



Sloan Canyon National Conservation Area Trails Master Plan

Final Environmental Assessment



SLOAN CANYON NATIONAL CONSERVATION AREA TRAILS MASTER PLAN

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Abstract

The BLM is proposing to develop a comprehensive non-motorized trail network (Trails Master Plan or Master Plan) within the Sloan Canyon NCA, including the North McCullough Wilderness. The Trails Master Plan is intended to meet the needs of hiking, equestrian, and mountain biking groups and other non-motorized trail users by providing a range of opportunities for differing skill levels, abilities, and interests. The proposed Sloan Canyon NCA trails network would connect to trails identified in the City of Henderson's Open Space and Trails Plan, including the approved Anthem Trails System and the proposed McCullough Hills Trail.

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EXECUTIVE SUMMARY

BACKGROUND / HISTORY

In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA) to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The Clark County Conservation of Public Land and Natural Resources Act of 2002 [P.L. 107-282] (Title IV, the Sloan Canyon NCA Act) established the Sloan Canyon NCA and the North McCullough Wilderness (Title II), which is entirely contained within the NCA. The 48,438-acre NCA, which forms the natural, mountainous southern skyline of the cities of Henderson and Las Vegas, contains important archaeological sites, scenic resources, and wildlife habitat. The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most notable cultural resources in southern Nevada. More than 400 rock art panels with nearly 1,200 designs represent native cultures dating from the Archaic to Historic era. Eventually, residential housing, schools, parks, and businesses will border much of the northern and western edges of the NCA.

PROJECT AREA DESCRIPTION

The Sloan Canyon NCA encompasses the northern portion of the McCullough Range and is located approximately 20 miles southeast of the City of Las Vegas. The northwestern NCA boundary borders the City of Henderson. The NCA is situated at the edge of a rapidly urbanizing valley. The NCA is one of the latest additions to a regional network of protected local, state, and federal lands. Throughout the greater Las Vegas Valley, large tracts of land have been set aside to provide outdoor recreational opportunities for the growing population as well as to ensure the preservation of natural desert ecosystems. Many of these protected areas are connected by a network of city, county, and/or federal trails and pathways.

Archaeological evidence suggests that humans have used the area now designated as the NCA for approximately 7,000 years. Petroglyph Canyon, located within the southwestern portion of the NCA, contains more than 1,700 rock art elements within a half-mile stretch of the canyon. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by many previous cultures. An ethnographic study completed for the Resource Management Plan (RMP) and ongoing consultation with Tribes have confirmed the cultural significance of the Sloan Canyon Petroglyph Site to present-day area Native Americans. The Sloan Canyon Petroglyph Site has been listed on the National Register of Historic Places since 1978. In addition to the Sloan Canyon Petroglyph Site, cultural resource inventories have identified 19 other rock art sites in and around the NCA; however, none of the sites are as extensive as in the Petroglyph Canyon.

Historically, recreational use of the NCA has been low. However, with the recent population trends in Clark County, recreation is now becoming an important use of the North McCullough Range. As urban growth in the Las Vegas Valley has enveloped the northern portion of the NCA, hiking, mountain biking, equestrian, and illegal off-highway vehicle (OHV) use have become more prevalent in the NCA. Because of its rugged character and greater isolation, the southern portion of the NCA receives little visitation and recreational uses are limited primarily to cross-country hiking and equestrian use. Recreational use has been concentrated on the NCA perimeter, primarily in the Dutchman's Pass, Hidden Valley, and Petroglyph Canyon areas. Due to extreme high temperatures in the summer months, recreational use of the NCA peaks in the period from October to May.

PROPOSED PROJECT

The BLM is proposing to develop a comprehensive non-motorized trail network (Trails Master Plan or Master Plan) within the Sloan Canyon NCA, including the North McCullough Wilderness. The Trails Master Plan is intended to meet the needs of hiking, equestrian, and mountain biking groups and other non-motorized trail users by providing a range of opportunities for differing skill levels, abilities, and interests. The proposed Sloan Canyon NCA trails network would connect to trails identified in the City of Henderson's Open Space and Trails Plan, including the approved Anthem Trails System and the proposed McCullough Hills Trail.

PURPOSE AND NEED

The Trails Master Plan is necessary to implement the recreation management direction outlined in the approved Sloan Canyon RMP. Specifically, the Trails Master Plan would address recreation guidelines 9 – 13 (RMP Section 2.2.2, REC 9-13), which call for the systematic planning and development of a sustainable, low impact trail system that accommodates multiple non-motorized uses by utilizing a combination of new trails, existing roads and rights-of-way, and the reconstruction of unauthorized routes and social trails (BLM 2006).

Residential and urban development near or adjacent to Sloan Canyon has increased dramatically in the last 20 years. The greater Las Vegas Valley and Clark County both experienced average annual population growth rates in excess of 5% for the period 1990-2007 (Clark County Department of Comprehensive Planning). For the period 1990-2004, the City of Henderson experienced an average annual population growth rate in excess of 9% (City of Henderson 2005). Future population projections for these three entities suggest that population growth will continue at similar (but slightly lower) rates through 2030 (Clark County 2007a).

Current visitation to the NCA is estimated at 28,500 visitors annually (Interpretive Plan 2006). As regional population growth and surrounding development occurs, and as Sloan Canyon NCA becomes better known, visitation is expected to increase even without the development of additional visitor facilities. If the recent growth rates in the region remain constant, it is estimated that annual visitation to the NCA would approach 75,000 visitors by 2030 (BLM 2007a).

The Trails Master Plan project would provide a framework for developing trail related recreation and interpretive opportunities, which would be used by NCA neighbors, residents of the greater Las Vegas Valley, and out-of-area visitors. Additionally, a designated trail system near the more populated boundaries would help alleviate some resource impacts and abuses occurring in the NCA. Informal access and use in some frontcountry areas within the NCA have resulted in resource damage, numerous social trails, and illegal uses such as shooting, OHV use, and trash dumping.

The primary objectives of the Sloan Canyon Trails Master Plan are to:

- Establish sustainable, non-motorized access to areas of interest within the NCA.
- Provide recreational opportunities that meet the expectations of hiking, equestrian, and mountain biking groups and other non-motorized trail users.
- Plan and manage for future recreational use and demand levels.
- Ensure that trail related recreational disturbances are minimized.

- Provide interpretive opportunities consistent with the Sloan Canyon Act.
- Provide connectivity to regional trail systems and proposed developed areas, such as the Sloan Canyon Visitor Center.

In summary, as residential and urban development near the NCA boundary and throughout the Las Vegas Valley continue to increase, it is anticipated that the recreational use of Sloan Canyon will also increase. Developing a comprehensive Trails Master Plan is a critical step toward providing reasonable and sustainable access to the NCA, meeting visitor expectations, and managing use levels. The Trails Master Plan would provide the BLM with an opportunity to mitigate future potential user conflicts, reduce maintenance costs, and manage for public use and enjoyment of the NCA while protecting sensitive resources.

CONFORMANCE WITH THE SLOAN CANYON RMP

The Sloan Canyon NCA Act required BLM to develop a plan for the appropriate use and management of the NCA and Wilderness within three years of enactment. The BLM fulfilled this requirement with the release of the approved RMP, North McCullough Wilderness Management Plan (WMP), and Record of Decision (ROD) in May 2006. The approved RMP and WMP provide guidance for the planning and management of actions consistent with the NCA vision for the next 15-20 years. The purpose of these plans is to provide the BLM Red Rock/Sloan Field Office with a comprehensive framework for managing the NCA and the North McCullough Wilderness. The RMP and WMP are detailed public documents that define management policies and permissible actions on these lands.

This proposed Trails Master Plan has been developed in accordance with the guidelines and policies identified in the RMP and WMP. The proposed resource management actions and the development of a non-motorized trail system, are “specifically provided for in the [RMP]” and are “consistent with the terms, conditions, and decision of the approved plan or amendments,” (43 CFR 1601.0-5(b)). The proposed Trails Master Plan has been “planned, designed, and [will be] constructed through a systematic process that [evaluates the] needs, potential uses, suitable destinations, and public interest.” Resource-specific assessments of conformance with the RMP will be provided in Chapter 3.0, Affected Environment and Environmental Consequences.

DECISION TO BE MADE

The BLM will decide which alternative analyzed in this EA best meets the visitation, access, recreational, and long-term management objectives identified in the Sloan Canyon RMP. This EA is not the decision document for the proposed project. The Field Office Manager will first determine whether an Environmental Impact Statement (EIS) is required based on the significance of environmental effects (40 Code of Federal Regulations [CFR] 1509.9) documented in the EA. If no significant effects are anticipated, a Finding of No Significant Impact (FONSI) will be issued and a Decision Record (DR) will be prepared. The DR will document the decision regarding the action for which the EA was completed and will specify which alternative is selected for implementation. The decision cannot be implemented until the DR is signed.

SCOPING ACTIVITIES

Approximately 15 interest groups were identified as project stakeholders (see Section 4.3 for a list of stakeholder groups). Stakeholders were invited to participate in the Trails Master Plan development process by completing a stakeholder survey, attending a stakeholder interview, and/or participating during the general public scoping process (described below).

A project scoping letter was mailed (May 22, 2008) to approximately 500 interested parties, including private landowners, congressional representatives, special interest groups, county commissioners, and local media (including radio stations and newspapers). The letter was intended to inform the public of the project, to encourage public comments and feedback on the proposal and its potential impacts, and to invite public participation at a scoping meeting on July 1, 2008. The public was given approximately 30 days to respond with comments. The BLM received six comment letter responses.

Approximately 20 individuals attended a public scoping meeting at the Red Rock / Sloan Field Office on July 1, 2008. The meeting was organized as an open house, with numerous exhibits pertaining to the NEPA and Trails Master Plan process, preliminary trail network, preliminary field investigations, and upcoming public involvement activities. BLM and contractor staff were present to answer questions and discuss project elements with the attendees.

A separate Notification of Proposed Action was distributed to persons and groups specifically interested in BLM actions affecting wilderness areas. Approximately 200 persons and/or groups were notified of the project by letter or postcard in July 2009 and were invited to provide comments on the proposed project. The BLM received six comment letter responses from organized groups and/or interested individuals.

Tribal Government Consultation regarding the effects of the proposed project, including the identification of the proposed trail routes, were initiated during the planning phases of the project. Eleven tribes from the Southern Nevada region were identified by the BLM as potentially having concerns about the proposed project (see Chapter 5.0 for a list of Tribes contacted). All of these tribes were contacted and invited to participate in one of three BLM-Tribal Coordination meetings held at three different locations: Lake Havasu City, Arizona on June 23, 2008; Cedar City, Utah, on June 25, 2008; and Las Vegas, Nevada, on June 26, 2008. The comments from these meetings reflected a variety of opinions and concerns. These centered on three topics: general support for the project, the identification of trail routes that would avoid or minimize effects to wildlife, and cultural and aesthetic resources. In 2009, the BLM completed and reviewed a cultural survey of the proposed trail routes under Section 106 of the National Historic Preservation Act (NHPA). The BLM will share the cultural resource survey report and key findings with the identified tribes and the State Historic Preservation Officer (SHPO) for comment.

Approximately 42 individuals attended a public alternatives workshop in Henderson, Nevada on December 9, 2008. The three trail system alternatives were presented in an open house format. The public was invited to provide feedback and discuss ideas and concerns about the alternatives. BLM and contractor staff was present to answer questions and offer more information about the project and alternatives considered to date. A comment form was distributed to all workshop participants; the BLM received approximately 30 completed comment forms or letters following the public workshop.

ALTERNATIVES

Four alternatives have been developed for the proposed project: Alternative A – No Action, Alternative B, Alternative C, and Alternative D – Proposed Action.

ALTERNATIVE A – NO ACTION

Alternative A, the No Action Alternative, provides a baseline for comparing the relative changes and effects that would occur with implementation of any action alternative. It considers what may result if the proposed project is not implemented. It is defined as a continuation of existing management practices. Current management plans would continue to guide management activities in the analysis area.

In addition to the McCullough and Anthem trails being developed by the City of Henderson, Alternative A would include the four trails identified in the 2006 RMP and WMP: Cowboy Trail, Hidden Valley Trail, Petroglyph Trail, and an unnamed trail connecting the proposed Quo Vadis trailhead with the North McCullough Road corridor. Alternative A would include each of these unimproved routes on the alignments shown in the RMP and WMP.

In most locations, the RMP-proposed route is not discernable on the ground as it was only identified as a potential trail corridor, but not formally established, through the RMP process. No formal signage or wayfinding aids exist within the NCA (including the wilderness); however, unofficial rock cairns have been erected along popular access routes, but do not necessarily reflect the RMP-proposed alignments.

According to the recreation resource management decision, REC 2, in the 2006 RMP, “Cross-country hiking is allowed in trail-use-only areas until BLM trails are established and in use, after which some or all of these areas may be restricted to hiking on designated trails” (BLM 2006). Given that no further BLM trails would be established under Alternative A (no trails additional to those identified in the RMP), cross-country travel would still be allowed in all MEAs under this alternative.

Under Alternative A, no additional trail construction, trail improvements, or existing OHV route restoration would occur. All Alternative A trails would remain aligned as shown in the RMP and WMP. Alternative A would include approximately 7.1 miles of unimproved RMP-proposed routes (total mileage does not reflect the City of Henderson proposed trails).

ALTERNATIVE B

Under Alternative B, the BLM would pursue the construction, development, and designation of approximately 58 miles of trails throughout the northeast and northwest portions of the NCA (Dutchman Pass, Black Mountain, and Hidden Valley areas), including trails within the North McCullough Wilderness. This network would consist of existing social trail routes, natural washes, and the construction of new trails in both wilderness and non-wilderness areas.

In the Dutchman Pass area, Alternative B would designate a 16-mile network of hiking, biking, and equestrian trails. New trails and loop options in this area would rely extensively on the use of natural washes and existing social routes; however, some new construction would also be necessary in this area. Under Alternative B, the BLM would close and restore unauthorized OHV routes intersecting the Alternative B routes to facilitate appropriate use of the designated

trail system. Efforts to close and restore such OHV routes are described in further detail under Elements Common to All Alternatives.

In the Black Mountain area, Alternative B would designate a 12-mile network of hiking only trails. Alternative B proposes a minor realignment to the main Black Mountain summit social trail beginning at the City of Henderson's Shadow Canyon Trailhead. Alternative B also proposes the designation of a new route to the Black Mountain summit on the ridge due north of the existing social trail. Alternative B would also designate a trail to the summit of Park Peak and an interconnecting trail to the location of the Visitor Center, as proposed in the 2006 RMP. In the Black Mountain area, social trails are evident in some locations. Where feasible and sustainable, Alternative B proposes to reuse these trails, with minor reconstruction or improvements, to ensure long-term sustainability. Otherwise, trails in this area would be established in natural washes (where minimal or no construction is required) or would be newly constructed.

In the Hidden Valley area, Alternative B would designate a 29-mile network of hiking only trails emanating from the Visitor Center and hiking and equestrian trails emanating from the Hidden Valley trailhead. Both trailheads are proposed in the 2006 RMP. Approximately 21 miles of this network would be located within the North McCullough Wilderness. Alternative B would provide a new network of single-track trails to wilderness points of interest, including Sutor, Pyramid, and Little Sheep Peaks and throughout the Hidden Valley area.

Equestrian use from the Visitor Center would not be allowed under Alternative B. Ultimately, this would be controlled by lack of equestrian facilities at this location and would be monitored by the proposed Visitor Center staff and volunteers. On the north side, the main Petroglyph Canyon is gated with a cable fence to discourage equestrian (and motorized) uses in the Petroglyph Management Area. Equestrian use would be allowed in the wilderness from the Hidden Valley trailhead; however, equestrian users would not be permitted to enter the Petroglyph Management Area boundary. Use restrictions would be posted at the Hidden Valley trailhead, but no signs, gates, or fences would be constructed at the Petroglyph Management Area boundary due to wilderness restrictions.

Three of the four trails identified in the RMP are located in the wilderness: Petroglyph, Cowboy, and Hidden Valley. The Petroglyph Trail is located entirely within a large wash. The natural wash bottom would serve as the trail tread. Therefore, Alternative B would not propose any modifications to the main Petroglyph Trail. However, the main Petroglyph Trail encounters several large rock obstructions (or, "rock dams"). The WMP clearly states that "because of major obstructions along the Petroglyph Trail, the Cowboy Trail will provide a more negotiable and safer alternative means of access to the Sloan Canyon Petroglyph Site."

Alternative B proposes to realign portions of the Cowboy Trail to provide access to the site in a manner that preserves wilderness character and protects the cultural resources within the Petroglyph Management Area. The improvements to the Cowboy Trail would consist of rerouting segments located on unsustainably steep grades to slopes with lesser grade, incorporating climbing turns or switchbacks, creating natural rock steps, and/or promoting cross-slope drainage. Ultimately, the realigned Cowboy Trail would be approximately 300 feet longer than shown in the RMP.

As noted previously, the RMP identified trails are, in some locations, difficult to discern on the ground. Alternative B would formally establish the Hidden Valley Trail so that all segments are

discernible. A 2-foot wide trail tread would be developed for the entire length of the alignment (approximately 2.6 miles total, 1.8 miles in wilderness). In some locations, establishing a formal trail would be accomplished by simple techniques, such as raking gravel or detritus from the intended trail tread or moving boulders from the alignment. In other locations, establishing a formal trail would utilize more complex techniques and improvements, such as building short retaining walls, natural rock steps, or creating partial and full bench trails. Alternative B improvements to the Hidden Valley Trail would consist of approximately 15 rock steps, 10 switchbacks or climbing turns, less than 200 feet of full bench trail, less than 500 feet of partial bench trail, and less than 200 feet of retaining walls.

In two locations, Alternative B proposes minor deviations (up to 250 feet) from the RMP-proposed Hidden Valley Trail. The first deviation was proposed to avoid a wash that is not conducive for a designated trail; the wash was found to be too narrow, too steep, or too overgrown, and a suitable alternative route existed nearby. The second deviation was proposed to avoid deeply eroded gullies and runnels. The Alternative B alignment traverses above these gullies.

Outside of the wilderness boundary in the Hidden Valley area, Alternative B would construct an approximately one-mile paved accessible trail in the vicinity of the Hidden Valley trailhead, as proposed in the RMP. This accessible trail would create a relatively flat loop near several interesting cultural sites. The paved accessible trail alignment at Hidden Valley is identified and analyzed in Chapter 3.0 of this EA. However, construction of this route, including any necessary paving and/or grading, would be addressed and completed as part of the future trailhead and Visitor Center planning and construction process.

Construction techniques, trail specifications, and long-term maintenance activities are described under EA Section 2.2.5, *Elements Common to All Alternatives*.

ALTERNATIVE C

In addition to the approximately 58-mile trail network proposed in Alternative B, this alternative would also incorporate approximately 10 miles of existing unauthorized OHV and motorized routes in the Dutchman Pass area into the trail system. The Alternative C network would include a total of approximately 68 miles of trail.

In the Dutchman Pass area, the Alternative C trails would be the same as described for Alternative B, above. Additionally, Alternative C would convert approximately 10 miles of existing, unauthorized OHV/motorized social trails to designated non-motorized routes in order to enhance the proposed trail network in the Dutchman Pass area. These OHV routes would be partially restored and adapted for use as pedestrian or multipurpose trails (biking, equestrian, etc.).

Existing unauthorized OHV and motorized routes are proposed for use under Alternative C. Many of these routes have a width of 10-12 feet or more, which is greater than the standard 4-6 foot width of most trails planned for the area. At those locations where an existing OHV route width exceeds the proposed trail width, a portion of the disturbed area would be restored to narrow its width to the appropriate trail standard. Restoration would include the use of a variety of techniques, including breaking up compacted surfaces, recontouring to the natural grade, seeding or planting of vegetation from local genetic sources, or rock placement to mimic the

form and texture of the surrounding landscape. Ultimately, the restored portion of the OHV route would appear as natural.

In the Black Mountain, Visitor Center, and Hidden Valley areas, the trails proposed under Alternative C would be identical to those described for Alternative B above, including new wilderness trails and modifications to the Cowboy and Hidden Valley trails within wilderness.

Outside of the wilderness boundary in the Hidden Valley area, Alternative C would construct an approximately one-mile paved accessible trail in the vicinity of the proposed Hidden Valley trailhead. As described for Alternative B, this accessible trail would create a relatively flat loop near several interesting cultural sites. The paved accessible trail alignment at Hidden Valley is identified and analyzed in Chapter 3.0 of this EA. However, construction of this route, including any necessary paving and/or grading, would be addressed and completed as part of the future trailhead and Visitor Center planning and construction process.

Construction techniques, trail specifications, and long-term maintenance activities are described under EA Section 2.2.5, *Elements Common to All Alternatives*.

ALTERNATIVE D – PROPOSED ACTION

Alternative D was developed in response to wilderness scoping comments and internal agency scoping concerns regarding potential effects to rare plant habitat and wilderness characteristics.

Under Alternative D, the BLM would pursue the development and designation of approximately 45 miles of trails throughout the northeast and northwest portions of the NCA outside of the wilderness (Dutchman Pass, Black Mountain, and Hidden Valley areas). Alternative D was developed to provide an expanded network of trail facilities and trail-related recreational opportunities in areas outside of the wilderness while providing for formally designated trails, consistent with the RMP and WMP, within the wilderness.

In the Dutchman Pass area, the trails proposed under Alternative D would be identical to those described for Alternative C, including the restoration and conversion of approximately 10 miles of OHV routes to hiking, biking, and equestrian trails. Refer to the Alternative C description for a complete discussion on the conversion of these routes to formally designated trails.

In the Black Mountain and Visitor Center areas, the trails proposed under Alternative D trails would be identical to those described for Alternative B (and C) above. Refer to the Alternative B (and C) descriptions above for details on the improvements and routes selected for analysis.

Within the North McCullough Wilderness or Hidden Valley area, Alternative D would most closely resemble Alternative A, No Action. Alternative D would formally establish and designate the Petroglyph, Cowboy, and Hidden Valley trails. Each of these trails is identified in the RMP and WMP; however, in many cases, the trail is not evident on the ground or the alignment poses safety and resource concerns. Identical to Alternative B, Alternative D would realign and improve the Cowboy and Hidden Valley trails.

As it is currently shown in the 2006 RMP and WMP, the Cowboy Trail is difficult to discern on the ground and is poorly aligned from a long-term sustainability perspective. Alternative D would realign portions of the Cowboy Trail to avoid steep grades and side slopes, to improve navigation through the wash, and to fulfill the WMP intent of providing a safer, more negotiable route to the Sloan Canyon Petroglyph Site. The realignment of the Cowboy Trail would

eliminate the need for placement of structures designed to negotiate the rock obstructions along the Petroglyph Trail (i.e., ladders or handholds). Alternative D proposes to realign portions of the Cowboy Trail to provide access to the site in a manner that preserves wilderness character and protects the cultural resources within the Petroglyph Management Area. The improvements to the Cowboy Trail would consist of rerouting segments located on unsustainably steep grades to slopes with lesser grade, incorporating climbing turns or switchbacks, creating natural rock steps, and/or promoting cross-slope drainage. Ultimately, the realigned Cowboy Trail would be approximately 300 feet longer than shown in the RMP.

As noted in the Alternative A description, the RMP-identified trails are, in some locations, difficult to discern on the ground. Alternative D would formally establish the Hidden Valley Trail so that all segments are discernible. A 2-foot wide trail tread would be developed for the entire length of the alignment (approximately 2.6 miles total, 1.8 miles in wilderness). In some locations, establishing a formal trail would be accomplished by simple techniques, such as raking gravel or detritus from the intended trail tread or moving boulders from the alignment. In other locations, establishing a formal trail would utilize more complex techniques and improvements, such as building short retaining walls, natural rock steps, or creating partial and full bench trails. Alternative B improvements to the Hidden Valley Trail would consist of approximately 15 rock steps, 10 switchbacks or climbing turns, less than 200 feet of full bench trail, less than 500 feet of partial bench trail, and less than 200 feet of retaining walls.

In two locations, Alternative D proposes minor deviations (up to 250 feet) from the RMP-proposed Hidden Valley Trail. The first deviation was proposed to avoid a wash that is not conducive for a designated trail; the wash was found to be too narrow, too steep, or too overgrown, and a suitable alternative route existed nearby. The second deviation was proposed to avoid deeply eroded gullies and runnels. The Alternative D alignment traverses above these gullies.

Equestrian use from the Visitor Center would not be allowed under Alternative B. Ultimately, this would be controlled by lack of equestrian facilities at this location and would be monitored by the proposed Visitor Center staff and volunteers. On the north side, the main Petroglyph Canyon is gated with a cable fence to discourage equestrian (and motorized) uses in the Petroglyph Management Area. Equestrian use would be allowed in the wilderness from the Hidden Valley trailhead; however, equestrian users would not be permitted to enter the Petroglyph Management Area boundary. Use restrictions would be posted at the Hidden Valley trailhead, but no signs, gates, or fences would be constructed at the Petroglyph Management Area boundary due to wilderness restrictions.

Construction techniques, trail specifications, and long-term maintenance activities are described under EA Section 2.2.5, *Elements Common to All Alternatives*.

RESOURCES ANALYZED

Per the BLM Nevada supplemental authorities and issues identified during scoping, the following resources and/or issues were retained for description and analysis in Chapters 3 and 4 of the EA.

- Air Quality
- Cultural Resources

- Migratory Birds
- Native American Religious Concerns
- Non-Native Invasive and Noxious Species
- Threatened and Endangered Species
- Wilderness
- Recreation
- Soils
- Hydrology, Drainage, and Erosion
- Visual and Aesthetic Resources

SUMMARY OF EFFECTS

Table ES-1 presents a comparison of project effects by alternative.

Table ES-1. Summary of alternative effects by resource.

Resource(s)	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed Action)
Air Quality	<p>No direct effects to air quality.</p> <p>Indirect effects of continued, less deterred illegal motorized activities would result in negligible adverse effects in the long term.</p>	<p>Minor short-term adverse effects as a result of increased particulate matter, CO production, and O₃ production during construction activities. Within the wilderness, short-term effects would be limited to negligible particulate matter production as no CO or O₃ producing tools would be used.</p> <p>Minor, long-term adverse effects as a result of increased visitation and vehicle trips to access the NCA.</p> <p>No measurable cumulative effect on NAAQS exceedances.</p>	Same as Alternative C.	Same as Alternative B. However, with the reduced trail network in the wilderness under Alternative D, effects would be below the level of detection and would essentially be considered to have no effect on local particulate matter increases.
Cultural Resources, Native American Religious Concerns	<p>No direct effects to cultural resources.</p> <p>Indirect effects would be limited; minor increased risk of damage and vandalism of some cultural sites.</p>	<p>No adverse short or long-term effects to eligible historic properties.</p> <p>Long-term beneficial effects with the development of a cultural resource treatment plan and improved on-the-ground management presence.</p> <p>"No effect" to any eligible historic properties.</p>	Same as Alternative B.	Same as Alternative B.

<p>Hydrology, Drainage, and Erosion</p>	<p>(See also the Soils summary of effects above.)</p> <p>No direct effects to hydrology, drainage, and erosion.</p> <p>Existing trails would continue to be used and the natural effects of erosion, primarily from large rainfall event runoff, would continue to transport disturbed material downslope.</p> <p>Minor adverse cumulative effects in areas with existing erosion or drainage problems.</p>	<p>Minor short-term adverse effects to erosion and hydrology as a result of construction activities.</p> <p>Minor to moderate beneficial effects in the long term due to improved erosion control measures, sustainable trail alignments, and implementation of a trail maintenance program</p>	<p>Same as described for Alternative C.</p>	<p>Same as described for Alternative B with the following exception:</p> <p>Overall, Alternative D would result in less permanent disturbance than Alternatives B and C in the wilderness.</p>
<p>Recreation</p>	<p>No direct effects to recreation resources.</p> <p>Alternative A would be inconsistent with the RMP and Interpretive Plan.</p>	<p>Minor short-term adverse effects if recreational uses are displaced during construction.</p> <p>Major long-term beneficial effects as a result of new recreational opportunities and improved access to the NCA and wilderness.</p> <p>Notable beneficial cumulative contribution to local and regional recreational opportunities.</p>	<p>Same as Alternative B.</p>	<p>Minor short-term adverse effects if recreational uses are displaced during construction.</p> <p>Major long-term beneficial effects as a result of new recreational opportunities and improved access to portions of the NCA.</p> <p>Adverse long-term cumulative effects to the recreational opportunities and experiences in the wilderness and Visitor Center area. These adverse effects would result from the limited options an NCA visitor would have for recreational opportunities, including access to the wilderness area from the Visitor Center. All persons interested in visiting the wilderness would have to obtain a permit, join a BLM tour into the Petroglyph Canyon, or violate the no-cross country travel zone</p>

				<p>defined in the RMP, which lies between the Visitor Center and wilderness boundary.</p> <p>Alternative D would still have a major beneficial contribution to the cumulative recreational spectrum in the Las Vegas Valley, but the expectations of some NCA and wilderness visitors would not be met.</p>
Soils	<p>No measurable effects attributable to Alternative A.</p> <p>Existing erosion issues would continue unabated.</p> <p>Increased visitation on undefined routes or poorly aligned social routes would likely exacerbate erosion in the long term; however, effects would be minor.</p>	<p>Minor short-term adverse effect as a result of construction disturbances.</p> <p>Long-term effects would be limited to approximately 33 acres within the NCA, some of which consists of already disturbed or exposed soils (for example, where proposed trails are routed on existing roads or OHV routes). Cumulative effects would be negligible.</p>	<p>Same as described for Alternative B, with the following exception:</p> <p>The footprint of permanent trail treads and trail improvements proposed under Alternative C would affect up to approximately 46 acres of soil in the NCA. However, some of this area consists of existing disturbed or exposed soils as noted in the Alternative B summary. Restoration efforts on approximately 8 acres in the Dutchman Pass area would help to slow or eliminate current erosion issues on existing unauthorized OHV routes. The total net long-term disturbance as a result of Alternative C is approximately 38 acres</p>	<p>Same as described for Alternative B, with the following exception:</p> <p>The footprint of permanent trail treads and trail improvements proposed under Alternative D would affect up to approximately 36 acres of soil in the NCA. However, some of this area consists of existing disturbed or exposed soils as noted in the Alternative B summary. Restoration efforts on approximately 8 acres in the Dutchman Pass area would help to slow or eliminate current erosion issues on existing unauthorized OHV routes. The total net long-term disturbance as a result of Alternative C is approximately 28 acres</p> <p>Additionally, Alternative D would have less impact on soils within the wilderness (approximately 10 acres less than Alternatives B and C).</p>

<p>Vegetation, Threatened and Endangered Plant Species, Non-Native Invasive and Noxious Species</p>	<p>No direct effects to existing vegetation communities or special status species.</p> <p>Limited potential for cumulative effects.</p> <p>4.8 miles of trail in rosy two-toned penstemon habitat</p> <p>0.1 mile of trail in white-margined beardtongue habitat</p> <p>1.9 miles of trail in Blue Diamond cholla habitat (Baker 2005).</p>	<p>Permanent removal of approximately 17 acres of native vegetation.</p> <p>Short-term trampling impacts as a result of construction activities.</p> <p>Long-term adverse effects as a result of habitat modification and increasing visitor traffic in suitable habitat areas; increased visitation and access also contributes to the risk of illegal collecting.</p> <p>15.8 miles of trail in rosy two-toned penstemon habitat</p> <p>0.4 mile of trail in potential white-margined beardtongue habitat.</p> <p>8.8 miles of trail in Blue Diamond cholla habitat (Baker 2005).</p> <p>Project design features (e.g., monitoring, mapping, seed collection, and restoration) would reduce overall effect of new trail construction to below the significance threshold.</p> <p>May adversely impact individuals, but is not likely to result in a loss of viability in the analysis area, or cause a trend toward federal listing for the three special status species identified above.</p>	<p>Net permanent removal of 9 acres of native vegetation.</p> <p>All other impacts would be the same as described for Alternative B.</p> <p>19.5 miles of trail in rosy two-toned penstemon habitat.</p> <p>0.4 mile of trail in potential white-margined beardtongue habitat</p> <p>8.8 miles of trail in Blue Diamond cholla habitat (Baker 2005)</p> <p>Project design features (e.g., monitoring, mapping, seed collection and restoration) would reduce overall effect of new trail construction to below the significance threshold.</p> <p>May adversely impact individuals, but is not likely to result in a loss of viability in the analysis area, or cause a trend toward federal listing for the three special status species identified above.</p>	<p>Net permanent removal of native vegetation is negligible, considering route restoration efforts in the Dutchman Pass area.</p> <p>14.8 miles of trail in rosy two-toned penstemon habitat.</p> <p>0.2 mile of trail in potential white-margined beardtongue habitat.</p> <p>3.2 miles of trail in Blue Diamond cholla habitat (Baker 2005).</p> <p>Project design features (e.g., monitoring, mapping, seed collection and restoration) would reduce overall effect of new trail construction to below the significance threshold.</p> <p>May adversely impact individuals, but is not likely to result in a loss of viability in the analysis area, or cause a trend toward federal listing for the three special status species identified above.</p>
<p>Visual and Aesthetic Resources</p>	<p>No direct effects to VRM Class I, II, or III objectives as a result of Alternative A.</p>	<p>Short-term minor adverse impacts as a result of construction activities; impacts would be limited</p>	<p>Same as Alternative B.</p>	<p>In VRM Class II and III areas, the direct and indirect effects of Alternative D would be the same</p>

	<p>Indirectly, however, visual effects from widening trails and a proliferation of new social trails would result in weak to moderate line and color contrasts resulting in moderate adverse effects on VRM Class II and III areas in the long term, but would ultimately comply with these VRM Class objectives. VRM Class I objectives would not be achieved over the long term where viewing angle and foreground viewing distance magnify contrasts.</p>	<p>to areas within sight distance of construction areas</p> <p>Short and long-term effects would comply with all VRM classes based on selected KOP analysis.</p>		<p>as described for Alternative B. In VRM Class I areas, the direct and indirect effects of Alternative D would be similar to those described for Alternative A.</p> <p>Short and long-term effects would comply with all VRM Classes.</p>
<p>Wilderness and Special Management Areas</p>	<p>No direct effects to wilderness characteristics.</p> <p>Continued degradation of resource and/or Petroglyph Management Area characteristics as a result of increasing uncontrolled use.</p> <p>No effect on opportunities for solitude, wilderness characteristics, and other unique components of wilderness.</p> <p>Minor adverse cumulative effects when combined with the effects of urbanization and increasing population adjacent to NCA and Petroglyph Management Area boundaries.</p>	<p>Alternatives B/C would result in the designation of approximately 21.2 total miles of trails within the wilderness.</p> <p>Short-term direct effects as a result of minor trail construction and/or reconstruction.</p> <p>Long-term effects to wilderness characteristics (untrammled, undeveloped, natural, etc.) would be adverse, ranging from negligible to moderate.</p> <p>In the long term, Alternative B would result in increased visitation to these areas and subsequently, increased human presence and decreased opportunities for solitude.</p> <p>Cumulative effects would result in a minor to moderate contribution to the overall degradation of wilderness characteristics. The</p>	<p>Same as Alternative B.</p>	<p>Alternative D would result in the designation of approximately 3.9 miles of trails within the wilderness.</p> <p>Short-term direct effects as a result of minor trail construction and/or reconstruction.</p> <p>Long-term effects to wilderness characteristics (untrammled, undeveloped, natural, etc.) would be adverse, ranging from negligible to minor.</p> <p>In the long term, Alternative D would limit visitation to the wilderness from the Visitor Center because of the limitations on the Petroglyph Trail and no-cross country hiking zone surrounding the north and west boundaries of the wilderness.</p> <p>In the long term, Alternative D would have no effect on</p>

		direct and indirect effects described for Alternative B would be magnified by other reasonably foreseeable future activities.		opportunities for solitude. Alternative D would ultimately result in minor beneficial cumulative effects. Although wilderness characteristics would, in the short term, be adversely affected by construction activities, the long-term effects of designated trails and imposing visitor access restrictions in the Petroglyph Management Area would help to limit destruction of other unique components of the wilderness, primarily cultural resources in the Petroglyph Canyon.
Wildlife, Threatened and Endangered Wildlife Species, Migratory Birds	No direct effects to wildlife species, including threatened and endangered species and migratory birds. Indirect effects resulting from increased visitation with no additional maintenance or monitoring; negligible to moderate or greater adverse impacts to wildlife and habitat in the long term.	Minor short-term direct adverse effects during construction activities. Effects would be limited to displacement, noise, increased human presence, etc., and would not result in the taking or removal of any individuals. Minor long-term adverse effects as a result of increased human presence	Same as Alternative C.	In areas outside of the wilderness, effects would be the same as described for Alternative B. Within the wilderness, short-term minor adverse effects resulting from construction activities. Trail network is greatly reduced in Alternative D, as such the duration of disturbance would be much shorter.

ACRONYMS

ACEC	Area of Critical Environmental Concern
ADA	Americans with Disabilities Act
AML	Abandoned Mine Lands
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DAQEM	Department of Air Quality and Environmental Management
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GIS	Geographic Information Systems
ID Team	Interdisciplinary Team
KOP	Key Observation Point
MBTA	Migratory Bird Treaty Act
MEA	Management Emphasis Area
MOU	Memorandum of Understanding
MSHCP	Multiple Species Habitat Conservation Plan
MRDG	Minimum Requirements Decision Guide
NAAQS	National Ambient Air Quality Standard
NCA	National Conservation Area
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Protection Agency
NHPA	National Historic Preservation Act
NNHP	Nevada Natural Heritage Program
NRHP	National Register of Historic Places
O₃	Ozone
OHV	Off-Highway Vehicle
PM	Particulate Matter
P.L.	Public Law
RMP	Resource Management Plan
ROD	Record of Decision

ROW	Right-of-Way
SHPO	State Historic Preservation Office
SNPLMA	Southern Nevada Public Lands Management Act
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management
WMP	Wilderness Management Plan

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