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Gold Butte National Monument Historic Properties Protection Project

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BLM

GOLD BUTTE HISTORIC PROPERTIES PROTECTION PROJECT DRAFT ENVIRONMENTAL ASSESSMENT CLARK COUNTY, NEVADA

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1 INTRODUCTION

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the Gold Butte National Monument (GBNM) Historic Properties Protection Project (Proposed Action), which consists of the installation and maintenance of interpretive and recreational facilities at three cultural complexes within the GBNM. This EA will assist the Bureau of Land Management (BLM) Las Vegas Field Office in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination regarding whether any significant effects could result from the analyzed actions. Following the requirements of NEPA (40 Code of Federal Regulations [CFR] 1508.9(a)), this EA describes the potential impacts of a No Action Alternative and the Proposed Action. If the BLM determines that the Proposed Action is not expected to have major effects, a Finding of No Significant Impact (FONSI) will be issued and a Decision Record will be prepared. If significant effects are anticipated, the BLM will prepare an Environmental Impact Statement or select the No Action Alternative.

The GBNM is located in Clark County, Nevada, approximately 80 miles northeast of Moapa and 20 miles south of the city of Mesquite (Figures 1 and 2 of Appendix A). The Proposed Action will include an area within the GBNM, herein referred to as the Project Area, which includes the following three cultural complexes:

1. Whitney Pocket Complex
2. Falling Man Complex
3. Kirk's Grotto Complex

The BLM has determined that these three areas are under imminent threat from the impacts of recreational use, which has already resulted in the dismantling of archaeological features and other damages due to foot traffic and unauthorized artifact collection. These cultural sites also stand to suffer significant loss of data potential in the absence of a coordinated preservation agenda that complements the joint goals of conducting research on these resources and protecting them. The Proposed Action includes protection measures to be implemented at the three site complexes in the GBNM area. It should be noted that several of the protection measures proposed here may actually result in greater numbers of visitors to the GBNM area as a result of improved pedestrian access. For the purposes of analysis, alternative protection measures were evaluated with an expectation that these facilities would increase visitation at the sites.

Protection measures at each site could include one or more of the following:

- Reconstruction of damaged historic features.
- Installation of post-and-cable fencing and parking barriers to restrict vehicular access to archaeological sites and define formal parking areas.
- Installation of carsonite posts with Archaeological Resources Protection Act (ARPA) stickers to discourage vandalism/looting and generate cultural awareness.
- Installation of information kiosks with pamphlets to educate the public and discourage looting.
- Installation of restroom facilities to curtail unauthorized dumping of biowaste.
- Installation of trail markers to designate footpaths guiding visitors to numbered observation posts.

1.1 Purpose and Need

Casual recreational use has increased in the GBNM, and as a result, archaeological complexes are under imminent threat from the impacts of recreational use. This threat has created a need for the BLM to address impacts associated with increasing visitation. In order to meet this need, the BLM is proposing to complete protection measures for three cultural resource complexes within the GBNM that reflect the diverse cultural heritage of past occupations from indigenous people to later Historic period farmers, ranchers, and miners. This EA will evaluate potential impacts associated with implementation of the cultural protection measures.

The purpose of this EA is to comply with the requirements of Sections 106 of the National Historic Preservation Act (NHPA). Section 106 of the NHPA, as amended, requires federal agencies to consider the effects of proposed federal undertakings on historic properties. NHPA's implementing regulations found in 36 CFR 800 require federal agencies (and their designees, permittees, licensees, or grantees) to initiate consultation with the State Historic Preservation Officer (SHPO) as part of the Section 106 review process. The purpose of this EA is to evaluate the effects of the proposed protection measures on the federally managed resources within the GBNM. The federal and federally sponsored programs and projects are reviewed pursuant to Sections 106 and 110 of the NHPA.

1.2 Decisions to Be Made

The BLM will decide whether to reject the proposed protection project, approve and implement the protection project, or approve the protection project and implement with modifications. The BLM may include any terms, conditions, and stipulations that are necessary to meet the performance standards of 43 CFR 3809.420 and prevent unnecessary or undue degradation (43 CFR 3809.411(d)(2)). In the decision process, the BLM must consider how the BLM's resource management goals, objectives, opportunities, and/or conflicts relate to this use of public land.

1.3 Conformance Summary

Land Use Plan:	**Date Approved:**
Las Vegas Resource Management Plan	October 1998

The Proposed Action is in conformance with the Las Vegas Resource Management Plan (RMP), October 1998. The emphasis of the 1998 Las Vegas RMP is to protect unique habitats for threatened, endangered, and special status species while providing areas for community growth, recreation, mineral exploration and development, and other resource uses. The specific objectives and management directions that allow for the actions proposed can be found in Appendix A of the 1998 Las Vegas RMP Record of Decision.

Presidential Proclamation:	**Date Approved:**
Gold Butte National Monument	December 2016

The Proposed Action is in conformance with the Presidential Proclamation signed by President Barack Obama on December 28, 2016, that established the Gold Butte National Monument in order to "preserve its cultural, prehistoric, and historic legacy and maintain its diverse array of natural and scientific resources, ensuring that the historic and scientific values of this area, and its many objects of historic and scientific interest, remain for the benefit of all Americans." The Proclamation authorizes the Secretary of the Interior to manage the monument pursuant to applicable legal authorities, including the provisions of Section 603 of the Federal Land Policy and Management Act (FLPMA) (43 United States Code [U.S.C.] 1782).

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative A – No Action Alternative

Cultural resources would remain unprotected against the threats posed from the steadily increasing recreational use of the GBNM area, and the dismantling and degradation of the existing archaeological features would continue.

2.2 Alternative B – Proposed Action

The following section provides a summary of resources found at each of the five sites (located within three cultural site complexes) in the GBNM, followed by the protection measures to be implemented at each of those sites. Protection methods are tailored to the specifics of each site to enhance how visitors interact with and experience cultural resources while safeguarding the integrity and data potential of petroglyphs and other significant archaeological features. Protection methods are outlined for each complex area and individual site, with accompanying sketch maps depicting preliminary locations of visitor facilities and trails.

2.2.1 Proposed Action Project Site Locations and Descriptions

2.2.1.1 WHITNEY POCKET COMPLEX

The Whitney Pocket Complex is a BLM-designated Area of Critical Environmental Concern (ACEC) located off of Whitney Pass Road in the GBNM. The Whitney Pocket Complex includes two areas of project interest: a historic Civilian Conservation Corps camp and prehistoric rock shelter and roasting pit site. The historic camp includes a mortared stone dam, two concrete check dams, a masonry water trough, a masonry single-room structure, and a small alcove used as a storage bin. The site features were constructed around 1935 and are representative of Depression-era public works projects with features constructed for the purposes of capturing water runoff to supply local ranching operations and area travelers.

The second area of project interest within Whitney Complex is a prehistoric habitation site and agave processing site located near a large sandstone formation. Camping, rock climbing, and pot-hunting activities have resulted in considerable disturbances to the integrity of this site, impacting surface artifacts and features, and obscuring the potential for archaeologists to recover buried deposits.

2.2.1.2 FALLING MAN COMPLEX

The Falling Man Complex is a large prehistoric habitation site and petroglyphs site consisting of two artifact scatters, one habitation containing petroglyphs, four rock shelters with associated artifact scatters, and six petroglyphs locales. In addition, the site includes an isolated rock shelter and four isolated petroglyphs areas.

2.2.1.3 KIRK'S GROTTO COMPLEX

The Kirk's Grotto Complex includes two rock outcropping sites of Project interest directly adjacent to one another and divided by a small streambed and walking pathway. The first site is a prehistoric habitation and petroglyphs site located within a slot canyon consisting of eight petroglyphs loci, an artifact scatter, midden, rock shelter, and several other potential boulder shelters. The second site is a prehistoric habitation and

petroglyphs site containing a habitation component consisting of an artifact scatter and milling slick, as well as 13 petroglyphs panels.

2.2.2 Project Site Protection Measures

The Proposed Action includes the installation and maintenance of protection measures at the GBNM to mitigate site impacts related to recreational use. The protection measures consist of built features, signage, and access improvements and are designed to reduce destruction of cultural resources and offset existing damages as discussed below. Table 2-1 provides a summary of the protection measures that will be implemented at each specific site. It is important to note that specific Project design has not yet been determined. The BLM will base final Project design on the availability of resources and conditions on-site. However, for the purpose of environmental analysis, the following list includes all possible Project actions.

- Removal of existing biowaste from the site by biohazard team.
- Installation of a restroom facility in the parking area to curtail future unauthorized dumping of biowaste.
- Installation of an information kiosk at the sites and/or in the parking area to educate the public on site-specific features and discourage looting or degradation of the site. Kiosks will also include map data such as the spatial configuration of site. A statement emphasizing the importance of respecting and preserving cultural resources will also be included, along with "leave no trace" insignia.
- Installation of post-and-cable fencing to delineate formal boundaries of parking areas and prevent vehicle access into unauthorized areas. Breaks in the fence line will be established at periodic intervals to allow for pedestrian access as needed.
- Placement of parking barriers or natural obstructions on the two-track dirt road to block access to sensitive areas.
- Installation of carsonite posts with ARPA stickers at cultural and archaeological feature locations to discourage vandalism and looting and generate awareness regarding cultural resources at the site.
- Installation of trail markers to designate footpaths. Trails and observation points will be established based on optimal vantage points to view petroglyphs from a safe location and distance, to be determined during the data recovery phase in consultation with BLM.
- Improvement of the pedestrian access through construction of earthen stairs supported by railroad ties and/or creation of switchbacks to improve the trail grade for less agile hikers.

Table 2-1. Proposed Protection Measures for Cultural Sites

Proposed Action	Whitney Pocket Complex	Falling Man Complex	Kirk's Grotto Complex
Removal of existing biowaste	X	--	--
Installation of restroom facilities (low-maintenance vault toilets)	X	X	X
Installation of information kiosk(s) and "leave no trace" signage	X	X	X
Installation of post-and-cable fencing	X	--	--
Placement of additional parking barriers	X	X	--
Installation of carsonite posts with ARPA stickers at cultural features	--	X	X

Proposed Action	Whitney Pocket Complex	Falling Man Complex	Kirk's Grotto Complex
Installation of trail markers	--	X	X
Pedestrian access improvements	--	--	X

2.2.3 Construction Activities

Construction activities associated with the GBNM protection project would be conducted at each site complex prior to moving on to the next. Overlap may occur as work conditions finish up at each site.

Prior to the start of construction activities, a detailed work plan would be prepared for each of the three GBNM site complexes. Work plans would include details regarding restroom facilities design, signage, and parking barriers based on site-specific requirements. Work plans will include all preservation measures outlined within the Gold Butte Historic Properties Treatment Plan (SWCA Environmental Consultants 2019).

Access to the site will be through existing designated routes. No additional roadway access is necessary.

Equipment and materials would be staged on-site at each of the proposed facility locations. Staging areas would be located away from any sensitive cultural or archaeological locations and approved by the BLM prior to laydown. Sensitive cultural, archaeological, or biological resources would be flagged, and all construction team members who enter the site would be trained on proper avoidance techniques. Staging areas would be temporary and would be removed immediately following work activities in order to avoid attracting nuisances and potential theft or vandalism.

Construction would begin with the cleanup and removal of any biowaste on-site. At the time of this environmental analysis, only the Whitney Site Complex requires biowaste removal; however, if biowaste has accumulated at either of the other two sites, cleanup and removal of biowaste would be conducted as necessary. Removal of biowaste will require an approved biological waste team who will dispose of all waste in accordance with federal and state requirements.

Following site cleanup and biowaste removal, low-maintenance restroom facilities will be installed. As discussed in Appendix A (Gold Butte National Monument Historic Properties Protection Project Alternatives), restroom facilities may consist of either temporary portable toilets (porta-potties), wooden sitters, or vault toilets. Depending on the type of toilet facility chosen, construction activities could include the use of heavy construction equipment. An excavator or dozer would dig a trench for installation of a prefabricated vault within the desired restroom location. Following trenching, a prefabricated low-maintenance restroom facility would be delivered to the site and placed on top and connected to the vault using a small crane. No water facilities would be required for the low-maintenance restrooms, and no water connections would be required. Porta-potties and wooden sitter toilet facilities would not require any digging or trenching but may still require a backhoe for grading and crane use for placement of the facilities on cleared ground.

Installation of kiosks, post-and-cable fencing, and other in-ground improvements will occur within the staging and parking areas of the cultural resource sites. All signage, kiosks, trail markers, carsonite posts, warning signs, etc., associated with the Project will be installed in accordance with the BLM *National Sign Handbook* (H-9130-1) (September 2016 [BLM 2016]). Examples of BLM kiosks and signage similar to what is proposed for the Project site are provided in Appendix A (Gold Butte National Monument Historic Properties Protection Project Alternatives). Installation methods will vary, depending on the type of signage chosen for final design and the soil types within the Project Area. However, depending on the final design

requirements, some light grading and vegetation removal may be required. Construction equipment will likely involve hand tools, including shovels and rakes, and may require a backhoe for grading and vegetation removal. Grading and vegetation removal will be limited to the extent practicable in order to minimize disturbance of native plants and habitat.

Installation of post-and-cable fencing and parking barriers will occur at Whitney Pocket and the Falling Man Site Complexes. Parking barriers may include bollards, fences, gates, large rocks, and/or wooden guardrails. The barrier size and material(s) will vary, depending on the site-specific conditions, scale, and material availability. Installation methods will depend on final Project design but may include post digging using either a backhoe or equivalent or hand tools. Depending on the construction methods chosen, concrete or rock backfill may be used to support fence posts.

Pedestrian access improvements will occur at the Kirk's Grotto Complex. Improvement of the access for pedestrians will include the construction of earthen stairs supported by railroad ties and/or the creation of switchbacks to improve the trail grade for less agile hikers. Construction equipment will likely include hand tools and, if necessary, flatbed trucks for delivering construction materials to the trailhead.

All protection measures will require periodic maintenance. Maintenance will ensure that signs, panels, and traffic control devices are clean, legible, undamaged, functional, and properly positioned. Restroom facilities will be maintained on a set BLM-approved schedule and will include waste removal, cleaning, and repairs as necessary. Routine maintenance will allow the BLM to ensure that signs, panels, and traffic control devices are clean, legible, undamaged, functional, and properly positioned. Effective maintenance will help ensure the safe use of BLM land and facilities.

2.3 Design Features and Standard Stipulations

The BLM Las Vegas Field Office (LVFO) has developed site-specific design features for the Proposed Action with the intent to minimize or avoid detrimental impacts that could occur as a result of implantation of the Proposed Action. These design features are included below.

- Project equipment will be limited in scope to the items necessary for completion of the Proposed Action and will be maintained in accordance with manufacturers' specifications.
- Vehicle use will be limited to existing or designated routes to the extent possible.
- Project workers will use carpooling to the extent feasible to limit the number of vehicles and equipment on-site.
- Vegetation removal will be limited to those areas directly necessary for installation of posts and trail markers.
- Ground disturbance will be limited to the minimum area necessary to safely construct and operate and maintain the proposed action. The BLM will avoid creating soil conditions that promote weed germination and establishment to the extent practicable.
- Project activities will comply with terms and conditions of approval included within the Desert tortoise Programmatic Biological Opinion for rights-of-way: File No. 84320-2010-F-0365.R003, including, but not limited to, the following:
    - Use of authorized desert tortoise biologist to present a tortoise education program to workers, conduct desert tortoise clearance surveys as needed, and be on call at all times for construction activities.
    - Project personnel shall exercise vigilance when commuting to the work area to minimize risk for inadvertent injury or mortality of all wildlife species encountered on paved and

unpaved roads leading to and from the work area. Speed limits will be clearly marked, and all workers will be made aware of these limits. On-site, personnel shall carpool to the greatest extent possible.

- During the desert tortoise less active season (generally November through February), vehicle speed on Project-related access roads and in the work area will not exceed 25 miles per hour (mph). All vehicles and construction equipment will be tightly grouped.
- During the more active season (generally March through October), and if temperatures are above 60 degrees Fahrenheit (°F) but below 95°F for more than 7 consecutive days, vehicle speed on Project-related access roads and in the work area will not exceed 15 mph.
- Any Project-related activity that may endanger a desert tortoise shall cease if a desert tortoise is found in the work area. Project activities may resume after an authorized desert tortoise biologist removes the desert tortoise from danger or after the desert tortoise has moved to a safe area on its own.
- Handling of desert tortoises: desert tortoises shall only be moved by an authorized desert tortoise biologist or desert tortoise monitor and shall be moved solely for the purpose of moving the tortoises out of harm's way.

- Project-related equipment (i.e., undercarriages and wheel wells) will be cleaned of all mud, dirt, and plant parts before entering the work area. If invasive or noxious species are present, appropriate removal and disposal methods will be implemented to ensure that recruitment and infestations are avoided.
- Project workers will inspect and remove weed seed and plant parts found on their clothing and personal equipment, bag the material, and dispose of it in a dumpster for deposit in a local landfill in order to minimize potential transfer of invasive or noxious species.
- Any areas disturbed as a result of Project-related activities will be restored to pre-Project conditions following the completion of active work.
- Air pollutant emissions will be limited to the extent feasible through the implementation of applicable best management practices and dust control measures, such as the use of water trucks or water spray systems to control windblown dust. Construction activities will not occur during strong wind events.
- Waste generated by construction workers (including food wastes and trash) will be packed up and removed at the end of each construction day to avoid creating attractive nuisances for wildlife.
- Fueling and maintenance of construction vehicles and equipment will occur off-site, and any spills or leaks of hydrocarbons will be cleaned up immediately.
- Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc., will be covered or modified to prevent entrapment.
- Following Project completion and at the end of each construction day, trenches, pits, and other features in which tortoises could be entrapped or entangled will be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.
- Ground disturbance or actions that could affect nesting birds should be scheduled outside the bird breeding season, when possible. Breeding season generally occurs from February 15 to August 31. If the construction activities cannot be scheduled outside those dates, a qualified biologist may be required to conduct a survey for nesting birds. If nesting birds are found, methods to reduce Project impacts to nesting birds will be developed.

- Projects will be designed and constructed in a manner that does not allow open pipes in which birds or other wildlife could be trapped. This includes fencing, gates, or other materials with open holes. All open pipes will be capped or secured so that wildlife cannot access them.
- If lighting is installed on buildings or required by the Federal Aviation Administration (FAA), lighting on buildings should be down-shielded; structures/towers required by FAA to have lighting installed should have flashing lights with the minimum intensity required by the FAA to prevent migratory bird collisions.

2.4 Alternatives Considered but not Analyzed in Detail

A comprehensive alternatives evaluation was conducted by the BLM in support of the GBNM Historic Properties Protection Project EA and has been included as Appendix A (Gold Butte National Monument Historic Properties Protection Project Alternatives). The BLM considered multiple options for protection measures and improvements of the three cultural complexes within the GBNM. The majority of these options included 1) minor modifications to the protection measures; 2) modifications to the extent and scope of the protection measures; and 3) potential locations of toilets, kiosks, and trail markers within the cultural complexes.

The alternatives evaluation provided for review of the potential Project alternatives that would meet objectives, as well as the requirements of NEPA Section 102 and CEQ 40 CFR 1502.14. The BLM used the alternatives evaluation to determine the Proposed Action. For details regarding all alternatives considered by the BLM, please refer to Appendix A (Gold Butte National Monument Historic Properties Protection Project Alternatives).

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 Resource Evaluation

The BLM Southern Nevada District Office resource specialists reviewed the Proposed Action and found the resources to be present with potential for impact, present with no potential for impact, or not present.

Table 3-1 is a list of all resources considered in the evaluation of the Proposed Action and alternative. The resources that may be affected by this proposal have been carried forward for analysis and are discussed further in this chapter. The resources that are not present or that would not be impacted by the Proposed Action because they would be completely mitigated with the implementation of design features and standard stipulations will not be discussed further.

Table 3-1. Resources Considered for the Proposed Action

Resource	Potentially Impacted	Not Present/ No Impact	Rationale
ACECs	X	--	The Proposed Action is located entirely within the GBNM, which overlaps three separate ACECs (Gold Butte [Part A], Gold Butte [Part B] and Gold Butte [Part C]), as well as the Whitney Pocket ACEC. The GBNM ACECs were created to protect desert tortoise (*Gopherus agassizii*) habitat, biological habitat and botanical resources, cultural resources, pre-historic and historic resources, and scenic areas. Detailed analysis on impacts to each of these environmental resources has been included throughout the EA in each of the following environmental resource sections: Section 3.2 (Cultural Resources), Section 3.3 (Paleontological Resources), Section 3.4 (Recreation), Section 3.5 (Threatened, Endangered, or Candidate Animal Species), Section 3.6 (Vegetation and Invasive Species/Noxious Weeds), Section 3.7 (Visual Resources), Section 3.8 (Wastes [Hazardous and Non-Hazardous]), Section 3.9 (General Wildlife, Excluding USFWS Designated Species), and Section 3.10 (Migratory Birds), respectively.
Air Quality	--	X	Adverse air emissions would occur from the use of construction equipment and vehicles during Project activities. However, these emissions will be minor and are expected to disperse quickly. No impact would occur to individuals or communities. No further analysis is required.
National Monument or Conservation Lands	X	--	The BLM manages National Conservation Lands for the benefit of current and future generations, supporting conservation as a part of the BLM's multiple-use mission. National Conservation Lands include national monuments. The Proposed Action is located entirely within the GBNM. Detailed analysis of impacts to environmental resources located within the GBNM has been included throughout the EA in each of the following environmental resource sections: Section 3.2 (Cultural Resources), Section 3.3 (Paleontological Resources), Section 3.4 (Recreation), Section 3.5 (Threatened, Endangered, or Candidate Animal Species), Section 3.6 (Vegetation and Invasive Species/Noxious Weeds), Section 3.7 (Visual Resources), Section 3.8 (Wastes [Hazardous and Non-Hazardous]), Section 3.9 (General Wildlife, Excluding USFWS Designated Species), and Section 3.10 (Migratory Birds), respectively.
Cultural Resources	X	--	See Section 3.2 (Cultural Resources) for a detailed analysis of potential impacts to cultural resources.
Environmental Justice and Socioeconomics	--	X	The Proposed Action will not adversely or disproportionally impact minority populations, low-income communities, or tribes. No group of people, including racial, ethnic, or socioeconomic group, would bear a disproportionate share of the negative environmental consequences resulting from the Proposed Action. No further analysis is required.
Fish and Wildlife, Excluding Federally Listed Species	--	X	Wildlife resources are common and widely distributed throughout the Project Area. The Proposed Action is not anticipated to cause adverse impacts to wildlife or biological populations or cause extraordinary circumstances. No further detail or analysis is required.
Floodplains	--	X	There are no Federal Emergency Management Agency (FEMA)–designated floodplains present in the Project Area. GBNM is designated as an area of minimal flood hazard by FEMA. No further analysis is required.
Forestry	--	X	Forestry resources within the Project region are limited primarily to cactus and yucca. However, the immediate area is disturbed with few cacti and yucca within the proposed staging and preventative measure locations. If cacti or yucca cannot be avoided, the BLM will require that standard mitigation measures be implemented, including appropriate relocation. No further analysis is required.
Fuels and Fire Management	--	X	The Proposed Action is scheduled to begin outside the seasonal fire season. Standard best management practices associated with fuel and equipment will further reduce any potential fire impact. No further analysis is required.
Geology/Mineral Resources	--	X	Gold Butte is home to many historic mining claims and operations; however, none are located within the immediate Project Area. Excavation within the Project Area will be minimal and will not require removal of sediment or soils. Excavated materials will be balanced on-site. No further analysis is required.

Resource	Potentially Impacted	Not Present/ No Impact	Rationale
General Wildlife, Excluding USFWS Designated Species	X	--	See Section 3.9 (General Wildlife, Excluding USFWS Designated Species) for a detailed analysis of potential impacts to general wildlife, excluding USFWS designated species.
Greenhouse Gas Emission / Climate Change	--	X	Project equipment and vehicles will contribute to greenhouse gas emissions and will therefore have an impact on climate change. However, due to the small size of the scope of activities, as well as the limited use of equipment, this impact would be minimal and would not require additional mitigation measures. No further analysis is required.
Hydrologic Conditions	--	X	Due to the topography of the GBNM Action Area, the previous disturbance of the Project Area (next to existing roads) and the small size (less than 2 acres) of the cumulative proposed disturbance area, no impacts to the hydrologic features or water resources are expected to occur. No further analysis is required.
Invasive Species/Noxious Weeds	X	--	See Section 3.6 (Vegetation and Invasive Species/Noxious Weeds), for a detailed analysis of potential impacts to vegetation due to disturbance and/or the introduction of invasive plant species/noxious weeds.
Lands and Realty	--	X	The Project is located entirely within the GBNM. No land or realty issues have been identified. No further analysis is required.
Livestock Grazing	--	X	The only authorized livestock grazing leases in GBNM are those administered by the BLM Arizona Strip District, which is not within Project Area. No impacts to grazing land have been identified. No further analysis is required.
Migratory Birds	--	X	Migratory birds are protected under the Migratory Bird Treaty Act (MBTA). The MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter, of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit. Migratory birds, including the Calliope hummingbird (*Stellula calliope*), gray flycatcher (*Empidonax wrightii*), Bell's sparrow (*Artemisiospiza belli*), lesser nighthawk (*Chordeiles acutipennis*), ash-throated flycatcher (*Myiarchus cinerascens*), and Brewer's sparrow (*Spizella breweri*), make stopovers in the GBNM. Migratory birds, including BLM sensitive species and their nests, may be present on or near the Project Area. However, Project activities are not likely to interfere with these stopovers, and they will not occur in areas of known nesting or foraging. Migratory bird season generally occurs from March 1 through August 31. If construction occurs during breeding season, a qualified biologist would survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately sized buffer around the nest must be avoided until the young birds fledge. Implementation of this standard measure will protect migratory bird species. This resource is discussed in Section 3.10 (Migratory Birds).

Resource	Potentially Impacted	Not Present/ No Impact	Rationale
Native American Concerns	X	--	The Proposed Action is located within the Moapa Band of Paiutes area of influence. The Moapa Band of Paiutes is a federally recognized tribe that has a documented history of occupation and use of the GBNM. In a letter dated October 22, 1990, the Moapa Band of Paiutes identifies seven areas in Gold Butte as "traditional lifeways areas." These areas are used to gather traditional plants for medicinal purposes and as basket making materials. The petroglyphs in the area are claimed as "a vital part of our religious heritage and culture." The letter continues, "These sensitive areas are necessary for us to continue our ceremonial and religious traditions and our lifestyle as Paiutes" (BLM 2006). The BLM attended approximately 10 city council meetings, town board meetings, tribal council meetings, and non-governmental meetings to answer questions and receive input regarding any concerns related to impacts associated with implementation of the Proposed Action. In addition, several field trips were conducted by the BLM in order to answer any specific questions or concerns the Tribe may have regarding Project activities. The BLM continues to coordinate and welcome communication with the Moapa Band of Paiutes to ensure that any and all Tribal concerns are sufficiently addressed. Detailed analysis of impacts to the Native American and Tribal resources located within the GBNM have been included throughout the EA in each of the following environmental resource sections: Section 3.2 (Cultural Resources,) Section 3.3 (Paleontological Resources), Section 3.4 (Recreation), Section 3.5 (Threatened, Endangered, or Candidate Animal Species), Section 3.6 (Vegetation and Invasive Species/Noxious Weeds), Section 3.7 (Visual Resources), Section 3.8 (Wastes [Hazardous and Non-Hazardous]), Section 3.9 (General Wildlife, Excluding USFWS Designated Species), and Section 3.10 (Migratory Birds), respectively.
Paleontological Resources	X		Ground disturbance near Kirk's Grotto has the potential to impact paleontological resources. Kirk's Grotto and areas around Kirk's Grotto fall within potential fossil yield classification 4 (PYFC 4). See Section 3.3 (Paleontological Resources) for a detailed analysis of potential impacts to these resources.
Recreation/Travel/Wild and Scenic Rivers	X	--	No wild or scenic rivers are located within the Project Area. See Section 3.4 (Recreation) for a detailed analysis of potential impacts to recreation from installation and maintenance of the Proposed Action.
Soils	--	X	Because the Proposed Action includes minimal surface disturbance, there should be no impacts to soils, as long as the work is conducted during non-precipitation periods and standard best management practices are followed. No further analysis is required.
Threatened, Endangered, or Candidate Animal Species	X	--	See Section 3.5 (Threatened, Endangered, or Candidate Animal Species) for a detailed analysis of potential impacts to threatened or endangered animal species.
Transmission Corridors	--	X	The Proposed Action is not located within or adjacent to any transmission corridors. No further analysis is required.
Transportation	--	X	Transportation resources in the Project Area are limited to designated routes and trails for recreational use. Short-term impacts associated with increased use from construction of the Proposed Action would not require a significant number of vehicles within the GBNM. No further analysis is required.
Vegetation	--	X	See Section 3.6 (Vegetation and Invasive Species/Noxious Weeds) for a detailed analysis of potential impacts to vegetation.
Visual Resources	X	--	See Section 3.7 for a detailed analysis of potential impacts to visual resources.
Wastes (hazardous or solid)	X	--	See Section 3.8 (Wastes [Hazardous or Non-Hazardous]) for a detailed analysis of waste materials.

Resource	Potentially Impacted	Not Present/ No Impact	Rationale
Water Resources	--	X	No surface waters are located within the immediate Project Area. Water resources transported in for support of facility installation and operations would minimal and would either evaporate on-site or would be hauled out for disposal in accordance with standard federal and state requirements. No impacts to water resources would result. No further analysis is required.
Wetlands and Riparian Areas	--	X	Project activities will not occur within any wetland or riparian habitat areas. No further analysis is required.
Wild Horses and Burros	--	X	The Proposed Action is located within the Gold Butte Herd Management Area. However, installation of Project facilities will occur in previously disturbed and denuded areas not suitable for foraging of wild horse or burro. While horse or burros may travel through the proposed Project Area, Project activities would not directly impact their water or food sources. Furthermore, due to the short time frame of Project activities, as well as the small scope of construction, the Project is unlikely to interfere with normal activities of the wild horses or burros. If wild horses and/or burros are encountered in or near the Project Area, BLM will implement standard best management practices and stipulations to ensure that workers do not interact with the animal. No further analysis is required.
Wilderness	--	X	Two wilderness areas are located within the Project region: Lime Canyon and Jumbo Springs. However, the Proposed Action is not located within or directly adjacent to either of these areas. No further analysis is required.

3.2 Cultural Resources

3.2.1 Affected Environment

The analysis area for cultural and archaeological resources within the Project Area is the GBNM. Section 106 of the NHPA states that federal agencies will take into account the effects of their undertaking on historic properties, that is, those cultural resource properties that are listed in or determined eligible for nomination to the National Register of Historic Places (NRHP). An "adverse effect" diminishes the integrity of a significant property's location, design, setting, materials, workmanship, feeling, or association.

3.2.2 Environmental Effects of the No Action Alternative

The No Action Alternative would result in no change to the existing cultural and historic environment. Unmarked trails, parking areas, and camping locations would continue to be used for viewing sensitive cultural resources. No BLM signage would be installed informing the public of the sensitivity of the resources. Use of the area would continue as it has in the past. Protection measures would not be implemented, and threats to cultural, archaeological and historic resources would continue as they are currently.

3.2.3 Environmental Effects of the Proposed Action

The Proposed Action includes the construction and installation of several features and facilities within the three cultural complexes. Temporary construction impacts could result from activities occurring within close proximity to existing cultural and historical resources. Unplanned contact with rock features from hand tools or heavy equipment could damage sensitive cultural features. However, it should be noted that construction activities will occur primarily in the nearby vicinity of petroglyphs and historical resources and will generally allow for the use of hand tools and equipment from a safe distance. Furthermore, as required in Project design features, construction workers will receive standard BLM training on the importance of identifying and protecting these sensitive cultural and historic features prior to the start of Proposed Action activities. In accordance with standard BLM best management practices, equipment will be handled only by those sufficiently trained in the safe use of that equipment. All equipment will be maintained in accordance with manufacturers' specifications in order to avoid potential equipment failure, which could lead to accidental damage to sensitive areas.

Permanent impacts associated with the long-term use and maintenance of the Proposed Action are limited to signage and trail upkeep, along with toilet facility cleaning and waste removal. The purpose of the Proposed Action is to provide long-term protection measures to sensitive cultural and historic resources at three locations within the GBNM. However, the availability of toilet facilities and trail markers will likely result in increased recreational usage at the cultural resource complexes. Increased usage of the area could lead to an increase in incidents of public graffiti, vandalism, or defacement of sensitive petroglyphs or historical resources; misuse of facilities; or habitat destruction from off-roading in unauthorized areas. However, due to the location of the GBNM and the distance from major city centers and urban areas, it is expected that the majority of new and more frequent recreational use will be conducted by individuals who generally appreciate the visual, cultural, and biological resources available in the GBNM. Project design features include standard BLM signage such as carsonite posts with ARPA stickers at cultural and archaeological feature locations to discourage vandalism and looting and generate awareness regarding cultural resources at the site. Placement of the proposed parking barriers on the two-track dirt road will block vehicle access to more sensitive areas.

3.2.4 Cumulative Effects

Cumulative impacts associated with the Proposed Action would be similar to those discussed for permanent impacts above. Although not currently planned, it is anticipated that increased use will lead to additional need for facilities and maintenance activities within the GBNM. The installation and operation of other facilities may lead to additional increased usage of the sites. Although this will occur in accordance with the BLM's multiple-use mandate, increased usage of the GBNM will incur some negative impacts as described above.

3.2.5 Mitigation Measures

The purpose of the Gold Butte National Monument Historic Properties Protection Project is to provide site-specific protection measures for three cultural complexes within the GBNM in order to lessen the imminent threat to cultural resources from the impacts of recreational use within the GBNM. In accordance with the Section 106 consultation process, the BLM will work with the SHPO to determine site-specific mitigation measures necessary to reduce potential impacts of Project-related activities to cultural and historic resources during implementation of the Historic Properties Treatment Plan. Such mitigation measures will be outlined within the Plan and also within the BLM/SHPO memorandum of agreement (MOA). No further mitigation measures will be required.

3.2.6 Residual Impacts

No mitigation measures are proposed, and no additional residual impacts have been identified.

3.3 Paleontological Resources

3.3.1 Affected Environment

Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (Public Law 59-209; 16 U.S.C. 431 *et seq*.; 34 Statute 225), which calls for protection of historic and prehistoric structures and other objects of historic or scientific interests on federally administered lands. Federal protection for scientifically important paleontological resources applies to construction or other related project impacts that occur on federally administered lands.

The Paleontological Resource Protection Act of 2009 (Public Law 111-011) requires the Secretaries of the Department of Interior and Department of Agriculture to manage and protect paleontological resources on federal land using scientific principles and expertise. The Act includes specific provisions addressing management of these resources by the BLM and other federal agencies.

The BLM manages paleontological resources under a number of other federal laws, including Sections 310 and 302(b) of the FLPMA, which direct the BLM to manage public lands to protect the quality of scientific and other values; 43 CFR 8365:1–5, which prohibits the willful disturbance, removal, and destruction of scientific resources or natural objects; 43 CFR 3622, which regulates the amount of petrified wood that can be collected for personal noncommercial purposes without a permit; and 43 CFR 3809.420(b)(8), which stipulates that a mining operator "shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on federal lands."

The BLM has adopted the Potential Fossil Yield Classification (PFYC) system to identify and classify fossil resources on federal lands. Paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them. The probability of finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Therefore, geologic mapping can be used for assessing the potential for the occurrence of paleontological resources.

The PFYC system is a way of classifying geologic units based on the relative abundance of vertebrate or scientifically significant fossils (plants, vertebrates, and invertebrates) and their sensitivity to adverse impacts. A higher class number indicates a higher potential for presence. The PFYC system is not intended to be applied to specific paleontological localities or small areas within units. Although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher class. Instead, the relative abundance of significant localities is intended to be the major determinant for the class assignment.

The PFYC system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. The classification should be considered at an intermediate point in the analysis and should be used to assist in determining the need for further mitigation assessment or actions. The BLM intends for the PFYC system to be used as a guideline, rather than as a rigorous definition.

The Whitney Pocket and Falling Man Complexes are located in an area of low potential for paleontological presence. The Kirk's Grotto Complex is located within PFYC Class 4 and has a higher potential presence of paleontological resources.

3.3.2 Environmental Effects of the No Action Alternative

The No Action Alternative would result in no change to the existing paleontological resources.

3.3.3 Environmental Effects of the Proposed Action

Ground-disturbing activities associated with construction of the toilet facilities could include the use of heavy construction equipment. An excavator or dozer would dig a trench for installation of a prefabricated vault within the desired restroom location. Ground disturbance (including trenching) has the potential to unearth and damage or destroy paleontological resources in areas with a high potential for paleontological resources. Since there is a low risk for paleontological resources within the Whitney Pocket and Falling Man Complexes, impacts are not anticipated to result from construction activities at those sites.

The Kirk's Grotto Complex is located within PFYC Class 4; ground-disturbing activities, including trenching, have the potential to impact paleontological resources at that site. However, in accordance with standard BLM practices, ground-disturbing activities at Kirk's Grotto would be monitored by a qualified paleontologist. If paleontological resources are discovered, the LVFO paleontologist would be contacted and a strategy developed to protect in place or excavate the resource should be developed.

3.3.4 Cumulative Effects

Cumulative effects are not anticipated for potential ground disturbance at Kirk's Grotto, as no additional ground-disturbing activities have been planned in the near future. Although not currently planned, it is anticipated that increased use of the GBNM will lead to an additional need for facilities and maintenance activities within paleontologically rich areas within the GBNM. However, the installation and operation of other facilities will occur in accordance with standard BLM practices, which require ground disturbance within PFYC Class 4 areas to be monitored by a qualified paleontologist. If paleontological resources are

discovered, the LVFO paleontologist would be contacted and a strategy developed to protect in place or excavate the resource. No additional cumulative impacts would result.

3.3.5 Mitigation Measures

No mitigation for paleontological resources are recommended for the Whitney Pocket and Falling Man Complexes. In accordance with standard BLM practices, ground-disturbing activities at Kirk's Grotto would be monitored by a qualified paleontologist. If paleontological resources are discovered, the LVFO paleontologist would be contacted and a strategy developed to protect in place or excavate the resource should be developed. No additional mitigation measures are required.

3.3.6 Residual Impacts

No additional residual impacts have been identified.

3.4 Recreation

3.4.1 Affected Environment

The State of Nevada contains approximately 48 million acres of public land, amounting to 63% of the state, managed by the BLM. The analysis area for recreational activities includes the entirety of the GBNM. The GBNM covers approximately 300,000 acres of remote and rugged desert landscape in southeastern Nevada, where recreational users enjoy dramatically chiseled red sandstone, twisting canyons, and tree-clad mountains punctuated by desolate stretches of the Mojave Desert. Recreational access is provided primarily via the Backcountry Byway, which begins approximately 90 miles northeast of Las Vegas and 5 miles south of Mesquite/Bunkerville on Interstate 15. The byway offers opportunities to see wildlife, sandstone, sinkholes, petroglyphs, mountains, and Lake Mead. The historic mining town of Gold Butte, established in 1908, also lies along the route. Primitive camping and hiking are available along the byway.

3.4.2 Environmental Effects of the No Action Alternative

Under the No Action Alternative, the GBNM would remain as it currently is now, with no signage, kiosk panels, or markers added. Recreational opportunities would, primarily, remain the same. However, as identified within the purpose and need section, the existing resources within the GBNM are under imminent threat from the impacts of recreational use. These resources contribute significantly to the recreational character of the GBNM. The threat from visitor recreational use has led to the dismantling and unauthorized collection of archaeological features and other damages due to foot traffic and social trails in areas of sensitive desert vegetation. The proposed protection measures would be designed to help reduce impacts to these resources and curtail or stop the continued degradation of the desert resources. In addition, the installation of recreational facilities such as maps and restrooms provides a higher quality experience for those recreational users visiting the GBNM. Implementation of the No Action Alternative would lead to the continued destruction and degradation of the existing recreational resources within the GBNM area.

3.4.3 Environmental Effects of the Proposed Action

The Proposed Action includes signage, toilet facilities, and trail markers within recreational areas of the GBNM. Design features of the Proposed Action are intended to facilitate access and enhance the recreational experience of GBNM recreational users. For safety purposes, construction of the facilities

would temporarily exclude recreational use of the specific areas within the GBNM parking lots where construction activities are taking place; however, this exclusion area will be less than 1 acre and will not preclude recreational use or enjoyment of the recreational resources. Construction will be temporary and will not remove any access to linear trails, off-highway vehicle areas, biking, or recreational access points.

Permanent impacts associated with the long-term use and maintenance of the Proposed Action are limited to signage and trail upkeep, along with toilet facility cleaning and waste removal. No permanent negative impacts to recreational resources are expected. Beneficial impacts to recreation will result from the increased accessibility of trails and access to cultural resources in the GBNM.

3.4.4 Cumulative Effects

Cumulative impacts associated with the Proposed Action would include the installation and operation of any additional toilet facilities and trails within the GBNM. Although not currently planned, it is anticipated that increased use will lead to additional need for facilities and maintenance activities within the GBNM. Increased use of the GBNM for recreational purposes will lead to greater stress and cumulative impacts on other resource areas in the GBNM. However, the multiple-use "mandate" through FLPMA states that the resources and uses on public land must be used in a balanced combination that will best meet the needs of the people (current and future needs for current and future generations). Balancing these multiple uses will continue to be a challenge for the management of the GBNM and its unique resources. No further impacts would result.

3.4.5 Mitigation Measures

No additional mitigation measures are required.

3.4.6 Residual Impacts

No mitigation measures are proposed, and no additional residual impacts have been identified.

3.5 Threatened, Endangered, or Candidate Animal Species

3.5.1 Affected Environment

The analysis area for threatened, endangered, or candidate species is the GBNM. Threatened and endangered species are placed on a federal list by the U.S. Fish and Wildlife Service (USFWS) and receive protection under the Endangered Species Act of 1973, as amended. The only federally protected species known to occur in the GBNM of the Project Area is the threatened Mojave desert tortoise (*Gopherus agassizii*).

The Proposed Action is located within desert tortoise critical habitat. Critical habitat is composed of specific geographic areas that contain the biological and physical features essential to the species' conservation, known as primary constituent elements (PCEs). USFWS has defined PCEs for desert tortoise critical habitat to include the following: sufficient space to support viable populations within each recovery unit and to provide for movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality.

The Mojave Desert tortoise occurs primarily on flats and bajadas with soils ranging from sand to sandy-gravel. They are also found on rocky terrain and slopes. Tortoises occur in saltbush scrub, creosote scrub, and blackbrush scrub habitat types. Within these vegetation types, desert tortoises can potentially survive and reproduce, provided that their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow. Historical survey data and personal observations by BLM staff indicate that the area surrounding the Project Area is likely moderate-density tortoise habitat. Desert tortoise survey data show that live tortoises have been observed within 2 miles of the Project Area.

3.5.2 Environmental Effects of the No Action Alternative

The No Action Alternative would result in no change to the existing GBNM. No vegetation removal would occur. No construction vehicles or equipment would be used on-site. No BLM signage would be installed informing the public of the sensitivity of resources in the area. Use of the area would continue as it has in the past.

3.5.3 Environmental Effects of the Proposed Action

Undisturbed land within and adjacent to the proposed Project Area contains the key habitat requirements for desert tortoises to survive. Therefore, there is the potential for tortoises to be present within and adjacent to the Project Area site, and they may wander onto the Project Area during construction or other Project-related activities. Project construction workers will be required to adhere to standard BLM tortoise protection measures as discussed in Section 2.3 (Design Features and Standard Stipulations).

The Proposed Action must comply with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.) for consultation with the USFWS on effects on federally listed species. The Proposed Action has a "may affect, likely to adversely affect" determination for the federally threatened desert tortoise and a "may effect" for its designated critical habitat. The Proposed Action will have no effect on any other federally protected species or designated critical habitat due to absence of the species and/or habitat. The primary direct impacts of the Proposed Action on the desert tortoise would be killing or maiming of tortoises, displacement of individuals, and increased potential for harassment of tortoises. Indirect impacts could include increased noise, introduction and spread of weeds, and increased erosion potential. If not noticed and avoided during construction, operation, maintenance, and/or decommissioning activities, desert tortoises could be either injured or killed (by crushing) or harassed (by being moved out of harm's way) during Project-related activities. The Proposed Action may contribute to displacement of individuals, increased potential for harassment of federally protected species, increased human presence leading to death or harm to individuals or collection, increased weeds, and increased access to area by general public. Additional potential impacts to the desert tortoise from the Proposed Action includes loss of desert tortoise habitat.

3.5.4 Cumulative Effects

Cumulative impacts would be similar to those discussed for permanent impacts above. Although not currently planned, it is anticipated that increased use will lead to additional need for facilities and maintenance activities within the GBNM. Additional facilities may require additional grading or minor vegetation removal to accommodate construction of restroom facilities and kiosks. Although this disturbance is limited (less than 1 acre), the cumulative effect of installation similar facilities at other recreational sites within the GBNM would lead to increased habitat loss within desert tortoise critical

habitat. However, as each facility will require only a limited amount of disturbance, impacts to desert tortoise habitat would be manageable. Furthermore, the maintenance of the facilities by the BLM on a regular schedule will likely result in the identification of potential issues within the GBNM that could negatively affect desert tortoise. Early identification of problems could benefit tortoise populations long term.

3.5.5 Mitigation Measures

The Section 7 consultation for this project is covered under the current Programmatic Biological Opinion (84320-2010-F-0365.R039) contingent on compliance with the terms and conditions. **A copy of the terms and conditions has been attached to this document (Sec 7 Log # NV-052-19-063).**

3.5.6 Residual Impacts

No mitigation measures are proposed, and no additional residual impacts have been identified.

3.6 Vegetation and Invasive Species / Noxious Weeds

3.6.1 Affected Environment

Invasive species of concern in the GBNM include Asian mustard (*Brassica tournefortii*), a native to the deserts of North Africa and the Middle East, which has recently been discovered spreading into the GBNM. Asian mustard is spreading from the Interstate15 corridor and has been identified within the Whitney Pocket Complex (BLM 2017). Asian mustard disperses easily during rain events. When the seed coats are moistened, they become very sticky and readily adhere to people, animals, and objects. Seeds may take hold along roadsides and arid desert land, especially in disturbed vegetation and habitat. Eradication methods such as pulling, mowing, grazing, and burning have limited effect on Asian mustard due to its successful seed propagation. Individual plants may separate from the ground and become like tumbleweeds, dropping seeds as they are blown across the desert floor. Seeds may also transfer via the undercarriages and tires of passing vehicles, making invasion among roadways common.

3.6.2 Environmental Effects of the No Action Alternative

The No Action Alternative would result in no change to the existing vegetation habitat. Unmarked trails, parking areas, and camping locations would continue to be used. Social trails and degradation of vegetation along these recreational areas would continue to occur.

Under the No Action Alternative, trail and facility installation and maintenance would not occur. Invasive species would not be monitored as part of the overall scheduled maintenance of the three cultural complexes at GBNM. Colonization of the GBNM by invasive species would occur as it does now, and eradication and removal would need to be scheduled under some other type of BLM maintenance plan.

3.6.3 Environmental Effects of the Proposed Action

The Proposed Action includes the use of construction equipment and vehicles brought in from adjacent towns and cities. Vehicles and equipment would be used to clear small areas of vegetation within the GBNM for installation of the toilet facilities. Workers would also use handheld equipment and tools for marking trails and installation of switchbacks, stairs, or climbing trails. These activities would lead to increased risk

of invasive species colonization within the GBNM. However, implementation of the standard BLM design features discussed in Section 2.3 (Design Features and Standard Stipulations) would reduce the risk of invasive species colonization to a negligible level. Workers would be instructed on the identification and eradication of invasive species prior to the start of construction activities. Following construction work, site cleanup would include the removal of any invasive species found on-site. Long-term maintenance of the trails and facilities would alert BLM to any areas where colonization is likely to occur, and eradication measures would be scheduled as part of ongoing maintenance.

3.6.4 Cumulative Effects

By nature of plant and seed propagation of invasive species, cumulative impacts are a concern for BLM-managed land. When plants become established within an area, native plants are often crowded out, and scarce desert resources cause the native species to be out competed by invasive and noxious plant species. The presence of infestation leads to seed dispersal and propagation in other sensitive areas. Increased use of the GBNM for recreational and cultural appreciation will likely lead to increased risk for invasive species. However, ongoing maintenance of the sites would alert BLM to any problem areas that could then be monitored until eradication efforts could be put in place. Cumulative impacts of invasive species could be managed as part of the overall management of the GBNM.

3.6.5 Mitigation Measures

The Proposed Action has been designed to avoid introduction of invasive species and noxious weeds to the extent feasible. No additional mitigation measures are required.

3.6.6 Residual Impacts

No mitigation measures are proposed, and no additional residual impacts have been identified.

3.7 Visual Resources

3.7.1 Affected Environment

Visual resources consist of the landforms (topography and soils), vegetation, and human-made structures (roads, buildings, and modifications of the land, vegetation, and water) that make up the landscape. These elements of the landscape can be described in terms of their form, line, color, and texture. Normally, the more variety of these elements there is in a landscape, the more interesting or scenic the landscape becomes if the elements exist in harmony with each other. The BLM manages landscapes for varying levels of protection and modification, giving consideration to other resource values, land uses, and the scenic quality of the landscape.

The dominant landscape characteristic within the GBNM is wide, open terrain with rocky hills and outcroppings. Rocky alluvial plains fan out from the hills and into the valleys. Desert scrub vegetation occurs throughout the area and includes creosote bush (*Larrea tridentata*), shrubs, and desert grasses, which all contribute to the scenic desert quality of the GBNM. Naturally occurring red and brown rocky outcroppings add scenic and visual contrast to the area.

The Proposed Action is located on land in Visual Resource Inventory (VRI) Class II and Visual Resource Management (VRM) Class II. Within the GBNM, the landscape has some visible modifications from

surface roads and other small surface disturbances. The objective of VRM Class II is to retain the existing visual character of the landscape. Management activities may be seen but shall not attract the attention of the casual observer. Any changes shall repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

3.7.2 Environmental Effects of the No Action Alternative

Under the No Action Alternative, the GBNM would remain as it currently is now, with no signage, kiosk panels, or markers added. Visual character would primarily remain the same. However, as identified within the purpose, the existing resources within the GBNM existing cultural and archaeological complexes are under imminent threat from the impacts of recreational use. These resources contribute significantly to the visual character of the GBNM. The threat from visitor recreational use has led to the dismantling and unauthorized collection of archaeological features and other damages due to foot traffic and social trails in areas of sensitive desert vegetation. The proposed protection measures would be designed to help reduce impacts to these resources and curtail or stop the continued degradation of the desert resources. Therefore, implementation of the No Action Alternative would lead to the continued destruction and degradation of the existing visual and cultural resources within the GBNM area.

3.7.3 Environmental Effects of the Proposed Action

The Proposed Action includes toilet facilities, signage, and informational kiosks within the GBNM VRI and VRM Class II area, the construction and presence of which would result in impacts to the overall visual value of the landscape. Construction activities would include short-term contrasts with the visual character of the landscape, while operation and maintenance of the facilities would contribute to the long-term change in visual character. The Proposed Action would require grading and the removal of vegetation that would result in contrasts to the color and irregular texture and lines of the characteristic landscape over the construction period. In addition, construction equipment, vehicles, supplies, and associated project-related activities would be clearly visible during construction activities.

Long-term changes to the scenic quality of the parking areas and trailheads would result from the introduction of permanent facilities, signage, and trail markers. There would be no contrast resulting from changes to landform. There would be weak contrasts to the line and color of the vegetation and to the line, color, and texture of structures. These contrasts would not attract attention because of the color and nature of the proposed facility structure and sign types. Specifically, the Proposed Action would be designed in accordance with the BLM *Guidelines for a Quality Built Environment* (BLM 2010) and Nevada Division of Environmental Protection requirements. The level of change to the characteristic landscape under the Proposed Action would be weak and would meet the BLM VRM Class II objective.

3.7.4 Cumulative Effects

Cumulative impacts of the Proposed Action are related to other increased usage of the GBNM. For visual resources, these cumulative impacts would result from increased recreational use and parking needs, informal off-roading and social trail creation, and surface disturbances. Increased usage of the GBNM area may also lead to increased risk to sensitive visual resources from trampling, shooting, or graffiti.

3.7.5 Mitigation Measures

The Proposed Action would be designed in accordance with the BLM guidelines in order to maintain the existing visual character of the GBNM. As a result, no additional mitigation measures are required.

3.7.6 Residual Impacts

No mitigation measures are proposed, and no additional residual impacts have been identified.

3.8 Wastes (Hazardous or Solid)

3.8.1 Affected Environment

The BLM manages public lands in a manner aimed at minimizing or preventing threats to human health and natural resources. Risks to human health and natural resources can occur from the improper handling of wastes, either hazardous or non-hazardous. Once generated, wastes must be managed through reuse, recycling, storage, treatment, and/or disposal. The effects associated with waste vary widely and are influenced by the substances or chemicals found in waste and how they are managed.

3.8.2 Environmental Effects of the No Action Alternative

Under the No Action Alternative, human waste would continue to collect in unofficial areas of the GBNM and within rocky outcroppings near sensitive cultural and archaeological resources. Biowaste accumulation would continue to lead to localized infestations of flies and other pests near camping areas.

3.8.3 Environmental Effects of the Proposed Action

The Proposed Action includes the construction of toilet facilities, signage, and informational kiosks within the GBNM area. Short-term wastes associated with the construction of the Proposed Action would include leftover building materials, debris, trash, paint containers, and other construction-related debris. Personal waste from construction workers would include sanitary waste from portable toilets and refuse in trash bins. All waste generated during construction would be packed out in accordance with BLM's leave-no-trace policy. Short-term wastes would be taken off-site for disposal at an approved collection facility.

Long-term wastes associated with the Proposed Action would include the sanitary wastes collected within the new toilet facilities. Long-term wastes may also include trash and debris from recreational users and campers, as those activities are expected to increase following the implementation of the Proposed Action.

Wastes associated with toilet facilities will be removed on a routine schedule to avoid accumulation of odors and bacteria. Cleaning and maintenance schedules will be modified as needed to take into account peak use times and severe weather events such as storms or heat waves. Consolidating recreational wastes at toilet facilities will reduce the wastes within the overall GBNM. Proposed signage will include BLM leave-no-trace policies and provide information on the disposal areas for campers and recreational users.

3.8.4 Cumulative Effects

Impacts from hazardous and non-hazardous wastes resulting from the implementation of the Proposed Action and potential cumulative actions within the GBNM would be limited to trash, biowaste, and debris from increased usage of the sites for recreational enjoyment. As recreational use of the GBNM increases, management strategies will need to accommodate for greater amounts of wastes. However, these impacts are easily managed through proper planning and increased maintenance of waste collection areas. No further impacts from wastes would result.

3.8.5 Mitigation Measures

No additional mitigation measures are required.

3.8.6 Residual Impacts

No mitigation measures are proposed, and no additional residual impacts have been identified.

3.9 General Wildlife, Excluding USFWS Designated Species

3.9.1 Affected Environment

The proposed project area supports and is adjacent to lands that support wildlife characteristic of the Mojave Desert. Wildlife in the general area may include small mammals, rodents, birds and reptiles. Biological diversity varies according to topography, plant community, and proximity to water, soil type, and season. For a comprehensive discussion of potential wildlife species that may be present, refer to the most recent RMP for the BLM Southern Nevada District.

BLM sensitive species that could potentially be impacted by the Proposed Action include chuckwalla (*Sauromalus ater*), banded Gila monster (*Heloderma suspectum*), Mojave shovel-nosed snake (*Chionactis occipitalis occipitalis*), desert glossy snake (*Arizona elegans*), Nevada shovel-nosed snake (*Chionactis occipitalis talpina*), and the Mojave Desert sidewinder (*Crotalus cerastes cerastes*).

3.9.2 Environmental Effects of the No Action Alternative

No impacts to wildlife, including BLM sensitive species, or their habitat, associated with construction, operation, and maintenance of the proposed Project would occur under the No Action Alternative.

3.9.3 Environmental Effects of the Proposed Action

Wildlife species would be displaced as habitat is disturbed within the Project Area. The primary direct impacts of the Proposed Action on wildlife would be killing or maiming of ground-dwelling animals, displacement of individuals, the permanent loss and fragmentation of habitat, increased potential for harassment of wildlife, and increased noise during construction. Indirect impacts could include the introduction and spread of weeds and increased erosion potential. Wildlife species in the general area are common and widely distributed throughout the area, and the loss of some individuals and/or their habitat should have a negligible impact on populations of the species throughout the region. Impacts to BLM sensitive species are not anticipated to lead to further decline of the species range wide. Any impacts to sensitive species would be avoided and/or minimized through the implementation of BLM standard stipulations.

3.9.4 Cumulative Effects

Cumulative impacts to wildlife species, including BLM Sensitive species, and their habitat can result from the incremental removal of undisturbed habitat, which would have long-term impacts due to the slow recovery of semi-arid regions. This would increase the potential for invasion of non-native vegetation and lead to long-term loss of potential forage and nesting/burrowing and cover sites. Recreation types may

increase as a result of bringing more people into the project area, including target shooting, hiking, and camping. Any increase in human activities in the project area would increase the potential for take of sensitive species and would increase the risk of wildfires, vandalism, trash dumping, and poaching.

3.9.5 Mitigation Measures

The Gila monster is classified as a protected reptile under Nevada Administrative Code 503.080 and is protected from capture, kill, or possession under Nevada Administrative Codes 503.090 and 503.093. The chuckwalla is being considered for this same classification. The BLM has recognized both the banded Gila monster and the common chuckwalla as Sensitive species since 1978.

1. Any encounters during project construction must be reported immediately to the Nevada Division of Wildlife (NDOW) at (702) 486-5127.
2. Live Gila monsters found in harm's way on the construction site will be captured and then detained in a cool, shaded environment (≤85°F) by the project biologist or equivalent until an NDOW biologist can arrive for documentation purposes. Despite the fact that a Gila monster is venomous and can deliver a serious bite, its relatively slow gait allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points). A clean 5-gallon plastic bucket with a secure, vented lid; an 18 × 4–inch plastic sweater box with a secure, vented lid; or a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying mapped capture location (e.g., GPS record), date, time, and circumstances (e.g., biological survey or construction) and habitat description (vegetation, slope, aspect, and substrate) will also be provided to NDOW.
3. Injuries to Gila monsters/chuckwallas may occur during excavation, blasting, road grading, or other construction activities. In the event that a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified during normal business hours. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, habitat, and mapped location.
4. Should NDOW's assistance be delayed, biological or equivalent personnel on-site may be requested to remove and release the Gila monster/chuckwalla out of harm's way. Should NDOW not be immediately available to respond for photo-documentation, a 35 mm camera or equivalent will be used to take good-quality photographs of the Gila monster/chuckwalla in situ at the location of live encounter or dead salvage. The pictures, preferably on slide film, will be provided to NDOW. Pictures will include 1) encounter location (landscape overview with Gila monster in clear view); 2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); 3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

3.9.6 Residual Impacts

Residual impacts would include edge effects and increased disturbance from increased public visitation. Edge effects from the construction could result in increased disturbance resulting in habitat loss. Loss of habitat may result in the invasion of non-native plant species and reduce cover sites for wildlife species. Standard stipulation and the desert tortoise terms and conditions should help decrease the likelihood of negative consequences from this action.

3.10 Migratory Birds

3.10.1 Affected Environment

The proposed project area supports and is adjacent to lands that support wildlife characteristic of the Mojave Desert. Biological diversity varies according to topography, plant community, and proximity to water, soil type, and season. In this region, typically the breeding season is when these species are most sensitive to disturbance, which generally occurs from February 15 through August 31. Sensitive bird species that could potentially be impacted by the Proposed Action include western burrowing owl (*Athene cunicularia hypugaea*), LeConte's thrasher (*Toxostoma lecontei*), and loggerhead shrike (*Lanius ludovicianus*).

3.10.2 Environmental Effects of the No Action Alternative

None of the impacts to migratory birds or their habitat associated with construction, operation, and maintenance of the proposed project would occur under the No Action Alternative.

3.10.3 Environmental Effects of the Proposed Action

Migratory bird species would be displaced as habitat is disturbed within the project area. The primary direct impacts of the proposed action on birds would be killing or maiming of ground-dwelling animals, displacement of individuals, the permanent loss and fragmentation of habitat, increased potential for harassment, and increased noise during project related activities. Indirect impacts could include the introduction and spread of weeds and increased erosion potential. Migratory bird species are in the area at different times of year and the loss of their habitat should have a negligible impact on populations of the species throughout the region. Impacts to migratory birds are not anticipated to lead to further decline of the species range wide. Any impacts to migratory birds would be avoided and/or minimized through Project-specific stipulations provided.

3.10.4 Cumulative Effects

Cumulative impacts to avian species, including BLM sensitive species, and their habitat can result from the incremental removal of undisturbed habitat, which would have long term impacts due to the slow recovery of semi-arid regions. This would increase the potential for invasion of non-native vegetation and lead to long-term loss of potential forage and nesting/burrowing and cover sites. Recreation types may increase as a result of bringing more people into the project area, including target shooting, hiking, and camping. Any increase in human activities in the project area would increase the potential for take of sensitive species and would increase the risk of wildfires, vandalism, trash dumping, and poaching.

3.10.5 Mitigation Measures

The Design Features and Standard Stipulations in Section 2.3 will reduce impacts. No additional mitigation measures are required.

3.10.6 Residual Impacts

Residual impacts would include edge effects and increased disturbance from increased public use. Edge effects from the construction could result in increased disturbance resulting in habitat loss. Loss of habitat

may result in the invasion of non-native plant species and reduce potential nest sites for bird species. Standard stipulations and the desert tortoise terms and conditions should help decrease the likelihood of negative consequences from this action.

4 CONSULTATION AND COORDINATION

In accordance with the Council on Environmental Quality regulations, lead agencies are required to have early and frequent coordination with agencies that are affected by a proposed action. Early involvement of other federal, state, tribal, and local governments establishes a solid working relationship with each agency and also builds trust and credibility among agencies that can then be transferred to the public. Early coordination also helps to ensure that the BLM develops land use decisions that are supported by other interested agencies. In accordance with BLM practices, the BLM has contacted federal, state, and local agencies, as well as local tribes.

4.1 Scoping and Public Participation

The BLM conducted internal scoping for the Proposed Action in November 2016 and June 2018. BLM resource staff reviewed the Proposed Action, identified preliminary issues and concerns, and determined preliminary data necessary for completion of the NEPA analysis.

In addition to internal scoping, BLM attended approximately 10 city council meetings, town board meetings, tribal council meetings, and non-governmental meetings to answer questions and receive input. Input was received as a result of public outreach efforts conducted in January and February 2019. In addition to public outreach, the BLM also hosted a field trip on April 11, 2019, attended by the Moapa Band of Paiutes, to gather information from Native American tribal representatives. Appendix A (Gold Butte National Monument Historic Properties Protection Project Alternatives) provides a summary of internal scoping and public involvement.

4.2 Summary of Consultation

As a result of internal scoping and public outreach, alternatives were developed (Appendix A) and used to incorporate public input into the overall Proposed Action design features.

5 LITERATURE CITED

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Appendix A

Gold Butte National Monument Historic Properties Protection Project Alternatives

GOLD BUTTE NATIONAL MONUMENT (GBNM)
HISTORIC PROPERTIES PROTECTION ALTERNATIVE

Bureau of Land Management
Southern Nevada District
Las Vegas Field Office
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130

Prepared by

SWCA Environmental Consultants
7210 Placid Street
Las Vegas, Nevada 89119

SWCA Project No. 51637

August 2019

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1 INTRODUCTION

1.1 Project Purpose and Need

The Bureau of Land Management (BLM), Southern Nevada District, Las Vegas Field Office (LVFO), has developed the following potential alternatives for the Gold Butte National Monument (GBNM) Historic Properties Protection Project (Project) proposed for implementation at three cultural resource complexes that are eligible for listing in the National Register of Historic Places (NRHP).

Casual recreational use has increased in the GBNM; as a result, cultural complexes are under imminent threat from the impacts of recreational use. This threat has created a need for the BLM to address impacts associated with increasing visitation. In order to meet this need, the BLM is proposing to complete protection measures for three cultural resource complexes within the GBNM that reflect the diverse cultural heritage of past occupations from indigenous people to later Historic period farmers, ranchers, and miners. An Environmental Assessment (EA) will evaluate potential impacts associated with implementation of the cultural protection measures.

The following alternatives have been developed in support of the GBNM Historic Properties Protection Project EA. The purpose of alternatives evaluation is to provide review of the potential project alternatives that would meet project objectives, as well as the requirements of the National Environmental Policy Act (NEPA) Section 102 and Council on Environmental Quality (CEQ) 40 Code of Federal Regulations (CFR) 1502.14. The alternatives identified within this document will be narrowed down, finalized, and evaluated within the Project EA.

1.2 Project Background

The GBNM is located in Clark County, Nevada, approximately 80 miles northeast of Moapa and 20 miles south of the city of Mesquite (Figures 1 and 2). The proposed Project will include an area within the GBNM, herein referred to as the Project Area, that includes the following three cultural complexes:

Whitney Pocket Complex

Falling Man Complex

Kirk's Grotto Complex

The BLM has determined that these three sites are under imminent threat from the impacts of recreational use, which has already resulted in the dismantling of archaeological features and other damage due to foot traffic and unauthorized artifact collection. These cultural sites also stand to suffer significant loss of data potential in the absence of a coordinated preservation agenda that complements the joint goals of conducting research on these resources and protecting them. The proposed Project includes protection measures to be implemented at the three sites in the GBNM area. It should be noted that several of the protection measures proposed here may actually result in greater numbers of visitors to the GBNM area as a result of improved pedestrian access. For the purposes of analysis, alternative protection measures were evaluated with an expectation that construction of these facilities would increase visitation at the sites.

Protection measures at each site could include one or more of the following:

- Reconstruction of damaged historic features
- Installation of post-and-cable fencing and parking barriers to restrict vehicular access to archaeological sites and define formal parking areas

- Installation of carsonite posts with Archaeological Resources Protection Act (ARPA) stickers to discourage vandalism/looting and generate cultural awareness
- Installation of information kiosks with pamphlets to educate the public and discourage looting
- Installation of restroom facilities to curtail unauthorized dumping of biowaste
- Installation of trail markers to designate footpaths guiding visitors to numbered observation posts

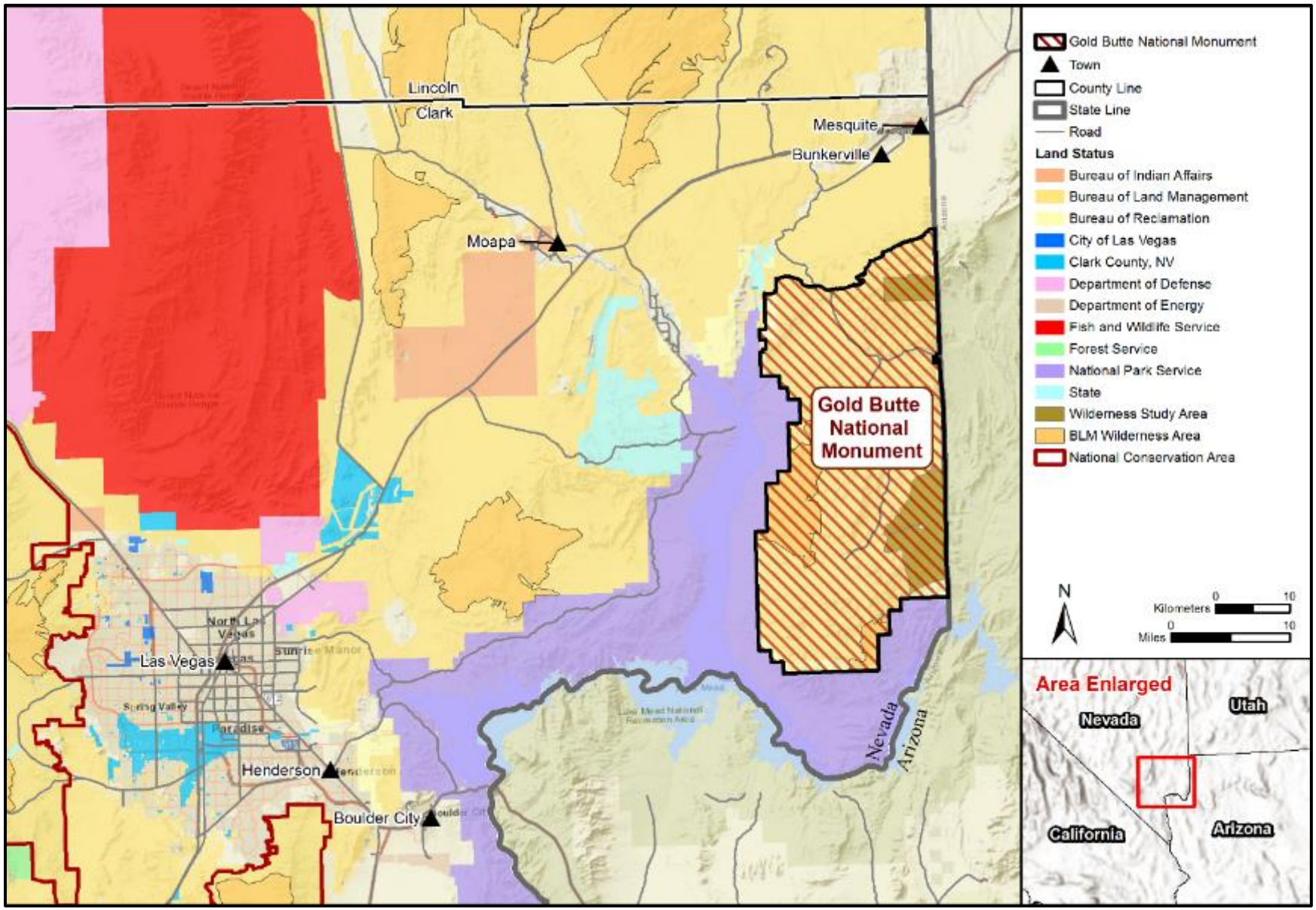

Figure 1. Project region.

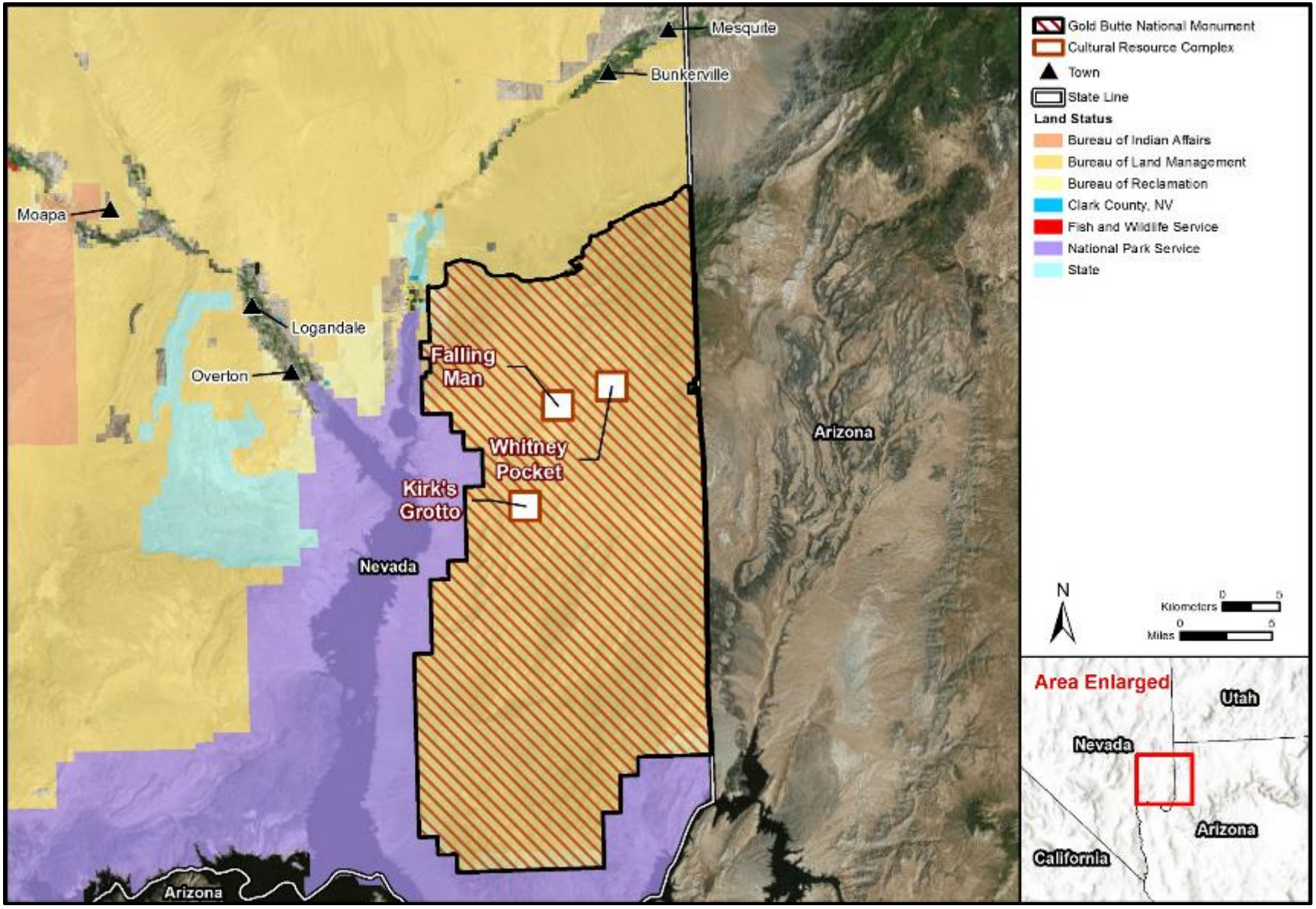

Figure 2. Project Area.

1.3 Cultural Sites

1.3.1 Whitney Pocket Complex

The Whitney Pocket Complex is a BLM-designated Area of Critical Environmental Concern (ACEC) located off of Whitney Pass Road in the GBNM. The Whitney Pocket Complex includes two areas of project interest: a historic Civilian Conservation Corps (CCC) camp (Site A) and a prehistoric rock shelter and roasting pit site (Site B). Both Site A and Site B have areas cleared of vegetation and compacted from use as an informal parking lot. Site B is also generally used for camping. The following protection measures are proposed for both Site A and Site B:

- Installation of a restroom facility (low-maintenance vault toilets) in the parking area to curtail future unauthorized dumping of biowaste.
- Installation of an information kiosk to educate the public and discourage looting. The kiosk will include a mixture of concise narratives, photos, illustrations, and maps.

The following protection measures are proposed for Site A only:

- Removal of existing biowaste from the site by biohazard team.
- Installation of post-and-cable fencing along the southern and western edges of the existing parking area to delineate formal boundaries for the parking area and prevent vehicle access into unauthorized areas.
- Placement of parking barrier or natural obstructions on the two-track dirt road to block access to southern portion of the site.
- Installation of post-and-cable fencing to block vehicular access to the check dam.

The following protection measures are proposed for Site B only:

- Installation of post-and-cable fencing extending from the check dam entrance east along the northern side of the bladed dirt road and wrapping around the western edge of the previously existing parking area to prevent vehicular access near the rock shelter, agave oven, and petroglyphs panels. Breaks in the fence line will be established at periodic intervals to allow for pedestrian access. Another post-and-cable fence line will be constructed along the eastern margin of the disturbed parking area to define the eastern boundary of the parking area.
- Installation of carsonite posts with ARPA stickers at feature locations to discourage vandalism and looting and generate awareness regarding cultural resources at the site.

1.3.2 Falling Man Complex

The Falling Man Complex is a large prehistoric habitation site and petroglyphs site consisting of two artifact scatters, one habitation containing petroglyphs, four rock shelters with associated artifact scatters, and six petroglyphs locales. In addition, the site includes an isolated rock shelter and four isolated petroglyphs areas. The following protection measures are proposed for the Falling Man Complex:

- Installation of an information kiosk at the sites and/or in the parking area focusing on area petroglyphs and prehistoric resources in the Falling Man Complex to educate the public and discourage vandalism.

- Installation of a restroom facility (low-maintenance vault toilets) in the parking area.
- Installation of carsonite posts with ARPA stickers at each petroglyph location to discourage vandalism and promote awareness regarding cultural resources at the site.
- Installation of trail markers to designate footpaths leading from the fenced parking area to petroglyphs and rock shelter locations. Trails and observation points will be established based on optimal vantage points to view petroglyphs from a safe location and distance.

1.3.3 Kirk's Grotto Complex

The Kirk's Grotto Complex includes two rock outcropping sites of Project interest directly adjacent to one another and divided by a small streambed and walking pathway. The first site is a prehistoric habitation and petroglyphs site located within a slot canyon. The second site is a prehistoric habitation and petroglyphs site. The following protection measures are proposed for both sites:

- Installation of an information kiosk at the sites and/or in the parking area focusing on petroglyphs and prehistoric resources in Kirk's Grotto to educate the public and discourage vandalism. Pamphlets available at the kiosk will direct visitors on a self-guided tour to numbered observation posts with visual line of sight to petroglyphs locations. Pamphlets will be double-sided, with a list of petroglyphs locations and brief descriptions on one side and a map illustrating the distribution of trails and observation posts on the other side.
- Installation of a restroom facility (low-maintenance vault toilets) in the parking area.
- Improvement of the access road for pedestrian traffic through construction of earthen stairs supported by railroad ties and/or creation of switchbacks to improve the trail grade for less agile hikers.
- Installation of carsonite posts with ARPA stickers at each petroglyphs panel location to discourage vandalism and generate awareness regarding cultural resources at the site.
- Creation of trail markers to designate a footpath leading from the main pedestrian access route to petroglyphs panels and slot canyon entrances at both sites. Numbered observation posts will be established at petroglyphs panels located outside slot canyons. Trails and observation points will be established based on optimal vantage points to view petroglyphs from a safe location and distance.

1.4 Public Input and Alternatives Identification

The following discussion focuses on those measures and concerns received through public input, internal analysis within the BLM, and external discussions with cultural and environmental resources specialists. Input received as a result of public outreach efforts conducted February through July 2019. In addition to public outreach, the BLM also hosted field trips on April 11, 2019, attended by the Moapa Band of Paiutes, and June 6, 2019, attended by the Twenty-Nine Palms Band of Mission Indians, to gather information from Native American tribal representatives.

The BLM attended the following city council, town board, and tribal council meetings (Table 1).

Table 1. City Council, Town Board, and Tribal Council Meetings

City Council and Town Board Meetings	Date
Moapa Valley Town Advisory Board Meeting 320 North Moapa Valley Blvd. Overton, Nevada 89040	2/13/2019
Moapa Band of Paiutes Tribal Council Meeting	2/12/2019
Mesquite City Council Meeting 10 E. Mesquite Blvd. Mesquite, Nevada 89027	2/26/2019
Las Vegas Band of Paiute Tribal Council Meeting	2/27/2019
Bunkerville Town Advisory Board Meeting 190 East Virgin St. Bunkerville, Nevada 89007	2/28/2019
Friends of Gold Butte Board Meeting 12 W. Mesquite Blvd. Suite #106 Mesquite, Nevada 89027	3/1/2019
Kokopelli ATV Club Meeting	2/5/2019
Timbisha Shoshone Tribal Council Meeting	3/18/2019
Twenty-Nine Palms Band of Mission Indians Tribal Council Meeting	3/20/2019
Moapa Band of Paiutes Tribal Council Meeting	7/16/2019

A presentation was provided by the BLM at each meeting, followed by an invitation to ask questions and provide input. Input received concerned a range of environmental and impacts analysis issues related to the Project. Kiosk design and informational topics for pamphlets received the greatest amount of input. The location and consolidation of facilities and improvements received the second greatest amount of input. Other topics addressed included water accessibility for hygiene and restroom facility cleaning, roadways and site access, cultural and Native American considerations, a general opposition to fencing within the GBNM, a preference for natural barriers over traditional fencing, and a request for additional meetings.

2 PROJECT ALTERNATIVES

The following alternatives for implementing the protection measures are included for discussion based on the location of the alternative: 1) alternatives available at all cultural complex sites; 2) alternatives available for the Whitney Pocket Complex; 3) alternatives available for the Falling Man Complex; and 4) alternatives available for the Kirk's Grotto Complex.

2.1 Alternatives Available at All Three Cultural Complex Sites

Alternatives considered for all three cultural complex sites include discussion on the type of restroom and toilet facilities available for use in the GBNM, the location of the toilets (either at all three cultural complex sites or at one or two sites), and the type of kiosk and mapping system available for the GBNM.

2.1.1 Type of Restroom and Toilet Facilities

Several types of toilet facilities were considered for use at the GBNM cultural site complexes: porta-potties, wooden sitters, and vault toilets. Due to the lack of water and wastewater infrastructure available at the GBNM, no water toilets or sinks were considered. All potential restroom and toilet alternatives would be

designed in accordance with the BLM *Guidelines for a Quality Built Environment* (BLM 2010) and Nevada Division of Environmental Protection requirements.

2.1.1.1 PORTABLE TOILETS

Portable toilets (also known as portable bathrooms, porta-potties, porta-johns, jiffy-johns, etc.) are self-contained units where human waste is stored temporarily in holding tanks and removed on a daily or weekly basis as needed. Portable toilets are currently being used at both Site A and Site B of the Whitney Pocket Complex. Portable toilets are most often used at large outdoor events like food festivals, county fairs, and rock concerts, and are required by law at most construction sites. They can be easily mounted on trailers, and individual units may be compliant with the Americans with Disabilities Act (ADA) Standards for Accessible Design.

Portable toilets are generally used for temporary events and activities due to the cost of daily or weekly maintenance. They can be easily transported and serviced on well-maintained roads. Portable toilets use a chemical mixture inside the small holding tank consisting of blue dye to hide the appearance of biological waste, fragrance to mask the odor, and biocides to kill bacteria and microbes until servicing. Servicing of portable toilets consists of a vacuum truck that uses a pipe or hose to vacuum waste out of the tank for transportation and later disposal within the municipal wastewater system.

Aboveground portable toilets are susceptible to extreme weather conditions. Hot weather can exacerbate bacterial growth and cause extremely unpleasant odors, while cold weather can cause biowaste to freeze, making removal and vacuuming difficult. Portable toilets can also provide an attractive nuisance for vandals and are at risk of toppling over if not stabilized safely.

2.1.1.2 WOODEN SITTERS

Wooden sitters (also known as drum privies) consist of a toilet seat and building structure placed over a removable drum, barrel, or small fiberglass vault (Figure 3). The building structure may be a toilet seat and privacy screen or a fully enclosed building. The drum is replaced when it is full, and the full container is removed from the site for transportation and later disposal within the municipal wastewater system. Empty drums may be stored on-site and changed out as necessary. Waste-filled drums can also be stored on-site for transportation and disposal at a later date. However, under these circumstances, care must be taken to ensure that drums are sealed properly and are not stored in locations that could conflict with recreational use or camping.

Wooden sitter type toilet facilities with 208.2-liter drums must be emptied after approximately 150 to 200 visitors. Enough drums must be stored on-site to last until they are removed from the site to be emptied. The initial cost of the building structure and drums may be fairly low, depending on the design and materials used. Depending on the design, wooden sitters may or may not be ADA-compliant. Maintenance costs may be relatively inexpensive and can be completed without the use of a vacuum truck or other specialized equipment; however, spills may occur during maintenance and transport. Proper training for maintenance and removal is required to ensure safety and proper disposal.

Figure 3. Wooden sitter and barrel maintenance.

2.1.1.3 PERMANENT VAULT TOILETS

Permanent vault toilets are often found in National and State Parks, campgrounds, and other similarly high-use outdoor recreation places. They generally consist of permanent structures with no electricity or running water. Ventilation occurs from pipes protruding from the roof of each vault. Prefabricated vault toilets range from buildings made of cross-linked polyethylene (same material as the vault) to wood frame construction to reinforced concrete structures (Figure 4). Prefabricated vault toilets can accommodate single "unisex," or double-vault toilet systems. The concrete designs are often chosen for their superior durability in vandal-prone areas.

Vault toilets provide a traditional toilet seat where waste falls down into an underground tank or chamber approximately 750 to 13,000 gallons in size. Due to the size of the tank or chamber, waste removal does not need to occur as frequently as required for the portable toilet or wooden sitter; however, a vacuum truck with specialized equipment for waste removal is required. Vault toilets are ADA compliant and can be manufactured off-site and transported via truck, or constructed from prefabricated materials on-site. Construction consists of using a backhoe to dig a trench for the vault and a concrete truck for setting the foundation. A crane is used for placement of the vault onto the concrete foundation (see Figure 4).

Construction costs for permanent vault toilets are much higher than for wooden sitters, but permanent facilities generally last longer and require less long-term repair. Maintenance costs are similar to those associated with portable toilets; however, the larger holding tank size allows for longer periods between scheduled waste removal.

Figure 4. Single "unisex" vault toilet.

2.1.2 Location of the Toilets at All Three Sites

Based on public input and site visits, several locations for construction of the toilets have been considered. These locations include 1) toilets located at each of the three cultural complex sites; or 2) toilets located only at the most commonly used and centrally located site, Whitney Pocket. All potential restroom and toilet alternatives would be designed in accordance with the BLM's *Guidelines for a Quality Built Environment* (BLM 2010) and Nevada Division of Environmental Protection requirements. The guidelines encourage designs that include the following: 1) a plan for use and users; 2) appropriate site selection; 3) site condition analysis; 4) implementation of green and sustainable strategies; 5) cohesive designing practices; 6) safety and security; and 7) planning for maintenance.

Installation and maintenance of three separate toilet facilities at each of the three cultural complex sites would provide multiple locations for recreational users of the GBNM to use toilet facilities. In addition, having three separate toilet locations would allow recreational users from nearby sites an opportunity to use the facilities and lessen the potential for biowaste accumulation at all GBNM sites. However, as currently maintained, the Falling Man Complex and the Kirk's Grotto Complex have unpredictable roadway access. Roads leading to these sites are less traveled and less well maintained than the primary GBNM road facilitating access to Whitney Pocket. Storm and wind events may cause ruts and drainage cuts that could impede access to the Falling Man and Kirk's Grotto Complexes by scheduled maintenance crews and trucks. Furthermore, the Falling Man and Kirk's Grotto Complexes generally garner less public recreational use than Whitney Pocket, making installation of toilets at these locations less crucial for the health and safety of visitors to the sites.

No matter which toilet design is chosen by the BLM, the cost of toilet installation and maintenance would be significantly higher for providing toilet facilities and maintenance at all three sites as opposed to solely providing toilet facilities at Whiney Pocket.

2.1.3 Kiosks and Public Information

The BLM received the greatest amount of input during the public outreach period regarding kiosk design and informational topics for pamphlets. It is important to the public that kiosk design options include the highest-quality information available and incorporate pertinent site-specific information from Native American tribes, archaeologists, and biologists. Kiosk design and signage included within the Project Area will be subject to the requirements of the BLM *National Sign Handbook* H-9130-1 (BLM 2016).

The design for each kiosk will determine cost. Kiosks may be custom built using volunteer labor and materials or purchased prefabricated and professionally installed. Costs may be as little as $1,500 or as high as $7,000, depending on the number of panels, design specifications, materials used, and labor costs. See Figures 5 and 6 for examples of informational panel types.

2.1.3.1 KIOSK DESIGN OPTION 1

Preliminary Kiosk Design 1 includes the construction of a coordinated and multi-faceted three- to four-panel kiosk at Whitney Pocket that would serve as a gateway to the GBNM and the three cultural site complexes. Kiosk Design 1 would include informational panels, a visitors' log book, a metal pamphlet display and housing, and shading to view these materials. The three- to four-panel display units would provide 1) map data for the GBNM and the Whitney Pocket Complex; 2) detailed biological and archaeological points of interest; 3) a brief history of the Native American culture and history of the GBNM, including some of the traditional names of the sacred sites; and 4) practical signage such as rattlesnake warnings, safety information, and "leave no trace" signage. Pamphlets available at the kiosk will provide discussion on the GBNM with emphasis on all three cultural complex sites and will provide a "tour" of the sites for visitors to follow. Kiosk Design 1 will also include carsonite posts at key observation points along the tour, directing recreational visitors to the pamphlet for further information about each site.

2.1.3.2 KIOSK DESIGN OPTION 2

Preliminary Kiosk Design 2 consists of three separate kiosks located at each of the three cultural complex sites (Whitney Pocket, Falling Man, and Kirk's Grotto). Kiosk Design 2 would provide standalone information at each of the three sites and would not include a comprehensive tour of all three cultural sites. Instead, each kiosk would provide site-specific information, including 1) map data for the specific GBNM site; 2) biological and archaeological points of interest; 3) a brief history of Native American culture and history of the site including traditional names; and 4) practical signage such as rattlesnake warnings, safety information, and "leave no trace" signage.

Figure 5. Double panel design example; Sloan Canyon.

Figure 6. Single panel information board example with post-and-cable fencing; Yaquina, Oregon.

2.2 Alternatives Available for the Whitney Pocket Complex

Based on public input received and BLM policies, several alternative options were considered for implementation of the protection measures at the Whitney Pocket Complex. These included the following:

1. Location of toilets within Site A resource area, Site B resource area, or a third area adjacent and south of Whitney Pass Road (Site C[1]).
2. Type of parking barrier or natural obstructions on the two-track dirt road to block access to the southern portion of the site. Installation of post-and-cable fencing along the southern and western edges of the existing parking area to delineate formal boundaries for the parking area and prevent vehicle access into unauthorized areas.
3. Location of the post-and-cable fencing to block vehicular access to the check dam.
4. Campground improvements.

2.2.1 Toilet Facility Locations

Several alternative locations exist for installation of toilet facilities at the Whitney Pocket Complex. These include 1) installation within the parking area of Site A; 2) installation at the parking and camping areas associated with Site B; or 3) installation on the south side of Whitney Pass Road near the camping area but not directly adjacent to any existing parking (Site C) (Figure 7).

2.2.1.1 SITE A – WESTERN TOILET FACILITY LOCATION

Locating the proposed toilet facilities at Site A of the Whitney Pocket Complex would provide restroom facilities at the nearest location to the petroglyphs and cultural resources. Site A would serve as a gateway for visitors to the GBNM. Toilet facilities at Site A of the Whitney Pocket Complex would be close enough to be accessed by the Site B camping area during the daytime and at night if campers have flashlights or other lighting devices. Depending on the type of toilet facility chosen for the proposed Project (see Section 2.1.1, Type of Restroom and Toilet Facilities, for details), odors and storage of waste facilities could impair the enjoyment for recreational users viewing the resources at Site A. Locating the facilities at Site A is a trade-off between the convenience of the close location and the likelihood that odors and waste would interfere with the enjoyment of the recreational users at the site.

[1] Site C is not associated with any cultural or historic properties within the Whitney Pocket Complex.

2.2.1.2 SITE B – EASTERN TOILET FACILITY LOCATION

Locating the proposed toilet facilities at Site B of the Whitney Pocket Complex would provide restroom facilities for both daytime and nighttime use near the existing camping area. Like the Site A location discussed above, benefits of siting the facilities within the Site B camping area would be consistent with the convenience of the close location. Negative impacts associated with locating toilet facilities at Site B would include the proximity of the campers to odors and wastes. Depending on the type of toilet facility chosen for the proposed Project (see Section 2.1.1, Type of Restroom and Toilet Facilities, for details), odors and storage of waste facilities could impair the enjoyment of the camping experience for recreational users of Site B.

Figure 7. Whitney Pocket Alternative Options: location of restroom facilities and vehicle barriers.

2.2.1.3 SITE C - SOUTH OF WHITNEY PASS ROAD TOILET FACILITY LOCATION

Locating the proposed toilet facilities south of Whitney Pass would position the facilities approximately 600 feet from Site A and a minimum of 50 feet from Site B. Installation of toilet facilities south of Whitney Pass would require the clearing of some vegetation to accommodate vehicle and pedestrian traffic, as well as the footprint of the toilet facilities. However, the size of this cleared area could be limited to as little as 100 square feet, enough to accommodate several vehicles, the footprint of the facilities, and a small area for barrel or drum storage, depending on the type of toilet facility chosen for use (see Section 2.1.1, Type of Restroom and Toilet Facilities, for details). Location of the toilet facilities south of Whitney Pass would allow pedestrians on foot visiting the Whitney Pocket Complex access to the facilities without being so close that users are put at risk of encountering unpleasant odors and waste.

2.2.2 Location of Whitney Pocket Vehicle Barriers

Project protection measures for the Whitney Pocket Complex include the placement of a parking barrier on the two-track dirt road to block access to the southern portion of Site A. Two possible locations have been considered for placement of this vehicular barrier: 1) approximately 100 feet south of the parking area; and 2) off of Whitney Pass approximately 750 feet east of Gold Butte Backcountry Byway.

2.2.2.1 VEHICLE BARRIER PLACEMENT 100 FEET SOUTH OF THE PARKING AREA

Several informal, off-road vehicle trails have been established to gain access to the southern portion of Site A. Placement of the vehicle barrier 100 feet south of the parking area blocks vehicular access to the southern portion of Site A from the parking area and the existing social trail from the east. However, placement of the vehicle barrier at this location does not limit vehicle access to the southern portion of Site A from an unauthorized vehicle trail on the western side of the Site A rock formation.

2.2.2.2 VEHICLE BARRIER PLACEMENT OFF OF WHITNEY PASS

A second area potentially available for placement of the proposed vehicle barrier is located on the western side of the Whitney Pocket Site A rock formation. Location of the parking barrier on the western side of Whitney Pocket Site A would provide a barrier to vehicles accessing the southern portion of the site from the parking area from the west. Under this alternative, fencing within the Site A parking area would include design features allowing pedestrian access to the south.

2.2.3 Type of Parking Barriers

The proposed Project calls for the use of parking barriers at the Whitney Pocket Complex. Whether a fence, bollard, post, or boulder, physical barriers serve to protect property, human safety, and natural or cultural resources. The type of barrier used on-site can create a subtle yet clear boundary, and the integration of barriers into the landscape is critical to reducing their visual impact.

Scoping for the Whitney Pocket Complex indicated that public and recreational users prefer the use of natural barriers (plants, rocks, etc.) to protect the sites and make them blend in with the existing GBNM landscape. In accordance with the building requirements of the BLM, any barriers installed at the GBNM site would need to be sustainable, attractive, functional, cost effective, and responsive to the overall GBNM setting.

2.2.3.1 ROCK OR BOULDERS

Parking barriers for the Project Area could use boulders and rock features currently existing within the GBNM (Figure 8). Boulders create a sturdy barrier between vehicular and pedestrian pathways. Irregular placement and the partial burial of boulders in small groups can help make the barrier look more natural. Costs associated with the installation of rock or boulder barriers would be limited to selection of the material and transport of the materials to the parking and barrier areas.

2.2.3.2 WOODEN POST OR POST-AND-CABLE TYPE FENCING

Currently, there is no fencing along any site or portion of site at the Whitney Complex. Installation of wooden fencing or post-and-cable fencing along the southern and western edges of the existing parking area is proposed to delineate formal boundaries for the parking area and prevent vehicle access into unauthorized areas (Figure 9). Additional fencing could be used at Whitney Pocket Site A to provide a barrier from vehicles accessing the cultural sites from the south and discouraging off-trail vehicle use.

Installation of post-and-cable fencing to block vehicular access would be similar to the fencing within the Whitney Pocket Complex for protection of the cultural resources. Therefore, post-and-cable fencing would allow for the visual and aesthetic continuity of the area. However, fencing would incur higher costs from materials and installation than the use of rocks or boulders found within the existing GBNM site area.

Figure 8. Campground facilities with boulder barrier; Big Bend Campground, Arizona.

Figure 9. Group campground facilities with wooden post fencing barrier; the Ledge, Utah.

2.2.4 Campground Improvements

Protection measures and installation of additional facilities such as restrooms may result in increased usage of the GBNM site complexes by recreational users. Increased usage and visitation associated with Whitney Pocket Site B will likely lead to additional use of the site for camping purposes. In addition to the proposed Project protection measures, the Project could include an alternative for the installation of camping facilities at Whitney Pocket Site B.

Whitney Pocket Site B is a partially cleared, approximately 1- to 1.5-acre area providing backcountry camping with several informal stone fire rings. Currently, no BLM-supported facilities or amenities exist at Whitney Pocket Site B for camping or overnight use. The existing Site B area could accommodate approximately 15 to 20 campsites with an average area of approximately 100 to 150 square feet, or fewer if campsites are designed to accommodate recreational vehicle camping. Clearing of vegetation and grading could provide a greater number of campground sites. Campground improvements could include designated camping sites delineated with treated railroad ties or boulders from the GBNM in order to match the existing scenery and aesthetic (see Section 2.2.3, Type of Parking Barriers, for details), accompanying picnic tables, and fire rings.

Adding campground facilities to Site B would provide more convenience to existing campers but would also require continuous maintenance and upkeep of the area by BLM. Currently, camping at Whitney Pocket Site B requires no fees. However, if an alternative option for improving the camping area is chosen, then BLM would need to provide a standard for tracking use of the campground, which may or may not include installation of a kiosk for fee collection in the future.

2.3 Alternatives Available for the Falling Man Complex

Alternatives considered for the Falling Man Complex were based on the results of public input received and current BLM requirements and policies. Scoping input received from the public during community outreach by the BLM regarding the Falling Man Complex were sometimes contradictory to one another or were in conflict with BLM policies. For example, input received during the Twenty-Nine Palms Band of Mission Indians Tribal Council included concerns regarding the potential creation of social trails resulting from implementation of the Project. Social trails are informal trails created by erosion due to foot traffic from people and animals. Social trails are not part of the official BLM trail network and are an indication of human disturbance. As such, the BLM and other federal agencies generally consider social trails to be a negative impact on natural features, and formal trails are designed to avoid the creation of social trails to the extent feasible. In contrast, input received during the Bunkerville Town Advisory Board Meeting requested that fewer trails be provided to allow for increased off-trail exploration of the area. However, due to the conflict posed with existing BLM policies, alternatives that would encourage the creation of social trails and/or off-trail exploration have not been included in this discussion.

Only one potential alternative was identified for the Falling Man Complex, which included the expansion of the existing access road to accommodate passing.

2.3.1 Passing Lane Pull-Outs

The Falling Man Complex is accessed by taking Gold Butte Backcountry Byway south to Black Butte Road (Figure 10). Black Butte Road is a single-track dirt road ranging in width from approximately 7 to 20 feet. Due to the narrowness of the roadway, it is often difficult to pass vehicles going in either direction. This can lead to drivers maneuvering vehicles onto embankments or vegetated areas in order to avoid potential scrapes with other vehicles. The alternative option for Falling Man would include the installation and

maintenance of one or more passing lane pull-out areas designed to provide vehicles traveling on the access road locations to idle while other vehicles could pass going in either the same or opposing directions (Figure 11). Installation of the pull-out areas could reduce the safety risk associated with close passing and could limit the amount of disturbance to adjacent vegetation and habitat.

Figure 10. Falling Man passing lane pull-out options.

Figure 11. Falling Man trail site.

Installation of these pull-out areas would, however, require the permanent removal of some existing vegetation adjacent to Black Butte Road and/or Gold Butte Backcountry Byway. Costs associated with the construction and maintenance of passing lane pull-outs would be limited primarily to the initial grading and vegetation removal. Areas where passing lanes would be constructed would require assessment for potential biological or cultural resources and clearing prior to construction. Clearing and grading activities could be conducted by hand for small pull-out areas but would likely require the use of heavy construction equipment such as a backhoe for vegetation grading and removal in larger areas or if multiple pull-outs are chosen. In addition, it is not clear just how often these passing pull-out areas would be used. In order for pull-outs to be effective, signage would have to be located along the route alerting drivers to the locations of pull-outs and encouraging drivers to plan to pull over to accommodate shared use of the road with other vehicles. It is unclear whether pull-outs would reduce impacts caused by vehicle passing and whether the cost of installation and maintenance would be worth the effort at this time.

2.4 Alternatives Available for the Kirk's Grotto Complex

Alternatives available for the Kirk's Grotto Complex include the possible addition of a clearly marked trail and accompanying trail markers to designate a footpath leading from the main pedestrian access route to petroglyph panels and slot canyon entrances at both sites. In addition, installation of the trail system would include stairs and/or switchbacks/climbing turns for easier hiking access to the site. Any trail construction would be required to adhere to the requirements of the BLM, as outlined within the *Guidelines for a Quality Built Environment* (BLM 2010).

2.4.1 Access Trail Routes

The Kirk's Grotto Complex includes an alternative option for the installation and maintenance of trail routes (Figure 12) within the overall Kirk's Grotto Complex. The first portion of the trail system would head north around the easternmost rock outcropping. The second portion of the trail system would continue to the south to provide access to the western rock outcropping. The trail system would also include several offshoot trails with clear carsonite markers indicating the locations of specific petroglyphs and cultural sites along the route (Figure 13). Trails and observation points would be established based on optimal vantage points to view petroglyphs from a safe location and distance.

Installation of a marked trail system would provide the benefit of inhibiting recreational users from creating social trails and trails of opportunity across potentially sensitive vegetation and wildlife habitat. Furthermore, a clearly marked access trail would reduce the potential for recreational users to get lost to or from their vehicles, which would cause itinerary delays or potential safety hazards. Use of a marked trail system would also provide a clear visual guide to potential obstacles on the trail that could be removed by the BLM to increase safety and reduce the potential for slips, trips, and falls.

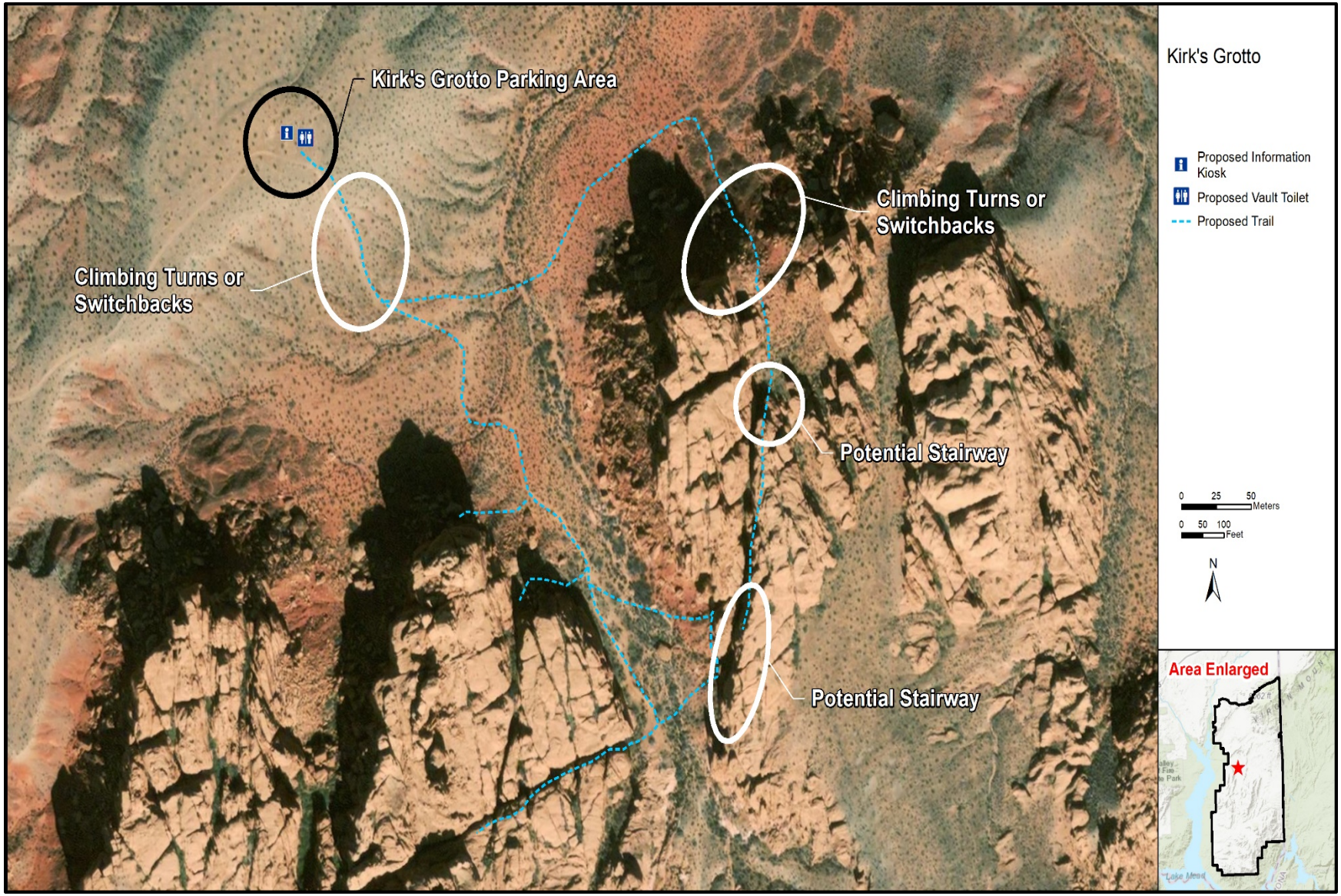

Figure 12. Kirk's Grotto trail system.

Figure 13. Carsonite trail markers

Installation of the trail markers would require ground siting and mapping of potential routes and evaluation of those routes for logistical construction purposes and safety assessment. Potentially negative effects of improving the access to trail routes would include the cost of initial construction and the need for continued, long-term maintenance of the trail system. Due to the location of Kirk's Grotto in the backcountry of GBNM, maintenance of the trail system could be hindered by road access following inclement weather events and may require increased maintenance of the backcountry roadway system. In addition, the improved access is expected to lead to increased use of the site for recreational purposes and would require that BLM reassess protection measures and potentially add protection measures to the cultural sites at Kirk's Grotto.

If the access trail described above is included as a component of the final project design, then a second alternative option for the trail would also need to be considered. Specifically, portions of the Kirk's Grotto proposed trail system are located on slopes, rocky outcroppings, and slot canyons where traversing the terrain could lead to slips, trips, and falls. In order to reduce the potential for accidents and to provide access to the site for less agile hikers, Project trails would need to include earthen stairs supported by railroad ties and/or creation of climbing turns and/or switchbacks. A climbing turn provides a reversal in direction that maintains the existing grade of a trail going through the turn without a constructed landing. Climbing turns have a wider turn radius and are used on gentle slopes. A switchback also provides a reversal in direction but is generally preferred for steeper terrain, usually greater than 15% (Figure 14). Design of the trail system will likely include the cost of a design team and assessment of the specific trail locations and conditions.

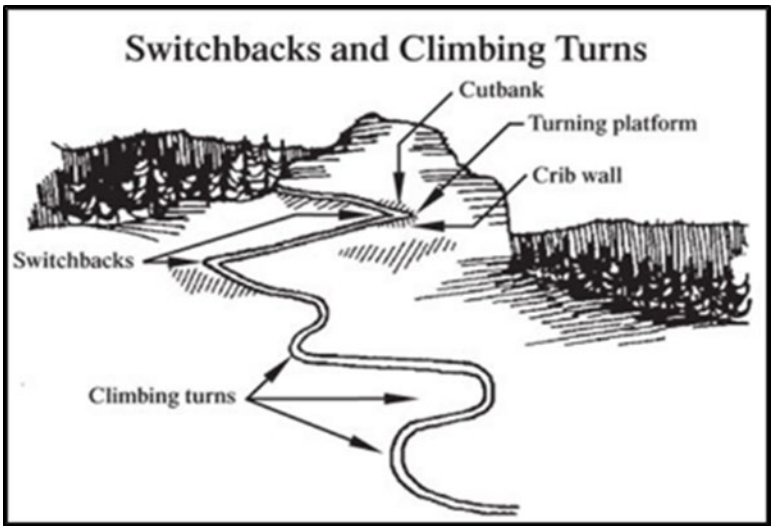

Figure 14. Switchbacks and climbing turns.

3 ALTERNATIVES SUMMARY TABLE

The following table provides a summary of the potential alternatives and options currently being considered for the GBNM Historic Properties Protection Measures Project.

Gold Butte National Monument Protection Measures - Alternatives Discussion Summary				
Proposed Project Protection Measure	**Alternatives Available**	**Options**	**Positive**	**Negative**
Alternatives Available at All Three Cultural Sites				
Installation of a restroom facility (low-maintenance vault toilets) in the parking area to curtail future unauthorized dumping of biowaste.	Type of Restroom and Toilet Facility	Portable Toilets / Porta-Potties	• Easy to transport and install • ADA compliant	• Tank size approximately 40 gallons • More appropriate for temporary use • Susceptible to extreme weather • Requires special equipment to clean and maintain • Maintenance must be subbed out to a professional with vacuum truck which incurs cost • Maintenance must occur frequently (weekly or bi-weekly)
		Wooden Sitters/ Drum Privy	• Can be constructed on or offsite • Easy to maintain • Costs are relatively low for maintenance and installation	• Tank size approximately 55 gallons • May or may not be ADA compliant • Requires onsite storage of additional drums, barrels, or removable vaults
		Permanent Vault Toilet	• Larger capacity tank size (approximately 750 to 13,000 gallons) requiring less frequent waste removal • Can be prefabricated offsite • Extremely durable in the long term • Can be single "unisex," or double vault toilet systems • ADA compliant	• Requires special equipment to clean and maintain • Maintenance must be subbed out to a professional with vacuum truck which incurs cost • Requires heavy construction equipment for installation • Higher construction costs than other types of facilities
NA	Location of the Toilet Facilities at All Three Sites	All three sites	• Provide multiple locations for back country recreational users of the GBNM to utilize toilet facilities	• Continuous ongoing maintenance of roads to allow access for toilet maintenance • Falling Man and Kirk's Grotto currently experience less users than Whitney Pocket • Cost of maintaining three sites vs one site
		Whitney Pocket only	•Provides facilities at primary and most used GBNM site. Whitney Pocket serves as a gateway to GBNM	•Does not provide faculties for any back country sites

Gold Butte National Monument Protection Measures - Alternatives Discussion Summary				
Proposed Project Protection Measure	**Alternatives Available**	**Options**	**Positive**	**Negative**
Installation of an information kiosk to educate the public and discourage looting. The kiosk will include a mixture of concise narratives, photos, and illustrations, and maps.	Kiosk Design	3-4 panel kiosk at Whitney Pocket that would serve as a gateway to the GBNM and the three cultural site complexes. Pamphlets available at the kiosk will provide discussion on the GBNM with emphasis on all three cultural complex sites and will provide a “tour” of the sites for visitors to follow. Kiosk design 1 will also include carsonite posts at key observation points along the tour directing recreational visitors to the pamphlet for further information about each site.	•Provides comprehensive, big picture information on all three cultural sites for greater understanding of the cultural sites in context to the overall GBNM	•Not all visitors to GBNM stop at Whitney Pocket first
		Kiosk Design 2 would provide stand-alone information at each of the three sites and would not include a comprehensive tour of all three cultural sites. Instead, each kiosk would provide site-specific information	Visitors at any site would be provided information on that site	Wont provide as much detail on how each site fits in with the overall GBNM
Whitney Pocket				
Removal of existing biowaste from the site by biohazard team.	Toilet Facility Locations	Site A - Western Site	• Close proximity to recreational area	Close proximity could cause unpleasant odors at cultural resource viewing areas
		Site B - Eastern Site	• Close proximity to recreational and camping areas	Close proximity could cause unpleasant odors
		Site C - South of Arizona Road	• Far enough from recreational areas and campsites to minimize unpleasant odors especially during warm season • Close enough to Site B to be accessible to recreational visitors and campers	• Requires clearing of vegetation and potential habitat to provide parking and facilities • Cost of vegetation removal

Gold Butte National Monument Protection Measures - Alternatives Discussion Summary				
Proposed Project Protection Measure	**Alternatives Available**	**Options**	**Positive**	**Negative**
Installation of a restroom facility (low-maintenance vault toilets) in the parking area to curtail future unauthorized dumping of biowaste.	Type of Restroom and Toilet Facility	See "Alternatives Available at All Three Cultural Sites Above" for detail	NA	NA
Installation of an information kiosk to educate the public and discourage looting. The kiosk will include a mixture of concise narratives, photos, and illustrations, and maps.	Kiosk Design	See "Alternatives Available at All Three Cultural Sites Above" for detail	NA	NA
Installation of post-and-cable fencing along the southern and western edges of the existing parking area to delineate formal boundaries for the parking area and prevent vehicle access into unauthorized areas.	No viable or applicable alternative considered	NA	NA	NA
1) Placement of parking barrier or natural obstructions on the two-track dirt road to block access to southern portion of the site.	Location Whitney Pocket Vehicle Barriers	Vehicle Barrier Placement 100 Feet South of Site A Parking	Prohibits access to the southern portion of Whitney Pocket Site A	Still allows vehicle access along unauthorized trails from the east
		Vehicle Barrier Placement Off of Arizona Road	Prohibits access to the southern portion of Whitney Pocket Site A	NA
2) Placement of parking barrier or natural obstructions on the two-track dirt road to block access to southern portion of the site.	Type of Parking Barriers	Rocks or Boulders	• Lower cost (assuming boulders and rocks available from onsite) • Natural aesthetic in line with existing GBNM visual environment • Long-term durability	• Transport and placement on site may require the use of heavy equipment to move boulders • Identification of the boulders, rocks and materials for use
		Post and Cable Fencing	• Installation of post-and-cable fencing to block vehicular access would be similar to the fencing within the Whitney Pocket Site Complexes for protection of the cultural resources. Therefore, post and cable fencing would allow for the visual and aesthetic continuity of the area.	• Cost of materials and labor • Requires maintenance and periodic replacement
Installation of post-and-cable fencing to block vehicular access to the check dam.	No viable or applicable alternative considered	NA	NA	NA

Gold Butte National Monument Protection Measures - Alternatives Discussion Summary				
Proposed Project Protection Measure	**Alternatives Available**	**Options**	**Positive**	**Negative**
Installation of post-and-cable fencing extending from the check dam entrance east along the northern side of bladed dirt road and wrapping around the western edge of the previously existing parking area to prevent vehicular access near the rock shelter, agave oven, and rock art panels. Breaks in the fence line will be established at periodic intervals to allow for pedestrian access. Another post-and cable fence line will be constructed along the eastern margin of the disturbed parking area to define the eastern boundary of the parking area.	No viable or applicable alternative considered	NA	NA	NA
Installation of carsonite posts with ARPA stickers at feature locations to discourage vandalism and looting and generate awareness regarding cultural resources at the site.	No viable or applicable alternative considered	NA	NA	NA
No corresponding protection measure identified; increased usage and visitation associated around Whitney Pocket Site B will likely lead to additional use of the site for camping purposes.	Campground improvements	Upgrade existing Whitney Pocket Site B 1-1.5 acres to primitive camping area	• Increased campground usage and convenience	• Requires additional and continuous upkeep and maintenance • Clearing of vegetation • Cost of campground designation materials, picnic tables, and fire rings • Coordinating use and potential overflow • Additional signage for rules, contact information, and requirements
Falling Man				
Installation of an information kiosk in the parking area focusing on area rock art and prehistoric resources in the Falling Man complex to educate the public and discourage vandalism.	See "Alternatives Available at All Three Cultural Sites Above" for detail	NA	NA	NA
Installation of a restroom facility (low-maintenance vault toilets) in the parking area.	See "Alternatives Available at All Three Cultural Sites Above" for detail	NA	NA	NA

Gold Butte National Monument Protection Measures - Alternatives Discussion Summary				
Proposed Project Protection Measure	**Alternatives Available**	**Options**	**Positive**	**Negative**
Installation of carsonite posts with ARPA stickers at each rock art location to discourage vandalism and promote awareness regarding cultural resources at the site.	No viable or applicable alternative considered	NA	NA	NA
Installation of trail markers to designate footpaths leading from the fenced parking area to rock art and rock shelter locations. Trails and observation points will be established based on optimal vantage points to view rock art from a safe location and distance.	No viable or applicable alternative considered	NA	NA	NA
No corresponding protection measure identified	Passing Lane Pull-outs	NA	• Reduce potential safety hazards associated with passing • Potentially limit the amount of disturbance to adjacent vegetation and habitat during recreational use	• Cost of construction and potential vegetation clearing • Cost of long-term maintenance • Cost to design • Potential loss of vegetation and habitat • No guarantee that drivers will utilize pull-outs • Cost of installation and maintenance of signage alerting drivers to pull-out areas
	No Pull-outs	NA	No benefit	No risk
Kirk's Grotto				
Installation of an information kiosk in the parking area focusing on rock art and prehistoric resources in Kirk's Grotto to educate the public and discourage vandalism. Pamphlets available at the kiosk will direct visitors on a self-guided tour to numbered observation posts with visual line-of-sight to rock art locations. Pamphlets will be double-sided, with a list of rock art locations and brief descriptions on one side and a map illustrating the distribution of trails and observation posts on the other side.	See "Alternatives Available at All Three Cultural Sites Above" for detail	NA	NA	NA
Installation of a restroom facility (low-maintenance vault toilets) in the parking area.	See "Alternatives Available at All Three Cultural Sites Above" for detail	NA	NA	NA

Gold Butte National Monument Protection Measures - Alternatives Discussion Summary

Proposed Project Protection Measure	Alternatives Available	Options	Positive	Negative
Installation of carsonite posts with ARPA stickers at each rock art panel location to discourage vandalism and generate awareness regarding cultural resources at the site.	No viable or applicable alternative considered	NA	NA	NA
Improvement of the access road for pedestrian traffic through construction of earthen stairs supported by railroad ties and/or creation of switchbacks to improve the trail grade for less agile hikers.	Installation of access trail routes	Installation of access trail routes with either earthen stairs, switchbacks, climbing turns as necessary	• Less opportunity for social trails and damage to unauthorized sensitive vegetation or wildlife habitat • Reduce potential safety hazards associated with off-trail hiking	• Cost of construction and potential vegetation clearing • Cost of long-term maintenance • Cost to design • Potential loss of vegetation and habitat
See above	No installation of access trail routes	NA	No benefit	No risk
Trail markers to designate footpath leading from the main pedestrian access route to rock art panels and slot canyon entrances at both sites. Numbered observation posts will be established at rock art panels located outside slot canyons. Trails and observation points will be established based on optimal vantage points to view rock art from a safe location and distance.		See response to "Improvement of the access road for pedestrian traffic through construction of earthen stairs supported by railroad ties and/or creation of switchbacks to improve the trail grade for less agile hikers" above for detail	See response to "Improvement of the access road for pedestrian traffic through construction of earthen stairs supported by railroad ties and/or creation of switchbacks to improve the trail grade for less agile hikers" above for detail	See response to "Improvement of the access road for pedestrian traffic through construction of earthen stairs supported by railroad ties and/or creation of switchbacks to improve the trail grade for less agile hikers" above for detail

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