

**Environmental Assessment: Re-route Barber Peak Loop Trail Outside of
Hole-in-the-Wall Campground, Mojave National Preserve**



Geologic Formation at Eye Level, Proposed Re-Route for Barber Peak Loop Trail, Mojave National Preserve

February 10, 2011

**Mojave National Preserve
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PURPOSE and NEED

Mojave National Preserve constructed a six-mile loop trail in the Hole-in-the-Wall area in 2007. Now known as the Barber Peak Loop, this trail begins and ends at the Hole-in-the-Wall campground. Visitors using this trail over the past two years have brought to the attention of park staff several issues regarding the campground portion.

Located near the Hole-in-the-Wall Campground, The Barber Peak Loop is one of four trails in the Hole-in-the-Wall area. In 2007, a crew of volunteers, with assistance from Mojave National Preserve (MOJA) and Joshua Tree National Park (JOTR) staff, constructed three miles of new trail that meets up with other existing trails to create the Barber Peak Loop trail. With campers as the primary target group, the trailhead was installed at the northern end of the Hole-in-the-Wall campground. A short spur trail was constructed from the Hole-in-the-Wall picnic area, where there is parking, to the southern end of the campground to complete a loop for hikers headed in a counter-clockwise direction. This spur trail allows access to the trail from the parking lot for non-campers.

The Barber Peak Loop trail was originally categorically excluded from further compliance with the National Environmental Policy Act in 2007. Most of the loop overlaps pre-existing trails, road, and the Hole-in-the-Wall campground. The one segment that required construction cut across an active grazing allotment that is heavily impacted by cattle. The extent of disturbance by cattle over decades of use was determined to be of such extent that the installation of a trail would not further that disturbance to the soils, vegetation and general habitat of the local area. Any options to re-route the trail outside of the campground involves new disturbance of existing habitat in the Hole-in-the-Wall area. To move the trail outside of the campground, the park must cut an alternative route across ungrazed, previously undisturbed habitat. New disturbance to habitat cannot be categorically excluded from NEPA; this environmental assessment, therefore, has been prepared to address the problems presented by the Barber Peak Loop trail coinciding with the Hole-in-the-Wall campground.

Since its construction, park staff has observed conflicts with users of the Barber Peak Loop trail. Two different groups of hikers use this loop – campground users and day-use hikers – from separate starting points (i.e., trailheads). Campground users start the loop at the northern end of the campground heading in a counter-clockwise direction. Day-use hikers park their vehicles at the picnic area/parking lot and join the trail in a clockwise direction. At the campground, there is no indication of which direction to take to return to the picnic area/parking lot; day-use hikers must walk through the campground to return to their vehicles at the day-use area.

Day-use hikers may disturb campground users as they make their way back to their vehicles. There is not a clear, continuous path that takes trail users from the northern end of the campground back to the picnic area/parking lot. Day-use hikers must walk along the road leading to the picnic area/parking lot that is intended for vehicle use. The section of trail route that crosses the length of the campground and picnic area/parking lot provides a low-quality visitor experience that contrasts with the rest of the experience provided by the Barber Peak Loop. On occasion, day-use hikers will park in the campground to start the Barber Peak Loop at the northern end; by doing so, they occupy spaces intended for campground users.

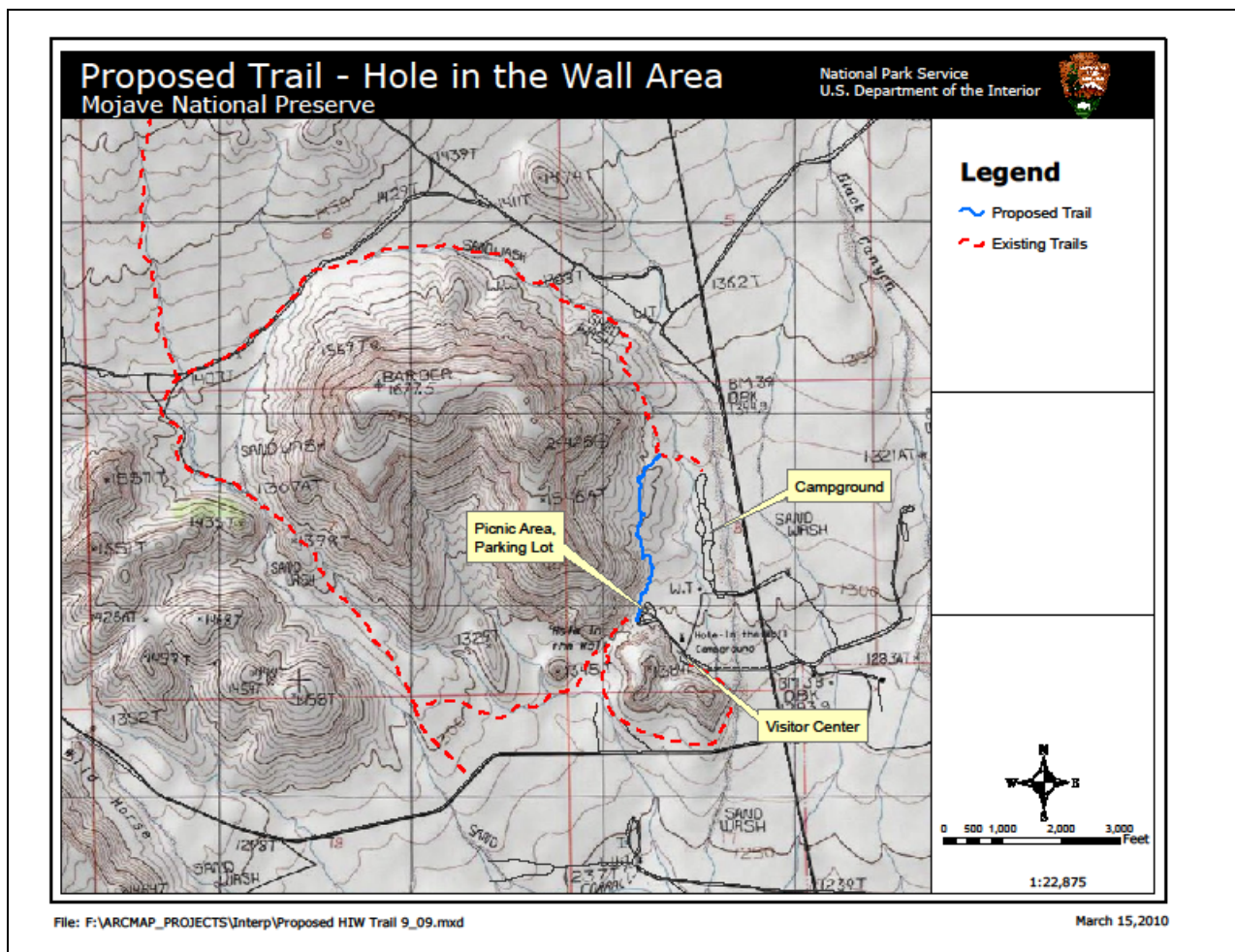


Figure 1: Map of Barber Peak Loop trail

DESCRIPTION OF ALTERNATIVES

Alternative A (No Action): Status Quo

The “No Action” alternative maintains the status quo. The Barber Peak Loop Trail will remain in its current location and condition. Trail users will continue to traverse the Hole-in-the-Wall campground in order to complete the trail. The campground segment of the trail detracts from an otherwise pleasant experience on the Barber Peak Loop. Conflicts between day-use hikers and campground users will continue and may increase over time. Conflicts between hikers and vehicles along the road leading to the picnic area/parking lot may also continue or increase. The Hole-in-the-Wall campground lies within a 100-year floodplain zone¹. Users of the Barber Peak Loop trail will continue to be subject to the risks associated with this natural hazard. The National Park Service posts flood warning notices at the campground. Park policy is to evacuate

¹ 1998 (July 9). Memorandum from Mike Martin and Gary Smillie, National Park Service, Water Operations Branch, to Superintendent, Mojave National Preserve. Trip report for travel to Mojave National Preserve, March 22-26, 1998. page 7.

the campground in case of a threatening storm event that might reach the limits of the 100-year floodplain.



Figure 2: Barber Peak Loop Trailhead

Alternative B (Preferred): Re-route Barber Peak Loop Trail outside of Hole-in-the-Wall Campground

Alternative B is the Preferred Alternative. Mojave National Preserve and Joshua Tree National Park staff have developed an option for the Barber Peak Loop to bypass the Hole-in-the-Wall campground. The Barber Peak Loop will have one trailhead located at the picnic area/parking lot (see Figure 2). The trail will run roughly parallel and to the east of the campground. Directional signs will be installed where the proposed alternate route joins the existing trail and at all junctions with other trails. The alternate route will direct visitors to a geologic feature that is at eye level and is attractive for tactile discovery (see Figure 3). The total length of the Barber Peak Loop trail will remain approximately six miles. The proposed alternate segment is 0.7 miles, replacing the campground segment that measures 0.8 miles.

The National Park Service proposes to construct an alternate route with volunteers and staff from Mojave National Preserve and Joshua Tree National Park. All construction will be performed with hand tools (e.g., shovels, pulaskis, macleods, and rakes). The trail section will be built according to NPS standards (i.e., approximately 18-24 inches wide). Soil may be removed up to four inches in depth. In other sections, trail construction will occur over bare rock. Erosion barriers and diversions will be installed where the proposed route crosses existing drainages. Carsonite directional posts will be installed to mark the hiking path when it is finished. A trails crew supervisor from Joshua Tree National Park will supervise volunteers and oversee the



construction of this trail segment. The volunteers will stay at the Hole-in-the-Wall group campsite on the opposite side of Black Canyon Road.

By constructing a trail segment that bypasses the campground, the trailhead will be established in one location, eliminating confusion among trail users about parking, trail direction, and returning to the parking lot. Hiking and camping uses will be separate, giving campground users a greater sense of privacy, and hikers a more scenic route of outstanding vistas, interesting rock formations, and diverse desert plant life. Potential conflicts with hikers and vehicles along the road leading to the picnic area/parking lot will be eliminated.

Figure 3: Terrain across which the Proposed Trail Re-route segment is mapped

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Environmentally Preferred Alternative is defined as “the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act’s Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources: (Forty Most Asked Questions Concerning Council on Environmental Quality’s National Environmental Policy Act Regulations, 1981).”

The Preferred Alternative proposes to disturb the native habitat for wildlife and plants to construct 0.7 mile of trail that bypasses the campground at Hole-in-the-Wall. While the trail would attract visitors to follow its path, it would not inhibit people from hiking throughout the area beyond the trail corridor. In comparison, the No Action Alternative continues the Barber Loop Trail’s intersection with the Hole-in-the-Wall campground so that day users must walk through it to complete the loop and return to their vehicles at the picnic area/parking lot. The No Action has fewer adverse impacts to the area’s natural resources and is, therefore, environmentally preferred.

ALTERNATIVES CONSIDERED BUT REJECTED

Another option for bypassing the Hole-in-the-Wall campground is to build an alternate route along the campground’s western boundary. Park staff considered this option but deemed it unsuitable. This bypass option is close enough to the campground to offer a view of the individual campsites without a visual break (e.g., trees, thick vegetation). Trail users would walk near and in plain view of campground users. This option gives the hiker a view of the campground and does not separate hiking and camping users sufficiently to alleviate conflicts

between these two user groups, leaving both groups with unsatisfactory experiences of their intended activity.

To minimize conflicts between hikers and vehicles, the Preserve could pave the dirt campground road and construct paved shoulders, a pedestrian walkway to/from the trailhead, and a parking lot at the trailhead. This option would require extensive planning and design and considerably more funding. It would require sufficient time to secure funding, complete the planning and design process, and implement construction. A paved road would detract from the deliberately informal character of Mojave's less developed campground, and of the Park's mandate to maintain the exploratory and discovery aspects of our site. Moreover, this option would not resolve the conflict of day-hike users passing through the campground and the problems associated with the mingling of day-use hikers and campers.

AFFECTED ENVIRONMENT

Mojave National Preserve lies in an ecologically diverse desert ecosystem that is a transitional zone of the Great Basin, Sonoran, and Mojave deserts. Hole-in-the-Wall is located midway along the eastern side of the Providence Mountain Range, close to Tabletop Mountain. Providence Mountains State Recreation Area and Mitchell Caverns are completely enclosed inside the Preserve, and are located about 30 minutes away near the southern end of the Providence Mountains.

Just north of the junction of Black Canyon and the south end of Wild Horse Canyon roads, rhyolite cliffs riddled with holes and hollows are the backdrop for Hole-in-the-Wall. Located at 4,400 feet in elevation, developments in the Hole-in-the-Wall area include a visitor information center, the Hole-in-the-Wall campground, a group campsite and an equestrian campsite, an interagency fire center shared by the NPS and the Bureau of Land Management, and four hiking trails. The Mid Hills campground lies eight miles to the north of Hole-in-the-Wall.

In Banshee Canyon, visitors use metal rings bolted into the sides of a narrow rock canyon to negotiate the Rings trail. The Rings trail connects to a loop that follows the perimeter of the geology of Banshee Canyon. It meets up with the Mid Hills to Hole-in-the-Wall trail, an eight-mile connection between the Preserve's two campgrounds. The Barber Peak Loop trail connects the three other trails, then works around the opalite cliffs and meets up with the Hole-in-the-Wall campground.

The campground lies within a 100-year floodplain zone. Beyond the floodplain, the area is a rocky terrain with scattered vegetation, including various species of cacti, Mojave yucca, grasses, shrubs, and creosote. Rhyolite cliffs provide visitors with a view of the unique geology west of the campground. The area directly north of the campground and in the northern section of the Barber Peak Loop is part of the Colton Hills grazing allotment and is used by cattle. The area west of the campground, where the trail reroute is proposed, has been fenced out of the grazing allotment and is not impacted by cattle.

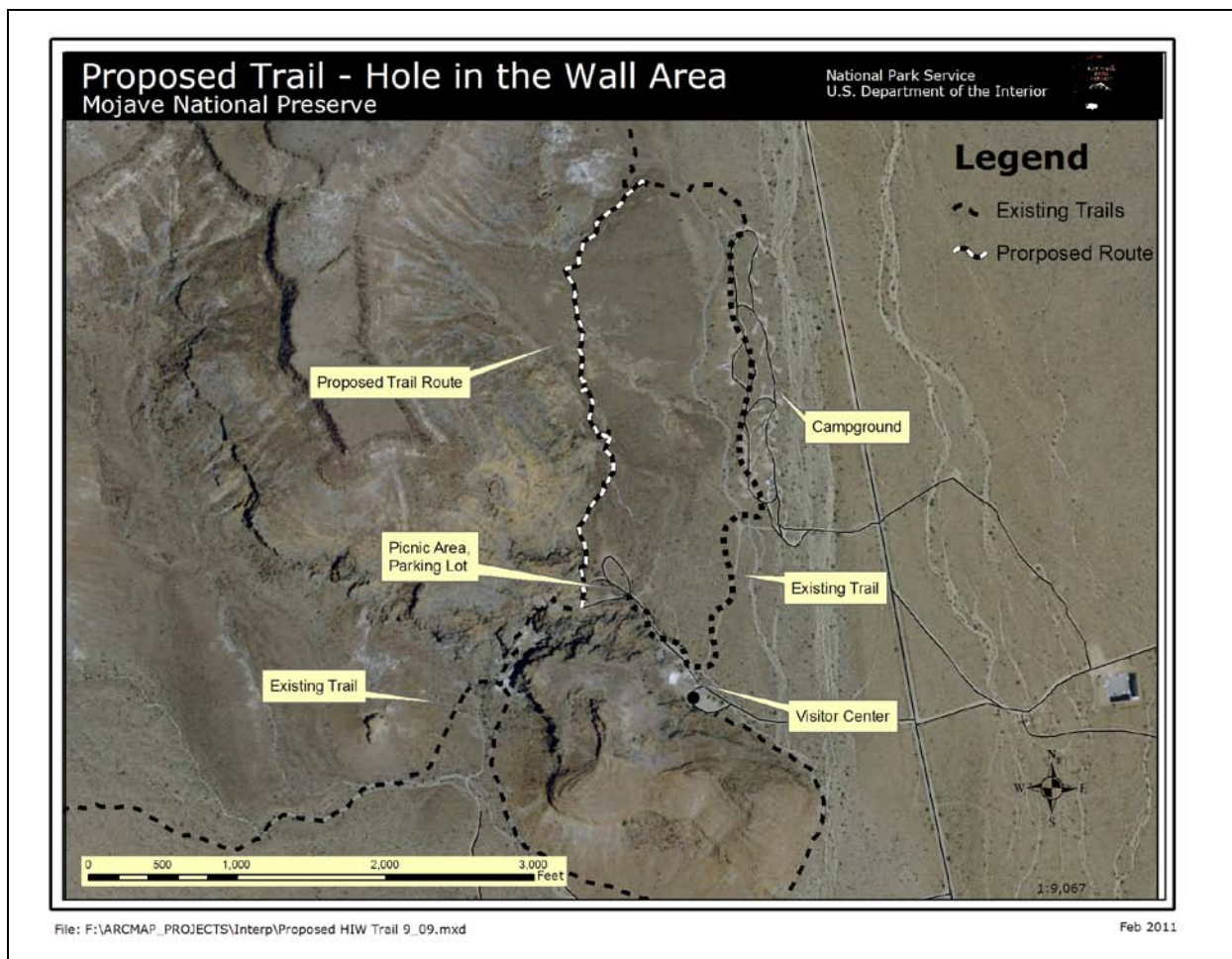


Figure 4: Proposed Segment to Re-route Barber Peak Trail

ISSUES AND IMPACT TOPICS IDENTIFIED FOR FURTHER ANALYSIS

The following relevant impact topics are analyzed in the EA. Whether each issue is related to taking action or to no action is specified.

Geology, Soils and Vegetation

The area west of the Hole-in-the-Wall Campground has healthy desert vegetation with intact soil structure and natural drainage leading away from the rhyolite cliffs. The proposed trail reroute crosses this habitat and will lead users to an eye-level, geologic formation. Impacts to these resources require further assessment.

Rare Plants

Three rare plants are known to occur along the proposed trail: *Penstemon stephensii* (Stephen's beardtongue), *Chamaesyce revoluta* (revolute spurge), and *Pellaea truncate* (spiny cliff-brake). None are federally or state listed. Stephen's beardtongue is a California endemic and one of the highest profile rare plants (Andre 2006). It is primarily found in Mojave National Preserve but also occurs in the Nopah and Kingston Mountain ranges north of the Preserve. This plant is

documented to occur where the campground bypass has been proposed (Andre 2006). Revolute spurge and spiny cliff-brake are not considered to be threatened because they are more widespread in distribution and numbers. Both these plants are documented along the proposed trail (Andre 2006). Impacts to these resources require further assessment.

Water Resources, Wetlands and Floodplains

There is no sustained surface water near the Hole-in-the-Wall area. Occasional heavy rains have caused numerous erosion channels in and near the campground. The Hole-in-the-Wall Campground and social trails leading from there to the Barber Peak Loop Trailhead are located within the 100-year flashflood zone. An assessment of impacts to visitor safety from both alternatives needs to be examined.

Wildlife & General Wildlife Use

Erosive action on the rhyolite cliffs create crevices and platforms along the vertical surfaces which provide protected roosting and nest sites for small mammals and birds. A number of whitewash stains can be seen throughout the rhyolite cliffs, indicating roosting and nesting sites for various birds. Birds include buteos, owls, falcons, thrashers, and maybe others. Bats likely use the crevices and holes in the rock formations for roosting. No known maternity sites are reported. Packrat middens can be found in crevices. Bighorn sheep frequent the area; while there is no evidence that Hole-in-the-Wall is a year-round use area, bighorn sheep appear to use it as a movement corridor. Observation records indicate bighorn travel through Hole-in-the-Wall as they move back and forth between Woods Mountain and Wildhorse Mesa, where permanent populations are present.

The steep mesa-like mountains surrounding Hole-in-the-Wall provide excellent habitat for bighorn sheep. Water developments for the Gold Valley and Colton Hills Cattle Allotments surround the area. The Mojave yucca scrub vegetation community provides quality forage and cover for bighorn and other wildlife. In addition, much of the proposed route was affected by the Hackberry complex fires in 2005 and is currently recovering. The presence of annual and perennial forbs, perennial bunchgrasses, re-sprouting bitterbrush and other plants provide quality forage for wildlife, and trail construction and increased visitation could alter wildlife use.

Threatened & Endangered Species

The desert tortoise is federally and state listed as a threatened species. Suitable habitat for the tortoise occurs in the area but the high elevation (almost 4,500 feet) precludes frequent use. No known observations of tortoises have been made by campers, visitors, or Preserve staff around the Hole-in-the-Wall information center or campground. They have been observed within two miles south of the Information Center. Nonetheless, there is potential for tortoises to move into the area for short periods of time during the summer months. The proposed area for re-routing the trail is adjacent to, but outside of, designated desert tortoise critical habitat.

The Mohave tui chub (*Gila bicolor mohavensis* or *Siphateles b. m.*) is federally and state listed as endangered. Within Mojave National Preserve, it lives only in MC Spring and Lake Tuendae at the Desert Studies Center adjacent to Soda Dry Lake. It is not affected by the Barber Peak Loop trail.

Swainson's hawks are listed under the California Endangered Species Act as threatened. Swainson's hawks are not known to breed in the Preserve but do occur during migration periods in late fall and spring. Rock spires found within the rhyolite cliffs could provide roosting for these buteos.

Two federally listed and three state listed bird species might infrequently occur at Hole-in-the-Wall:

Southwestern willow flycatcher (*Empidonax traillii extimus*) (Federal/State Endangered)

Least Bell's vireo (*Vireo bellii pusillus*) (Federal/State Endangered)

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (State Endangered)

Willow flycatcher (*Empidonax traillii* all subspecies) (State Endangered)

Arizona Bell's Vireo (*Vireo bellii arizonae*) (State Endangered)

Overall, habitat for southwestern willow flycatcher, Least Bell's vireo, western yellow-billed cuckoo, Willow flycatcher, and Arizona Bell's Vireo is poor or non-existent. There is no surface water. All species require dense stands of willow or cottonwood trees with a dense shrub understory. Habitat at Hole-in-the-Wall consists of creosote, cactus, and yucca scrub with small junipers at scattered intervals. Breeding, roosting, and large scale foraging are highly unlikely to occur here, as the habitat does not provide a multi-story, riparian, deciduous forest system.

Visitor Experience

It was originally assumed that campers would be the primary users of the Barber Peak Loop Trail. Instead, the trail is frequented by both campers and day users to the area. The National Park Service recently completed a hiking guide to the Hole-in-the-Wall trails to assist visitors making hiking plans in advance of their park visit. New trailhead exhibits are planned for the Preserve's trails, including the Barber Peak Loop trail. This environmental assessment examines improvements to recreational activities in Mojave National Preserve. This topic is also being further explored in a Non-Motorized Trails Management Plan.

ISSUES AND IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

Air Quality

The changes proposed to improve the visitor experience on the Barber Peak Loop Trail can be implemented by use of hand tools and volunteer labor. The work does not require heavy motorized or mechanized equipment and will have negligible effects on air quality. This topic is dismissed from further analysis.

Climate Change and Global Warming

Neither the No Action nor the Preferred Alternative Alternatives will have significant impacts to climate change and global warming. The proposed action re-routes the Barber Peak Loop trail outside of the Hole-in-the-Wall campground, but the trail is not a visitor destination in itself. It offers visitors to Hole-in-the-Wall one of several recreational opportunities. In this regard, neither visitation to the Hole-in-the-Wall area nor hiking use of the trail will change because of the Proposed Action. Motor vehicle use will not increase; therefore, climate change and global

warming will not be affected by the Proposed Action. This topic is dismissed from further analysis.

Cultural Resources

The proposed trail route has been surveyed to identify cultural resources. The park archeologist found no known cultural resources or historic properties that would be affected by the proposed trail re-location. No further analysis is needed.

Natural Soundscapes

The changes proposed to improve the visitor experience on the Barber Peak Loop Trail can be implemented by use of hand tools and volunteer labor. The work does not require heavy motorized or mechanized equipment and will have negligible effects on natural soundscapes. This topic is dismissed from further analysis.

Wilderness

Hole-in-the-Wall lies outside of and away from designated wilderness. The proposed alternate segment of the Barber Peak Loop Trail lies 0.3 miles from the closest edge of wilderness. In between the two points lie the Hole-in-the-Wall campground and Black Canyon Road. Activities in this area do not directly affect wilderness. This topic is dismissed from further consideration.

The following topics are not further addressed in this document because there are no potential effects to these resources, which are not in the project area.

- Socioeconomic resources
- Designated ecologically significant or critical areas
- Wild or scenic rivers
- Designated coastal zones
- Indian Trust Resources
- Ethnographic Resources
- Prime and unique agricultural lands
- Sites on the US Department of the Interior's National Registry of Natural Landmarks
- Sole or principal drinking water aquifers

There are no potential conflicts between the project and land use plans, policies, or controls (including state, local, or Native American) for the project area. There are also no potential effects to local or regional employment, occupation, income changes, or tax base as a result of this project. The project's area of potential effect is not populated and, per EO 12898 on Environmental Justice, there are no potential effects on minorities, Native Americans, women, or the civil liberties (associated with age, race, creed, color, national origin, or sex) of any American citizen. No disproportionate high or adverse effects to minority populations or low-income populations are expected to occur as a result of implementing any alternative.

REGULATIONS & POLICIES

Service-wide and Park-Specific Legislation and Planning Documents

The NPS Organic Act directs the NPS to manage units “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations” (16 U.S.C. § 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the NPS must conduct its actions in a manner that will ensure no “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.”

The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts. An action constitutes an impairment when its impacts “harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values.” (Management Policies 1.4.3)

NPS Management Policies 2006 requires the analysis of potential effects of each alternative to determine if actions would impair park resources. The discretion to allow impacts is limited by statutory requirement, as directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly for the activity – this cannot be provided by implication or inference – so that the NPS can manage the activity in such a manner as to avoid impairment. (Management Policies 1.4.4)

NPS units vary by their enabling legislations, their natural and cultural resources, their missions, and the recreational opportunities appropriate within each unit and/or for specific areas within each unit. This environmental assessment analyzes the context, duration, and intensity of impacts related to management activities to and in the vicinity of Hole-in-the-Wall and the Barber Peak Loop Trail, and the potential for resource impairment, as required by Director’s Order 12, *Conservation Planning, Environmental Impact Analysis and Decision Making*.

Mojave National Preserve was created in 1994 by passage of the California Desert Protection Act. This enabling legislation acknowledges the opportunities in the Mojave Desert to develop services, programs, accommodations and facilities for use and enjoyment by individuals with disabilities. Its General Management Plan (GMP; 2002) provides the overall management direction for Mojave National Preserve. It calls for a backcountry/wilderness management plan to be developed that will address trail use. The goal of a backcountry/wilderness management plan is to increase the diversity of recreational opportunities for hiking, bicycling, equestrian use, and motorized use of licensed vehicles. The target interest groups are hikers, cyclists, equestrians, and visitors with disabilities. The GMP gives no provision for trails developed in the interim. Mojave National Preserve staff and partners are developing a Non-Motorized Trails Management Plan to address Preserve-wide trails development, maintenance and repairs. This plan addresses one component of, and will be eventually incorporated into, a backcountry/wilderness management plan.

IMPACTS ANALYSIS

GEOLOGY, SOILS & VEGETATION

No Action

The geology, soils and vegetation in this area are not significantly impacted by social use. Light use of the area near the rhyolite cliffs will continue, without the need for active management. Visitors have already been crossing from the northern end of the campground to the eye-level geologic formation, as evidenced by social trails between the two points. Disturbance to the geologic formation is negligible. There is a slight potential for disturbance to the rare plants present in the area. Park staff does not currently monitor these species. It is possible that minor impacts may occur to the rare plants over the long-term.

Preferred Alternative

Construction of the proposed alternate route will involve removal of ground cover and some soil to level trail surfaces. Less than ten shrubs will be removed. The project site for the proposed alternate route will be surveyed and rare plants mapped and flagged. Crew members will be directed to avoid impacts to all flagged vegetation. Construction of this 0.7 mile segment will contain foot traffic along a designated path. The width of the trail will vary between 18 and 24 inches. Soil compaction will occur within the trail corridor but be minimized to either side. The trailhead at the northern end of the campground will be left intact for campground users to access the Barber Peak Loop Trail. Any soil removed during trail construction will be used to fill in pockets along the trail surface or will be pushed to the downhill side of the trail, for future use as fill material. The proposed action will lead trail users directly to an eye-level geologic formation that is frequented by visitors. This formation has not been adversely impacted by visitor use; its condition is not expected to change with the establishment a formal path of access.

RARE PLANTS

No Action

Under current conditions, the Barber Peak loop trail coincides with the Ring Loop trail, the Mid Hills-to-Hole-in-the-Wall trail, an old road that coincides with established cattle braids, a path that cuts across an active grazing allotment, and the Hole-in-the-Wall campground. It does not directly cross habitat with the three rare plants found in this area: *Penstemon stephensii* (Stephen's beardtongue), *Chamaesyce revolute* (revolute spurge), and *Pellaea truncate* (spiny cliff-brake). The No Action would have no impact to these rare plants.

Preferred Alternative

To construct the proposed alternate route for the Barber Peak Loop trail, the site would first be surveyed for any of the three rare plants known in the area. All plants found would be flagged and avoided. If avoidance is not possible, individuals may be removed. Disturbance will be contained to within the footprint of the trail route. Impacts to rare plants would be negligible and avoided where possible.

WATER RESOURCES, WETLANDS, AND FLOODPLAINS

There are no surface water resources, wetlands, or floodplains along the proposed trail route.

No Action

Light to moderate social trail use will continue as visitors access the non-technical climbing features near the picnic area and west of the campground. Natural erosion forces will occur unchecked. Social trails between the Hole-in-the-Wall Campground and the Barber Peak Loop Trailhead run through a 100-year flash-floodplain and pose potential hazards to visitors. According to an NPS flood hazard analysis, flashflood magnitude could reach a depth of approximately eight to nine feet and a velocity of 18–20 feet per second, which is considered extremely hazardous (NPS 1998).

Preferred Alternative

The proposed trail segment to bypass the campground will contain visitors to one designated trail corridor. Water bars and drainage dips will be incorporated as needed to minimize water damage and erosion to the trail and surrounding hillside. The proposed re-route crosses erosion channels several times. Because the Barber Peak Loop trail crosses the channels at perpendicular angles, the preferred alternative will not have adverse affects to existing drainage patterns through sound trail layout and construction. The Preferred Alternative would also steer visitors away from the 100-year flash flood zone, increasing visitor safety.

WILDLIFE AND WILDLIFE HABITAT

No Action

General Wildlife Use

Lack of a defined trail might cause human disturbances to general wildlife by increasing the potential for contact with people as they traverse the landscape at random places to approach the rhyolite cliffs. This disturbance would increase over time as visitation increases. In fiscal year 2010, 8,921 people visited Hole-in-the-Wall. This level is expected to increase slightly over time. Other impacts would entail damage to vegetation cover and soil disturbance. Such damage would expose wildlife, increase stress related to disturbance, disrupt nesting and resting, reduce forage and cover, and lead to erosion that would further degrade habitats. Nonetheless, due to the long-term presence of the Hole-in-the-Wall information center and campground, most wildlife has become habituated to increased human use and presence. Bighorn sheep sightings have become more frequent, regardless of human presence. Anticipated level of use is low. Impacts to general wildlife use would be negligible over the long-term.

Wildlife Habitat

Lack of a defined trail would cause disturbances to wildlife habitat by increasing the potential for damage to vegetation cover and recovering plants. This disturbance would increase over time as visitation increases, under the assumption that visitors will use this area even without a trail. Such damage would expose wildlife, reduce forage and cover, and lead to erosion which further degrades habitats. Anticipated level of use is low. Impacts to wildlife habitat would be negligible.

Preferred Alternative

General Wildlife Use

Construction of the trail bypass would cause disturbances to diurnal animals within the bypass' corridor. Disturbances to general wildlife would be limited by confining visitors to the trail corridor, even if visitation increased over time. Impacts to vegetation cover and soil disturbance would also be confined to the trail corridor. Disturbance of general wildlife due to trail construction and humans approaching and flushing them from the cliffs would increase for some animals. Based on these factors, the proposed trail would have potentially beneficial direct and indirect impacts to wildlife in the area. Adverse impacts are concluded to be negligible.

Wildlife Habitat

Trail construction would disturb soils and destroy some perennial and annual forbs and grasses. Due to fire damage in 2005, the numbers of plants affected are small, less than two dozen perennial individuals and an undetermined amount of annuals. Directing human foot traffic to a defined trail would reduce and confine disturbances to wildlife habitat to the trail corridor. Over time, this would reduce long-term mortality of perennial and annual forbs and grasses, as well as shrubs. Temporary disturbances to habitat during construction would be far outweighed by beneficial protections to the habitat over time. If visitation increased, visitor disturbances would remain primarily within the trail corridor, leaving the vegetation and soils largely undisturbed. Based on these factors, direct and indirect impacts to wildlife habitat have been found to be negligible.

THREATENED & ENDANGERED SPECIES

No Action

Because of the lack of any observations of desert tortoises within two miles of the Preferred Alternative area, any short or long-term impacts most likely would be negligible. There is a potential for tortoise to visit the area, but due to the high elevation this species would not likely persist there. Park management will continue to implement and enforce Reasonable and Prudent Measures and Terms and Conditions for desert tortoise protection as defined in the Biological Opinion for the General Management Plan for the Mojave National Preserve, San Bernardino County, California (1-8-00-F-36) (2001) and in the General Management Plan itself (2002).

For Swainson's hawk, human visitation in the area would continue to disrupt resting to some extent. Impacts are estimated to be negligible and would not increase appreciably over time.

Preferred Alternative

Desert tortoises have not been documented within two miles of the proposed re-route segment for the Barber Peak Loop trail. Park staff has concluded the Preferred Alternative will have negligible to no short or long-term impacts on this species. While the potential exists for a desert tortoise to pass through or inhabit the area, this is unlikely due to the area's high elevation. The Hole-in-the-Wall area is adjacent to critical habitat for desert tortoise (*Gopherus agassizii*), and

is considered suitable habitat. Tortoises could use the area; to date, they have not been observed around the campground, information center, and the Preferred Alternative area. If tortoises visit the area, their use would be infrequent due to the high elevation (almost 5,000 feet). During trail construction, all Reasonable and Prudent Measures and Terms and Conditions for desert tortoise protection listed in the Biological Opinion for Small Projects Affecting Desert Tortoise Habitat in the Mojave National Preserve, San Bernardino County, California (1-8-98-F-17) would be enforced. The National Park Service would report the results of this project to the US Fish and Wildlife Service, as required under this biological opinion. Once the project has been completed, park management will continue to implement and enforce Reasonable and Prudent Measures and Terms and Conditions for desert tortoise protection as defined in the Biological Opinion for the General Management Plan for the Mojave National Preserve, San Bernardino County, California (1-8-00-F-36) (2001) and in the General Management Plan itself (2002).

Trail construction and human visitation in the area would disturb Swainson's hawk if they are in the area. Impacts would include disruption to the bird's resting to a limited extent; they would be deemed negligible and would not increase appreciably over time.

VISITOR EXPERIENCE

No Action

Visitor satisfaction will continue to be impacted. Hikers will continue to be confused as they finish a "loop hike" but their vehicle is nowhere in sight. Recreational uses of hiking and camping will be adversely intermingled as hikers must go through the campground as part of the trail route.

Under the Status Quo, visitors will continue to use two separate trailheads to access the Barber Peak Loop trail. Day-use hikers will follow the trail until reaching the campground at Hole-in-the-Wall; they will then need to walk through the campground to return to their vehicles. The potential for conflicts between day users and campground users will persist and may increase as trail use rises. The degree to which these conflicts occur is not documented. Without baseline data, it will be difficult to determine any increases in such conflicts. Based on visitor comments, these conflicts would persist and might increase.

Preferred Alternative

The preferred alternative would clearly establish one trailhead for the Barber Peak Loop trail. Trail users would complete their hike at the same spot; for day users, they will be returned to their vehicles without the confusion of first having to traverse the campground. The Preferred Alternative would eliminate a section of the Barber Peak Loop trail through an existing disturbed area and, instead, offer an experience through diverse desert habitat, outstanding scenic views, and both visual and tactile geological opportunities.



Figure 5: Geologic Formation to which Proposed Re-Route Segment leads

Table 1. Impacts Matrix

	No Action Alternative	Proposed Action Alternative
Soils & Vegetation	No impact	Minor, short-term, negative impacts to vegetation during trail construction. Minor, long-term impacts to soils from compaction over time along the trail route to be off-set by benefits to the surrounding habitat from containment of foot traffic to a designated path.
Rare Plants	No impact	Minor, short-term, negative impacts off-set by long-term benefits to the surrounding habitat.
Water Resources, Wetlands & Floodplains	No impact	Potential minor impacts to drainage patterns to be off-set by installation of water bars and drainage dips.
Wildlife & Wildlife Habitat	Negligible, long-term, adverse impact	Negligible, long-term, adverse impact with potential benefits to wildlife and wildlife habitat, to be off-set by benefits to the surrounding habitat from containment of foot traffic to a designated path.

	No Action Alternative	Proposed Action Alternative
Threatened & Endangered Species	Negligible impacts to desert tortoise that will be avoided and minimized by implementation of the Biological Opinion for the General Management Plan.	Minor, short-term impacts to desert tortoise that will be avoided and minimized by implementation of Biological Opinion for Small Projects.
Visitor Experience	Potential major negative impact by directing trail users through the campground which lies in a 100-year floodplain.	Benefit of directing trail users away from 100-year floodplain, and toward an eye-level, tactile geologic experience.

CUMULATIVE IMPACTS

No Action

Visitation to the Hole-in-the-Wall area will continue regardless of the Barber Peak Loop trail's actual route. Impacts to other trails will remain negligible to non-existent. Park operations in the Hole-in-the-Wall area would not be affected. Mojave National Preserve is currently developing a Non-Motorized Trails Management Plan. This plan will provide guidance for future trails development in Mojave National Preserve, and will develop maintenance standards for all existing and future trails, including the Barber Peak Loop. There would be no cumulative impacts from the No Action alternative combined with any other plans or projects in Mojave National Preserve.

Preferred Alternative

The Barber Peak Loop trail has been in existence for the past three years. While the Preferred Alternative would enhance the desirability of the trail, it would not increase the number of recreational opportunities in the Hole-in-the-Wall area. The recovery of the area from the 2005 Hackberry complex fires might benefit slightly from the containment of human disturbance to a trail corridor. This benefit would be negligible, based on the current low level of human impacts to the area. Once completed, the Preserve's Non-Motorized Trails Management Plan will address maintenance and repairs of the Barber Peak Loop trail, and establish criteria and procedures for assessing new trail proposals. The outcome of this environmental assessment process will not significantly alter the larger trails planning process. Mojave National Preserve has no other plans or projects that would sustain cumulative impacts from the Preferred Alternative.

SUSTAINABILITY & LONG-TERM MANAGEMENT

No Action

The Status Quo alternative would leave the Barber Peak Loop trail in its current location with separate trailheads for separate user groups, and a segment of the trail that cuts through the Hole-in-the-Wall campground. The undeveloped lands in the area are recovering from the 2005 Hackberry complex fires and provide habitat to desert vegetation and wildlife including the State-listed Swainson's hawk and the federal- and State-listed desert tortoise. No action would

leave this habitat unchanged; the passive recovery process would continue unaltered, with negligible impacts from light human activity.

The long-term productivity of the area would remain unchanged. The No Action alternative has no irreversible adverse impacts, does not irretrievably commit park resources that cannot be replaced, and can be sustained over the long term without environmental consequence.

Preferred Alternative

The Preferred Alternative would relocate a 0.7-mile segment of the Barber Peak Loop trail from the campground to an undeveloped area directly west of the campground. This area provides habitat for wildlife and desert plant life, with potential for Swainson's hawk and desert tortoise. The Preferred Alternative would cut through this area, creating a 0.7-mile disturbance the width of the trail corridor. The trail corridor would contain the majority of human activity in the area, allowing the rest of the habitat to continue its passive recovery. Current levels of human activity are low, and impacts are light; the benefit from the proposed action to the recovery of the area is minor to negligible and is counterbalanced by the loss of habitat resulting from 0.7 mile of trail construction. The long-term productivity of the area would likely remain unchanged.

The total area of the disturbance is minimal and adversely impacts a proportionately minor amount of existing habitat in exchange for a re-routed trail with improved viewsheds, improved trail direction, improved conditions for habitat recovery, and reduced user conflicts. This alternative can also be sustained over the long term minor but not significant environmental consequence.

CONCLUSIONS

No Action

The No Action alternative would not result in resource impairment, and is environmentally preferred. The potential for conflict between user groups on the Barber Peak Loop trail would persist and might be realized if trail use increases. No other significant impacts would result from the No Action alternative. Impairment to the resources of Mojave National Preserve will not result from maintenance of the Status Quo.

Preferred Alternative

The Preferred Alternative would lead to a minor level of disturbance to the natural resources of the Hole-in-the-Wall area. This disturbance might be counterbalanced by the re-routed trail containing human activity to within the trail corridor and minimizing disturbances to the rest of the area. These impacts, while minor, would not be significant or lead to impairment.

CONSULTATION AND COORDINATION REQUIREMENTS

None of the activities in the Preferred Alternative will require consultation with the California State Historic Preservation Office.

The EA will be distributed to the public for a 20-day review period. It will be available online at the Mojave National Preserve website and through the National Park Service's Planning, Environment, and Public Comment website. Copies will be available at public libraries in California and Nevada.

California	Nevada
Riverside County	Clark County
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