

1 1.0 INTRODUCTION

2 The U.S. Department of Agriculture, Forest Service (USFS) has prepared this
3 Environmental Assessment (EA) in compliance with the National Environmental Policy
4 Act (NEPA) and other relevant Federal and State laws and regulations. This EA
5 discloses the direct, indirect, and cumulative environmental impacts that would result
6 from three alternatives—No Action, Proposed Action, and Alternative 1.

7 1.1 Document Structure

8 The document is organized as follows:

- 9 • **1.0 Introduction:** This section includes information on the history of the project
10 proposal, the purpose of and need for the project, and the USFS proposal for
11 achieving that purpose and need.
- 12 • **2.0 Comparison of Alternatives, including No Action, Proposed Action, and**
13 **Alternative 1:** This section provides a detailed description of the Proposed Action
14 and Alternative 1, as well as the No Action alternative. Alternatives are developed
15 based on issues raised during the internal and public scoping and comment period.
- 16 • **3.0 Affected Environment, Environmental Consequences, and Mitigation**
17 **Measures:** This section assesses the environmental effects of implementing the No
18 Action, Proposed Action, and Alternative 1 options. A summary table of the
19 environmental consequences associated with these alternatives is provided upfront
20 for direct comparison. Following the table, a detailed impacts analysis for each
21 resource is presented. In the analysis the affected environment is described first,
22 followed by the effects of the No Action alternative; these discussions provide a
23 baseline for the evaluation and comparison of the effects of the Proposed Action
24 and Alternative 1. Finally, this section includes a discussion of proposed
25 mitigation measures intended to reduce or minimize the potential for effects.
- 26 • **4.0 Agencies and Persons Consulted:** This section provides a list of NEPA team
27 members, agencies, and entities consulted during the development of the EA.
- 28 • **5.0 References:** Information on reports, documents, personal contacts, and
29 references cited are included in this section.

30 Additional documentation, including more detailed analyses of project-area resources,
31 may be found in the project planning record located at the Spring Mountain National
32 Recreation Area (SMNRA) District Office in Las Vegas, Nevada.

33 1.2 Purpose and Need for Action

34 The purpose of this project is to implement a specific safety and hazard reduction
35 measure called for in a recent USFS avalanche hazard reduction program review for the
36 Las Vegas Ski and Snowboard Resort (LVSSR). There is a need for a more accurate and

37 flexible explosive projectile delivery to improve avalanche hazard reduction and increase
38 employee and public safety.

39 LVSSR is a private company that operates and manages a ski area in the Humboldt-
40 Toiyabe National Forest under a Special Use Permit (SUP) issued by the USFS. LVSSR
41 is responsible for avalanche control activities within its permit boundary.

42 Past avalanche hazard reduction methods at LVSSR were comparable to many ski areas
43 worldwide. Methods consisted of placing hand-thrown charges on avalanche prone areas
44 and use of a compressed nitrogen-powered launch system to place charges in areas not
45 accessible to hand-charge placement. Avalanche control at LVSSR has been in use for
46 over 30 years. The compressed nitrogen system has been portable since February 2005.
47 To adequately cover all target areas, the equipment was transported by a snow grooming
48 machine to several designated firing locations. The system was operated near its
49 maximum range.

50 The winter of 2004/2005 saw exceptionally heavy snowfall in the Spring Mountains of
51 southern Nevada. These heavy snows resulted in a large number of avalanches
52 throughout the mountains, including the avalanche paths within LVSSR. In January
53 2005, two such avalanches were responsible for a safety incident and the destruction of
54 Lift #1 at the ski area.

55 Following these avalanches, LVSSR and the USFS explored all potential options for
56 controlling avalanches within the ski area. This process included the study of both
57 alternative avalanche tools and locations. During this process, a number of USFS and ski
58 area avalanche experts were consulted. Several of these experts visited LVSSR to
59 perform “on-the-ground” assessments of the avalanche conditions with a goal of
60 identifying the best tool to prevent a recurrence of the January 2005 avalanches.

61 The USFS/LVSSR study evaluated considerations that included avalanche frequency and
62 strength, elevation, geography, access to starting zones, cost, reliability, effectiveness,
63 safety, impacts to the Mt. Charleston Wilderness, as well as visual and biological
64 impacts. The evaluation of these considerations indicated that in addition to other
65 concerns, the continued use of the compressed nitrogen and hand-charge placement
66 methods was no longer feasible due to associated accuracy and targeting limitations, and
67 subsequent safety concerns for both employees and recreationists, as follows:

- 68 • Truly accurate targeting requires that an ordnance launcher be stationary and fired
69 from the same location each time; this was not possible with the compressed
70 nitrogen launcher. In addition, the projectiles are comparatively slow moving and
71 subject to winds blowing them off target, thus requiring additional launches. This
72 lack of accuracy increases the number of projectiles used, increases the
73 probability of a non-detonation (duds), and, therefore, could heighten the potential
74 safety risk for LVSSR employees and visitors.
- 75 • The hand-charge placement method is also limited in its ability to accurately place
76 the charges, since during heavy snowfalls it is difficult to access the avalanche
77 target areas.
- 78 • Both compressed nitrogen launcher and hand-charge placement methods expose
79 the employees to potential dangers associated with transporting explosive

80 ordnances and equipment into the vicinity of avalanche-prone areas; additionally,
81 their previously discussed accuracy limitations potentially increase the risk of
82 avalanche recurrence and subsequent safety concerns for recreationists who use
83 the ski facilities.

84 Based on the results of the extensive USFS/LVSSR study, it was concluded that the
85 selection of the 105 millimeter (mm) howitzer was the preferred, most effective, and
86 appropriate tool to control avalanches within the LVSSR area.

87 During the 2005/2006 avalanche season, the USFS authorized temporary use of a 105
88 mm howitzer from an outdoor mount located at the end of State Route (SR) 156 in a
89 paved highway turnaround area. The howitzer is moved into place for every “mission.”
90 The location at the end of SR 156 proved to have several advantages, leading to the
91 development of an alternative (Alternative 1) to the Proposed Action to use this site for
92 the permanent housing and operation of the howitzer. An analysis of Alternative 1 has
93 been included in this EA, and it is expected that its implementation would result in
94 reduced environmental impacts, while maintaining improved operational and safety
95 considerations. It is, therefore, the preferred and recommended alternative for avalanche
96 hazard control.

97 Permanent authorization for use of the 105 mm howitzer, currently in use under a USFS
98 temporary authorization, will enhance LVSSR’s ability to: (1) improve explosive
99 projectile accuracy, (2) improve the ability to target avalanche-starting zones in poor
100 visibility, (3) significantly reduce the percentage of non-detonating rounds or “duds,” and
101 (4) decrease the vulnerability of avalanche control personnel to avalanche hazards by
102 eliminating the need for hand-charge placement or transporting portable compressed
103 nitrogen launch systems.

104 Further, housing the howitzer inside an avalanche control building/storage facility would
105 provide for protection of both equipment and operators, thereby resulting in: (1)
106 increased security and safety of the howitzer and its operators, (2) improved operational
107 capability during inclement weather, and (3) decreased wear and maintenance of
108 equipment. In addition, the permanent housing of the howitzer within a storage facility
109 would eliminate the need for transport and set-up during each mission, thus increasing the
110 ability of the howitzer to consistently and accurately target critical avalanche zones.

111 **1.3 Proposed Action**

112 During the public scoping process, the USFS proposed to authorize LVSSR to:

- 113 • Authorize permanent use of the 105 mm howitzer to ensure a more effective and
114 accurate delivery mechanism that would substantially decrease avalanche risk to
115 resort employees and visitors.
- 116 • Construct facilities to house the howitzer and munitions, that would consist of:
117 (1) a building of approximately 640 to 900 square feet (depending on final design
118 approvals), (2) a concrete equipment handling pad approximately 10 to 15 feet
119 wide located adjacent to the building, (3) an underground ammunition storage
120 magazine approximately 400 square feet, (4) an unpaved access road from the
121 existing parking lot to the proposed facility site, approximately 20 feet wide by

122 120 feet long, and (5) an approximately 1,000-foot trench, 3 to 4 feet wide for
123 electricity and telephone cables following the road footprint from the lodge.

124 The location, design, and construction of the building as well as the magazine would
125 require an Alcohol, Tobacco and Firearms (ATF) approval in accordance with the ATF
126 *Federal Explosives Law and Regulations* (U.S.C. Chapter 40, Subpart K.). The use and
127 maintenance of the howitzer is subject to the approval and supervision of the USFS, and
128 compliance with U.S. Army Regulation (AR) 725-20, *Requisition and Issue of Supplies*
129 *and Equipment, Avalanche Control Program*.

130 All project-related improvements would occur within the permit area. If the project were
131 approved, construction would begin in the spring of 2008 and would be completed by
132 mid-October 2008. A detailed description of the Proposed Action is found in Section 2.0
133 of this document.

134 **1.4 Forest Service Management Direction** _____

135 If this project is implemented, the ski area would continue to provide organized
136 commercial winter sports opportunities in compliance with the USFS SMNRA General
137 Management Plan (GMP) objectives, and the standards and guidelines for USFS
138 Management Area 11–Developed Canyons (USFS 1996), where LVSSR is located.

139 The following select objectives and guidelines are either SMNRA-wide or Area 11
140 direction applicable to this project.

- 141 • Management Plan Emphasis–Conserve scenery (GMP page 7).
- 142 • Objective 0.1–Maintain or enhance ecosystem health, function, sustainability, and
143 diversity (plant, animal, and community) (GMP page 8).
- 144 • Objective 0.43–Manage lands within the SMNRA to provide a range of developed
145 recreation opportunities with an emphasis on opportunities not available on
146 private lands (GMP page 11).
- 147 • Objective 0.50–Optimize public benefits in commercial and public service
148 opportunities, where consistent with the protection of natural resources and values
149 (GMP page 11).
- 150 • Guideline 0.29–Limit negative impacts to all species of concern due to
151 management activities (GMP page 18).
- 152 • Objective 11.23–Allow expansion of existing recreation facilities in upper Kyle
153 and Lee Canyons only within existing developed site boundaries. Emphasize use
154 of current disturbed areas (GMP page 32).
- 155 • Objective 11.59–Allow expansion of existing administrative facilities in Kyle and
156 Lee Canyons only within existing developed site boundaries and where consistent
157 with their historic nature. Emphasize use of current disturbed areas (GMP page
158 35).

159 In addition, this project must be compatible with specific USFS-wide and Developed
160 Canyons’ biological objectives, including the responsibility to maintain or enhance
161 ecosystem health, function, sustainability, and diversity (plant, animal, and community).

162 The USFS management direction for the area, including LVSSR, is complex due to the
163 number of management plans and agreements in place and the manner in which they
164 interact. For this project, specific portions of the following management documents
165 provide oversight and guidance, including:

- 166 • Clark County Multiple Species Habitat Conservation Plan and Environmental
167 Impact Statement, September 2000 (RECON 2000)
 - 168 - Purpose 1.2.1–Provide for economic, recreational, and other uses meeting the
169 social and economic needs of the residents of the county (page 1–4).
 - 170 - Goal 1.2.3–To identify measurable biological objectives consistent with the
171 overall goal of no net unmitigated loss or fragmentation of habitat and to
172 maintain stable or increasing population of Covered Species in Intensively
173 Managed Areas and less Intensively Managed Areas (page 1–8).
- 174 • Conservation Agreement for the Spring Mountains National Recreation Area,
175 April 13, 1998 (USFS 1998)
 - 176 - Restoration Conservation Activities 5.6–Work with LVSSR to develop
177 protective strategies for sensitive ecological resources (page 39) General
178 Management Plan for the Spring Mountains National Recreation Area,
179 October 1996.

180 **1.5 Decision Framework**

181 The USFS first must determine if the proposed project meets the purpose and need
182 described above and, if so, the deciding official will review the No Action, Proposed
183 Action, and Alternative 1 options in order to make the following decisions.

184 Based on the environmental analysis in this EA, the Forest Supervisor of the Humboldt-
185 Toiyabe National Forest will make a decision based on the following principal criteria:

- 186 • Whether or not to authorize: (1) the permanent use of a 105 mm howitzer,
187 currently in use under temporary authorization, for avalanche hazard reduction
188 activities, and (2) the construction of an avalanche control building with a storage
189 magazine, and (possibly) (3) an unpaved access road for the purpose of housing,
190 using, and servicing the howitzer.
- 191 • Whether this action is consistent with the General Management Plan for the
192 Spring Mountains National Recreation Area, an amendment to the 1986 Land and
193 Resource Management Plan for the Toiyabe National Forest.

194 **1.6 Public Involvement**

195 The project proposal was provided to the public and other agencies for comment during a
196 30-day scoping and comment period from October 16, 2006 through November 15, 2006.
197 In addition, as part of the public involvement process, the agency prepared and mailed a
198 scoping and comment document, and published a Legal Notice inviting public comment
199 on October 19, 2006, in the newspaper of record, the *Las Vegas Review-Journal*. In a

200 public location at the resort, LVSSR also posted a copy of the document inviting
201 comment.

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

204 A summary of the questions and issues raised during public scoping and the responses are
205 shown in Table 1.

206 **1.7 Issues**

207 The USFS separated the issues into two groups: significant and non-significant issues.
208 Significant issues were defined as those directly or indirectly caused by implementing the
209 proposed action. Non-significant issues were identified as those: 1) outside the scope of
210 the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher
211 level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not
212 supported by scientific or factual evidence. The Council on Environmental Quality
213 (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and
214 eliminate from detailed study the issues which are not significant or which have been
215 covered by prior environmental review (Sec. 1506.3)...". Both the significant and non-
216 significant issues for this project were identified by the USFS through internal and public
217 scoping, and are discussed below.

218 ***Significant Issues Evaluated in this Environmental Assessment***

219 The significant issues potentially affected by this project include the following:

Internal Issues

- Biological Resources
- Cultural Resources
- Water Quality
- Noise
- Visual Resources
- Land Use and Recreation
- Cumulative Effects

Public Comment Issues

- Noise
- Security
- Hazards to low flying Nellis AFB-based aircraft

220 Issues identified by the public during the scoping process are addressed in Table 1 of this
221 document; USFS-identified internal issues are addressed and analyzed in Section 3.0, and
222 are summarized in Table 4. In all cases, the potential effects related to these issues were
223 found to be: (1) negligible to non-existent, (2) remedied by implementation of the
224 preferred alternative (Alternative 1), or (3) remedied through appropriate mitigation and
225 conservation measures as prescribed by this Environmental Assessment.

226 ***Non-Significant Issues Eliminated from Detailed Evaluation***

227 The following non-significant issues were eliminated from detailed evaluation, and the
228 rationale for their elimination is described in the discussion below.

- 229 • ***Groundwater:*** Groundwater was considered and determined not to be relevant to
230 this analysis because project disturbance is shallow relative to static groundwater

- 231 levels in the area. Groundwater would not be affected by the limited surface
232 disturbance associated with the construction of the howitzer storage facility or
233 appurtenant access roads and utilities. In addition, as indicated in the Screening-
234 Level Ecological Risk Assessment prepared for the project (NewFields 2006b),
235 the potential for effects to groundwater quality from explosive charge residue in
236 the avalanche release zone would be negligible.
- 237 • **Air Quality:** Air quality permits for construction are issued in accordance with
238 the Clear Air Act by the Clark County Air Pollution Control District (CCAPCD)
239 under delegated authority of the Environmental Protection Agency. The short-
240 term and temporary effects to air quality associated with construction of the
241 proposed project would require a permit and are subject to existing control by the
242 CCAPCD.
 - 243 • **Transportation:** Implementation of the proposed project is not expected to
244 change transportation demand beyond the normal annual variability or disrupt
245 normal and long-term transportation flow patterns; therefore, this issue was
246 determined to be irrelevant to the decision.
 - 247 • **Socioeconomics:** Socioeconomics were judged to be irrelevant to the decision
248 makers because there would be a no long-term effects and likely on short-term
249 minor beneficial effects of construction spending.
 - 250 • **Environmental Justice:** As part of the NEPA process, agencies are required to
251 identify and address disproportionately high and adverse human health or
252 environmental effects on minority and low-income communities. Because no
253 low-income communities were identified in the area of potential effect for this
254 project, the issue would be irrelevant to the decision.

Table 1. Summary of Comments and Responses

Comment No.	Name/Agency	Form	Line	Comment and/or Reference	Comment Response
1	Bruce Sillitoe/ Clark County Parks & Recreation	Written	General Comment	We agree with your findings as they relate to the need for current avalanche hazard reduction systems. The delivery of a more effective and accurate delivery mechanism would decrease the avalanche risk to your employees as well as visitors.	Comment noted.
2	Stephanie Myers/ Lee Canyon resident	Email	General Comment	<p>Preventing avalanches is crucial. However, I am concerned about two subjects your letter of 10/11/06 did not address:</p> <p>1. Noise: What noise level can Lee Canyon residents expect when this howitzer is fired?</p> <p>2. Security: A howitzer is very powerful and dangerous. What kind of security precautions will be taken to prevent unauthorized use or theft of this frightening weapon and ammunition? Exactly where will it be housed? How will access be restricted?</p>	<p>1. Noise: As discussed in Section 3.5.2 of the EA, noise measurements were taken at the nearest sensitive receptors located in Lee Canyon while conducting avalanche control test missions using the methods proposed in the EA. The results of the measurements indicated that instantaneous noise levels from individual shots ranged from about 60 to 80 decibels. By comparison, Occupational Safety and Health Administration reports 85 decibels as the noise level in a closed automobile in city traffic. The same noise level is also comparable to the noise from closing a car door or opening a full can of soda, as measured from a distance of 6 feet.</p> <p>2. Security: As discussed in Section 2.2 of the EA, provisions for howitzer security and access as well as restrictions for its use would be governed by the USFS, ATF, and U.S. Army regulations and requirements, and would be subject to approval and supervision by those agencies. The howitzer and its housing structure are currently proposed to be located at the SR 156 highway turnaround area or the adjacent ridge (refer to Figures 1 and 2 of the EA). All personnel operating the howitzer would be trained and certified annually in accordance with <i>Avalanche Artillery Users of North America Committee</i> standards.</p>

Table 1. Summary of Comments and Responses

Comment No.	Name/Agency	Form	Line	Comment and/or Reference	Comment Response
3	Pat Fitzgibbons/ Spring Mountains Volunteer Association	Written	General Comment	We are also quite familiar with the particular terrain and snow-avalanche conditions in the vicinity of the Las Vegas Ski and Snowboard Resort. Also, we are familiar with the recent tragedies on the ongoing avalanche danger created by these conditions. We welcome the use of any device that will reduce these avalanches when used properly.	Comment noted.
4	Don Winter	Written	General Comment	Yes, I am in favor of "LVSSR Avalanche EA."	Comment noted.
5	U.S. Department of Defense, Department of the Air Force (AFB)	Written	General Comment	Nellis AFB's main concern is the potential hazard to low flying aircraft of a 105 mm howitzer firing live ordnance in an area where both military and civilian aircraft operate. Nellis AFB and the [Federal Aviation Authority] FAA need to know the arc and distance of the longest shot to see if the projectile is a potential hazard to flying safety for all aircraft flying in the vicinity of Mount Charleston.	On November 20, 2006 a meeting was held at Nellis AFB to discuss the use of the howitzer use, and to address any Federal Aviation Administration (FAA) or AFB concerns. Maps showing howitzer's maximum operating range and shot trajectory were provided to FAA and Nellis AFB representatives, and it was concluded that LVSSR avalanche control activities would not: 1) affect Nellis AFB operations, or 2) be of concern to the FAA.
6	M. Estrada/ Nellis AFB	Written	Specific Comment	The angles at which the howitzer can be directed needs to be restricted to the point where there would be no danger to low flying aircraft.	See response to Comment 5 above.
7	D. Bee/ Nellis AFB	Written	Specific Comment	Nellis and the FAA need to know the arc and distance of the longest shot to see if the projectile is a potential hazard to flying safety for all aircraft flying in the vicinity of Mt. Charleston.	See response to Comment 5 above.