

Craters of the Moon

National Park Service
U.S. Department of the Interior

Craters of the Moon
National Monument and Preserve



Lava Flow Campground Rehabilitation Environmental Assessment



Craters of the Moon National Monument and Preserve

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A. How this Environmental Assessment (EA) is Organized

i. Executive Summary: This section briefly recaps the contents of the EA, including the purpose and need for the project, an overview of the alternatives and other key project information.

ii. Table of Contents: This lists the chapters and primary sections and where they may be found within the document.

Chapter I. Purpose and Need: This chapter identifies the purpose and need for the proposed actions and the planning background for the project, including related laws, policy, monument plans and public participation to date. It also identifies the purpose and significance of the monument. Impact Topics describes the potentially affected resources and laws or policy relating to their inclusion in this EA. It also identifies those resources that have been dismissed from further analysis due to their having no or negligible potential environmental consequences.

Chapter II. Alternatives: This chapter describes the alternative courses of action that may be taken, including the reasons for dismissing options that do not meet the criteria for inclusion. It also identifies and provides analysis related to the selection of the Environmentally Preferable Alternative. An Alternative Comparison Chart (Table 4) provides a quick analysis of the differences among the alternatives.

Chapter III. Affected Environment/Environmental Consequences: Affected Environment describes the existing environment by resource category. Methodology identifies the means by which impacts to various resources are analyzed, including policy and laws relating to impact analysis. Environmental Consequences provides a comparison of effects associated with the alternatives including cumulative impacts compared to continuing on the present course of action. The Environmental Consequences section also contains an Impact Comparison Chart (Table 9) to assist in discerning the differences in projected impacts among the alternatives.

Chapter IV. Consultation and Coordination (List of Persons and Agencies Consulted / Preparers): This chapter provides additional information about internal and public scoping to determine the impact topics that would be contained within the document, as well as about preparation and review of the EA by other public agencies and Native American Tribes.

Chapter V: References: This chapter provides bibliographical information for sources cited in this EA.

B. Executive Summary

This Environmental Assessment (EA) has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 U.S. C. 4321-4347, as amended), including the Council on Environmental Quality (CEQ) regulations found at 40 CFR 1500 -1508 and other applicable laws, National Park Service (NPS) Management Policies (2006) and management directives. This EA facilitates compliance with Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act and other laws enacted for the protection of the environment.

This EA describes the impacts associated with the proposed rehabilitation of Lava Flow Campground in Craters of the Moon National Monument and Preserve to improve accessibility, to accommodate visitors and to improve resource conditions. The No Action Alternative (Alternative 1) describes the existing conditions associated with the existing campground. Alternatives 2 and 3 describe two different ways the campground could be rehabilitated to improve its accessibility. A summary of other alternatives considered but not fully analyzed is also provided.

Alternative 1, the No Action (Continue Current Management) Alternative describes the continuation of existing management practices as they apply to use and maintenance of Lava Flow Campground. This alternative is used as a baseline of current conditions to compare the action alternatives (Alternatives 2 and 3).

Alternatives 2 and 3 are based on the purpose and need for the project and conform to existing planning documents, including the Craters of the Moon National Monument and Preserve Management Plan (NPS 2006) and other NPS and Craters of the Moon policies and plans. Alternatives 2 and 3 describe different courses of action that could be taken by the NPS to rehabilitate Lava Flow Campground.

If reviewers do not identify significant environmental impacts, this EA will be used to prepare a Finding of No Significant Impact (FONSI), which will be sent to the NPS Pacific West Regional Director for signature.

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Chapter I. Purpose and Need

A. Introduction

As noted in the Monument Management Plan (NPS 2006:3), Craters of the Moon National Monument, the first national monument in Idaho, was established on May 2, 1924 (Presidential Proclamation 1694) for the purpose of protecting some of the unusual landscape of the Craters of the Moon Lava Field. This landscape was thought to resemble that of the moon and was described in the proclamation as “a weird and scenic landscape peculiar to itself.”

Since 1924, the monument has been expanded and boundary adjustments have been made through five presidential proclamations issued pursuant to the Antiquities Act (34 Stat. 225, 16 U.S. Code [USC] 431). Presidential Proclamation 1843 of July 23, 1928, expanded the monument to include certain springs for water supply and additional features of scientific interest. Presidential Proclamation 1916 of July 9, 1930; Presidential Proclamation 2499 of July 18, 1941; and Presidential Proclamation 3506 of November 19, 1962, made further adjustments to the boundaries. In 1996, Section 205 of the Omnibus Parks and Public Lands Management Act of 1996 (PL 104-333, 110 Stat. 4093, 4106) made a minor boundary adjustment to the monument (NPS 2005:3).

The last expansion through Presidential Proclamation 7373 (November 9, 2000) expanded the boundary to 737,680 acres of federal land (from about 53,400 acres) and included many more of the area’s volcanic features. It also enlarged the monument’s administration by adding Bureau of Land Management (BLM) administration of a portion of these lands as a unit of the National Landscape Conservation System. Federal legislation (PL 107-213, 116 Stat.1052), on August 21, 2002, made one further adjustment by designating 411,627 acres of the expanded NPS boundaries as a National Preserve, and allowing for hunting on lands that were closed to this activity by the November 2000 Proclamation (NPS 2005:4).

Craters of the Moon National Monument and Preserve is located in south central Idaho in Blaine, Butte, Lincoln, Minidoka, and Power Counties. It is within approximately a one-hour drive of Twin Falls, Idaho Falls, Pocatello, and other population centers from the Interstate 84 (I-84), I-86, and I-15 corridors (NPS 2005:4). The national monument portion encompasses 465,000 acres.

Craters of the Moon is located in an arid, high desert area. Annual precipitation at the proposed site averages about 16 inches. The area only has about 80 frost free days and boasts an average annual mean temperature of 42.8° F (Western Regional Climate Center 2011). The average daily minimum temperature is about 30.2° F, while the annual average daily maximum is about 55° F. Elevation in the project area is about 5,900 feet (1798 m) above sea level (NRCS 1999).

The Lava Flow Campground is located near NPS headquarters off U.S. Highway 20/26/93 between the towns of Carey and Arco, Idaho.

B. Scope of this Environmental Assessment

This EA has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 U.S. C. 4321-4347, as amended), including the Council on Environmental Quality (CEQ) regulations found at 40 CFR 1500 -1508 and other applicable laws, NPS Management Policies (2006) and management directives. This EA facilitates compliance with federal laws and executive orders enacted for the protection of the environment.

NEPA requires the documentation and evaluation of potential impacts resulting from federal actions. Federal actions may include projects financed, assisted, conducted, regulated or approved by a federal agency. An EA discloses the potential environmental consequences of implementing the proposed action and other reasonable and feasible alternatives. NEPA is

intended to provide decision-makers with sound knowledge of the environmental consequences of the alternatives available to them. In this case, the superintendent of Craters of the Moon National Monument and Preserve and the Pacific West Regional Director are faced with a decision regarding whether to rehabilitate the campground as described herein.

The purpose of this EA is to identify, evaluate and document the potential effects of the proposed rehabilitation of the campground to improve accessibility, visitor experience and resource conditions. As noted above, existing conditions described in the No Action Alternative (Alternative 1) constitute the baseline for evaluating the effects of the proposed rehabilitation.

An interdisciplinary team comprised of NPS staff, including natural and cultural resources and maintenance professionals determined the purpose and need for the project and identified the likely beneficial and adverse effects of the proposed actions compared to existing conditions as documented herein.

C. Craters of the Moon National Monument and Preserve Purpose and Significance

Purpose

Based upon the proclamations and legislation the Monument Management Plan (NPS 2005:7) characterizes the purposes of Craters of the Moon National Monument and Preserve are to:

- Safeguard the volcanic features and geologic processes of the Great Rift.
- Provide scientific, educational, and interpretive opportunities for the public to foster an understanding and appreciation of the volcanic geology and associated natural phenomena.
- Maintain the wilderness character of the Craters of the Moon Wilderness Area and of the Wilderness Study Areas.
- Perpetuate the scenic vistas and great open western landscapes for future generations.
- Protect kipukas (older vegetated terrain surrounded by lava flows) and remnant vegetation areas and preserve important habitat for sage-grouse, a BLM sensitive species.
- Continue the historic and traditional human relationships with the land that have existed on much of this landscape for generations.

Significance

According to the Monument Management Plan (NPS 2005: 7-11), Craters of the Moon National Monument and Preserve is significant because:

- It contains a remarkable and unusual diversity of exquisitely preserved volcanic features, including nearly all of the familiar features of purely basaltic volcanism – craters, cones, lava flows, caves, and fissures.
- It contains most of the Great Rift area, the deepest known land-based open volcanic rift, and the longest volcanic rift in the continental United States.
- Many of the more than 400 kipukas contain representative vegetative communities that have been largely undisturbed by human activity. These communities serve as key benchmarks for scientific study of long-term ecological changes to the plants and animals of sagebrush steppe communities throughout the Snake River Plain.
- It contains the largest remaining land area within the Snake River Plain still retaining its wilderness character. The Craters of the Moon Wilderness Area and Wilderness Study Areas within the monument encompass over 500,000 acres of undeveloped federal lands.
- It is a valued western landscape of over 750,000 acres that are characterized by a variety of scenery, broad open vistas, pristine air quality, and a rich human history.
- It contains abundant sagebrush steppe communities that provide some of the best remaining sage-grouse habitat and healthiest rangelands on the Snake River Plain.

- It contains many diverse habitats for plants and animals as a result of a long history of volcanic deposition.

D. Purpose of and Need for Management Action

The purpose of the proposed project is to rehabilitate the roads, parking areas, and campsites within Lava Flow Campground to improve accessibility, visitor experience and resource protection.

Lava Flow Campground is one of only two developed campgrounds in the monument (the other is a group site north of the highway). Lava Flow Campground currently contains 51 campsites, which are used consistently from late spring through late fall each year. Data from the last five years show the campground full on five days per year, generally on holiday weekends. The average number of sites used on weekends and other holidays during the peak season varies from 40-45.

Of the 51 campsites, one is used as an accessible site and six sites are pull-through or otherwise suitable for large recreational vehicles. Because the campground was designed and built in the 1930s, roadways are narrow and contain some tight curves, particularly in Loop B. Despite signage that Loop B is not suitable for large vehicles, such vehicles, including full-size pick-up trucks and trucks with trailers regularly enter the loop and often drive off pavement to navigate the tight curve along the back of the loop. As shown in Figure 1, there are both one-way and two-way roads in the campground.

Each campsite contains a vehicle parking space; however there is no designated parking within many of these areas. As a result, many of these originally small parking areas have expanded over time to encompass any flat area surrounding the campsites, where parking is not precluded by natural barriers. Because the parking areas for the campsites are not paved and are comprised of volcanic cinders, these are routinely crushed by heavy vehicles and are often then lost to wind erosion. Although other materials have been considered, the dark colored cinders fit well into the dark (black and red-orange) lava rock landscape. Cyclic replacement of cinders requires approximately 30 cubic yards every two years. Mining cinders within the monument would be using the very geologic features identified for preservation. Obtaining cinders elsewhere requires that cinders be transported for greater distances, increasing replacement and fuel costs. The former cinder mining site is now also adjacent to volcanic cinder features in the BLM-managed monument. Finally, there is the potential for introduction of weed seeds from cinder mining and transport.

An accessible paved path to the visitor center from the lower part of the campground was completed in 2010; however the only pedestrian route within the campground is to walk on the narrow roadways or roadway edges. This is often difficult because visitors must compete with oversized vehicles that often leave no extra room on the road.

Waste disposal areas located in the campground are next to the two historic restrooms. One of these restrooms is a log structure constructed in the 1930s that is eligible for the National Register of Historic Places. The other is a Mission 66 style structure also eligible for the National Register. Moving the trash area away from the restrooms would improve their historic appearance and could provide a more convenient (drive-up or walk-up) location for visitors to deposit their waste. It would also avoid the need for the garbage truck to park in front of the restrooms to pick up the waste, thereby improving access to the restrooms.

Wildlife food storage requirements are being implemented that would require food storage lockers to accommodate campers without hard-sided vehicles (those traveling by bicycle or motorcycle) for appropriate food storage.

Among the improvements that would be considered in the alternatives include the following:

- Maintain a minimum of 45 campsites;
- Provide additional accessible campsites (including restroom access, water and trash containers);
- Provide additional pull-through parking areas to accommodate recreational vehicles and allow for combined parking areas to access campsites;
- Harden the surface of parking pads to reduce erosion of volcanic cinders, decrease replacement needs and to increase their sustainability;
- Provide for a consistent road width that accommodates intended traffic on one-way and two-way sections of roadway;
- Harden the edges of the road to reduce asphalt erosion, to reduce costs associated with maintaining the road, and to prevent asphalt from combining with adjacent natural cinders;
- Improve turning radii at the top of Loops A and B to improve safety for visitors and to reduce resource damage caused by narrow roadway;
- Provide marked pedestrian paths throughout the lower campground (Loop A); and
- Identify a centralized trash and recycling center area.
- Identify sites for food storage lockers.

E. Background

1. Relationship to Laws, National Park Service Policy, and Monument Planning Documents

a. LAWS

National Park Service Organic Act (16 USC 1)

The key provision of the legislation establishing the NPS, referred to as the 1916 Organic Act is: The National Park Service shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified . . . by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

This is the guiding management law for all units of the National Park System, including Craters of the Moon National Monument and Preserve.

The prohibition against impairment in the Organic Act has been described in Management Policies (NPS 2006) and Director's Order-12, Conservation Planning, Environmental Impact Analysis, and Decision-making. These guidelines require analysis of potential effects to determine if actions would impair park resources (see Management Policies below). Impairment would be analyzed in an attachment to the proposed Finding of No Significant Impact, following public comments on this Environmental Assessment.

1970 National Park Service General Authorities Act (as amended in 1978 – Redwood amendment)

This act prohibits the NPS from allowing any activities that would cause derogation of the values and purposes for which the parks have been established (except as directly and specifically provided by Congress in the enabling legislation for the parks). Therefore, all units of the National Park System are to be managed as national parks, based on their enabling legislation and without regard for their individual titles (e.g. national monument, national historic site, national park, national historical park, national seashore, national recreation area etc.) unless differences are identified in their enabling legislation. Parks also adhere to other applicable federal laws and

regulations, such as the Endangered Species Act, the National Historic Preservation Act, the Wilderness Act, and the Wild and Scenic Rivers Act. To articulate its responsibilities under these laws and regulations, the NPS has established management policies for all units under its stewardship.

National Environmental Policy Act (NEPA) (42 USC 4341 *et seq.*)

NEPA requires the identification and documentation of the environmental consequences of federal actions. Regulations implementing NEPA are set for by the President's Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508). CEQ regulations establish the requirements and process for agencies to fulfill their obligations under the act. This law is responsible for ensuring that federal agencies disclose the consequences of their actions in documents such as this EA.

Clean Water Act (CWA) (33 USC 1241 *et seq.*)

Under the Clean Water Act, it is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, to enhance the quality of water resources, and to prevent, and control, and abate water pollution. Section 401 of the *Clean Water Act* as well as NPS policy requires analysis of impacts on water quality. *NPS Management Policies* (2006) provide direction for the preservation, use, and quality of water in national parks. Where applicable, in EAs, beneficial and adverse water quality impacts from proposed federal actions are analyzed.

Clean Air Act (as amended) (42 USC 7401 *et seq.*)

The Clean Air Act states that park managers have an affirmative responsibility to protect park air quality related values (including visibility, plants, animals, soils, water quality, cultural resources and visitor health) from adverse air pollution impacts. Where applicable, in EAs, beneficial and adverse air quality impacts from proposed federal actions are analyzed.

Endangered Species Act (16 USC 1531 *et seq.*)

The Endangered Species Act (ESA) requires federal agencies, in consultation with the Secretary of the Interior, to use their authorities in the furtherance of the purposes of the act and to carry out programs for the conservation of listed endangered and threatened species (16 USC 1535 Section 7(a)(1)). The ESA also directs federal agencies, in consultation with the Secretary of the Interior, to ensure that any action authorized, funded, or carried out by an agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat (16 USC 1535 Section 7(a)(2)). Consultation with the United States Fish and Wildlife Service (USFWS) is required if there is likely to be an effect.

Antiquities Act (1906) (16 USC 431- 433, 34 Statute 225)

This act was the first to provide protection for archeological resources. It protects all historic and prehistoric ruins or monuments on federal lands and prohibits their excavation, destruction, injury or appropriation without the departmental secretary's permission. It also authorizes the President to proclaim as national monuments public lands having historic landmarks, historic and prehistoric structures, and other objects of historic or of scientific interest. It also authorizes the President to reserve federal lands, to accept private lands, and to accept relinquishment of unperfected claims. This act was superseded by the Archaeological Resources Protection Act (ARPA) for the prosecution of antiquities violations in National Park System areas. Other parts of the Antiquities Act, however, remain in effect.

National Historic Preservation Act (1966 as amended) (16 USC 470)

Section 106 of the National Historic Preservation Act (NHPA) directs federal agencies to take into account the effect of any undertaking [a federally funded or assisted project] on historic properties. "Historic property" is any district, building, structure, site, or object that is eligible for listing in the National Register of Historic Places (National Register) because the property is significant at the national, state, or local level in American history, architecture, archeology,

engineering, or culture. This section also provides the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) an opportunity to comment on the undertaking, particularly if there is likely to be an adverse effect. Section 10 of this act requires the ongoing documentation of historic resources by federal agencies. The 1992 amendments to the act further defined the roles of American Indian Tribes and the affected public in the Section 106 process.

Archaeological Resources Protection Act (ARPA) (1979) (16 USC 470aa - 470mm, Public Law 96-95)

This act secures the protection of archeological resources on public or Indian lands and fosters increased cooperation and exchange of information between the private / governmental / professional community to facilitate the enjoyment and education of present and future generations. The act regulates excavation and collection on public and Indian lands. It defines archeological resources to be any material remains of past human life or activities that are of archeological interest and are at least 100 years old. It requires notification of Indian tribes who may consider a site of religious or cultural importance prior to issuing permits for excavation or collection of historic objects. It was amended in 1988 to require the development of plans for surveying public lands for archeological resources and systems for reporting incidents of suspected violations.

Native American Graves Protection and Repatriation Act (NAGPRA) (1990)

Section 3 has provisions regarding the custody of cultural items found on federal or tribal lands after November 16, 1990, while section 8 provides for repatriation of items found before that date. Section 3 also identifies procedures regarding the inadvertent discovery of Native American remains, funerary objects and objects of cultural patrimony during federal actions. NAGPRA regulations are found at 43 CFR Part 10.

Americans with Disabilities Act (ADA) (1990) / Architectural Barriers Act (ABA)

The Americans with Disabilities Act applies to the private sector, while the similar Architectural Barriers Act applies to actions on federal lands. This act states that all new construction and programs will be accessible. Planning and design guidance for accessibility is provided in the Architectural and Transportation Barriers Compliance Board (36 CFR Part 1191). NPS Special Directive 83-3 states that accessibility will be proportional to the degree of development, with areas of intense development (visitor centers, drive-in campgrounds, etc.) more accessible than areas of less development (backcountry trails and walk-in campgrounds, etc.) which may have fewer accessibility features.

Craters of the Moon Presidential Proclamation (1924)

In the Presidential proclamation that established CRMO in 1924 education was one of the primary drivers: "this area contains many curious and unusual phenomena of great educational value."

b. POLICIES

National Park Service Management Policies (2006)

Management Policies governs the way park managers make decisions on a wide range of issues that come before them. *Management Policies* consolidates agency policy on a wide variety of laws, technology, resource management and other issues pertinent to management of the National Park System. Sections applicable to the proposed project are quoted below.

Impairment

1.4.3 The NPS Obligation to Conserve and Provide for Enjoyment of Park Resources and Values

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. This mandate is independent of the separate prohibition on impairment

and applies all the time with respect to all park resources and values, even when there is no risk that any park resources or values may be impaired. NPS managers must always seek ways to avoid, or to minimize to the greatest extent practicable, adverse impacts on park resources and values. The laws do give the Service the management discretion, however, to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values.

The fundamental purpose of all parks also includes providing for the enjoyment of park resources and values by the people of the United States. The enjoyment that is contemplated by the statute is broad; it is the enjoyment of all the people of the United States and includes enjoyment both by people who visit parks and by those who appreciate them from afar. It also includes deriving benefit (including scientific knowledge) and inspiration from parks, as well as other forms of enjoyment and inspiration. Congress, recognizing that the enjoyment by future generations of the national parks can be ensured only if the superb quality of park resources and values is left unimpaired, has provided that when there is a conflict between conserving resources and values and providing for enjoyment of them, conservation is to be predominant. This is how courts have consistently interpreted the Organic Act.

1.4.4 The Prohibition on Impairment of Park Resources and Values

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the NPS. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment of park resources and values may not be allowed by the Service unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

1.4.5 What Constitutes Impairment of Park Resources and Values

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact to any park resource or value may, but does not necessarily, constitute an impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or*
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or*
- identified in the park's GMP or other relevant NPS planning documents as being of significance.*

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners,

contractors, and others operating in the park. Impairment may also result from sources or activities outside the park. . .

1.4.6 What Constitutes Park Resources and Values

The “park resources and values” that are subject to the no-impairment standard include: the park’s scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals; appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them; the park’s role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and any additional attributes encompassed by the specific values and purposes for which the park was established.

1.4.7 Decision-making Requirements to Identify and Avoid Impairments

Before approving a proposed action that could lead to an impairment of park resources and values, an NPS decision-maker must consider the impacts of the proposed action and determine, in writing, that the activity will not lead to an impairment of park resources and values. If there would be an impairment, the action must not be approved.

Accessibility

9.1.2 Accessibility for Persons with Disabilities

The Service will design, construct, and operate all buildings and facilities so they are accessible to and usable by persons with disabilities to the greatest extent reasonable, in accord with all applicable laws, regulations, and standards.

Accessibility will be provided consistent with preserving park resources and providing visitor safety and high-quality visitor experiences. In most instances, the degree of accessibility provided will be proportionately related to the degree of human-made modifications in the area surrounding the facility and the importance of the facility to people visiting or working in the park. Accordingly, most administrative offices, some overnight visitor accommodations, some employee housing, and most interpretive and visitor service facilities will be accessible.

Campgrounds

9.3.2.1 Campgrounds

When campgrounds are determined to be necessary, their design will accommodate the differences between recreation-vehicle camping and tent camping, and cultural landscapes, terrain, soils, vegetation, wildlife, climate, special needs of users, visual and auditory privacy, and other relevant factors will be considered.

The Service will determine the range of amenities and utility hookups that are appropriate to each campground based on the park’s mission, campground location and size, availability of commercial campgrounds in the area, cost of installing and maintaining the amenities and utilities, and other considerations. To eliminate the need for generators, electric utilities may be provided on a limited basis. Shower facilities may be provided where feasible. Modestly sized play areas for small children are permissible, as are informal areas for field sports associated with organized group camps. Wood fires in fire rings are generally permissible; however, whenever it is necessary to restrict such fires at individual campsites because of fire danger, air pollution, or other hazards, alternatives may be provided or allowed—such as facilities for the use of charcoal or other fuels or central cook sheds. When a need exists, sanitary dump stations will be provided in or near campgrounds that accommodate recreation vehicles.

When necessary for basic safety requirements, pathways and the exteriors of buildings and structures may be lighted. Such lighting will be energy efficient and shielded as much as possible so that visitors have the opportunity to experience the natural darkness and night skies.

Campgrounds intended to accommodate large recreation vehicles or buses will be located only where existing roads can safely accommodate such vehicles and the resulting increased traffic load.

No campground will exceed 250 sites unless a larger number of sites has been approved by the Director.

When desirable for purposes of management, tent camping may be accommodated in separate campgrounds or in separately designated areas within campgrounds. Provision may also be made for accommodating organized groups in separate campgrounds or in separately designated areas.

Natural Resources Management Guideline (NPS-77)

This comprehensive guideline directs the actions of park managers in natural resources protection so that natural resources activities planned and initiated within the national park system comply with federal law, regulations, and Department of the Interior and NPS policies.

Cultural Resources Management Guideline (NPS-28)

This guideline identifies the authorities for cultural resources management as derived from federal laws and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation that guide the implementation of cultural resources management in the national park system.

National Park Service

Craters of the Moon National Monument and Preserve Management Plan (Monument Management Plan) (NPS 2005)

The Monument Management Plan serves as the guiding management strategy for the monument. It provides a framework for decision-making, including decisions regarding visitor use, the preservation of natural and cultural resources, development and park operations. Implementation plans, which provide more detailed strategies, tier off this plan. This plan replaced the 1992 Craters of the Moon General Management Plan as well as four BLM Land Use Plans.

Applicable portions of this plan include the monument purpose and significance and desired future conditions (see *Chapter I: Introduction*) as well as the following sections.

Four management zones have been designated for the monument and preserve, including the Frontcountry Zone, Passage Zone, Primitive Zone and Pristine Zone (NPS 2005:29).

The proposed project area is located within the Frontcountry Zone, which at 2,300 acres comprises 0.3 percent of the monument and preserve) (NPS 2005:43-45).

The Frontcountry Zone is 660 feet wide along major road corridors (Highway 20/26/93 and the Craters Loop Drive). It includes "Typical visitor activities: sightseeing, driving, bicycling, walking, nature study . . ." along with "A high level of interpretation programs; [and] informational exhibits"(NPS 2005:29).

"The 51-unit campground contains a 130-seat amphitheater and two restrooms. An entrance station where visitors are contacted before entering the paved loop drive is located adjacent to the campground. North of the highway is a public group campsite. In this vicinity is also a modest research camp, the park's potable water wells and delivery systems, and underground water storage reservoirs (NPS 2005:160)."

Applicable Desired Future Conditions and Management Actions for Interpretation and Visitor Understanding (NPS 2005:40/54) that pertain to the proposed project include:

- The public perceives the monument as a single entity. . .
- The public has access to monument information and learning opportunities both on and off site.
- Information/orientation materials such as travel maps, safety bulletins, resource information, and recreation information are available.
- Visitors are offered a variety of interpretive media within the Frontcountry Zone.
- Existing roads, trails, and facilities would be maintained and new facilities would be provided as appropriate in the Frontcountry Zone for resource protection and visitor enjoyment.
- Increase opportunities for educational opportunities are created throughout the monument.
- Additional interpretive facilities would be provided along the corridor of US 20/26/93 and at significant sites within the Passage Zone.

Bureau of Land Management

The BLM was a joint-lead agency on the preparation of the Monument Management Plan. As a result, information from that document is applicable to not only the NPS but also the BLM.

F. Impact Topics Analyzed

Impacts of the alternatives on the following topics are presented in this EA: soils; vegetation; wildlife; prehistoric and historic archeological resources; and visitor experience. Based on initial analysis, there would be minor or greater effects on these resources.

A. PHYSICAL RESOURCES

Geology: Management Policies (NPS 2006) call for analysis of geology and geological hazards should they be relevant. Rehabilitation of the campground would involve some alteration or covering of a portion of the underlying geology. Therefore, geology is addressed as an impact topic.

Soils: Management Policies (NPS 2006) require the NPS to understand and preserve and to prevent, to the extent possible the unnatural erosion, physical removal, or contamination of the soil. Rehabilitation of the campground would involve ground disturbance and although most of the surrounding area is rock, there are areas of soil. Therefore, soils are addressed as an impact topic.

B. BIOLOGICAL RESOURCES

Vegetation: NEPA calls for examination of the impacts on the components of affected ecosystems. NPS policy is to protect the natural abundance and diversity of park native species and communities, including avoiding, minimizing or mitigating potential impacts from proposed projects. There are more than 750 species of plants at Craters of the Moon. Rehabilitation of the campground would impact vegetation. Therefore, vegetation is addressed as an impact topic.

Wildlife: NEPA calls for examination of the impacts on the components of affected ecosystems. NPS policy is to protect the natural abundance and diversity of park native species and communities, including avoiding, minimizing or mitigating potential impacts from proposed projects. More than 270 native species of terrestrial and aquatic vertebrates have been recorded in the monument, including 58 mammals, 212 birds, and 10 reptiles and 4 amphibians. A variety of wildlife species reside in or use the project area. Therefore, wildlife is addressed as an impact topic.

Special Status Wildlife: The Endangered Species Act (ESA) requires an examination of impacts to all federally listed threatened or endangered species. NPS policy also requires an analysis of impacts to state-listed threatened or endangered species and federal candidate species. Under the ESA, the NPS is mandated to promote the conservation of all federal threatened and endangered species and their critical habitats within the park boundary. *Management Policies* (NPS 2006) includes the additional stipulation to conserve and manage species proposed for listing. Among the special status species that occur within Craters of the Moon National Monument and Preserve include gray wolves, Greater sage-grouse, pika and pygmy rabbits. Of these, pika occur in the project area. As a result, special status wildlife has been retained as an impact topic.

C. CULTURAL RESOURCES

Prehistoric and Historic Archeological Resources: Conformance with the Archaeological Resources Protection Act and National Historic Preservation Act in protecting archeological resources is necessary. Because there is a potential for archeological resources to be located in or near the proposed project area, this is addressed as an impact topic.

D. RECREATIONAL / SOCIAL RESOURCES

Visitor Experience: Based on *Management Policies* (NPS 2006), impacts to visitors are considered with respect to park undertakings. Because rehabilitation of the campground would have effects on visitor experience, it has been retained as an impact topic.

G. Impact Topics Dismissed From Further Consideration

The topics listed below either would not be affected or would be affected only negligibly by the alternatives evaluated in this EA. Therefore, these topics have been dismissed from further analysis. Negligible effects are generally localized effects that would not be detectable over existing conditions.

Land Use: Lands in the proposed project area are located wholly within Craters of the Moon National Monument and Preserve. Because the proposed project area would remain a campground, there would be no changes to land use associated with implementation of the alternatives.

Air Quality: A portion of Craters of the Moon (National Wilderness Area) is in a mandatory class I airshed under the Clean Air Act (1977). Class I areas are afforded the highest degree of protection under the Clean Air Act. This designation allows very little additional deterioration of air quality. The rest of the monument is in a class II area. Class II areas have limits on increases of particulate matter and sulfur dioxide above baseline conditions. Only negligible, temporary (during construction) air quality impacts would occur from the implementation of the alternatives described in this document. As required under mitigation measures for the Monument Management Plan (NPS 2005:75), dust control during construction activities would be implemented and all construction machinery would meet applicable air emission standards and unnecessary idling would be restricted.

Water Resources: The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, to enhance the quality of water resources, and to prevent, and control, and abate water pollution. *Management Policies* (NPS 2006) provide direction for the preservation, use, and quality of water in national parks. There are no surface water resources located within or near the proposed project area.

Water Quality: Section 401 of the Clean Water Act as well as NPS policy requires analysis of impacts on water quality. Construction would result in minor earth and rock disturbing activities, which could increase the potential for erosion and sedimentation, however because there is no source of water in the vicinity of the proposed project area and because sediment control measures would be implemented during construction, there would be no or negligible impacts. Similarly although additional paved surface area could result in faster runoff, the additional paved surface area under Alternatives 2 and 3 would be small in comparison to the existing area under Alternative 1 and would therefore have negligible adverse impacts.

Water Quantity: The increased/decreased use of water to provide for public use may also have an impact on monument resources, such as amphibians, however there are no water sources in the project area. There would be minimal temporary additional use of water during construction, such as for dust control, a negligible impact.

Wetlands: Executive Order 11990 (Protection of Wetlands) requires that impacts to wetlands be addressed. Other NPS policies and guidelines also provide requirements associated with work in wetlands. There are no wetlands in the proposed project area. No impacts on wetlands would occur.

Floodplains: Executive Order 11988 (Floodplain Management) requires an examination of impacts to floodplains and potential risk involved in placing facilities within floodplains. NPS Management Policies, DO-2 (Planning Guidelines), and DO-12 (Conservation Planning, Environmental Impact Analysis, and Decision-making) provide guidelines for proposals in floodplains. There are no floodplains in the proposed project area. No impacts to floodplains would occur.

Special Status Plants: No threatened or endangered plants occur within or near the project area. Obscure phacelia (*Phacelia inconspicua*), a Type-2 BLM Sensitive Species, is a diminutive annual that occurs on north and east-facing slopes about three miles north of the project area. Its habitat is primarily in mountain shrub communities on volcanic-based mountains and buttes. Based on these habitat requirements, obscure phacelia has not been observed along or near the campground. No impacts to it would occur.

Museum Collections: Management Policies (NPS 2006) and other cultural resources laws identify the need to evaluate effects on NPS collections if applicable. Requirements for proper management of museum objects are defined in 36 CFR 79. The collections at Craters of the Moon would not be affected by the proposed project, except by the potential addition of material for the collections if any is found (see mitigation measures under Archeological Resources in Chapter III: *Affected Environment and Environmental Consequences*).

Ethnography: Craters of the Moon and the surrounding area have a long history of use by prehistoric and contemporary Native Americans. Analysis of impacts to known resources is important under the National Historic Preservation Act (NHPA) and other laws. The NPS defines ethnographic resources as any "site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (NPS 1998:181). There would be no impacts on ethnographic resources because the proposed project would occur in an existing campground where there are no traditional cultural places.

Historic Structures/Cultural Landscapes: Consideration of the impacts to cultural resources is required under provisions of Section 106 of the NHPA of 1966, as amended, and the 2008 *Programmatic Agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation*. It is also required under Management Policies (NPS 2006). Federal land managing agencies are required to consider the effects proposed actions have on properties listed on, or eligible for inclusion in, the National Register of Historic Places (i.e., Historic Properties), and allow the Advisory Council

on Historic Preservation a reasonable opportunity to comment. Agencies are required to consult with federal, state, local, and tribal governments and organizations to identify historic properties, assess adverse effects to historic properties, and negate, minimize, or mitigate adverse effects to historic properties while engaged in any federal or federally assisted undertaking (36 CFR Part 800). Although the campground log and brick restrooms are eligible for the National Register, they would not be affected by implementation of the proposed project. There would be no effect on historic properties as a result of the implementation of the alternatives.

Wilderness: NPS wilderness management policies are based on provisions of the 1916 NPS Organic Act, the 1964 Wilderness Act, and legislation establishing individual units of the National Park System. These policies establish consistent NPS direction for the preservation, management, and use of wilderness and prohibit the construction of roads, buildings and other man-made improvements and the use of motorized vehicles in wilderness. All park management activities proposed within wilderness are subject to review following the minimum requirement concept and decision guidelines. The public purpose of wilderness in national parks includes the preservation of wilderness character and wilderness resources in an unimpaired condition, as well as for the purposes of recreational, scenic, scientific, education, conservation, and historical use.

Approximately 80 percent of the monument is designated or recommended Wilderness. The Craters of the Moon Wilderness, designated in 1970, is located south of U.S. Highway 20/26/93 (US 20/26/93) within the original monument. There would be no impacts to wilderness from the implementation of the alternatives described herein. The proposed activity area does not occur in Wilderness or Wilderness Study Areas and is at least 1.2 miles from the nearest Wilderness or Wilderness Study Area.

Park Operations: Impacts to park operations are often considered in EAs to disclose the degree to which proposed actions would change park management strategies and methods. There would be negligible impacts to park operations (primarily from initial construction costs and reduced long-term maintenance) from proposed modifications to an existing campground.

Socioeconomics: Socioeconomic impact analysis is required, as appropriate, under NEPA and Management Policies (NPS 2006) pertaining to gateway communities. The local and regional economy and most business of the communities surrounding the park are based on tourism and resource use. Agriculture, manufacturing, professional services, and education also contribute to regional economies. There would be no measurable effects or changes in visitor attendance or visitor spending patterns as a result of the implementation of the actions described herein. Regional or gateway community economies could see a negligible beneficial effect from implementation of the proposed campground improvement project.

Prime and Unique Farmlands: No unique agricultural soils exist in the vicinity of the project area due to its presence in a high desert arid environment, covered extensively with outcrops of lava rock.

Energy Consumption: Implementation of the alternatives would not cause major increases or decreases in the overall consumption of electricity, propane, wood, fuel oil, gas or diesel associated with visitation or for park operations and maintenance. Nonetheless there would be some beneficial effects from the reduced need to procure cinders to replace those that were crushed or blown away if paving of campground parking areas occurs as proposed in the action alternatives.

Environmental Justice: Executive Order 12898 requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This Executive Order does not apply to the subject of

this EA. The actions evaluated in this EA would not adversely affect socially or economically disadvantaged populations.

H. Public Participation

Public involvement is a key part of the NEPA process. In this part of the process, the general public, federal, state, local agencies and organizations are provided an opportunity to identify concerns and issues regarding the potential effects of proposed federal actions. The opportunity to provide input is called “scoping.”

Internal scoping is the effort to engage professional staff at the monument and other NPS offices to provide information regarding proposed actions that may affect Craters of the Moon resources. Craters of the Moon conducted internal scoping beginning in April 2010. A variety of comments and concerns were raised by staff regarding planning, maintenance, vegetation, wildlife and visitor experience.

Public scoping included a press release sent out on January 19, 2011 to the standard press release mailing list. Information from the press release was published in the *Arco Advertiser*.

During the public scoping process for this EA, which occurred from January 19, 2011 until February 9, 2011, three comments were received. Comments included:

- I like the plan to make the campground accessible [and] big rig friendly.
- I think spending money on improvements of any kind right now, is irresponsible. There will be few, if any, actual jobs created because the work will be contracted to a company that already has employees.
- I hope the tent camping areas are left intact. There are several very secluded and lovely tent sites [including] the first one near the entrance and the ones at the far end of the loop, positioned down below the road. They are treasures, and it would be a loss to see them disappear.

This EA is being made available to the public, federal, state and local agencies and organizations through press releases distributed to a wide variety of news media, direct mailing, placement on the monument's website and announcements in press releases as well as in local public libraries (Arco, Hailey, Bellevue, Twin Falls and Boise, and the Community Library in Ketchum). Copies of the document may also be obtained from:

Mail:
Superintendent
Craters of the Moon National Monument and Preserve
P.O. Box 29
Arco, Idaho 83213

Phone: (208) 527-3200 or *Fax:* (208) 527-3073

Email: crmo_information@nps.gov

Responses to comments on the EA will be addressed in the proposed Finding of No Significant Impact (FONSI) or will be used to prepare an Environmental Impact Statement (EIS) (if appropriate).

(For more information about specific agency and staff consultation, see the section in this document entitled *List of Persons and Agencies Consulted / Preparers*)

Chapter II. Alternatives

The alternatives were developed from collaborative interdisciplinary analysis based on the expertise of interdisciplinary planning team members, as well as on internal and external scoping with Native American Tribes, federal, state and local agencies, interested organizations and individuals.

The following goals related to campground rehabilitation guided development of the alternatives:

- Provide for accessibility for persons with disabilities. (In a campground with 51 sites, a minimum of four sites must meet accessibility standards.)
- Improve accommodation of recreational vehicles.
- Designate parking to minimize resource impacts in adjacent areas and to reduce long-term maintenance needs (including the need for procuring cinders) for parking pads.
- Increase turning radii on roadways to accommodate larger vehicles (trucks, trucks with trailers and some recreational vehicles).

A. Alternative 1: No Action (Continue Current Management)

Under this Alternative, there would be no changes in the current configuration or management of Lava Flow Campground. The campground would continue to contain 51 sites. Campground facilities would continue to include an amphitheater (including nearby access to the North Crater Flow Trail), three restrooms and eight water spigots.

Because the campground was designed and built in the 1930s, the roads are narrow and have tight turning radii. The current campground roads consist of a two-way entry road with three large loops and one small connected loop. These roadways vary in width from nine feet at the top of the northernmost loop to 22 feet on the two-way entry segment. Within the various segments, the road also has varied widths, decreasing to 16 feet shortly after the entrance then to 12 feet on a one-way segment and later 14 feet in a two-way segment where constrained by a rock outcrop and then to the nine feet noted at the top of the uppermost loop.

Campsite parking areas are also of variable sizes and configurations and, except for the site currently used as an accessible site, are unpaved. Campsite parking areas include pull-in or back-in and parallel parking areas. Under Alternative 1, each campsite would continue to contain a variable-size unpaved parking area and parking on these pads would continue to be undesignated. Therefore parking areas would likely continue to encompass whatever flat area is currently available adjacent to the campsites.

Lava Flow Campground contains 10 designated tent sites as identified on the campground map, however most sites can accommodate tents. The designated tent sites are concentrated in the central part of the campground, with three in the uppermost loop. Approximately 40 sites can accommodate small to large recreational vehicles (24 sites can accommodate small RVs, 16 can accommodate medium RVs and 10 can accommodate large RVs). Six of the sites are currently pull-through RV sites. Table 1 shows the relative sizes of recreational vehicles that can currently be accommodated in the campground.

Although the campground does not contain group sites, sites 14, 15 and 16 currently contain a combined parking area and are often used as a group site. There are also numerous other opportunities for camping together in two sites and current campground regulations allow for this. The designated group site for Craters of the Moon is located in the northern part of the monument and is not part of the project area or the alternatives in this EA.

Site 42 is currently used as an accessible site. It has adjacent but not designated access to the adjacent restroom. Paved with asphalt, it is the only hardened site in the campground. It also has electrical hook-ups. Because this site does not have a designated accessible route to the

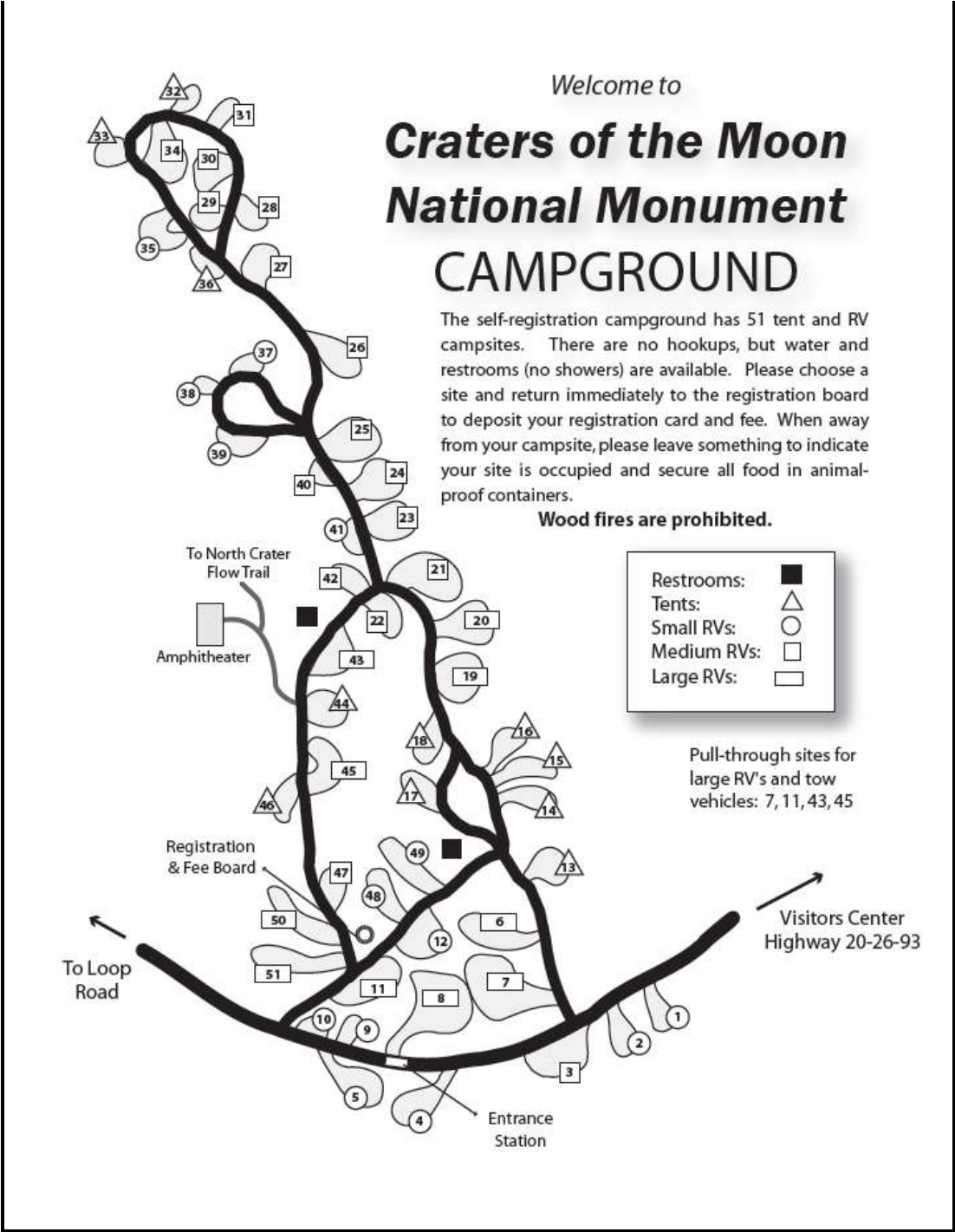
restroom and fee station and it does not meet accessibility standards derived from the Architectural Barriers Act (ABA).

Table 1: Existing Campground Recreational Vehicle Accommodations: Alternative 1

| Campsite Number | Location | Vehicle Length Accommodated | Campsite Number | Location | Vehicle Length Accommodated |
|------------------------|-----------------|------------------------------------|------------------------|-----------------|------------------------------------|
| 1 | Loop | Small RV | 27 | Loop | Medium RV |
| 2 | Loop | Small RV | 28 | Loop | Medium RV |
| 3 | Loop | Medium RV | 29 | Loop | Medium RV |
| 4 | Loop | Small RV | 30 | Loop | Medium RV |
| 5 | Loop | Small RV | 31 | Loop | Medium RV |
| 6 | Loop | Large RV | 34 | Loop | Medium RV |
| 7 | Loop | Large RV | 35 | Loop | Small RV |
| 8 | Loop | Large RV | 37 | Loop | Small RV |
| 9 | Loop | Small RV | 38 | Loop | Small RV |
| 10 | Loop | Small RV | 39 | Loop | Small RV |
| 11 | Loop | Large RV | 40 | Loop | Medium RV |
| 12 | Loop | Small RV | 41 | Loop | Small RV |
| 19 | Loop | Large RV | 42 | Loop | Medium RV |
| 20 | Loop | Large RV | 43 | Loop | Large RV |
| 21 | Loop | Medium RV | 45 | Loop | Large RV |
| 22 | Loop | Medium RV | 47 | Loop | Medium RV |
| 23 | Loop | Medium RV | 48 | Loop | Small RV |
| 24 | Loop | Medium RV | 49 | Loop | Small RV |
| 25 | Loop | Medium RV | 50 | Loop | Large RV |
| 26 | Loop | Medium RV | 51 | Loop | Large RV |

Note: Sites not listed in this table are designated tent sites on the campground map.

Figure 1: Lava Flow Campground Map



B. Alternative 2: Rehabilitate Campground within Existing Disturbed Areas (Preferred)

In Alternative 2, the campground would be rehabilitated to contain 43 campsites, including four accessible campsites and ten large pull-through campsites.

Road modifications would include widening the road to a consistent 16 feet wide in two-way sections and 10 feet wide in one-way sections. Changes would include curve widening on tight radius turns to allow some large vehicles (such as pick-up trucks with trailers) to navigate the turns, such as along the road near the campsites currently numbered 20 and 21 and again near 32 and 33. The uppermost loop would be signed to limit the length of vehicles to avoid excessive widening that would adversely affect sensitive resources on this tight one-way loop.

In addition to the main loop roads through the campground, existing unpaved parking spaces for pull-through sites would be re-graded and paved and some new pull-through campsite parking would be created by combining sites.

The campground roads and paved campsite parking areas would be lined with a 1-foot-wide concrete shoulder that would be flush with the edge of the road or parking area to reduce damage to the edge of the pavement.

A short (approximately 18-feet) section of pedestrian walkway would be constructed near the beginning of the campground rehabilitation project to connect with the pedestrian walkway that leads to the visitor center. It would be approximately three feet wide and would be delineated with concrete curbs and painted black to match the existing walkway.

Table 2: Comparison of Old and New Campsites under Alternative 2

| Old Number | Old Type | New Number | New Type | Old Number | Old Type | New Number | New Type |
|------------|----------|------------------|---------------------------------|------------|----------|------------|-----------------|
| 1 | small RV | 1 | PT 33 feet large RV | 27 | med RV | 20 | In 24^+feet |
| 2 | small RV | | | 28 | med RV | 21 | side 26 feet |
| 3 | med RV | | | 29 | med RV | 22 | PT 39 feet |
| 4 | small RV | 2 | PT 56+ feet large RV | 30 | med RV | 23 | In 21^+ feet |
| 5 | small RV | | | 31 | med RV | 24 | In 26^ feet |
| 6 | large RV | 3 ^{acc} | In 31^ feet | 32 | tent | 25 | In 12^ feet |
| 7 | large RV | 4 | In 33^ feet | 33 | tent | 26 | In 31 feet |
| new | n/a | 5 | PT 111^+ feet large RV | 34 | med RV | 27 | In 14^ feet |
| 8 | large RV | 6 | In 57^+ feet | 35 | small RV | 28 | In 22^+ feet |
| 9 | small RV | 7 | In 35^ feet | 36 | tent | 29 | side 25 feet |
| 10 | small | 8 | In | 37 | small RV | 30 | In |

| Old Number | Old Type | New Number | New Type | Old Number | Old Type | New Number | New Type |
|-------------------------------------------------------------------------------------------|----------|-------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------|-----------------------------------|
| | RV | | 54^+ feet | | | | 19^ feet |
| 11 | large RV | 9 | PT 112 feet large RV | 38 | small RV | 31 | side 26 feet |
| 12 | small RV | remove | n/a | 39 | small RV | 32 | side 24 feet |
| 13 | tent | 10 | side 10 feet | 40 | med RV | 33 | side 25 feet |
| 14 | tent | 11 | In 25^ feet | 41 | small RV | 34 | side 19 feet |
| 15 | tent | remove | n/a | 42 | med RV side/In ^{acc} | 35 | side/In ^{acc} 33 feet |
| 16 | tent | 12 | In 25^ feet | 43 | large RV | 36 | PT ^{acc} 69 feet |
| 17 | tent | 13 ^{acc} | PT 71 feet large RV | 44 | tent | remove | n/a |
| 18 | tent | 14 | In 40^+ feet | 45 | large RV | 37 | PT |
| 19 | large RV | 15 | PT 76 feet large RV | 46 | tent | 38 | In |
| 20 | large RV | remove | n/a | 50* | large RV | 39 | In 33^+ feet |
| 21 | med RV | 16 | PT 89 feet large RV | 51* | large RV | 40 | In 26^+ feet |
| 22 | med RV | remove | n/a | 47 | med RV | 41 | In 19^+ feet |
| 23 | med RV | 17 | In 18^+ feet | 48 | small RV | 42 | In 43^+ feet |
| 24 | med RV | remove | n/a | 49 | small RV | 43 | In 67 feet |
| 25 | med RV | 18 | PT 76 feet large RV | | | | |
| 26 | med RV | 19 | In 28^+ | | | | |
| In - pull-in or back-in site PT - pull-through n/a - not applicable med - medium | | | | *out of order ^{acc} accessible site ^ average length (two different length sides) + two sides are very different lengths | | | |

Modifications to campsites would include the following:

- Four accessible sites would be created from the following currently numbered sites: 42, 43, 17, and 6)
- One site (currently numbered 22) would be converted to a hardened waste disposal (trash / recycling containers) station.
- Three small sites along the road (currently numbered 1-3) would be combined to become one large pull-through campsite.
- Two medium campsites (currently numbered 4 and 5) would be combined to become one large pull-through campsite.

- Site 17 would be converted to a large site, while site 25 would be a medium pull-through site and 26 would be a medium RV site.
- Three campsites (currently numbered 14, 15 and 16) would be converted to two sites and would be walk-in tent campsites.
- Sites 12, 20 and 24 would be removed to accommodate changes in other sites and one new site would be added.
- One poorly configured campsite (currently numbered 44), which is rarely used, would be eliminated and rehabilitated.
- Where necessary, fire grills and tables would be reset, particularly associated with campsite modifications that improve sites for pull-through or accessibility.
- Food storage lockers would be added for each tent campsite or group of tent campsites.

Alternative 2 would also include designating and paving campsite parking areas within existing delineated disturbed areas. Approximately 39,337 additional square feet (0.9 acre) would be paved. Except for road widening in the section between campsites currently numbered 25 and 26 and impacts from creating accessible sites no rock outcrops would be modified. None of the changes would require tree removal; however some vegetation would be affected. The parking areas would continue to have shapes dictated by the dimensions of existing disturbed areas. Weathered steel bollard casings would be provided approximately every eight feet along the road and along the outside edges of campsite parking areas but bollards would not be placed unless future impacts were observed.

Accessible campsites would include accessible pathways to the water spigots and to the restrooms. Crosswalks would be delineated where needed (such as near the campsites currently numbered 6 and 43). The registration sign would be replaced.

There would be no modifications to the following campground features:

- Roadway alignment
- Amphitheater
- Access to North Crater Flow Trail, or
- Restrooms.

C. Alternative 3: Rehabilitate Campground (Expand Area)

Alternative 3 would be similar to Alternative 2, except that instead of four accessible campsites, seven accessible campsites would be constructed and instead of 10 large pull-through campsites, there would be 11 large pull-through campsites and 2 medium pull-through campsites. There would be a total of 47 campsites.

Except for the following elements, actions would be the same as in Alternative 2:

- Parking pads of consistent dimensions would be constructed for categories of campsites (small, medium and large). Small parking pads would be 14 x 25 feet, medium parking pads would be 14 x 45 feet and large parking pads would be 14 x 75 feet.
- Site 12 would be converted to a large pull-through campsite.
- Sites 19-21 would be converted to become two medium pull-through campsites.

Improvement of the parking pads by constructing parking pads with consistent site dimensions would allow adequate space for visitors to walk around their vehicles while they were parked but would require considerably more physical modification of the campsites, including construction of small retaining walls and importation of fill.

Table 3: Accessible or Pull-through Sites* by Alternative

| Feature | Alternative 1 | Alternative 2 | Alternative 3 |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Large and Pull-through Sites | <p>10 Large Sites of which 5 are also pull-through* sites</p> <p>Sites 6 Site 7* Site 8* Site 11* Site 19 Site 20 Site 43* Site 45* Site 50 Site 51</p> <p>(Note: One medium site is also pull-through) Site 21</p> | <p>15 large sites of which 10 would be pull-through</p> <p>Same as Alternative 1 plus:</p> <p>Sites 1+2+3 = 1 large Sites 4+5 = 1 large Site 17 (also ADA) Site 25 Site 26</p> <p>Site 7 would be converted to become a pull-through site.</p> | <p>12 large sites of which 11 would be pull-through These would be the same numbers as Alternative 2 plus: Site 12</p> <p>Two medium sites would also be pull-through: Site 19-20 Site 21</p> |
| Accessible (ABA) Sites | <p>1</p> <p>Site 42</p> | <p>4</p> <p>Site 6 Site 17 (pull-through) Site 42 Site 43 (pull-through)</p> | <p>7</p> <p>Site 1 Site 6 (also pull-through) Site 7 (also pull-through) Site 42 Site 43 Site 50</p> |

* Numbers are based on current campsite numbering system.

D. Alternatives Considered But Rejected

Under the NEPA and CEQ *Forty Questions*, alternatives may be eliminated from detailed study based on the following reasons [40 CFR 1502.14 (a)]:

- Technical or economic infeasibility;
- Inability to meet project objectives or resolve need for the project;
- Duplicate other less environmentally damaging alternatives;
- Conflict with an up-to-date valid plan, statement of purpose and significance, or other policy; and therefore, would require a major change in that plan or policy to implement; and
- Environmental impacts too great.

The following alternatives or variations were considered during the design phase of the project, but because they met one of the above criteria, they were rejected.

Adding New Facilities (Hook-ups, Showers, etc) to Campground

Except associated with accessible sites, providing utility hook-ups for the whole campground would require extensive site disturbance, including blasting of rock as power and water lines were added. Because Craters of the Moon is located in a fairly arid high desert, a reliable source of water that would allow for increased use within the campground is not available. Adding power would also be incompatible with the policy of the Pacific West Region to make parks carbon neutral by 2016.

Widening Campground Roads to Accommodate Two-Way Traffic

The campground roadways are adequate to accommodate existing and likely future use. Widening the roadways would cause a great deal of disturbance in a sensitive environment that includes nearby sensitive resources, including American pika.

Designating Loop B for Primitive or Tent Camping Only

These sites are currently used by tent trailers and small recreational vehicles as well as by tent campers. Continuing to accommodate these smaller vehicles can be accomplished by using existing disturbed areas to expand the turning radius for the upper loop curve. This would continue to allow flexibility in the use of these sites.

Expanding Campground / Increasing the Number of Campsites / No Reduction in the Number of Campsites

Campground use statistics show that the campground is only full on approximately five days each year. NPS standards are to design to the average high, rather than the highest peak use. Average peak use in the campground over the last five years shows approximately 45 campsites regularly full (on weekends and holidays). Increasing the size of the campground would be difficult because of its currently confined area and because it would have much greater impacts. Maintaining the same number of campsites is not feasible if accessibility standards are to be achieved and the project is to meet the purpose and need objective of increasing the size and/or number of recreational vehicle sites.

Not Hardening Parking Pads

Replacing the current surfacing (volcanic cinders) on parking pads is one of the most expensive long-term maintenance needs, because of both the monetary cost and the non-renewable resource use. Paving parking pads would reduce these long-term maintenance costs and would be more sustainable. Instead of replacing cinders every two years, paving is expected to last 10-20 years and if asphalt is used it could be recycled when it is replaced.

Providing Improved Tent Pads

This action was dismissed because there is little additional vegetation that could be impacted by the placement of tents, therefore the placement of tents would continue to have no or negligible effects. Designation of tent pads would require additional resources and would cause more disturbance than not designating them. In addition, visitors have a wide range of tents in a variety of sizes that vary from 1-2 person tents to two room tents for 6-8 people. Therefore, designating / constructing tent pads would result in either a great deal of unnecessary disturbance or tent pads that would not be big enough for some tents.

E. Mitigation Measures Incorporated into the Action Alternatives

The measures below, along with other measures listed under each resource section in Environmental Consequences have been developed to lessen the potential adverse effects of the action alternatives.

The following measures are among those that would be incorporated into the implemented alternative (see resource impact sections below for additional measures):

- The proposed project area would be located in previously disturbed sites and would have as small a footprint as possible (NPS 2005:74).
- Staging areas would be located where they would minimize new disturbance of area soils and vegetation.
- Ground disturbance would be minimized to the extent possible.
- Only certified weed-free hay, straw or mulch if needed, would be used to minimize the potential spread of nonnative invasive plants (NPS 2005:74).
- Imported materials would be inspected and approved by the park (including the source site).
- Construction vehicles and equipment would be inspected and cleaned prior to entry into the monument to ensure that they are free of weed seed (NPS 2005:75).
- The project area would be surveyed for sensitive species (NPS 2005:74) (none were found).
- Proposed work would be conducted only during daylight hours.

- Immediate work stoppage and/or relocation to a non-sensitive area would occur should unknown archeological resources be uncovered during construction to allow collection of artifacts, soil samples and recordation. The site would be secured, and the NPS would consult with the State Historic Preservation Officer and tribal representatives according to 36 CFR 800.11.
- Press releases would be distributed to local media to inform visitors about the project schedule.
- Newly disturbed sites in the campground would be monitored for impacts to native vegetation (NPS 2005:75).
- Sustainable, low-impact barriers, if needed, would be located to discourage overflow parking and to protect intact areas from disturbance (NPS 2005:75).
- The construction boundary would be located four feet from the back of the curb or from the outermost edge of the proposed improvements.
- Construction fence would be installed along the construction boundary prior to any demolition or construction activity (location would be approved by park prior to construction).
- Some features inside the construction boundary would also be protected. These would be identified by park staff prior to construction.
- Stockpiling of materials would be limited to those areas approved in writing by the park.

F. Environmentally Preferable Alternative

In accordance with NPS Director's Order-12, *Conservation Planning, Environmental Impact Analysis, and Decision-making* and CEQ requirements, the NPS is required to identify the "environmentally preferable alternative" in all environmental documents, including EAs. The environmentally preferable alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the CEQ). The CEQ (46 FR 18026 - 46 FR 18038) provides direction that the "environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA's Section 101," including:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources (NEPA Section 101(b)).

Generally, these criteria mean the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038).

Although Alternative 1 would retain the same number of campsites, Alternatives 2 and 3 would improve resource protection by paving existing areas of disturbance and would further protect these areas over time by limited the amount of additional disturbance that would otherwise occur in Alternative 1 without paving of parking areas. Alternative 3, however, would cause more new disturbance than Alternative 2. Therefore, Alternative 2 would best meet the first criterion.

Because Alternatives 2 and 3 would improve the aesthetics of the campground by rehabilitation and would widen roadways to allow for existing use by large vehicles and vehicles with trailers thereby improving safety, these alternatives would best meet the second criterion.

Alternative 2 would best meet the third criterion because it would improve Lava Flow Campground by taking advantage of existing disturbed areas to enlarge campsites and roadways, whereas Alternative 3 would affect more existing undisturbed resources. Alternative 1 would not result in any improvements (beneficial uses).

Although all alternatives would protect historic and cultural resources, only Alternatives 2 and 3 would offer a choice in accessible campsites for those who need them. All alternatives would also offer a choice in other types of campsites (tent or small, medium and large RV). As a result, Alternatives 2 and 3 would best meet the fourth criterion.

Because Alternative 3 would expand campsites in a way that would affect existing lava rock formations and some undisturbed vegetation, it would not meet this criterion. Alternatives 1 and 2 would meet the fifth criterion by limiting to the extent possible additional disturbance of previously undisturbed areas; however, Alternative 2 would best meet it because it would improve the campground and would offer a wider array of accessible sites, improving beneficial effects associated with resource use.

All alternatives would meet the sixth criterion. Although Alternatives 2 and 3 call for recycling of asphalt and cinders, asphalt recycling would also occur in Alternative 1 if future rehabilitation occurred. Despite this, Alternatives 2 and 3 would best meet this criterion because both would reduce dependence on cinders procured from within or outside of the monument.

Table 4: Alternative Comparison Chart

| Feature | Alternative 1 | Alternative 2 | Alternative 3 |
|-------------------------------------------------|-----------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Number of Campsites | 51 | 43 | 47 |
| Number of Accessible Sites | 1 | 5 | 7 |
| Number of Pull-through Sites | 6 (5 large, 1 medium) | 11 (10 large, 1 medium) | 14 (12 large, 2 medium) |
| Number of Large Sites | 9 | 14 | 13 |
| Number of Medium RV Sites | 16 | 13 | 14 |
| Number of Small RV Sites | 14 | 10 | 9 |
| Number of Designated Tent Sites | 10 | 9 | Same as Alternative 2 |
| Paved Campsite Parking Pads | None | Variable Size Conforms to existing disturbed parking areas | Uniform Dimensions Small 14 x 25 feet Medium 14 x 75 feet Large 14 x 75 feet |
| Road Width | Variable | Two-way = 16 feet One-way = 10 feet plus curve widening | Same as Alternative 2 |
| Pedestrian Walkways | None | In Lower Campground | Same as Alternative 2 |
| Need to Reset Barbecue Grills and Tables | No | Yes For Accessible and Pull-through Sites | Yes For Most Sites due to parking pad changes |
| Food Storage Lockers | None | Add | Same as Alternative 2 |

Chapter III. Affected Environment / Environmental Consequences

Information in this section is derived from a comprehensive review of existing information pertaining to the project area within the monument. It includes information from the Monument Management Plan (NPS 2005), various natural and cultural resources management plans and other monument planning documents. Specific sections from these documents are cited in the text and the bibliographic information is placed in the *References* section of this document. Information in this section has been gained from management throughout the history of Craters of the Moon National Monument and Preserve.

A. Methodology

1. Introduction to Impact Analysis

This section contains the methods / criteria used to assess impacts for specific resource topics. The definitions of impacts adhere to those generally used under the NEPA to describe impacts as well as those used by Section 106 of the NHPA and those used under Section 7 of the ESA.

NEPA requires that environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of project alternatives on affected park resources. These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate impacts. In addition to determining the environmental consequences of the preferred and other alternatives, Management Policies (NPS 2006) and Director's Order-12, Conservation Planning, Environmental Impact Analysis, and Decision-making require analysis of potential effects to determine if actions would impair park resources that will be provided in the decision document (Finding of No Significant Impact) associated with the selected alternative. Impact analysis for historic properties is based on NHPA 36 CFR Part 800 criteria of effect as detailed below.

The environmental consequences for each impact topic were defined based on the following information regarding context, type of impact, duration of impact, area of impact and the cumulative context. Unless otherwise stated in the resource section in *Environmental Consequences*, analysis is based on a qualitative, rather than quantitative, assessment of impacts.

a. Context of Impact

The context is the setting within which impacts are analyzed – such as the project area or region, or for cultural resources – the area of potential effects or APE.

b. Type of Impact

The type of impact is a measure of whether the impact will improve or harm the resource and whether that harm occurs immediately or at some later point in time.

- **Beneficial:** Reduces or improves impact being discussed.
- **Adverse:** Increases or results in impact being discussed.
- **Direct:** Caused by and occurring at the same time and place as the action, including such impacts as animal and plant mortality, damage to cultural resources, etc.
- **Indirect:** Caused by the action, but occurring later in time at another place or to another resource, including changes in species composition, vegetation structure, range of wildlife, offsite erosion or changes in general economic conditions tied to park activities.

c. Duration of Impact

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be one of the following:

- **Short-term:** Often quickly reversible and associated with a specific event, and lasting one to five years.
- **Long-term:** Reversible over a much longer period, or may occur continuously based on normal activity, or for more than five years.

d. Area of Impact

The area of impacts may be detectable in nearby or surrounding areas.

- **Localized:** Detectable only in the vicinity of the activity.
- **Widespread:** Detectable on a landscape or regional scale.

e. Impact Mitigation

Impacts may be reduced in the following ways. Projects can:

- **Avoid** conducting management activities in an area of the affected resource
- **Minimize** the type, duration or intensity of the impact to an affected resource

Impacts may also be reduced by additional actions such as by:

- **Repairing** localized damage to the affected resource immediately after an adverse impact.
- **Rehabilitating** an affected resource with a combination of additional management activities.
- **Compensating** a major long-term adverse direct impact through additional strategies designed to improve an affected resource to the degree practicable.

f. Intensity for All Impacts Except Special Status Species and Cultural Resources

Note: Special Status Species and Cultural Resources impact determinations are formally determined under the Endangered Species Act (Section 7) and the National Historic Preservation Act (Section 106), respectively. Cultural resources impacts are initially characterized as noted below, however the conclusion follows the cultural resources format to make a formal determination of effect under Section 106 of the National Historic Preservation Act.

- **Negligible:** Measurable or anticipated degree of change would not be detectable or would be only slightly detectable. Localized or at the lowest level of detection.
- **Minor:** Measurable or anticipated degree of change would have a slight effect, causing a slightly noticeable change of approximately less than 20 percent compared to existing conditions, often localized.
- **Moderate:** Measurable or anticipated degree of change is readily apparent and appreciable and would be noticed by most people, with a change likely to be between 21 and 50 percent compared to existing conditions, may be localized or widespread.
- **Major:** Measurable or anticipated degree of change would be substantial, causing a highly noticeable change of approximately greater than 50 percent compared to existing conditions, often widespread.

In accordance with *Management Policies* (NPS 2006), the analysis in this Environmental Assessment fulfills the responsibilities of the NPS under Section 106 of the National Historic Preservation Act.

g. Intensity for Special Status Species

- **No Effect:** The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action will not affect the listed species or its designated critical habitat (USFWS 1998).

- **May Affect, Not Likely to Adversely Affect:** The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects or 2) expect discountable effects to occur (USFWS 1998).
- **May Affect, Likely to Adversely Affect:** The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (USFWS 1998).

h. Intensity for Cultural Resources Impacts

- **No effect:** There are no historic properties in the Area of Potential Effect (APE); or, there are historic properties in the APE, but the undertaking will have no impact on them.
- **No adverse effect:** There will be an effect on the historic property by the undertaking, but the effect does not meet the criteria in 36 CFR Part 800.5(a)(1) and will not alter characteristics that make it eligible for listing on the National Register. The undertaking is modified or conditions are imposed to avoid or minimize adverse effects. This category of effects is encumbered with effects that may be considered beneficial under NEPA, such as restoration, stabilization, rehabilitation, and preservation projects. Under the terms of the 2008 PA, data recovery can mitigate affect to archaeological properties that are eligible for listing on the NR under criterion D. However, some archaeological sites are eligible as traditional cultural places under criterion A, and such mitigation may not be sufficient or appropriate.
- **Adverse effect:** The undertaking will alter, directly or indirectly, the characteristics of the property making it eligible for listing on the National Register. An adverse effect may be resolved in accordance with the Stipulation VIII of the 2008 Programmatic Agreement, or by developing a memorandum or program agreement in consultation with the SHPO, ACHP, American Indian tribes, other consulting parties, and the public to avoid, minimize, or mitigate the adverse effects (36 CFR Part 800.6(a)).
- **Significant Impact:** An impact to a National Register historic property would be considered significant when an adverse effect cannot be resolved by agreement among SHPO, ACHP, American Indian tribes, other consulting and interested parties, and the public. The impact will diminish the integrity of location, design, setting, materials, workmanship, feeling or association characteristics that make the historic property eligible for inclusion in the National Register Historic Places. The resolution must be documented in a memorandum or programmatic agreement or the FONSI.

2. Cumulative Impacts

Cumulative impacts are the effects on the environment that would result from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions.

The Council on Environmental Quality (CEQ) describes a cumulative impact as follows (Regulation 1508.7):

A cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative projects addressed in this analysis include past and present actions, as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because most of the cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project.

Projects Included in the Cumulative Effects Analysis for the Campground

Northern Rocky Mountains Invasive Plant Management Plan (2011)

This plan for 10 parks located in the northern Rocky Mountains served by the Northern Rocky Mountains Exotic Plant Management Team is intended to reduce the adverse effects of nonnative invasive plants on native plant communities and other natural and cultural resources within the 10 parks.

North Crater Flow Trail Rehabilitation (proposed)

The proposed rehabilitation of this trail is intended to improve accessibility and interpretive / educational features for visitors.

Resurface and Improve Park Spur Roads and Parking Areas (Completed 2011)

This project expanded and improved the roads and parking areas off the Loop Road within the monument.

Install Solar Photovoltaic System (Completed 2010)

This project is likely to produce approximately 60 percent of the monument's energy needs.

Entrance Sign Replacement (Completed 2009)

This project marked the expanded boundary of the monument and preserve for travelers along U.S. Highway 20/26/93.

B. Affected Environment and Environmental Consequences

1. Geology Affected Environment

The purpose and significance of Craters of the Moon is related to its unique geology. Volcanism has generated an array of features and habitats that draws scientists and visitors from around the world to study and experience this unique area.

Craters of the Moon is located in the Snake River Basin-High Desert and is primarily comprised of three geologically young (Late Pleistocene-Holocene) lava fields that lie along the Great Rift (Omernik 1986 in NPS 2005). The Great Rift volcanic rift zone is a belt of open cracks, eruptive fissures, shield volcanoes, and cinder cones. Craters of the Moon protects most of the Great Rift area, which includes the numerous lava flows and other eruptions from the volcanic rift zone. It is comparable to other volcanic rift zones such as those found in Hawaii and Iceland. The Great Rift varies in width between one and five miles and extends for more than 50 miles (NPS 2005:5).

Most volcanic features and landforms associated with basaltic volcanism are found along the Great Rift, including various kinds of lava flows, volcanic cones, and lava tubes. There are lava tube features, such as lava stalactites, lava curbs and remelt features. In the monument there are good examples of steam explosion pits, lava lakes, squeeze-ups, domes called tumuli, spatter cones and spatter ramparts, hornitos, blankets of ash and volcanic bombs, and low gently arching shield volcanoes. Some lava flows diverged or flowed around areas of higher ground and rejoined downstream to form isolated islands of older terrain surrounded by new lava. These older areas, called "kipukas," tend to have more soil because of their age and often have more vegetation. In many instances, the expanse of rugged lava surrounding these small pockets of soil has protected the kipukas from people, animals, and even nonnative plants. As a result,

these kipukas represent some of the last undisturbed vegetation communities in the Snake River Plain (NPS 2005:5).

Young lava flows and other young volcanic features cover about 450,000 acres of Craters of the Moon. The remaining 300,000 acres are also volcanic in origin, but are older and covered with a thicker mantle of soil. This older terrain supports a sagebrush steppe ecosystem consisting of diverse communities of grasses, sagebrush, and other shrubs that provide suitable habitat for a variety of wildlife. These older areas are also made up of lava tube caves, volcanic cones and other volcanic formations and features. Some of these older volcanic edifices are called buttes (NPS 2005:5-6).

Craters of the Moon contains the youngest and most geologically diverse section of basaltic lava terrain found on the eastern Snake River Plain, an extensive area of volcanic formations that reaches across southern Idaho east to Yellowstone National Park. It includes the three youngest lava fields on the eastern Snake River Plain: Craters of the Moon, Kings Bowl, and Wapi.

The Craters of the Moon Lava Field is significant in that it is the largest basaltic lava field of predominantly Holocene age (less than 10,000 years old) in the lower 48 states (Kuntz *et al.* 1992 in NPS 2005:5). The Craters of the Moon Lava Field also contains a tremendous diversity of volcanic features, with nearly every type of feature associated with basaltic systems (Hughes *et al.* 1999). The Craters of the Moon Lava Field is made up of at least 60 lava flows, 25 tephra cones, and eight eruptive fissure systems aligned along the northern part of the Great Rift (Kuntz *et al.* 1992 in NPS 2005:105).

The campground project area is located on the flank of Sunset Cone, part of the Craters of the Moon Lava Field. Most of Sunset Cone in the campground area has also been overridden by the Highway flow. Sunset Cone is a complex of eight nested cones with a complicated eruptive history (Kuntz *et al.* 1989). Sunset Cone is most clearly visible within the campground near the fee booth.

Sunset Cone is one of the older cones in the Craters of the Moon Lava Field with an age of approximately 12 thousand years. The cinders that comprise it were originally frothy material ejected from the vent(s). These frothy cinders were full of gas bubbles. Consequently they are very light because of the abundant gas vesicles preserved in the now solid lava fragments. The abundance of gas vesicles makes them highly compactable and susceptible to crushing. In some places within the campground, these cinders are abundant. In others, the ejected material has welded itself together to form coherent rock layers. This can be seen on the upper slope of the cone between the residence area and the fee booth, where the welded rock acts as a ridge forming cap rock.

South Highway Cone occupied the area between Sunset Cone and North Crater Cone, just south of the campground (Rivera *et al.* 2009). The hill above the amphitheater has been interpreted to be a remnant of South Highway Cone. Where Sunset and South Highway cones come together is uncertain, but presumably this occurs near the southern edge of the campground. Therefore, some of the campground may be located on cinders from South Highway Cone as well as from Sunset Cone.

The Highway flow, which covers much of the campground area, displays a diversity of textures. It flowed from the area between Grassy and Sunset cones following the low area or trough between South Highway Cone and Sunset Cone. The Highway flow has three characteristic forms to it: block lava, slabby pahoehoe, and spiny pahoehoe.

Two of the three textures of lava found in the campground are block lava and slabby pahoehoe. Block lava (also called Block-a'a) has a surface of angular blocks that is very dense with few gas vesicles. Slabby pahoehoe is made up of jumbled up plates or slabs of broken pahoehoe crust (crust is spiny pahoehoe). Most of the campground is comprised of cinders with either block lava

or slabby pahoehoe emplaced on top. Both the block lava and slabby pahoehoe create habitat favorable to pika and crevice roosting bats.

The third texture is spiny pahoehoe. Spiny pahoehoe has a wood like appearance because the congealing surface crusts were stretched before they completely solidified. Both slabby and spiny pahoehoe are transition phases to a'a. The presence of this amazing texture in the rock astounds many visitors and is what gives the campground much of its character. This texture of the spiny pahoehoe is a relatively thin surface phenomenon on the lava and is easily destroyed.

Spiny pahoehoe also gives character to many of the campsites along the northern edge of the campground. Many of these campsites either abut or in some cases are surrounded by the spiny pahoehoe (current campsite 13). Because the spiny pahoehoe is highly inflated, the near vertical edges of the small flow lobes, which can be more than six feet (1.8 m) high, often form a natural boundary for the campsites.

2. Soils Affected Environment

The soils in the Craters of the Moon area are variable, reflecting the differences and interactions among parent material, topography, vegetation, climate, and time. The biggest differences in soil formation involve the presence or absence of lava flows and the degree of soil development on volcanic substrates. The lava flows, which occupy two-thirds of the monument, are made up of basalt lava rock. The soils on the younger basalt flows and cinder beds are limited to the initial decomposition of rock and cinders and deposition of windblown loess within crevices, cracks, and fissures (NPS 2005:110-11).

The soils in Craters of the Moon and the surrounding area developed from rocks deposited during a sequence of geologic events that began almost 600 million years ago. During the latter part of the Tertiary Period, from about 16 million years ago, until recently in the Yellowstone area, explosive volcanic activity across the Snake River Plain deposited layers of pyroclastic tuffs and silica rich lavas. More recent basalt lava flows and windblown loess have subsequently covered these rhyolite rocks. The windblown dust (loess) from sources further west, weathering of rock and basic soil development processes have resulted in varying depths of soils on recent and older basalt flows at Craters of the Moon (NPS 2005:11).

Sagebrush steppe, mountain areas, and kipukas within the monument have deeper, well-formed soils. The high desert environment results in lighter colored soils with low organic matter content. Most of the soils in the monument area are silt loam to sandy loam in texture and vary in depth. They are moderately drained to well drained, except where clay horizons are present. Soils that are disturbed, not properly vegetated, or located on steep slopes are highly susceptible to water and wind erosion (NPS 2005:111).

Lava Flow Campground Project Area: Soils in the campground project area are mapped as either being associated with the older cinder cone deposits of Sunset Cone (about 12 thousand years) or loess blown onto the much younger Highway flow (about 2.3 ka) (Kuntz *et al.* 1982). The soil associated with Sunset Cone is the *Sunset Cone Gravelly Loam*. It is described as being a very deep and well drained soil with moderate to rapid permeability and with potential rooting depths of 60 inches (1.5 m) or more. A typical profile for the *Sunset Cone Gravelly Loam* is listed as: 0 to 6 inches (0-15 cm) - brown and dark grayish brown gravelly loam; 6 to 10 inches (15-25 cm) - brown and grayish brown very gravelly loam; 10 to 24 inches (25-60 cm) - brownish yellow very gravelly sandy loam; 24 to 40 inches (60-101 cm) - dark brown cobbles; and 40 to 60 inches (101-152 cm) - dark brown gravel (NRCS 1999). How accurate this soil description is in the campground area, which is on the distal flank of the cone, is unknown.

The much younger Highway flow is composed of block-a'a, slabby pahoehoe, and spiny pahoehoe. Weathering has had little effect on converting this geologically young lava to soil, so what soil is present is windblown (Aeolian) in origin. This windblown soil or loess has been

trapped, collected, or deposited in cracks in the lava in sufficient amounts to allow for the growth of plants. This loess is characterized by silt size particles originating from the various rock types surrounding the Snake River Plain that were ground up by glaciers during the ice age and liberated upon the ice melting to later be transported by the wind onto the flow.

There is enough vegetation growing in the campground to contribute minor amounts of organic matter to the limited soils. Wildlife, including pika, rabbits, chipmunks, marmots, golden-mantled ground squirrels, weasels, foxes, and numerous birds that use the area contribute organic matter in the form of droppings, or from their feeding and food storage practices, as well as from decay after their death. Humans using the campground may also contribute an undetermined amount of organic matter to the environment.

3. Impacts to Soils / Geology

Alternative 1

There would be no additional impacts to soils or geology from maintaining the existing campground configuration. Existing areas of impact would remain. These would include additional loss of volcanic rock and soil from unconfined, undesignated parking areas and from expansion of disturbed areas within the campground over time. Impacts from visitors wandering around in the vicinity of the existing campground would also continue, including occasional damage to fragile lava rock from trampling. Vehicles unable to navigate tight corners along some parts of the campground road would continue to drive off the asphalt pavement and to affect soils and occasionally rock formations along the edges of the campground roads. Observable changes in the area of impact would be negligible to minor and long-term.

The existing road would continue to require occasional asphalt patches and the cinder-topped parking pads would continue to require replenishment of cinders due to loss of these from compaction and wind erosion. Approximately 30 cubic yards of cinders, imported from within or outside the monument, are used in cyclic maintenance approximately every two years. These cinders would continue to be used and procured from either within the monument or from outside of it.

In recent years, it has become difficult to obtain cinders from within the monument because monument borrow areas have been systematically closed over time. Using cinders from outside the monument, however, has resulted in a slight change in the appearance and composition of the campground because those obtained from outside the monument are of a different origin than those within the monument. As a result, ongoing replacement of cinders would continue to have a minor to moderate long-term impact on campground soil chemistry because imported cinders are of a different composition / origin than those in the monument. This repeated need to obtain and to replace cinders on unpaved parking pads is one of the reasons the campground rehabilitation project under Alternatives 2-3 is being proposed.

Because cinders are a nonrenewable resource and their procurement results in borrow areas, obtaining cinders would continue to have a long-term moderate adverse impact on soils and geology either within the monument, primarily because there are now only a few areas available within the monument to obtain them or a long-term minor to moderate adverse effect outside the monument, because it is unknown how long borrow areas would continue to be available.

Alternative 2

There would be impacts to soils and geology in Alternative 2 from the reconstruction and paving of the roads and parking areas and from reconfiguring the campground to combine or remove existing campsites to create larger, accessible and/or pull-through sites.

Road Reconstruction / Paving: The asphalt roadway throughout the campground would be removed and crushed to particles of 0.75 inches in diameter or less to use as a base for

replacement of the asphalt road surface and to formalize parking pads for campsites. Following removal of the asphalt, the road and parking areas would be re-graded and soils would be moved, mixed during project activities, supplemented (if necessary) and graded to accommodate a road width of approximately 16 feet (two-way sections) or 10 feet (one-way sections), including a 1-foot wide concrete ribbon shoulder flush with and adjacent to the asphalt roadway. Where necessary to meet grade requirements for the new roadway or parking areas, soils would be imported. Soil would also be imported for the proposed campground rehabilitation under Alternative 2.

Removal of the asphalt and grading of the road and parking areas would cause both short- and long-term minor adverse impacts on soils and geology, which underlie or are adjacent to the road or parking areas. Proposed grading would result in a road surface that would have better drainage and cross-slopes to improve the road's ability to carry existing large trucks and small recreational vehicles. The concrete ribbon shoulder (one-foot-wide) would be constructed on the outside of the road and parking areas to contain road and parking impacts to paved surfaces. Bollard casings would also be installed approximately every eight feet along the outside edges of the campsite parking areas and roadways. These would be used to insert removable weathered steel bollards if needed to contain impacts to the road and parking areas.

Near the entrance to the campground, actions would include connecting the existing paved concrete walkway from the visitor center to the campground. Approximately 18 additional feet of accessible concrete walkway would be constructed.

Minor excavation would be required to construct a storm drain inlet on the west side of the campground (near a large limber pine) to improve drainage in this area. This would not affect observable rock; however, the poor drainage at this location could be because of underlying bedrock.

Combined, the repaving of the campground roadways, new paving of campsite parking areas, and the construction of an accessible path would have long-term minor adverse effects on soils from increasing runoff and decreasing infiltration where paving occurs. There would also be long-term beneficial effects from minimizing the loss of soils and geology over time from designating campsite parking areas and from allowing the road to accommodate existing use by large vehicles, such as RVs and trucks with trailers.

Campground Reconfiguration: In addition to ongoing impacts from use of the campground, there would be impacts to geology (lava rock formations) from excavation associated with reconfiguration of the campground. Creating pull-through and accessible sites and formalizing parking in the campground would result in excavation and grading primarily of previously disturbed areas to create a different array of campsites and to improve navigation of campground roads for large vehicles. Initial activities would include removal of signs, picnic tables and fire grates and other activities which would cause subsurface disturbance. Locating bollard casings along the roadway and parking areas would also affect subsurface resources, including rock and soil, where present. Most new disturbance would likely occur in the vicinity of those sites that would be enlarged or combined to create accessible campsites (four) and for those sites that needed parking area modifications, such as additional grading or leveling. Combined, there would be short-term minor to moderate adverse effects; long-term minor adverse effects from paving over and disturbing soils and geology; and long-term beneficial effects from limiting future disturbance of currently undisturbed areas by containing driving and parking to paved surfaces.

Over time, because cinders would not have to be replaced and because erosion of soils would be reduced as a result of wider roads that accommodated larger vehicles and because of a design which incorporates designated campsite parking areas contained by concrete curb, there would be long-term beneficial impacts to soils and vegetation along the edges of the campground road and adjacent to campsite parking areas. Beneficial impacts would also occur from reducing the size of many areas now impacted by parking. Existing cinders would also be removed prior to

disturbance of the parking pads and then would be used in rehabilitation of the campground to soften the edges of the concrete curb.

Alternative 3

Because roadways would be the same and campsite numbers would be similar (47 campsites in Alternative 3), impacts would be similar to Alternative 2. There would, however, be slightly more paving associated with creating additional large RV and accessible campsites and from using fewer existing disturbed areas to construct campsite parking pads. There would also be more impacts associated with construction of the standardized parking areas. Numerous rock outcrops would likely have to be modified or removed.

Impact Avoidance, Minimization and Mitigation Measures

Measures that would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to soils and geology include:

- Locating the proposed project areas in previously disturbed sites and/or carefully selected sites with as small a footprint as possible (NPS 2005:74).
- Locating staging areas where they will minimize new disturbance of area soils and vegetation.
- Minimizing ground disturbance to the extent possible to retain the natural appearance of geologic materials and features.
- Minimizing soil erosion and associated water quality impacts by limiting the time that soil would be left exposed and by the use of erosion control measures (NPS 2005:74).
- Using resurfacing materials that would be an appropriate mixture of rock, soil, and excavated plant material.
- Salvaging topsoil, if any, and reusing it as close to the original location as possible. Where areas are to be revegetated, they would be resurfaced with appropriate amounts of salvaged basalt rock and soil and seeded or planted with species native to the immediate area in consultation with the Monument's Plant Ecologist (NPS 2005:74).
- Using geologic material as fill to the degree possible due to the overall lack of soil and soil development. Local geologic material would be used, as appropriate, for resurfacing areas adjacent to disturbed areas to mimic the surrounding rocky area.
- Discouraging establishment of undesirable plants, by avoiding the use of soil fill or surfacing in distinctly rocky, unvegetated areas.
- Using only weed free fill and surfacing material.
- Directing contractor equipment access to reduce the overall footprint of disturbance.
- Locating bollard casings, where appropriate, to minimize future damage to adjacent areas (Alternatives 2 and 3).

Cumulative Impacts

Soils and volcanic rocks, including spiny pahoehoe were affected by excavation and fill associated with the creation of the Lava Flow Campground. Adverse impacts to soils and geology as a result of other past and ongoing actions include compaction, soil mixing, and soil loss from removal and erosion, and removal of rock for development and as a result of concentrated visitor use in the monument. There are areas where soils have been disturbed and revegetation has not occurred naturally or been undertaken by the monument. Other impacts include an overall decrease in soil infiltration, where hardening of surfaces (roads, walkways, buildings) has occurred. Some restoration and development projects (e.g. addition of new visitor service facilities, restoration of old roads or building sites) could occur within the monument and project vicinity. Road rehabilitation over the last few years has added minor to moderate adverse effects on soils. Other past, current and reasonably foreseeable proposed projects have had or could contribute to both beneficial and adverse impacts on soils and geology.

Introduction of cinders to replenish those in the campground has had localized minor to moderate adverse effects. While most basalts on the Eastern Snake River Plain (ESRP) are very similar, those within the monument are not. Monument basalts underwent extreme differentiation or

fractionation of the magma and many also assimilated previously existing rock. This resulted in a broad range of basalt chemistry (silica contents are particularly variable) not seen most other places on the ESRP. Ongoing procurement and spread of these cinders in Alternative 1 would continue to alter the natural environment and contribute to a long-term moderate adverse effect on both soils and geology. The crushed and weathering foreign cinders cannot provide the same chemistry to form soil over time, nor can the cinders be the same as those that came from Sunset or South Highway cones. In Alternative 1, over time the campground would continue to become less like the natural environment.

Because most of the monument continues to be undisturbed by human impacts, including designated wilderness and wilderness study areas, the amount of area affected by past and possible future projects is not substantial and cumulative impacts to soils and geology therefore are localized and minor to moderate when considered in a regional context.

Impacts from the past, current or proposed actions, together with the impacts of Alternatives 1, 2 or 3, would continue to result in localized minor adverse and negligible beneficial cumulative impacts to soils and geology.

Conclusion

Alternative 1 would continue to have long-term localized minor to moderate adverse effects and localized minor to moderate cumulative adverse effects. Alternatives 2 and 3 would have short-term minor to moderate adverse effects and long-term and cumulative minor adverse effects, combined with long-term beneficial effects. There would be slightly more minor to moderate localized adverse in Alternative 3 compared to Alternative 2. Long-term beneficial effects would occur in Alternatives 2 and 3 from reducing the repeated use of cinders.

4. Vegetation Affected Environment

Craters of the Moon is located in the Snake River Basin/High Desert and encompasses a small portion of the Idaho Batholith/Foothill Shrublands-Grassland ecoregion and a large portion of the Snake River Plain/Lava Fields ecoregion (Omernik 1986, McGrath *et al.* 2002). Existing vegetation is broadly characterized as belonging to montane, foothill, steppe, or plain formations and includes mostly dry and some mesic forest, woodland, shrubland, herbaceous vegetation, and sparse vegetation within volcanic, foothill, and plateau settings. Vegetation distribution is a result of elevation, aspect, substrate, and disturbance history with the most obvious being the lava substrate. From a casual perspective most of the lava at Craters of the Moon appears to be unvegetated but the Gap Analysis of Idaho Land Cover from 1996, shows approximately 33 percent to be vegetated lava compared to just 20 percent of exposed or non-vegetated lava flows (Landscape Dynamics Lab 1999). In fact, the volcanic geology and its complex interaction of rock outcrops, slope exposure, colluvium, soils, hydrology, and disturbance creates many unique niches for vegetation that would likely not occur on a more homogenous site.

Five major vegetation types (including at least 35 different plant communities and 760 species of plants) have been identified in the monument:

- Vegetated lava complex
- Sagebrush steppe complex
- Grasslands complex
- Mountain complex, and
- Cinder cone complex.

The campground is within the Vegetated Lava Complex. This vegetation type is found in approximately 53 percent of the monument and contains both exposed (unvegetated) lava and vegetated lava. Exposed lava flows are generally devoid of trees, shrubs and forbs, but contain lichens and mosses. Vegetated lava is defined as lava fields that contain greater than five percent cover. Within it, plants occur as islands, pockets or clustered individuals in the lava flow.

It primarily consists of early successional or adaptable plants that can grow in the limited windblown soil that occurs in cracks and crevices within the basalt.

Bell *et al.* (2009) identified two vegetation communities associated with the footprint of the Craters of the Moon campground. The two communities are:

- Limber Pine / Fernbush / Sandberg Bluegrass Sparse Vegetation (*Pinus flexilis* / *Chamaebatiaria millefolium* / *Poa secunda*)
- Sparsely Vegetated Cinders

Limber Pine / Fernbush / Sandberg Bluegrass Sparse Vegetation

The vegetation of this association is characterized by sparse total cover (less than 10 percent). Limber pine (*Pinus flexilis*) individuals are scattered throughout this vegetation type, but do not occur with high enough abundance to form a tree canopy. The shrub stratum is dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), fernbush (*Chamaebatiaria millefolium*) and mock orange (*Philadelphus lewisii*). Fernbush occurs with sparse cover, but is a characteristic species of this association. Other, less frequently occurring shrubs may include oceanspray (*Holodiscus dumosus*), rubber rabbitbrush (*Ericameria nauseosa*) and antelope bitterbrush (*Purshia tridentata*). The minimal herbaceous layer includes grasses, including Sandberg bluegrass (*Poa secunda*) and bluebunch wheatgrass (*Pseudoroegneria spicata*). Forb cover is also low but highly variable in terms of species composition, and may include species such as hawksbeard (*Crepis acuminata*), woodfern (*Dryopteris filix-mas*), delicate gilia (*Gilia leptomeria*), prickly phlox (*Leptodactylon pungens*), woodland star (*Lithophragma tenellum*), desert parsley (*Pteryxia terebinthina*), and valley violet (*Viola nuttallii*). This association, like all associations in the Inter-Mountain Basins Volcanic Rock and Cinder Land Ecological System, is limited to barren and sparsely vegetated volcanic substrates of basalt and basaltic andesite origin including tuffs, cinder cones, spatter cones, pressure plateaus, or cinder fields. It may occur in large-patch, small-patch or linear spatial patterns.

Sparsely Vegetated Cinders

This is a very sparsely vegetated, forb-dominated association. Total cover of this plant community is very low (generally less than five percent). The most important species is dwarf buckwheat (*Eriogonum ovalifolium* var. *depressum*), an evergreen perennial, growing in dense clumps and forming mats 3-4 decimeters across. Annual forbs may be common in the spring, depending on moisture conditions, and several perennial forbs are common into July, including silverleaf phacelia (*Phacelia hastata*), dusty maiden (*Chaenactis douglasii*), and bitterroot (*Lewisia rediviva*). All constant species in this association are found within the inner canopy of dwarf buckwheat. Interstitial material is sand-sized. The cinders are light weight, porous and soft; yet there is little mass movement of the deposits. The cinders are extremely porous; water filters down through them very quickly, often to depths beyond the reach of plant roots.

Campground Vegetation

The limber pine vegetation association occurs primarily on lava and cinder fields commonly located across northeastern sections of Craters of the Moon. This plant community occurs across approximately 85 percent of the campground. Sparsely vegetated cinders make up the remaining 15 percent along the northwest edge of the campground (corresponding to campsites 26, 27, and 28).

Campground vegetation consists of plants that are very sparse and generally restricted to the edges of roads and existing campsites. Limber pines are scattered but common throughout the campground. They are highly valued by park wildlife as a food source and habitat and by park visitors for their protection as wind breaks and shade. There are a number of threats to limber pines. Among these include limited outbreaks by mountain pine beetles and other insect pests. Invasion by dwarf mistletoe, a native pathogen, has been a long standing concern in most pine stands at Craters of the Moon. Over half of the campground pine trees have low to moderate levels of mistletoe infection. Limber pine limbs are also infrequently broken by park visitors. One or two limbs are broken by large recreational vehicles each year. Bitterbrush, rubber rabbitbrush,

and mock orange are the dominant shrubs around the campground, occurring mostly on the edges of campsites and facilities. Grasses (mostly Sandberg bluegrass) and forbs (primarily silverleaf phacelia, dusty maiden, dwarf buckwheat, hotrock penstemon (*Penstemon deustus*), and blazingstar (*Mentzelia laevicaulis*)] are restricted to lava cracks, under shrub and tree canopies, and cinder areas beyond each campsite.

Non-Native Invasive Plants

Ten state-listed noxious plant species are known to occur in Craters of the Moon. Disturbed areas, including road rights-of-way and high visitor use areas are particularly susceptible to the invasion of these species. Most noxious weeds are found in these disturbed areas, intensively grazed areas and areas subject to frequent burning.

Several non-native invasive plants are known to occur within the campground project area including cheatgrass (*Bromus tectorum*), prickly lettuce (*Lactuca serriola*), and mullein (*Verbascum thapsus*). These plants tend to dominate where disturbance is common. Occurrence of these plants is extremely low throughout the campground likely due to the predominantly rocky terrain with limited soil development and the constant disturbance of the campsites.

Because vehicles and hikers readily spread weed seed along road corridors and around park facilities, several state-listed noxious plants are known to occur within this area of the monument. Plants discovered and treated near the campground include spotted knapweed (*Centaurea stoebe*), diffuse knapweed (*Centaurea diffusa*), Canada thistle (*Cirsium arvense*), and rush skeletonweed (*Chondrilla juncea*). Although the campground is at high risk with a number of vectors and a high frequency of disturbance, none of the state-listed noxious weeds have been observed in the campground to date. This may be due the lack of soil formation and the generally inhospitable habitat.

5. Impacts to Vegetation

Alternative 1

There would be no new impacts to vegetation as a result of the implementation of Alternative 1. Ongoing localized negligible to minor adverse impacts would continue to include damage to and occasional loss of trees and shrubs from prohibited activities, such as parking on vegetation and illegal gathering of firewood and/or vandalism.

Alternative 2

Although the roads and campsites would be reconfigured, most actions would take advantage of existing unvegetated areas disturbed by decades of campground use (Figure 2). Removal of limber pines would not occur; however, shrubs and forbs would be affected by expansion of some sites to accommodate large vehicles in pull-through or accessible sites. Parking areas would be confined to existing disturbed areas and would be oriented to take advantage of these bare areas. Where appropriate, plants would be salvaged prior to construction activities and replanted following disturbance. Seeding of some rehabilitated areas, such as campsites that would be removed but not replaced, could also occur. As a result, there would be negligible to minor short- and long-term adverse and long-term beneficial effects.

**Figure 2: Existing Campsites (during survey) Showing Bare Areas
(clockwise from left #6, 26, 36 and 49)**



Alternative 3

Impacts would be similar to Alternative 2, however because parking pads would be of consistent sizes (small 25 x 14 feet, medium 45 x 14 feet, and large 75 x 14 feet, with an additional 6 feet of width for accessible pads) and would be overlain on existing terrain, there would be more impacts. There would also be more medium and large pull-through sites and two more accessible sites. As a result, there would be additional loss of a few small trees, numerous mature shrubs and a variety of forbs, comprising short- and long-term localized minor adverse effects.

Impact Avoidance, Minimization and Mitigation Measures

Measures that would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to vegetation include:

- Collecting seed from a shrubs, grasses and forbs and seeding these species upon project completion.
- Salvaging small plants from construction limits for later reuse.
- Using only certified weed-free hay, straw or mulch to minimize the potential spread of exotic plants (NPS 2005:74).
- Inspecting and/or cleaning construction vehicles and equipment prior to entry into the monument to ensure that they are free of weed seed (NPS 2005:75).
- Surveying project areas for sensitive species (NPS 2005:74) (none were found).
- Emulating the natural form, spacing, abundance and diversity of native plant communities and using native species in any revegetation (NPS 2005:75).
- Monitoring newly disturbed areas for noxious weeds and treating them upon discovery.
- Monitoring reseeded and revegetated areas for successful plant re-establishment.
- Monitoring areas for effects from trampling and mitigating potential impacts as appropriate (including through signs, barriers or other means).
- Locating bollards, where appropriate, to minimize damage to adjacent areas (Alternatives 2 and 3).

Cumulative Impacts

Human activities, particularly associated with fire and grazing, along with a small contribution from visitor and administrative use, have altered the structure and composition of monument plant communities. In contrast to broad scale changes in vegetation characteristics that have occurred as a result of disturbing natural ecological processes, compared to the amount of area preserved, relatively small patches and corridors of habitat have been lost in the monument in areas that have been developed for visitor and administrative facilities, roads and trails. These impacts have resulted in changes to vegetation community size, integrity, function and characteristic wildlife. Past and reasonably foreseeable future actions would have both beneficial and adverse effects on vegetation. Activities such as restoration, non-native plant removal and rehabilitation would result in both beneficial and adverse effects, while additional development or redevelopment of visitor facilities would result in mostly adverse effects. The eventual restoration of nearly 80,000 acres of degraded sagebrush steppe, as called for in the Monument Management Plan (NPS 2005:94 *et seq.*) would result in long-term beneficial effects on vegetation, if implemented, and would overshadow the negligible to minor, localized adverse effects of the proposed rehabilitation of the campground. Other projects, such as the road rehabilitation that has occurred over the past few years, the addition to the visitor center, and the construction of a solar panel array would continue to contribute minor to moderate localized effects. Over time development of the monument has had a cumulative minor to moderate adverse effect on the monument. The proposed actions under Alternatives 1- 3 would contribute additional negligible adverse effects. Overall cumulative adverse effects would remain minor to moderate.

Conclusion

Alternative 1 would continue to have negligible to minor localized adverse effects. Alternative 2 would have localized negligible to minor short- and long-term adverse and long-term beneficial effects. Alternative 3 would have localized minor short- and long-term adverse effects and the same beneficial effects noted in Alternative 2.

6. Wildlife and Special Status Wildlife Affected Environment

Approximately 200 species of birds, 60 mammals, 10 reptiles and at least three amphibians have been found in the monument. In addition, more than 2,000 insect species have been identified (NPS 2005:131). Birds include northern harriers, American kestrels, common nighthawks, burrowing owls, golden eagles, common ravens, horned larks, lazuli buntings, savannah sparrows, rock wrens, and western meadowlarks. Large mammals include mule deer, pronghorn, elk, cougar, black bear and moose. Medium-sized mammals include red and kit foxes, coyotes and bobcats, badgers, raccoons, and yellow-bellied marmots. The monument also provides habitat for a wide variety of bats. Small mammals include ground squirrels, pikas, chipmunks, deer mice, voles, and gophers. Reptiles include rubber boas, gopher snakes, night snakes, western skinks, short- and desert-horned lizards, and long-nosed leopard lizards. Amphibians include the boreal chorus frog and the Pacific tree frog (NPS 2005:132 *et seq.*).

The campground is located on the North Crater Lava Flow and the flanks of Sunset Ridge. This lava flow is among the youngest in the Craters of the Moon Lava Field. There is likely a wide variety of invertebrate species using the area, although detailed survey information regarding their diversity is very limited. In addition to the lava flow several shrub steppe species have been recorded on Sunset Ridge including on the east side of the campground. As a result, vegetation is limited and many animal species that occur in the monument do not occur regularly in the immediate area. Rock specialist wildlife; however, such as pika, yellow-pine chipmunk, golden mantled ground squirrel, mountain bluebird, and rock wren are common in the campground area. Other wildlife, including red squirrels, use the rock formations especially where isolated limber pines grow in crevices. There are numerous invertebrate species known to use the area, although detailed survey information about their diversity is very limited. Table 5 shows the vertebrate species expected to occur in the campground.

Of these species, ten are rock specialists. Three other species may use the isolated limber pines in the campground. The rest are opportunistic in their habitat use but are known to use the area on a regular basis. Several species of migratory birds may use the trees in the campground as stopover points in migration. Numerous limber pines can be found within and adjacent to the campground. These trees are regularly used by species such as Cassin's finch, Clark's nutcracker, red squirrel, and yellow-pine chipmunk (NPS 2011a). There are also a variety of migratory birds which may occasionally use these trees. Clark's nutcrackers may be seasonally common because the limber pines are an important food source. Nesting species in the campground likely include: ruby-crowned kinglet, Cassin's finch, house finch, mountain chickadee, and red crossbill.

Small mammals such as yellow-pine chipmunk and red squirrel have much smaller home ranges (Sutton 1992) and the project area likely includes multiple territories for these species. Both of these species are found only in close proximity to limber pines, but both would use all habitats in the project area either intermittently or seasonally. Among the habitat requirements fulfilled within the project area include foraging, food storage, denning, and winter hibernation.

Several of the more generalist species in Table 5 also use the project area extensively. Some of these, such as deer mice, also have very small home ranges and numerous territories likely occur in the project area. Others, such as red-tailed hawks, have territories that are much larger than the project area and may only occasionally use this part of their home range. Long-tailed weasels and red fox are also known to regularly hunt in the project area.

The nearest sage-grouse lek sites are more than one mile from the campground (NPS 2011b) and the campground does not contain suitable habitat for sage-grouse.

Among the rock specialist species that are notable in the project area include: violet-green swallows, mountain bluebirds, rock wrens, and bats, such as the little brown bat, long-legged bat and small-footed bat, yellow-bellied marmot, golden-mantled ground squirrel, and pika.

Violet-green swallows and mountain bluebirds are typically cavity nesting birds. Within the Craters of the Moon Lava Field they nest in large numbers utilizing small pockets in the lava flow. Both of these birds are frequently seen in the project area and it is expected that they nest in the area.

Based on surveys within the monument, rock wrens are the most common bird occupying the lava flows (NPS 2009). They use small crevices and ledges for nesting and do most of their foraging on insects within the rock formations. They are common throughout the North Crater Flow, including within the project area.

The little brown bat, long-legged bat, and the small-footed bat all roost in rock crevices and are known to occur in the vicinity of the North Crater Flow. The little brown and long-legged bats are particularly common and can be seen in the project area during the summer. The long-legged bat and small-footed bat are easily disturbed and are classified as watch species by the BLM, Twin Falls District (BLM 2010). Most other bat species found at the monument are cave roosters and are not expected to occur in the project area.

Yellow-bellied marmots are commonly associated with rocky outcrops throughout western North America. Golden-mantled ground squirrels are found in high elevation rocky areas throughout the Rocky Mountain region. Multiple territories of both species are known to occur in the project area. They spend much of their time below ground in crevices and depressions in the lava flow.

Bushy-tailed woodrats occur in cave and crevice habitats throughout western North America. They are nocturnal and difficult to find even when common. Droppings and other woodrat signs

are common on the North Crater Lava Flow, including within the project area. It is expected that several territories occur in the project area.

Special Status Wildlife

Craters of the Moon National Monument and Preserve species of management concern include gray wolves, greater sage-grouse (*Centrocercus urophasianus*), pika (*Ochotona princeps*) and pygmy rabbits (*Brachylagus idahoensis*). Of these, only pika occur in the project area. Greater sage-grouse are candidate species for federal listing. Although they were determined eligible for listing by the USFWS (2010), listing the species at this time is precluded by species with higher priority. No sage-grouse leks, nesting or brood-rearing area, are found within a quarter mile of the proposed project area. Gray wolf (*Canis lupus*) (formerly threatened, now delisted) are occasionally seen near the northern monument, however construction activity would be temporary and would affect an existing developed area where no gray wolves have been seen. Pygmy rabbits are known from mature, intact areas of sagebrush and occur in this habitat in the northern section of the monument.

American pika are rock specialists. They are known to occur primarily in alpine talus systems and in lava flows in mid- to high elevations. They range throughout the Rocky Mountains as well as farther west in the Cascades and Sierra Nevadas. Pika are listed as a species of Conservation Concern by the USFWS and are a priority species for monitoring at Craters of the Moon. The species depend on the cool spaces between rocks.

Pika occupy a wide range in the northern portion of the monument and preserve, including in the project area (Rodhouse et al. 2010). Surveys conducted at Craters of the Moon indicate pika are found in high densities within a part of the campground area (NPS 2011a). The nearby North Crater Flow contains the highest numbers of pika recorded at Craters of the Moon.

Due to high temperatures the species is nocturnal or crepuscular during the summer. Individuals may cross the campground road. Pika territories are small and several individuals den, breed, forage, store food within the project area. Two areas in the campground, where pika occur have been marked for retention and protection in the action alternatives' preliminary design drawings.

Table 5: Vertebrate Animal Species Known From or likely to Occur in or near Lava Flow Campground

| Species | Rock Specialist | Special Status | | |
|------------------------------------------------------------------|-----------------|----------------|-------|-------|
| | | BLM | Idaho | USFWS |
| MAMMALS | | | | |
| Dusky Shrew (<i>Sorex monticolus</i>) | | | | |
| Little Brown Bat (<i>Myotis lucifugus</i>) | Y | S | S | CC |
| Western Small-Footed Myotis (<i>Myotis ciliolabrum</i>) | Y | W | | |
| Long-Eared Myotis (<i>Myotis evotis</i>) | Y | W | | |
| American Pika (<i>Ochotona princeps</i>) | Y | | | CC |
| Mountain Cottontail (<i>Sylvilagus nuttallii</i>) | | | | |
| Yellow-Pine Chipmunk (<i>Tamias amoenus cratericus</i>) | | | | |
| Yellow-Bellied Marmot (<i>Marmota flaviventris</i>) | Y | | | |
| Golden-Mantled Ground Squirrel (<i>Spermophilus lateralis</i>) | Y | | | |
| Red Squirrel (<i>Tamiasciurus hudsonicus</i>) | | | | |
| Deer Mouse (<i>Peromyscus maniculata</i>) | | | | |
| Bushy-Tailed Woodrat (<i>Neotoma cinereus</i>) | Y | | | |
| Montane Vole (<i>Microtus montanus</i>) | | | | |
| Red Fox (<i>Vulpes vulpes</i>) | | | | |

| | | | | |
|------------------------------------------------------------|---|---|---|----|
| Long-Tailed Weasel (<i>Mustela frenata</i>) | | | | |
| BIRDS | | | | |
| Red-tailed Hawk (<i>Buteo jamaicensis</i>) | | | | |
| American Kestrel (<i>Falco sparverius</i>) | | | | |
| Great Horned Owl (<i>Buteo virginianus</i>) | | | | |
| Say's Phoebe (<i>Sayornis saya</i>) | | | | |
| Loggerhead Shrike (<i>Lanias ludovicianus</i>) | | S | S | CC |
| Northern Shrike (<i>Lanius excubitor</i>) | | | | |
| Pinyon Jay (<i>Gymnorhinus cyanocephalus</i>) | | W | S | CC |
| Clark's Nutcracker (<i>Nucifraga columbiana</i>) | | | | |
| Common Raven (<i>Corvus corax</i>) | | | | |
| Violet-green Swallow (<i>Tachycineta thalassina</i>) | Y | | | |
| Barn Swallow (<i>Hirundo riparia</i>) | | | | |
| Rock Wren (<i>Salpinctes obsoletus</i>) | Y | | | |
| Mountain Bluebird (<i>Sialia currocooides</i>) | Y | | | |
| American Robin (<i>Turdus migratorius</i>) | | | | |
| Spotted Towhee (<i>Pipilo maculatus</i>) | | | | |
| Dark-eyed Junco (<i>Junco hyemalis</i>) | | | | |
| House Finch (<i>Carposdacus mexicanus</i>) | | | | |
| Gray-crowned Rosy-finch (<i>Leucosticte tephrocotis</i>) | | | | |
| REPTILES | | | | |
| Gopher Snake (<i>Pituophis catenifer</i>) | | | | |

BLM

S = Bureau of Land Management Sensitive Species; includes species listed as BLM Type 2 through 4 Sensitive Species
W = Watch list species: Type 5 sensitive species that are not BLM otherwise classified but current population or habitat information suggests that the species may warrant sensitive species status in the future.

Idaho

S = Species of Greatest Conservation Need as listed in the Idaho Comprehensive Conservation Strategy (IDFG 2006)

USFWS

CC = Species of Conservation Concern

7. Impacts to Wildlife and Special Status Wildlife

Alternative 1

There would be no new impacts to wildlife from the implementation of Alternative 1. Ongoing impacts related to the presence of the road would continue to cause localized long-term minor to moderate localized adverse effects, including from noise and disturbance and from direct mortality associated with wildlife-vehicle collisions. The campground is already a high use area and most wildlife that occurs there is tolerant of human presence. It is expected that these species will continue to inhabit and/or use the area. Impacts would include ongoing human presence and its attendant effects on wildlife, including disturbance and occasional illegal feeding, a long-term localized negligible to minor adverse impact.

Alternatives 2 and 3

There would be a variety of negligible to minor short- and long-term impacts to wildlife. Some disturbance of large- and medium-sized mammals using nearby habitat would be expected as a result of the noise and activity associated with construction activities; however noise from construction activities would be similar to, but more consistent than, ambient noise generated by passing large trucks. While deer, elk, coyotes and red foxes may be seen in or around the area, the project is unlikely to affect them. Persistent, but temporary, disturbance of birds in the vicinity

would also occur as a result of construction activities. During excavation and grading, some mortality of small mammals and soil-dwelling invertebrates could occur. There would be additional intermittent disturbance of wildlife habitat as human activity and presence in the area increases during project construction.

As noted in Alternative 1, the campground is already a high use area and most wildlife that occurs there is tolerant of human presence. It is expected that these species would continue to inhabit and/or use the area. Impacts would include ongoing human presence and its attendant effects on wildlife, including disturbance and occasional illegal feeding by campers, a localized, long-term negligible to minor adverse impact.

Those species dependent on limber pines for habitat requirements could be affected by disturbance but because mature limber pines would not be removed as part of the proposed campground rehabilitation under either alternative, these species would continue to be able to fulfill habitat requirements associated with dependence on limber pines. It is possible that under Alternative 3, some young trees could be removed to accommodate standard-sized parking areas. In addition, some perching habitat (shrubs) would likely be removed under Alternative 3.

Many other species may be seen in the area but should not be affected by the project. For example many bird species may be seen flying over the project site but would not be expected to land in the area or otherwise be affected.

The following ten species are rock specialists and would likely be among those most sensitive to disturbance of rock piles or lava bedrock: violet-green swallows, mountain bluebirds, rock wrens, and bats, such as the little brown bat, long-legged bat and small-footed bat, as well as yellow-bellied marmots, golden-mantled ground squirrels, bushy-tailed woodrats and pika.

Violet-green swallows, mountain bluebirds, rock wrens, little brown bat, long-legged bat and small-footed bat: These species would be at risk of disturbance and/or direct mortality if roosting sites are disturbed while occupied. Because existing rock outcrops or rock piles would not be disturbed under Alternative 2, except across from existing Campsite 25, this disturbance would not occur. Although additional outcrops could be affected in Alternative 3, these effects would be limited and would not be expected to affect these species.

Yellow-bellied Marmot, Golden-mantled Ground Squirrel and Bushy-tailed Woodrat: These species would be at risk of direct mortality if denning or hibernation sites are filled in or rock formations are disturbed while occupied. Because these species are large and able to move away from disturbance, this would be unlikely. There are no plans to affect rock piles or existing rock formations in Alternative 2 and there would be minor effects to these areas in Alternative 3.

Pika: Due to high temperatures pikas are nocturnal or crepuscular during the summer construction season. Several individuals regularly cross the upper loop road. Given their habit of retreating to crevices during the day they would be at high risk of mortality during construction if occupied sites are filled or heavy equipment or explosives are used to remove rock formations. Because of their sensitivity, however, there are no plans to affect rock piles or existing rock formations in Alternative 2. Rock piles, however may be added to delineate sites. Known pika denning areas would be identified for the contractor by the COTR and would be retained and protected. Though construction could interrupt activities, such as denning, breeding, and foraging, or food storage, these activities would impact pikas primarily if prolonged and could result in a population decline in the project area. Because there would be periods of no activity, especially when pikas are active (during dawn and dusk in the summer), the proposed project would be not likely to adversely affect pika.

Greater Sage Grouse: Because the nearest lek for sage grouse is more than ¼ mile from the proposed campground project area, there would be no effect on sage grouse from the implementation of the alternatives.

Gray Wolf: Although gray wolves occur in the monument, they are not known from the campground project area. As a result, there would be no effect on gray wolves from the proposed project under Alternatives 1-3.

Pygmy Rabbits: Pygmy rabbits occur in mature sagebrush communities and are known from the northern part of the monument. Because this habitat does not occur in the campground project area, there would be no effect on pygmy rabbits from the implementation of Alternatives 1-3.

Impact Avoidance, Minimization and Mitigation Measures

Measures that would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to wildlife include:

- Surveying the proposed project area for the presence of sensitive species. Where presence of pika and sensitive bat species was detected or suspected the appropriate rock formations were mapped and marked for protection.
- Checking the site at the end of each day to remove trash, food, and food-related items remaining at the site and disposing of them in an appropriate receptacle.
- Conducting proposed project work only during daylight hours.

Cumulative Impacts

The combined effects of development in the monument and in the surrounding area over time coupled with the purposeful eradication of many predator species during the 1800s and early 1900s throughout the west have likely contributed to low level or extirpated wildlife populations of some key species in the monument. Past and reasonably foreseeable development projects planned for the monument would result in additional negligible to minor cumulative effects to wildlife. The effects of existing development would continue to take a toll on wildlife primarily from collisions on the road as well as from occasional inappropriate wildlife-human interactions. Because of their limited scope, project actions under Alternatives 1-3 would contribute only negligible cumulative adverse effects on wildlife or special status species. Cumulative adverse effects on wildlife would remain minor to moderate.

Conclusion

Alternative 1 would continue to have short- and long-term negligible to moderate adverse effects. Alternatives 2 and 3 would have additional short-term negligible to minor adverse effects related to noise and disturbance from construction activities. There would be no effect on most sensitive or listed species. The project may affect, but would not be likely to adversely affect pika.

8. Prehistoric and Historic Archeology Affected Environment

Both the Great Rift Volcanic Rift Zone and sagebrush steppe ecosystem contain a wealth of cultural resources dating back to the last volcanic eruptions, which were likely witnessed by the Shoshone people (NPS 2005:6). There are more than 500 known, recorded cultural resources sites within the monument and preserve, representing a variety of types and chronological periods, from at least 8,000 years old to the present. Prehistoric sites include lithic scatters, rock shelters, rock structures and cairns, pictographs and stone quarry tool sites.

A cultural resources records search for archaeological and historical information within the project area was made by the monument's former cultural resources specialist (now at Hagerman Fossil Beds National Monument / Minidoka National Historic Site). There is one known lithic scatter site in the Lava Flow Campground project area. It has been mapped and submitted to the state database of sites.

9. Impacts to Prehistoric and Historic Archeology

Alternative 1

Because there would be no modifications to the campground configuration, there would be no impacts on prehistoric or historic archeological resources.

Alternative 2

Although one archeological site is known within the proposed project area in Lava Flow Campground, this site would be avoided by the proposed modifications to the campsites. There would be no new impacts to prehistoric or historic archeological sites. Because of the potential for finding additional sites and because the east boundary of this site (which is unknown) could overlap some project work areas, precautions would be taken during work in the vicinity to avoid impacts. Some additional test excavation to determine the east boundary may also be undertaken. Because there would likely continue to be some incidental use, such as walking on this unsigned site by those camping nearby, there would continue to be negligible to minor adverse effects. There would be no adverse effect on prehistoric or historic archeological resources under Alternative 2.

Alternative 3

The current design for this alternative would expand the campsite nearest the archeological site. As a result, that design for this site would not be implemented. Instead, the design would be modified to avoid changes to the campsite that would potentially impact the site. As a result, actions and impacts would be similar to Alternative 2 and there would be no adverse effect on prehistoric and historic archeological resources.

Impact Avoidance, Minimization and Mitigation Measures

Measures that would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to prehistoric and historic archeological resources include:

- Survey of project areas by a professional archaeologist for prehistoric and historic cultural remains (NPS 2005:75) (one archeological site was located and would be avoided).
- Immediate work stoppage and/or relocation to a non-sensitive area would occur should unknown archeological resources be uncovered during construction to allow collection of artifacts, soil samples and recordation. The site would be secured, and the NPS would consult with the Idaho State Historic Preservation Officer and tribal representatives according to 36 CFR 800.11.
- Additional consultation would occur if appropriate, according to provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. In compliance with this act, the NPS would also notify and consult concerned tribal representatives for the proper treatment of human remains, funerary, and sacred objects should these be discovered during the course of the project.

Cumulative Impacts

Archeological resources in the monument have likely been adversely impacted to varying degrees from past construction-related disturbances (prior to the advent of archeological resources protection laws); visitor impacts and vandalism; and from erosion and other natural processes. Because mitigation measures would be employed to minimize impacts to potentially unidentified cultural resources in other proposed and future monument projects, it is likely that these would protect archeological resources from additional impacts. There would be no construction-related contributions to cumulative impacts from Alternative 1 and there would be no anticipated impacts from Alternatives 2-3, however, if archeological remains were inadvertently discovered during construction, these alternatives could contribute additional negligible to minor adverse impacts which would be mitigated by additional investigation of the find immediately upon discovery or relocation of the work to a non-sensitive area.

Conclusion

If archeological resources were discovered during implementation, the preferred action would be to avoid further impact to the site by modifying project implementation as needed. If this is not possible, as much information as possible would be collected about the site in accordance with applicable laws and regulations and additional consultation with applicable agencies and tribes would occur as specified above. The proposed actions under Alternative 1 would have no effect on archeological resources. Alternatives 2 and 3 would have no adverse effect on archeological resources.

10. Visitor Experience Affected Environment

Access: U.S. Highway 20/26/93 which traverses the northern boundary of the monument is the primary access point for most visitors. The original monument boundary and access to the visitor center, campground and 7-mile Loop Road is off this highway which passes through the towns of Carey, Idaho on the west and Arco, Idaho on the east.

Visitor Facilities and Services: Most monument visitor and educational opportunities are located near the monument's visitor center south of U.S. 20/26/93 between the "gateway" communities of Carey and Arco. In addition to guided walks and programs offered by the NPS, the monument has several self-guided interpretive trails with waysides and a 7-mile Loop Road. Visitor facilities include the headquarters complex, which consists of a visitor center, campground, museum, and bookstore (NPS 2005:6). The Loop Road contains several short spur roads to points of interest, pullouts and parking areas, giving access to scenic vistas, hiking trails, small picnic sites, and vault toilets. In the winter, the Loop Drive is groomed as a cross-country ski trail.

Visitor activities in the original monument include scenic driving, photography, caving, hiking, cross-country skiing, snowshoeing and camping, while visitor activities in the expanded monument and preserve include hunting, driving for pleasure, geologic exploration, including caving, hiking, sightseeing, primitive camping, photography, and mountain biking.

Through interpretive and educational programs, NPS and BLM desire to provide visitors with an understanding, appreciation, and enjoyment of the significance of monument resources. Interpretive and educational programs encourage the development of a personal stewardship ethic and broaden public support for preserving our nation's natural and cultural resources (NPS 2005:169).

Campground Use: Average peak use in the campground over the last five years shows approximately 45 campsites regularly full (on weekends and holidays). Overall numbers for the five year period from 2006 - 2010 inclusive, are in Table 7.

Table 6: Lava Flow Campground Use 2006-2010

| MONTH | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | |
|-----------|------|-------|------|-------|------|-------|------|-------|------|-------|
| | RVs | Tents | RVs | Tents | RVs | Tents | RVs | Tents | RVs | Tents |
| January | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| March | 0 | 0 | 14 | 48 | 0 | 0 | 0 | 0 | 0 | 0 |
| April | 23 | 17 | 60 | 46 | 12 | 3 | 29 | 18 | 33 | 16 |
| May | 238 | 158 | 250 | 201 | 225 | 171 | 266 | 188 | 182 | 116 |
| June | 475 | 293 | 480 | 304 | 488 | 307 | 537 | 331 | 602 | 420 |
| July | 384 | 336 | 363 | 345 | 376 | 379 | 442 | 436 | 526 | 527 |
| August | 368 | 350 | 361 | 359 | 372 | 377 | 496 | 437 | 487 | 441 |
| September | 361 | 218 | 441 | 211 | 366 | 129 | 529 | 270 | 490 | 280 |
| October | 151 | 56 | 80 | 61 | 53 | 30 | 106 | 43 | 202 | 70 |

| MONTH | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| November | 5 | 8 | 24 | 15 | 6 | 12 | 3 | 5 | 0 | 0 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 2,005 | 1,436 | 2,073 | 1,590 | 1,898 | 1,408 | 2,408 | 1,728 | 2,522 | 1,870 |

Table 7: Lava Flow Campground 5-year Average (2006-2010)

| | Tents | RVs |
|----------------|------------|------------|
| 5-year Average | 1,606 | 2,181 |
| Percent | 42 percent | 58 percent |

Visitation: An average of 200,000 people per year visits the monument. Between 2001 and 2010, monument visitation varied from a low of 178,824 people (2003) to a high of 227,179 people (2008) (Table 8) (NPS 2011). BLM estimates an additional 20,000 people per year visit the expanded portions of the monument (NPS 2005:172).

Table 8: Craters of the Moon Visitation 2000-2010

| Year | Visitation |
|------|------------|
| 2000 | 211,642 |
| 2001 | 185,799 |
| 2002 | 183,573 |
| 2003 | 178,824 |
| 2004 | 183,111 |
| 2005 | 203,332 |
| 2006 | 176,998 |
| 2007 | 221,672 |
| 2008 | 227,179 |
| 2009 | 194,046 |
| 2010 | 215,698 |

Most visitation occurs primarily in the spring through fall, with the highest visitation in July. Visitation is also somewhat consistent throughout the year. In winter the 7-mile Loop Road, closed to motor vehicles, is groomed as a cross-country ski trail. For a short period between being closed to motor vehicles and groomed but before it fully opens in the spring (after snow removal), while the road is mostly clear of ice and snow, it also attracts bicyclists.

Based on analysis of visitors to the original monument (Machlis *et al.* 1989 in NPS 2005), visitors generally spend less than three hours within it, with approximately five percent remaining overnight to camp. Of these 80 percent are in family groups and the same percentage are on their first visit to the monument. While most visitors are from the U.S. primarily the Rocky Mountain and western states (Idaho, Wyoming, California, Colorado, Oregon and Washington), approximately 19 percent come from outside the U.S.

11. Impacts to Visitor Experience

Alternative 1

There would be no change in visitor experience (visitor access, visitor facilities, visitor use opportunities or visitation) as a result of the implementation of Alternative 1. Ongoing impacts would continue. There would continue to be 51 campsites with the capacity to accommodate tents, and small, medium and large RVs as described in Alternative 1 a long-term beneficial effect. There would also continue to be only one accessible campsite, a minor to moderate

adverse effect on some visitors. Because the campground generally fills only on holiday weekends several times each year, most visitors would continue to find a campsite when needed. Large recreational vehicles and trucks towing vehicles would continue to be limited in accessing the upper loop of the campground because of the narrow, tight curves. This would continue to be a minor adverse effect for some visitors.

Alternative 2

Overall, after construction, visitor access within the campground would improve in Alternative 2. Because of roads that would be of more consistent width with curve widening, it would be easier for vehicles, especially large vehicles, to navigate the currently narrow array of roads in the campground. There would also be improved access to larger sites, including more pull-through sites and more accessible sites. Most sites would be similar to their current form, with adequate space for tents and parking. Paving of parking areas and rehabilitation of roads would also reduce long-term maintenance needs and would improve aesthetics in the campground because there would be fewer deteriorating areas. Combined, these would be long-term beneficial effects.

Although work would be scheduled to have the minimum impact on the busy summer season, it is possible that some or all of the campground could be closed for the majority of the summer. While some work could be accomplished during the shoulder seasons and some could be accomplished without closing the campground, other work would require periodic closure of some or all of the sites, a minor to major short-term adverse effect.

Although there would be no changes in visitor use activities; however, opportunities for people with disabilities to camp would be improved, with four, rather than one, accessible campsites. Although these campsites would be preferentially given to those with disabilities, they would also be available for other visitors on a first-come first-served basis, a long-term beneficial effect.

At the same time, opportunities for all campers would decrease with the loss of eight campsites. With this loss, it is likely that the campground would be full on more days each year. Current data show an average of 45 campsites regularly full on weekends and holidays. Because most visitors would continue to find a campsite on most days, this would be a long-term minor to moderate adverse effect.

There would also be a wide variety of beneficial effects on visitor experience from rehabilitation of the campsites and roadways. Among these would include improved campsite conditions, a larger number of bigger campsites, wider roads, and improved resource conditions (erosion, runoff, more durable surfacing, etc.) in the campground. Beneficial effects would also include fewer obstructions in front of the restrooms because of the relocated trash / recycling area.

Alternative 3

Most actions and impacts would be similar to Alternative 2 with respect to effects on visitor experience. Similar effects would include those associated with construction and overall improvements to the campground roads and sites. The biggest difference would be in the number of campsites and their configuration, including the number of small, medium and large recreational vehicle sites and the number of accessible campsites.

Under Alternative 3, there would be 47 campsites. With the loss of four campsites, a few less than in Alternative 2, the campground would likely be full on more days each year, particularly during the peak season. As in Alternative 2, because most visitors would continue to find a campsite on most days, this would be a long-term minor to moderate adverse effect.

Unlike Alternative 2, there would be additional disturbance to existing lava rock outcrops, rock piles, and campsite configuration. As a result, it is likely that the intimate character of some campsites conveyed from being surrounded by rock could change. In Alternative 3, a larger number of sites would also be modified to accommodate pull-in or back-in parking and the number of large and pull-through sites would increase. Instead of taking advantage of disturbed

areas where parallel parking is used, most of these areas would be converted to pull-in or back-in sites, causing more disturbance and a greater need for fill and retaining walls. Because more campsites would be maintained, there would also be an increase in disturbance to accommodate more and larger sites. Combined, these would have short-term minor to moderate adverse effects coupled with long-term beneficial effects.

As in Alternative 2, there would also be more accessible sites, with seven (three more than in Alternative 2) a long-term beneficial effect.

Impact Avoidance, Minimization and Mitigation Measures

Measures that would be included in the proposed project (as appropriate to the alternative actions) to minimize impacts to visitor experience include:

- Distributing press releases to local media and state highway information recordings to inform visitors about the project.
- Monitoring the campground for signs of native vegetation disturbance (NPS 2005:75).
- Locating bollards, where appropriate, to minimize damage to adjacent areas (Alternatives 2 and 3).

Cumulative Impacts

As a result of the establishment and subsequent expansion of the monument, there has been and would continue to be a slight to moderate increase in visitor services over time that would result in enhanced visitor access, facilities and services to broaden visitor understanding, and thereby protection, of monument resources. To a large degree, however, the original monument area still looks the same, with facilities that generally date from its initial period of development. When the impacts of the proposed actions in Alternatives 2 or 3 are added to the impacts of past, current and proposed future actions, there would continue to be cumulative beneficial impacts on visitor experience.

Conclusion

There would be no changes in actions or impacts associated with Alternative 1. Minor to moderate adverse effects and beneficial effects would continue. Alternatives 2 and 3 would have a wide range of beneficial effects from improved camping opportunities for a variety of visitors and from improved roadways combined with minor adverse effects from a reduction in the number of campsites, which would be greater in Alternative 2 than in Alternative 3.

Table 9: Impact Comparison Chart

| Impacts | Alternative 1 | Alternative 2 | Alternative 3 |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Soils and Geology | <p>Ongoing negligible to minor long-term adverse impacts from loss of volcanic soil and rock from undesignated parking and expansion of disturbed areas and from trampling.</p> <p>Long-term minor to moderate adverse impacts from continued use of cinders to surface parking areas.</p> | <p>Long-term minor adverse impacts from curve widening and repaving of campground roadways, new paving of campground parking areas and construction of an accessible path from increasing runoff and decreasing infiltration.</p> <p>Long-term minor to moderate adverse effects from campground reconfiguration, including excavation.</p> <p>Long-term beneficial impacts from reducing the loss of soils and geology over time from designated parking and accommodation of large vehicles, as well as from reducing the size of existing disturbed areas.</p> | <p>Impacts would be similar to Alternative 2, however because more large and accessible campsites would be created there would be additional long-term minor to moderate adverse impacts, including loss of rock outcrops.</p> |
| Conclusion | <p>Alternative 1 would continue to have long-term localized minor to moderate adverse effects and localized minor to moderate cumulative adverse effects. Alternatives 2 and 3 would have short-term minor to moderate adverse effects and long-term and cumulative minor adverse effects, combined with long-term beneficial effects. There would be slightly more minor to moderate localized adverse in Alternative 3 compared to Alternative 2. Long-term beneficial effects would occur in Alternatives 2 and 3 from reducing the repeated use of cinders.</p> | | |
| Vegetation | <p>Ongoing negligible to minor adverse impacts from damage to and loss of vegetation from visitor use and management.</p> | <p>Negligible to minor short- and long-term adverse effects from removal of some forbs and shrubs.</p> <p>Long-term beneficial effects from salvage of plants and restoration of some disturbed areas.</p> | <p>Impacts would be similar to Alternative 2, however there would be loss of a few small trees, numerous mature shrubs and forbs from constructing more uniform campsites and parking areas.</p> |
| Conclusion | <p>Alternative 1 would continue to have negligible to minor localized adverse effects. Alternative 2 would have localized negligible to minor short- and long-term adverse and long-term beneficial effects. Alternative 3 would have localized minor short- and long-term adverse effects and the same beneficial effects noted in Alternative 2.</p> | | |
| Wildlife and Special Status Wildlife | <p>Ongoing short- and long-term localized minor to moderate adverse impacts from existing noise and disturbance from visitor and administrative use.</p> | <p>Same as Alternative 1 plus negligible to minor short- and long-term adverse impacts from noise and activity associated with construction and impacts from construction equipment.</p> <p>No effect or may affect, not likely to adversely affect sensitive species.</p> | |
| Conclusion | <p>Alternative 1 would continue to have short- and long-term negligible to moderate adverse effects. Alternatives 2 and 3 would have additional short-term negligible to minor adverse effects related to noise and disturbance from construction activities. There would be no effect on most sensitive species. The project may affect, but would not be likely to adversely affect pika.</p> | | |
| Prehistoric and Historic Archeology | <p>No impacts on prehistoric or historic archeological resources.</p> | <p>No adverse effect on prehistoric or historic archeological resources. Avoidance of known archeological site.</p> | <p>Same as Alternative 2. Modification of actions near known archeological site to avoid impacts.</p> |

| Impacts | Alternative 1 | Alternative 2 | Alternative 3 |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conclusion | If archeological resources were discovered during implementation, the preferred action would be to avoid further impact to the site by modifying project implementation as needed. Alternative 1 would have no effect on archeological resources. Alternatives 2 and 3 would have no adverse effect on archeological resources. | | |
| Visitor Experience | Ongoing beneficial effects from ability to accommodate visitors and minor adverse effects on some visitors from inability to access some areas within campground. | Short-term minor to major adverse effects from potential closure of the campground during rehabilitation. Long-term beneficial effects from improved access to camping opportunities for some visitors including those with large vehicles and those with disabilities and from improved aesthetics. Long-term minor to moderate adverse effects from reduction in the number of campsites. | Impacts would be similar to Alternative 2, however there would be more disturbance to modify campground and to retain four more campsites. With seven accessible campsites (three more than Alternative 2) there would be long-term beneficial effects for some visitors. |
| Conclusion | There would be no additional impacts in Alternative 1. Alternatives 2 and 3 would have a range of beneficial effects, coupled with short-term minor to major adverse effects during construction and long-term minor adverse effects from small reductions in the overall number of campsites. | | |

Chapter IV. Consultation and Coordination

A. Public Review

1. Internal and External Scoping

The public scoping period for this EA began on January 19, 2011 and ended on February 9, 2011. During this time, the public was encouraged to submit comments. During the public scoping period, three mostly non-substantive public comments were received (see Chapter I).

The public outreach called for in Section 106 of NHPA was integrated into the NEPA process in accordance with Management Policies (NPS 2006).

This EA is being made available to the public, federal, state and local agencies and organizations through press releases distributed to a wide variety of news media, direct mailing, placement on the monument's website and announcements in local newspapers and on local radio stations as well as in local public libraries (Arco, Hailey, Bellevue, Twin Falls and Boise, and the Community Library in Ketchum).

Responses to comments on the EA will be addressed in the proposed Finding of No Significant Impact (FONSI) or will be used to prepare an Environmental Impact Statement (if appropriate).

2. Agency Consultation

As required under Section 106 of the NHPA, consultation has been initiated with the Idaho State Historic Preservation Officer regarding the anticipated *no adverse effect* to historic properties. A request for concurrence with this determination of effect will be sent during the public review period for this document.

Additional consultation with the USFWS will also occur during the public review period for this EA.

4. Native American Consultation

Ongoing informal consultation with the Shoshone-Bannock Tribes was initiated for this project with a letter sent to the Tribal Chairman at Fort Hall. To date, no concerns have been brought forward by tribal members regarding the proposed implementation of the proposed campground rehabilitation project. Another request for consultation to ensure there are no outstanding concerns will be offered by the park as this document is released.

5. Public Review

This Environmental Assessment is available for a **thirty-day** public review period (the exact dates will be determined by the document printing / release date). At that time, a press release will be distributed to people and businesses who have expressed an interest in the campground rehabilitation. The press release will also be mailed or emailed to a list of persons and agencies that have expressed interest in Craters of the Moon National Monument and Preserve proposed actions and events. Included will be organizations such as The Wilderness Society, Sierra Club, Western Watersheds Project, etc. The EA will also be available at the following local libraries: Arco, Hailey, Bellevue, Twin Falls and Boise libraries, and the Community Library in Ketchum. In addition, organizations and individuals that have requested to will receive a copy of the EA or a press release describing how to obtain a copy of the EA. As needed, copies of the document or information on how it can be obtained will be provided during the review period. The EA will also be available on the monument's website, located at <http://www.nps.gov/crmo> and on the NPS Planning, Environment and Public Comment website (PEPC) at <http://parkplanning.nps.gov/crmo>.

Comments on this EA should be directed to:

Superintendent
Craters of the Moon National Monument and Preserve

P.O. Box 29
Arco, Idaho 83213

Comments may also be sent via electronic mail to:

crmo_information@nps.gov

If reviewers do not identify substantial environmental impacts, this Environmental Assessment will be used to prepare a Finding of No Significant Impact (FONSI), which will be sent to the National Park Service Pacific West Regional Director for signature.

As noted above, during the public review period, additional consultation will occur to affirm determinations of effect with the Idaho State Historic Preservation Office and U.S. Fish and Wildlife Service as well as with Native American Tribes. Notice of the concurrence with the determinations of effect will be identified in the FONSI for this EA.

For more information concerning this EA, please contact NPS Facility Manager, Dwayne Moates at (208) 527-1340, extension 401 or Chief of Resources, John Apel at (208) 527-1350. For a copy of this document, please call Craters of the Moon National Monument and Preserve at (208) 527-1300.

B. List of Persons and Agencies Consulted / Preparers

The following people and agencies were consulted during the preparation of this Environmental Assessment:

National Park Service, Pacific West Region (Seattle)

909 First Avenue, Seattle, Washington 98104

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Hoa Lam, Civil Engineer

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Rose Rumball-Petre, Environmental Protection Specialist (preparer)

National Park Service, Craters of the Moon National Monument and Preserve

P.O. Box 29, Arco, Idaho 83213

Dan Buckley, Superintendent
John Apel, Integrated Resources Program Manager (preparer)
Steven Bekedam, Vegetation Ecologist (preparer)
David Durbin, Fee Program Manager (preparer)
Marci Garrison, Administrative Assistant
Dwayne Moates, Facility Manager (preparer)
Mike Munts, former Biological Science Technician (preparer)
Doug Neighbor, former Superintendent
Doug Owen, Geologist / Interpreter (preparer)
Ted Stout, Chief of Interpretation

National Park Service, Hagerman Fossil Beds National Monument and Minidoka National Historic Site

P.O. Box 570, 221 North State Street, Hagerman, Idaho 83332-0570

JoAnn Blalack, Integrated Resource Manager (preparer)

Chapter V. References

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