disturbed (e.g. maintenance roads) areas.	Impacts to undisturbed areas
8. All construction boundaries would be flagged, staked or fenced, and no disturbance would be allowed outside these boundaries.	Impacts to individuals, sensitive species and their habitat; limitations on soil compaction and erosion
9. Prior to initiation of construction, temporary fencing would be erected around populations of sensitive species to protect individual plants, habitat, and to provide a protective buffer during stump removal activities.  Construction and stump removing activities would be limited to the smallest feasible footprint to reduce impacts, especially on the Blackjack Ski Run.	Erosion, loss of individual sensitive plants, loss of prime habitat on the Blackjack Ski Run
10. To control erosion and protect water quality, silt fences, straw bales and/or erosion mats (certified as weed-free according to Nevada State standards) would be properly erected around all construction activities as needed. Erosion mats have a longer life span (2+ years) than does straw (1 year) and should be used where the additional protection is needed.	Erosion, spread of weeds
11. Follow invasive species prevention measures outlined in the Humboldt-Toiyabe National Forest's draft BMP for Road Construction and Heavy Equipment Use Prevention Guidelines for Noxious Weeds (U. S. Forest Service 2004). In no cases would weeds or potentially weed-contaminated materials (bales, borrow material) be transported or transferred across project sites.	Spread of weeds, loss of sensitive plants
12. Prior to construction, all equipment would be washed and visually inspected for invasive, non-native seeds and reproductive plant parts. Non-native materials would be removed and disposed of appropriately. All	Spread of weeds, loss of sensitive plants

**Table 2. Project Conservation and Recovery Measures**

Measure	Potential Impacts Addressed
equipment to be used for construction would be thoroughly cleaned prior to mobilization to and from the project sites.	
13. Implement weed management in all disturbed areas in accordance with the Vegetation Plan to minimize any potential effects from noxious and other weeds. This includes the monitoring and eradication of weeds at all planting and construction sites. No weeds or potentially weed contaminated materials would be transported or transferred across the project sites. Any borrow material used during construction of the proposed projects would be certified as weed-free as per Nevada State standards.	Spread of weeds, loss of sensitive plants
14. At the beginning of trenching or grading projects, topsoil, or the upper 2 to 6 inches of surface material, would be removed and stockpiled (separately from other excavated materials) immediately adjacent to the trenching and grading activity. The stockpiled topsoil, or upper 2 to 6 inches of material, would be reserved until backfilling the trench or grading activity is completed and used to recover the disturbance to final grade. Topsoil removed from areas designated for paving would be applied to areas within LVSSR designated by the Forest Service botanist.	Loss of soil productivity, erosion
15. A new gated fence would be installed within an area disturbed by pond construction for safety considerations, but at the greatest feasible distance away from the pond allowed by site topography, to reduce bat collisions or entanglements.	Bat mortality
16. Construction trenches would be equipped with escape routes (i.e. boards/poles/ladders) at a spacing of no greater than 500 linear feet for use by small mammals and reptiles. Escape routes would be installed in all construction trenches for the period the trench remains open.	Chipmunk and other wildlife entrapment
17. Construction activities would occur during daylight hours to reduce and prevent impacts on birds' (particularly flammulated owl) and mammals' biological activities.	Direct and indirect impacts to birds
18. An escape structure would be constructed in the pond along at least two of the sides to prevent small animal drowning.	Mortality to wildlife from drowning
19. The Forest Service livestock fence that restricts wild horse movement into Upper Lee Canyon would be repaired and maintained (not reconstructed or replaced.) By the end of 2006, wild horses grazing on the ski slopes would be trapped and transferred to the BLM (subject to BLM's ability to accept the animals). The LVSSR would fund these actions.	Wild horse grazing impacts on sensitive plant species
20. Work will continue with the University of Nevada at Reno in developing and implementing, a butterfly monitoring plan to help determine the effects of a variety of activities on butterfly population trends. UNR is funded through SNPLMA beginning in 2005 to monitor SMNRA wide, including five sites in Upper Lee Canyon and at least one site in LVSSR. Additional sites may be added in LVSSR through further negotiations with UNR.	Direct and indirect impacts to butterflies
21. To prevent undue harm to migratory birds, avian nest surveys (for bird species listed under the Migratory Bird Treaty) would be conducted within construction boundaries and within 300 feet of disturbance sites prior to construction activities occurring during the breeding season (March 1 – August 30). If any active nests are found, the area must be avoided until the nestlings fledge.  For goshawks and flammulated owls, protocol surveys would be initiated within ¼ mile of proposed project boundaries and all nest sites located would be protected until fledging. (See "Short Term Protocols, June 2005")	Direct and indirect impacts to birds
22. Relocation of the Bristlecone Trail alignment would occur by the end of 2006 to decrease impacts to sensitive plants and to minimize loss of habitat within the biodiversity hotspot. The realignment and rehabilitation should be agreed upon before ground disturbing activities occur site would	Loss of prime sensitive plant Species habitat

**Table 2. Project Conservation and Recovery Measures**

Measure	Potential Impacts Addressed
be located according to FS, USFW and LVSSR needs.	
23. Aspens that would be directly impacted by the proposed pond construction may be transplanted to suitable locations in the pond overflow outfall.	Loss of individual aspens, stabilization of pond overflow, erosion
24. Bristlecone pine trees, less than 4 feet in height, which would be directly impacted by the proposed pond construction, may be transplanted to a suitable location within the project footprint. Ponderosa pine trees, less than 4 feet in height, that would be removed during project construction may be transplanted. Either pine, with an emphasis on Bristlecone, may be propagated in nurseries and seedlings used for revegetation efforts within LVSSR. This will be needed in the disturbed area at the south boundary (uphill side) of the pond.	Loss of individual bristlecone and Ponderosa pines, loss of forest habitat, stabilization of pond overflow, erosion
25. Salvage of sensitive plants from construction areas may be conducted in accordance with the transplantation methods set forth in the Vegetation Plan.	Loss of individual sensitive plants
26. The vegetation baseline data collection and recovery monitoring for Clokey Eggvetch, Clokey Mountain sage, Spring Mountains golden-bush, and Charleston ground daisy would be incorporated into the Las Vegas Ski and Snowboard Resort Adaptive Management Vegetation Plan. Specifics on this are included in the 2005 Program of Work and the Short Term Protocols.	Baseline data, effectiveness of rehabilitation
27. Beginning in 2005 and continuing through 2011, LVSSR would initiate a FS seed collection/rehabilitation/weeds monitoring plan within the existing special use permit area. Specific direction for these activities is found in the Adaptive Management Vegetation Plan, the 2005 Program of Work and the Short Term Protocols.  As unpredictable variations in climatic conditions could result in periods of low (or no) seed productivity, the goal of this collection is to gather seed stock both of sensitive and non-sensitive species continuously the life of the Plan in order to obtain both quantity and a variety of species. This seed would then be used to re-seed areas disturbed within LVSSR during current and future construction activities. Collected seed will also be used to support nursery propagation methods and germination studies.	Rehabilitation possibilities and feasibilities
28. Stagger construction during the 2005 season to the extent possible to allow for collection of baseline data for wildlife and plant species. Plan construction along the ski runs (particularly the Blackjack Run) as late as possible.	Baseline data, effectiveness of rehabilitation

### 2.2.6 Adaptive Management Vegetation Plan

This plan specifically addresses measures to restore habitat of sensitive plant and butterfly species in the project area. The plan is programmatic in nature, and displays goals and objectives, setting, revegetation techniques and practices, monitoring, adaptive management strategies, and reporting requirements through the 2005 to 2011 life of the plan. Preliminary cost estimates for implementing the Pilot Plan are \$120,000 or approximately \$20,000 annually for the 6-year life of the plan. (Adaptive Management Vegetation Plan for LVSSR, 2005 – 2011, dated June 2005)

**2005 Program of Work** – This document includes the specific work requirements that LVSSR must complete during 2005 calendar year. This Program of Work tiers off of the Adaptive Management Vegetation Plan for LVSSR, 2005 – 2011, and should be considered project specific in nature. This and future Programs of Work will be the primary tool for implementing adaptive vegetation management on LVSSR.

The 2005 Program of Work includes the 2005 Short Term Protocols for the above activities. (Adaptive Management Vegetation Plan for LVSSR, 2005 – 2011, dated June 2005; the 2005 Program of Work, dated June 2005; and the Short Term Protocols for 2005)

## **2.3 Alternatives Considered and Eliminated from Further Consideration**

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A potential alternative may be eliminated for many reasons, including:

1. It is illegal
2. It would not satisfy the Purpose and Need
3. Technologically infeasible
4. Clearly unreasonable
5. Duplication within the existing range of alternatives
6. Decision is already made
7. Would cause unreasonable environmental harm
8. Cannot be implemented
9. Remote or speculative.

This section describes those alternatives that were considered and eliminated, with a brief explanation of why.

### **2.3.1 Snowmaking System Improvements**

#### **Replace Current Pond Liner with New Liner – No Expansion**

The replacement of the liner without pond expansion would not result in adequate snowmaking water storage, thus falling under category #2 above.

#### **Replace the Existing Liner and Improve the Existing Embankment**

This action would not meet the need for the additional snowmaking storage, thus falling under category #2.

#### **Deepen the Existing Pond within Current Limits of Disturbance**

The shape of the pond at the bottom does not allow for pond deepening to gain water storage. The potential volume of expansion before the limits of practical construction is reached is minimal. The outlet works would need to be replaced, resulting in disturbance to the existing embankment. This alternative falls under category #3.

## **Construct a New Pond in another Location**

No other pond locations are identified in the current Master Development Plan or Special Use Permit. Other pond locations are possible but would result in additional disturbance for road and water line access and for pond construction. The environmental consequences would be unacceptable, and this alternative falls under category #7.

### **2.3.2 Parking Improvements**

#### **Use of Additional Parking Areas along Lee Canyon Highway**

This alternative would reduce parking for snow play and other Forest visitors and would increase congestion on the highway. This alternative fails to meet the purpose and need, category #2.

#### **Use of Forest Service Campgrounds**

This alternative was attempted without positive results in 2003. The design of the campgrounds does not allow for increased vehicle parking without modifications to cleared areas and access roads. The road grades in campgrounds would need to be reduced to facilitate snow clearing and shuttle access and turn-around, thus there would be an unneeded surface disturbance affecting recreational users, cost, and the environment. This alternative was eliminated due to unacceptably high environmental impacts, category #7.

#### **Use of Additional Shuttle or Bus Service**

A shuttle service is currently in place for resort employees. Shuttling resort users had been previously attempted without success (Reference: Las Vegas Ski and Snowboard Resort Master Plan, dated March 20, 2003). This was a free shuttle offered to skiers from Las Vegas to the ski area. The service was discontinued as uneconomical due to the limited number of skiers/riders who took advantage of it. Currently, no areas exist for shuttle served parking. Previous shuttle locations place vehicles too far from the ski area to allow for retrieval of left items.

This alternative is currently speculative in nature and falls under category #9 above. It is anticipated that it would be reconsidered during evaluation of any potentially traffic-generating actions (such as a major LVSSR expansion).

#### **Construction of Additional Parking in a New Location**

No new parking areas are currently identified in the Master Development Plan. A new parking area would require access roads and site clearing and grading. Some potential locations would require additional lift access for the lots to the ski area. It is anticipated the amount of disturbance and environmental consequences would be some multiple of the number of acres in the proposed action. This alternative was eliminated due to unacceptably high environmental impacts, category #7.

## **2.4 Compliance with Other Laws and Regulations**\_\_\_\_\_

The following provides a brief list of the major laws, regulations, executive orders, and other guidance, which may apply to implementation of this project.

- National Environmental Policy Act, as amended
- National Historic Preservation Act, as amended
- Clean Air Act, as amended
- Clean Water Act, as amended
- Stormwater Construction Permit
- Executive Order 11988, Floodplain Management
- Endangered Species Act, as amended
- Migratory Bird Treaty Act, as amended
- Noxious Weed Act, as amended
- Executive Order 12898, Environmental Justice
- Spring Mountains National Recreation Area Act
- Clark County Multiple Species Habitat Conservation Plan
- Conservation Agreement for the Spring Mountains National Recreation Area
- Forest Service Handbook and Manual

## 3.0 Affected Environment and Environmental Consequences

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This section summarizes biological, physical and social environment of the affected project area. It assesses the potential impacts to those environments under the No Action and Proposed Action alternatives. The potential impacts are summarized and followed by a detailed discussion.

### 3.1 Resources not considered in detail

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The following resources will not be analyzed in depth because based on one of the following four reasons:

- It is outside the scope of the proposed action;
  - Has already been decided by law or in another decision;
  - Is irrelevant to the decision;
  - Is not supported by scientific evidence.
- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>▪ Geology and Soils</li><li>▪ Groundwater</li><li>▪ Surface Water</li><li>▪ Air quality</li><li>▪ Land Use</li></ul> | <ul style="list-style-type: none"><li>▪ Transportation</li><li>▪ Aesthetic Resources</li><li>▪ Socioeconomics</li><li>▪ Environmental Justice</li><li>▪ Cultural Resources</li><li>▪ Tribal Resources</li></ul> |
|--|---|

#### Geology, Soils, and Surface Water

Direct effects to these resources were determined to be non-significant. Effects to these physical resources and subsequent impacts on biological resources are addressed in this document, as well as in the Adaptive Management Vegetation Plan and the 2005 Program of Work, based on how potential changes would affect the biological resources. (Conservation and Recovery Measures, Table 3, #1)

#### Groundwater

Groundwater was considered and determined to be not relevant to this analysis because the surface disturbance is relatively minor in duration and intensity. The reported depth to static groundwater level is approximately 114-280 feet<sup>1</sup> and would therefore not be affected by the additional parking, proposed project snowmaking, or the installation of a lined water storage pond. In addition, the Forest Service holds the existing water rights and there would be no planned change.

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<sup>1</sup> Nevada Division of Water Resources Well Log Database. Depth of wells in Township 19S, Range 56N, Section 10. <http://water.nv.gov/IS/wlog/wlogSTR.asp>

## **Air Quality**

Air quality permits for construction are issued in accordance with the Clear Air Act by the Clark County Air Pollution Control District under delegated authority of the Environmental Protection Agency. The short-term and minor effects to air quality associated with construction of the proposed action would require a permit and are subject to an already existing law.

## **Land Use**

The proposed action would be located within a Special Use Permit area issued for the purposes of skiing and snowboarding. The current permit expires on September 10, 2039. Because no change to this or any other designated land use has been proposed, the issue is irrelevant to the decision makers for this project.

## **Transportation**

Implementation of the proposed action is not expected to change transportation demand beyond the normal annual variability; therefore, this issue was determined to be irrelevant to the decision at hand.

## **Aesthetic Resources**

The proposed action is located in the Developed Canyons Management Unit of the Forest where man-made facilities are expected and acceptable features. The proposed expanded parking area and pond would remain at least partially tree-screened and are consistent with the LVSSR General Management Plan.

## **Socioeconomics**

With the exception of the long term positive impacts for LVSSR, socioeconomics were determined to be minor in duration and intensity, limited to minor beneficial effects of construction spending. These effects are irrelevant to the decision at hand.

## **Environmental Justice**

As part of the NEPA process, agencies are required to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income communities. Because no low-income communities were identified in the area of potential effect for this project the issue would be irrelevant to the decision.

## **Cultural Resources**

Several cultural resource studies have been conducted within the areas of potential ground disturbance in the vicinity of the storage pond, ski runs and parking lot. No historic properties eligible for listing on the National Register of Historic Places would be affected by the currently proposed projects. The State Historic Preservation Office (SHPO) was consulted and concurred with a No Effect determination. Existing law has been complied with in this regard.

## Tribal Resources

USFS consulted with the appropriate Tribal leadership and no concerns about resources in the project vicinity were identified.

## 3.2 Affected Environment

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This section discusses the existing environmental conditions. The baseline was largely derived from the draft Biological Assessment/Evaluation and Specialist Report (Jones and Stokes 2005a, b) and the project conservation elements described in Section 2.2.

### 3.2.1 Habitat

The project area is located in the Montane Zone in the Spring Mountains, most of which occurs in a single block about Mount Charleston and its high connecting ridges. The Montane Zone contains large woodlands of mountain-mahogany, mixed conifer forests. The forest begins at about 2,290 meters. By 2,590 meters, these forests also include limber pine (*Pinus flexilis*), bristlecone pine (*Pinus longaeva*) in the overstory, and common juniper (*Juniperus communis*) in the understory. Small aspen (*Populus tremuloides*) stands occur above about 2,378 meters (Charlet, 1998).

### 3.2.2 Vegetation

The primary plant communities in the project vicinity include:

The white fir-ponderosa pine-curlleaf mountain mahogany (*Abies concolor*-*Pinus ponderosa* var. *scopulorum*-*Cercocarpus ledifolius* var. *Intermontanus*) association, is dominated by a mix of conifers and evergreens, the dominant plants are white fir (*Abies concolor*) and ponderosa pine (*Pinus ponderosa*).

The quaking aspen-white fir (*Populus tremuloides*-*Abie concolor*) association, is dominated by a mix of conifers and cold-deciduous and evergreen trees, the most common plants within the association are aspen (*Populus tremuloides*) and white fir.

The limber pine-white fir (*Pinus flexilis*-*Abies concolor*) series, is characterized by a mix of conifers, the dominant plants associated with the series are white fir and limber pine (*Pinus flexis*).

Plant species observed within the proposed project areas include: ponderosa pine, white fir, aspen, Arizona thistle (*Cirsium arizonicus* ssp.), indian hemp (*Apocynum cannabinum*), Nuttall desert trumpet (*Linanthus nuttallii*), Torrey's milkvetch (*Astragalus calycosus* var. *mancus*), fragrant snowberry (*Symphoricarpos longiflorus*), narrow-leaf paintbrush (*Castilleja linearifolia*), pussytoes (*Antennaria parvifolia*), Lemmon's cinquefoil (*Potentilla crinita* var. *Lemmonii*), gooseberry (*Ribes* sp.), western wallflower (*Erysimum capitatum*), pennyroyal (*Monardella odoratissima*), and native and nonnative grasses (such as intermediate wheatgrass (*Agropyron intermedium*), pubescent wheatgrass (*Agropyron barbulatum*), crested wheatgrass (*Agropyron cristatum*), smooth brome (*Bromus inermis*), and alfalfa (*Medicago sativa*)).

### **3.2.3 Biodiversity Hotspots**

The proposed projects occur within the 2,997.3-acre Very High Priority Upper Lee Canyon Biodiversity Hotspot. Biodiversity hotspots are defined in the Nature Conservancy Spring Mountains National Recreation Area Biodiversity Hotspots and Management Recommendations (Nachlinger, 1994) document, and as a result of interagency agreements, they are managed in accordance with direction set forth in the MSHCP and the CA. Areas with high biodiversity and/or a number of species of concern called “biodiversity hotspots” are protected (Forest Service 1986, CA and MSHCP).

Biodiversity hotspots are defined in the MSHCP and identified within the CA. The CA and Forest Plan (Forest Service 1996) directs avoidance of species of concern and their habitats within these areas. Biodiversity hotspots are designated areas where two or more elements of concern were identified; i.e. locally rare species and unique communities, Federally listed and candidate species, and locally rare species and unique communities.

Upper Lee Canyon is considered a very high priority biodiversity hotspot because of its high number of endemic plant and animal species, the greatest number of elements of concern, the highest degree of vulnerability to impacts and a high level of potential conflict with recreation. Within the project area both endemic species and rare and unique species have been identified. Of these elements of concern, ongoing recreation activities occurring within the project area are presently impacting species and habitat within the biodiversity hotspot.

### **3.2.4 Undesirable Plants**

Land that has been graded and cleared is vulnerable to non-native plants, invasive species, and noxious weeds. Seeds are readily introduced to these areas via construction equipment that has been in other areas where undesirable plants are present. Seed or plant material may become lodged between tire treads or in cracks and crevices on the underside of the vehicle. Weed invasion could decrease biological diversity, out-compete native species, reduce water quality, increase fire risk, and poison native wildlife.

### **3.2.5 Wildlife Resources**

Field visits were made in June/July and October 2004 to evaluate the proposed project areas for potential habitat for listed, proposed, or sensitive wildlife species. Based on these field visits, the proposed project areas were determined to contain potentially suitable habitat for 19 sensitive wildlife species, including: six butterfly species, three bird species, and ten mammal species.

Non-native wild and feral horses are known to occur in the project vicinity. Horses access the LVSSR and project area through approximately one dozen breaches in an existing exclusionary fence. Locations of these access points have been located. Wild horses may have detrimental effect on native habitat and species through overgrazing, habitat trampling, grazing on sensitive species and plants that support larval butterflies, and spread of noxious weeds.

### **3.2.6 Sensitive Species**

Sensitive species are defined as those on the Regional Forester's Region 4 list, Species of Concern listed in the Conservation Agreement for the Spring Mountains National Recreation Area, Covered Species listed in the Clark County Multiple Species Habitat Conservation Plan (MSHCP), and species protected under the Nevada Revised Statutes (N.R.S.). No threatened and endangered species were identified within the project area.

The sensitive species with potential to occur within the project area are shown in Table 3.

**Table 3. Sensitive Species and Potential Impacts**

Common Name	Scientific Name	Status <sup>1</sup>	Potential Impacts	
Clokey eggvetch	<i>Astragalus oophorus</i> var. <i>clokeyanus</i>	Species of Concern	Loss and/or degradation of habitat and topsoil. Direct loss of individuals due to grading.	
Clokey paintbrush	<i>Castilleja martini</i> var. <i>clokeyi</i>	Covered		
Clokey thistle	<i>Cirsium clokeyi</i>	Covered		
Spring Mountains goldenbush	<i>Ericameria compacta</i>	Species of Concern		
Hitchcock bladderpod	<i>Lesquerella hitchcocki</i>	Covered		
Charleston pinewood lousewort	<i>Pedicularis semibarbata</i> var. <i>charlestonensis</i>	Covered		
Charleston beardtounge	<i>Penstemon leiophyllus</i> var. <i>keckii</i>	Covered		
Clokey mountain sage	<i>Salvia dorrii</i> var. <i>clokeyi</i>	Species of Concern		
Charleston grounddaisy	<i>Townsendia jonesii</i> var. <i>tumulosa</i>	Species of Concern		
Charleston violet	<i>Viola purpurea</i> var. <i>charlestonensis</i>	Covered		
Rosy Kings sandwort	<i>Arenaria kingii</i> spp. <i>rosea</i>	Species of Concern		
Bristlecone pine and other pine species	<i>Pinus longaeva</i>	Protected		Loss of individuals due to grading. Bristlecone effects confined to a few number of small trees at the pond expansion.
Morand's checkerspot butterfly	<i>Euphydryas anicia morandi</i>	Covered		Loss of larval host plants and loss of nectar host plants. Puddles may attract individuals to construction areas. Loss of individual adults and larvae as a result of construction activities.
Spring Mountains comma skipper	<i>Hesperia comma mojavensis</i>	Covered		
Nevada admiral	<i>Limenitis weidemeyerii nevadae</i>	Covered		
Spring Mountains icarioides blue butterfly	<i>Icaricia icarioides austinorum</i>	Covered		
Spring Mountains blue butterfly	<i>Icaricia shasta charlestonensis</i>	Covered		
Carole's silverspot butterfly	<i>Speyeria zerene carolae</i>	Covered		
Peregrine Falcon	<i>Falco peregrinus anatum</i>	Species of Concern	Loss of nesting and roosting sites. Loss of foraging habitat. Construction noise and activity could interfere with breeding activity.	
Flammulated Owl	<i>Otus flammeolus</i>	Species of Concern		
Northern goshawk	<i>Accipiter gentilis</i>	Species of Concern		
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	Species of Concern	Loss of potential maternity, hibernating, roosting and foraging habitat due to loss of trees and habitat.	
Silver-haired bat	<i>Lasionycteris noctivagans</i>	Covered		
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Species of Concern		
Long-eared myotis	<i>Myotis evotis</i>	Covered		
Fringed myotis	<i>Myotis thysanodes</i>	Species of Concern		
Long-legged myotis	<i>Myotis volans</i>	Covered		
Yuma myotis	<i>Myotis yumanensis</i>	Species of Concern		
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	Species of Concern		
Spotted bat	<i>Euderma maculatum</i>	Species of Concern		
Palmer's chipmunk	<i>Tamias palmeri</i>	Covered		Habitat loss and degradation of foraging habitat

<sup>1</sup> Status

Covered = species protected under the MSHCP

Protected = species protected under N.R.S.

Species of Concern = species protected under the SMNRA Conservation Agreement

### 3.3 Environmental Consequences

This section provides a summary of the effects of implementing each alternative. Information in Table 3 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

**Table 4. Comparison of Alternatives**

Resource/Issue	No Action	Proposed Action
Biology – The primary biological issues are related to Sensitive species and species of concern as identified in MSHCAP	Uncontrolled parking along roadsides would continue with continued direct and indirect effects from visitor pedestrian travel on habitat within the Developed Canyons-Management Area 11.	Disturbance of 2.47 acres of previously undisturbed habitat and 13.71 acres of pre-disturbed habitat.  Total permanent disturbance would be 5.4 acres (0.6 acres of new pond surface and 4.8 acres of paved parking).  No effect on listed species and no contribution to trend that would result in listing. May impact individuals of other species but would not result in a trend resulting in listing.  Disturbance of between .0003 and .0014 percent of potential habitat (depending on the species) within the 72,151 acres of Developed Canyons-Management Area 11.
Biodiversity Hotspot	Uncontrolled parking along roadsides would continue with continued direct and indirect effects from visitor pedestrian travel on habitat within the Developed Canyons-Management Area 11.	Disturbance of 0.51 percent of the 2,997 acres of potential habitat within the biodiversity hotspot.  No contribution to a trend that would result in listing a sensitive species.

#### 3.3.1 No Action

Under the No Action alternative, no construction of additional snowmaking facilities or parking facilities would be implemented. No additional impacts to biological resources would occur because current conditions would not be altered.

#### 3.3.2 Proposed Action

Approval of the proposed action would result in the expansion of the pond area, expansion of the parking lot, and the construction of snowmaking lines, and implementation of the suite of project conservation elements (Section 2.2.2) and the Adaptive Management Vegetation Plan (Appendix A). Potential impacts associated with these activities are discussed below.

## Habitat

The proposed action would result in the loss of approximately 2.47 acres of previously undisturbed habitat and surface disturbance to approximately 13.71 acres of previously disturbed areas. A portion of the previously disturbed areas are in various stages of ecological recovery.

The wild horse fence repair and horse capture and removal are expected to have beneficial effects of eliminating a source of transport of undesirable plant species and reducing grazing and trampling effects on habitat and areas undergoing restoration.

Implementation of project conservation elements would prevent, reduce, or minimize potential impacts for all identified sensitive wildlife species so that the project would not be likely to increase the trend toward decline that would result in listing a species.

## Sensitive Botanical Resources

Potential impacts to vegetation would consist of the loss of approximately 2.47 acres of undisturbed, common, and locally widespread vegetation communities and 13.71 acres of construction activity in previously disturbed areas. Based on incomplete surveys (not full USFS or USFWS protocol surveys), a few sensitive plant species are known to exist in small numbers within the proposed projects areas (Jones & Stokes 2005a,b). Impacts along the utility alignments, staging areas, and stockpile sites would be temporary following construction activities and the native vegetation would be allowed to regenerate through a combination of passive natural recruitment processes and implementation of the measures described in the proposed action.

Several species of trees would be impacted by construction activities, including: bristlecone pine (*Pinus longaeva*), white fir, ponderosa pine, and aspen.

## Biodiversity Hotspots

The Very High Priority Upper Lee Canyon Biodiversity Hotspot encompasses 2,997.3 acres, a portion of which is within the LVSSR Special Use Permit Area. The proposed action would disturb approximately 15.43 acres of the biodiversity hotspot, or 0.51% of the hotspot's total acreage. The permanent disturbance (5.04 acres) would be less than 0.17%. The small relative percent of project-related disturbance would affect potential habitat and the measures included in the proposed action and Adaptive Management Vegetation Plan are designed to ensure potential impacts would be negligible.

In accordance with the Conservation Agreement (CA) and the Multiple Species Habitat Conservation Plan (MSHCP), proposed project construction would be primarily in previously disturbed areas (i.e. maintenance roads, existing ground disturbances, and revegetated portions of ski runs) and construction activities would avoid or mitigate impact to sensitive species as outlined in Section 2 of this report and the Biological Evaluation/Assessment (Jones and Stokes, 2005a). Post-construction restoration and monitoring activities described in the Adaptive Management Vegetation Plan are consistent with the direction in the CA and MSHCP.

## **Undesirable Plants**

The chances of spreading invasive plants, noxious weeds, and non-native species, would be reduced by following the measures outlined in the Humboldt-Toiyabe Nation Forest's draft BMP for Road Construction and Heavy Equipment Use Prevention Guidelines for Noxious Weeds (Forest Service 2004). No spread of invasive plants or any negative effects are anticipated because weed management measures would be implemented.

## **Wildlife Resources**

The primary negative impact of construction would be the removal or disturbance of wildlife habitat, including plants (Reference: EA, Section 3, Table 6). Also, clearing, grading and trenching could result in the direct mortality or injury of some forms of wildlife. These impacts would be limited to small, burrowing animals unable to avoid construction activities. Larger, more mobile animals would be able to avoid initial construction disturbances and move to adjacent, undisturbed areas.

## **Sensitive Wildlife Species**

The Proposed Action would not substantially reduce or diminish habitat for wildlife or threaten to eliminate any endangered, threatened or rare wildlife species population (0.51% of potential habitat in the Biodiversity Hotspot). Potential habitat for nine sensitive plant species may be impacted and it is possible that a few individuals may be affected by grading and trenching activities. Six butterfly species may be impacted by the temporary loss habitat, specifically the loss of larval host plants and nectar host plants. Five bird species may inhabit the proposed work areas. Tree removal may reduce roosting and nesting sites. Tree removal may also reduce bat roosting sites as well as cover and burrowing sites for chipmunks. For a detailed list of sensitive species' affected acres and potential habitat loss related to the proposed action, see Table 6.

Implementation of project conservation elements would prevent, reduce, or minimize potential impacts for all identified sensitive wildlife species so that the project would not be likely to increase the trend toward decline that would result in listing a species.

Table 5. Sensitive Species' Affected Acres and Potential Habitat Loss

Common Name	Scientific Name	Affected Acres (unless otherwise noted <sup>2</sup> )	Percent of Potential Habitat Affected Within 72,151-Acre Developed Canyon (Management Area 11)
Clokey eggvetch	<i>Astragalus oophorus</i> var. <i>clokeyanus</i>	2.1	0.003%
Clokey paintbrush	<i>Castilleja martini</i> var. <i>clokeyi</i>	8.25	0.011%
Clokey thistle	<i>Cirsium clokeyi</i>	>10 individuals	9,422 individual plants known (0.11%)
Spring Mountains goldenbush	<i>Ericameria compacta</i>	2.76	0.004%
Hitchcock bladderpod	<i>Lesquerella hitchcocki</i>	2.76	0.004%
Charleston pinewood lousewort	<i>Pedicularis semibarbata</i> var. <i>charlestonensis</i>	2.76	0.004%
Charleston beardtounge	<i>Penstemon leiophyllus</i> var. <i>keckii</i>	6.89	0.010%
Clokey mountain sage	<i>Salvia dorrii</i> var. <i>clokeyi</i>	0.66	0.0009%
Charleston grounddaisy	<i>Townsendia jonesii</i> var. <i>tumulosa</i>	2.76	0.004%
Charleston violet	<i>Viola purpurea</i> var. <i>charlestonensis</i>	2.76	0.004%
Rosy Kings sandwort	<i>Arenaria kingii</i> spp. <i>rosea</i>	8.99	0.012%
Morand's checkerspot butterfly	<i>Euphydryas anicia morandi</i>	8.25	0.011%
Spring Mountains comma skipper	<i>Hesperia comma mojavensis</i>	7.59	0.011%
Nevada admiral	<i>Limenitis weidemeyerii nevadae</i>	10.35	0.014%
Spring Mountains icarioides blue butterfly	<i>Icaricia icarioides austinorum</i>	10.35	0.014%
Spring Mountains blue butterfly	<i>Icaricia shasta charlestonensis</i>	10.35	0.014%
Carole's silverspot butterfly	<i>Speyeria zerene carolae</i>	10.35	0.014%
Peregrine Falcon	<i>Falco peregrinus anatum</i>	2.76	0.004%
Flammulated Owl	<i>Otus flammeolus</i>	2.76	0.004%
Northern goshawk	<i>Accipiter gentilis</i>	2.76	0.004%
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	10.35	0.014%
Silver-haired bat	<i>Lasionycteris noctivagans</i>	10.35	0.014%
Western small-footed myotis	<i>Myotis ciliolabrum</i>	10.35	0.014%
Long-eared myotis	<i>Myotis evotis</i>	10.35	0.014%
Fringed myotis	<i>Myotis thysanodes</i>	10.35	0.014%
Long-legged myotis	<i>Myotis volans</i>	10.35	0.014%
Yuma myotis	<i>Myotis yumanensis</i>	10.35	0.014%
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	2.76	0.004%
Spotted bat	<i>Euderma maculatum</i>	2.76	0.004%
Palmer's chipmunk	<i>Tamias palmeri</i>	2.76	0.004%

<sup>2</sup> Source: Jones & Stokes 2005a

## 3.4 Cumulative Impacts

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Cumulative effects are those environmental consequences that result from the incremental effects of an action when added to other past, present and reasonably foreseeable future actions. The cumulative effects of the No Action and Proposed Action alternative for each resource/issue with other projects were assessed. Many projects in the area were deemed to have no affect and/or are not a contributing element to the effects of other area projects; these projects have not been included in this assessment. Projects, uses and permits in the area of potential affect for any of the considered resources/issues are summarized below, followed by the cumulative impact assessment for affected resource/issues.

### 3.4.1 Current Uses and Permits

- Foxtail Group Day Use Area
- Old Mill Picnic Area
- Upper and Lower Bristlecone Trailheads
- Foxtail Camp
- McWilliams Campground
- Dolomite Campground
- Lee Canyon Recreation Homes
- Clark County Youth Camp
- Las Vegas Ski and Snowboarding Resort

### 3.4.2 Reasonably Foreseeable Future Projects

#### Lee Canyon Meadow Restoration

This project includes actions to address meadow and water quality degradation that includes repair of gullies, dissipating water energy levels at culverts, provide visitor facilities, and control access to the meadow by wild horses. The analysis for this project is expected to begin in 2005.

#### Las Vegas Ski and Snowboard Resort Master Development Plan

The long range development plan includes the consideration of several projects, including the addition of a new ski left west of Chair 2 and the replacement and expansion of the Chalet and Lodge areas. Additional snowmaking water storage and snowmaking lines to provide for existing runs and potential new terrain are also being considered. The site analysis and planning is currently underway.

#### Las Vegas Ski and Snowboard Resort Lift #1 Repair/Rehabilitation

An avalanche in January 2005 damaged the upper support towers of an existing double chair lift (Lift #1) resulting in its closure. The Forest Service and the LVSSR have considered alternative methods, locations, and strategies to get the lift operational. The lift will be replaced within the same footprint although it will be shortened to minimize potential impacts from future avalanches. Separate NEPA documentation is underway for this project.

### 3.4.3 Cumulative Affects

Table 7 summarizes the area of affect and cumulative impacts by alternative for biological resources. As described in Section 3.0, other resources were determined to be no effect, and would not have a material contribution to cumulative impacts.

For the Biodiversity Hotspot and the Developed Canyons Management Area 11, the appropriate biological baseline in time is considered to be March 2000. That was the date the Clark County Multi-species Habitat Conservation Plan was completed (RECON, 2000). That plan considered past effects within its baseline and established specific standards for the sensitive species occurring in the project vicinity including the biological hotspot. Table 7 provides a quantitative summary of surface disturbing activities within potential habitat since that time. LVSSR improvements in 2004 were the first reported projects within the area of potential effect. Those projects occurred on 8.89 acres with a portion of the projects located on pre-disturbed areas that did not represent suitable habitat (such as the 2-acre Bone Yard and Maintenance Clean Up). Projects that occurred on potential habitat included the Beginner Area Slope Correction (0.75 acres), the Beginner Area Teaching Conveyor (0.09), and a Snowmaking Line Replacement and Rerouting (4.83 acres). The 5.67 acres of disturbance associated with these projects is considered short term because it was all revegetated and is in the process of recovery.

**Table 6. Cumulative Impacts on Habitat within Developed Canyons Mangement Area 11**

Area of Interest	Habitat (Acres)		Long Term Impacts (Acres)			Short-Term Impacts (Acres)	Total Cumulative (Past + Proposed Long Term + Proposed Short Term )
	Pre – MSHCP (March 2000)	Existing (Percent Remaining)	Past Losses	Proposed Action Losses	Cumulative Losses	Proposed Action Losses	
Developed Canyons – Management Area 11	72,151	72,145.3 (99.99%)	5.67	5.04	11.71	10.39	22.1
Biodiversity Hotspot	2,997.3	2,991.63 (99.81%)	5.67	5.04	11.71	10.39	22.1

A summary of cumulative impacts of the No Action and Proposed Action Alternatives is presented in Table 8.

**Table 7. Potential Cumulative Affects of the No Action and Proposed Action Alternatives**

<b>Resource/ Issue</b>	<b>Alternative</b>	<b>Area of Effect</b>	<b>Other Actions within Area of Affect</b>	<b>Cumulative Impact within Area of Affect</b>
Biological Resources	No Action	Habitat and potential habitat for sensitive species and individuals within the 72,151-acre Developed Canyons- Managemnt Area 11 and the 2,997.3-acre Biodiversity Hotspot	Lift #1 Repair, Lee Canyon Meadow Restoration, LVSSR Expansion, LVSSR 2004 projects.	Specific details about the other projects are unknown and would be evaluated under separate NEPA processes. There is not enough information to conclusively state there would be no significant impacts, however the No-Action Alternative would have no additional incremental impact.
	Proposed Action			Specific details about the other projects are unknown and would be evaluated under separate NEPA processes. There is not enough information to conclusively state there would be no significant impacts. Because the proposed action includes habitat protection and rehabilitation measures and because of the small percentage of area affected, this proposed action would not be the determining factor because it would have an immaterial contributing effect.

## 4.0 Consultation and Coordination

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NEPA team members prepared this document in consultation with a wide range of Federal, State, and local agencies, tribes and general public. Those on this list were consulted and/or on the mailing list during the development of this environmental assessment:

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**This document was prepared by a consultant (NewFields) with guidance and direction provided by the SMNRA IDT.**

# Appendix A

LVSSR  
Adaptive Management Vegetation Plan  
2005 – 2011

The LVSSR Adaptive Management Vegetation Plan is located in the Project Files which are maintained at the Spring Mountains National Recreation Area administrative office in Las Vegas, Nevada.

A hard or electronic copy of the Plan is available upon request.

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# Appendix B

## Public Comments and Responses

Table 1: Public Comments and Responses

Commenter	ID #	Comment	Response
H. Hiatt	1-1	Concern about potential effects to sensitive botanical resources in the 3 Springs area from user trails and soil/vegetation impacts.	The proposed action does not include any work in the 3 Springs area; therefore the sensitive resources would not be affected by this project.
J. Hiatt	2-1	Comments requesting information on the source of snowmaking water, water use, and downstream effects.	The source of current and proposed snowmaking water is the 3 Springs stream located uphill from the pond. Snowmelt and spring flows would be collected in early spring so that, effectively, the melted snow and stream water from year one would be used to make the next year's snow. This is considered a beneficial use of the water and is non-consumptive use (detention vs. retention) because the water would ultimately reach its natural destination. The pond capacity would be changed from 1.9- to 8.5-million gallons, but because the existing pumps would remain, the rate of pumping would be unchanged. The existing drainages that carry snowmelt dwindle to non-discernible channels and are not known to support any unique or wetland vegetation.
	2-2	Comments expressing concern about erosion, revegetation using native seed, and non-native plant species.	Section 2.2, Proposed Action, contains the proposal for erosion-control measures including revegetation. Because erosion control measures are an inherent part of the proposed action potential impacts would be acceptable. In addition, the Adaptive Management Vegetation Plan includes a detailed description of the native seed collection program. No non-native seed use is proposed. (EA, Section Proposed Action; Table 3 – Project Conservation and Recovery Measures, #1, 4, 10 – 13; and the 2005 Program of Work for the Adaptive Management Vegetation Plan, Section III, C,2,g,2) The vegetation plan also includes action items to decrease the impacts of wild horses on the ski area.
	2-3	There are concerns over the impact wild horses have on existing sensitive plant populations and vegetation and soil impacts as a whole.	The proposed action includes repair of a wild horse exclusion fence and a removal plan. (Section 2.2.2 - Table 3 – Project Conservation and Recovery Measures, #19 and the 2005 Program of Work for the Adaptive Management Vegetation Plan, Section III, C,2,g,2)

Table 1: Public Comments and Responses

Commenter	ID #	Comment	Response
	2-4	Biodiversity hotspot should be taken into consideration.	Effects on biodiversity hotspot were considered and evaluated in the document (See Section 3.1 Biological Resources)
	2-5	Comment expressing concern about additional road salt, litter, and traffic.	<ul style="list-style-type: none"> <li>• LVSSR General Manager, Brian Strait, reports the Resort does not use road salt in winter road maintenance.</li> <li>• The pond will be fenced and not be a source of potential litter. Moving the peak roadside traffic to a fenced parking lot is expected to reduce overall litter or at least confine litter to the fenced area. LVSSR will be responsible for litter control within the parking lot.</li> <li>• Traffic was not evaluated in detail, as described in the discussion on non-significant issues in Section 1.0. However, Average Annual Daily Traffic count data from the nearest Nevada Department of Transportation station on State Route 156 shows 500 daily round trips reports (2003). For the purposes of this response it was assumed that at least 50% of the proposed 200 additional spaces would be used by visitors currently parking on roadsides. Visitors using the remaining 100 spaces would generate an additional 100 round trips per day (200 trips total). The peak annual traffic on State Route 156 during the 1998-2003 period was reported to be 900 daily round trips. Although no project-related traffic increases are anticipated, an incremental increase in traffic (if any) would be well within the normal variability where the roads have demonstrated historic capacity to handle the traffic, therefore no impacts to level of service are anticipated.</li> </ul>
J. Nachlinger	3-1	Concern about overall purpose and need of the project and the proposed action affects to the biodiversity hotspot.	The project would affect approximately ½ of one percent of the potential habitat within the biodiversity hotspot. (EA, Section 3.1 Biological Resources)
	3-2	Concern about minimizing impacts to endemic species.	The project contains elements designed to reduce, minimize, and avoid impacts to endemic species, including the LVSSR Adaptive Management Vegetation Plan (see also Response 2-2).
	3-3	Would like there to be consideration of a shuttle system.	A shuttle system was considered in the past but was unsuccessful. (EA, Section 2.3, Alternatives Considered but Eliminated from further Analysis)

Table 1: Public Comments and Responses

Commenter	ID #	Comment	Response
	3-4	Question about effect to 3 Springs and other riparian areas.	See Responses 1-1 and 1-2.
	3-5	Concern about minimizing effects to butterfly species and the need for monitoring.	The Biological Resources section (3.1) discusses the potential effects on habitat for butterflies. The Adaptive Management Plan (Appendix A), describes measures designed to reduce effects to butterfly habitat and larval/nectar host plants including: topsoil salvage and replacement, invasive plant management, salvage of sensitive plants, and marking construction boundaries to confine impacts.
	3-6	Concern about management of a biodiversity hotspot in a recreation area.	This project is designed to facilitate ongoing winter recreation activities while protecting the values the hotspot was designated for. Also, see Response 3-1.
R. Sheppard	4-1	Comment about minimization of effects to Palmer's Chipmunk by including downed natural materials in the parking lot and 10 cover sites per acre in the Lee Canyon area.	The proposed action (Section 2.2) contains plans to stockpile downed woody material to provide chipmunk refuge sites. Because the parking lot would be paved and have periods of high vehicle traffic, incorporating features to attract chipmunks could increase mortality and would not be appropriate. The suggestion to establish 10 cover sites per acre in Lee Canyon is beyond the scope of this EA.
	4-2	The Service should consider augmenting law enforcement to address unauthorized parking.	Law enforcement funding and staffing is beyond the scope of this analysis. The unauthorized parking occurs primarily below the ski area.
	4-3	Service personnel should consider posting signs to educate the public about protection of biological resources.	Forest Service has a program of visitor education and signage.

Table 1: Public Comments and Responses

Commenter	ID #	Comment	Response
	4-4	Questions about the size and construction of pond and impacts to terrestrial biological resources, and water use.	Section 2.2 provides a detailed description of the proposed action with a table describing the amount of proposed new disturbance and construction on previously disturbed lands. Pond construction would affect 7.97 acres of previously disturbed lands and 0.66 acres of new disturbance. Soils excavated from the pond would be used in the construction of the berm. Best Management Practices designed to protect soil resources are inherent elements of the project. The pond will be enclosed with a 6-foot high chain link fence with escape ramps for wildlife that go over or through the fence. For water use see response 1-2.
B. Boyd	5-1	Concern about soils and revegetation.	See responses 2-1 and 2-2.
	5-2	Question about source and amount of snowmaking water.	See response 2-2.
	5-3	Concern about snowmaking lines as a 'major construction project' affecting butterfly habitat.	<p>The snowmaking lines would be installed in a trench approximately 4-feet wide and 4-feet deep along the forested margin of the existing ski runs. The Adaptive Management Vegetation Plan includes preconstruction surveys for butterfly-host plants and additional measures for reducing potential effects (EA, Section 2.2, Proposed Action; and the 2005 Program of Work for the Adaptive Management Vegetation Plan, Section III, C,1)</p> <p>In addition, increasing the volume of snowmaking would result in more water during spring thaws and thus provide a reliable source of larger amounts of water supporting butterfly habitat. Essentially, a portion of stream flows and snowmelt would be diverted from existing drainages to ski slope butterfly habitat. The existing drainages dwindle to non-discernible channels and are not known to support any unique or wetland vegetation.</p>

Table 1: Public Comments and Responses

Commenter	ID #	Comment	Response
	5-4	Concern about the Forest Service dedicating 4.2 acres to parking.	As described in the Purpose and Need (Section 1.0), expanding the existing parking by 1.87 acres of new disturbance is consistent with directives and guidance in the General Management Plan (Forest Service, dated October 1, 1996). For example, Guideline 11.64 specifically states the Forest Service should: Increase available winter parking within Kyle and Lee Canyons through cooperative efforts with other federal, state, and local agencies, with an emphasis on designated winter parking areas that are cleared to a standard size and capacity. The parking would be available to help meet demand peaks November through March and during summer concert events.
	5-5	Concern over the amount of realty action in Lee Canyon.	The referenced Lee Canyon realty actions are private property being offered for sale on a willing seller-willing buyer basis, and are not under the jurisdiction of the Forest Service. As described in Section 1.0, the 4.2 acres has been located within an area designated as a Special Use Permit since the 1960's. See also response 3-5.
	5-6	Concern about soils, revegetation, and non-native vegetation.	See response 2-2.
R. Shepherd (phone comments)	6-1	Question about ownership of water rights.	The water rights are held by the Forest Service (see Section 1.0, Issues-Groundwater).
	6-2	Question about land ownership/jurisdiction.	The proposed action project would be located entirely on lands under Special Use Permit held by Las Vegas Ski and Snowboard Resort until 2029 (see Section 1.0, Issues-Land Use).
	6-3	Question about pond water use for firefighting,	As described in Section 2.2, Proposed Action; Water stored in the snowmaking pond would be available to support fire suppression efforts in Lee Canyon. Because fire risk is lowest in winter, it is unlikely that pond water would be needed for firefighting and snowmaking at the same time. Because of helicopter flight constraints associated with the high elevation and limited tree-surrounded access, pond water use for firefighting is expected to be limited only to fires in the immediately adjacent area, and only when other water sources are not available.