



National Park Service
U.S. Department of the Interior
Sunset Crater Volcano National Monument
Flagstaff, Arizona

Finding of No Significant Impact

Trail Plan and General Management Plan Amendment

Background

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine various alternatives and environmental impacts associated with the proposal to locate, add, eliminate, manage, and maintain hiking trails and associated infrastructure at Sunset Crater Volcano National Monument (Monument). Current conditions at the Monument inhibit most forms of non-vehicular sightseeing. From the Visitor Center and nearby Bonito Campground, visitors and campers must travel by vehicle to the Lenox Crater Trail and Lava Flow Trail to explore the Monument, which are only about 1 ½ miles away. This increases fossil fuel use and greenhouse gas emissions into the environment.

Additionally, the existing trail leading to the top of Lenox Crater was not designed anticipating increased visitor use or sustainability, and currently traverses nearly straight up the steep slope instead of being laid out with switchbacks at more gentle angles. As a result, the trail has eroded in places into a gully that is over two feet deep fully exposing ponderosa pine tree roots.

Lastly, visitors are currently not able to experience a greater degree of solitude and natural quiet. Most existing use areas are adjacent to the road and parking areas, where motor vehicles are frequently audible.

The proposal to eliminate and build new segments of hiking trails are needed in part to provide a diverse visitor experience and mitigate resource impacts from inadequate long-term trail planning and construction within the monument. Trail grades, construction techniques, limited visitor experiences and duplicate trails negatively impact natural resources, and compound the effects of high visitation and extreme weather events. A new hiking trail system will minimize or eliminate these resource impacts and provide visitors with safe, non-vehicular recreational opportunities.

Selected Action

Alternative C, Trail Plan and General Management Plan (GMP) Amendment, is the preferred alternative and NPS's selected action. It best meets the purpose and need for the project as well, as the project objectives to: 1) establish an interconnected and fully integrated hiking trail system, 2) develop sustainable trail designs that are appropriate for the landscape, 3) expand the existing hiking trail system, 4) increase non-motorized recreational opportunities for monument visitors, and 5) eliminate unnecessary and duplicate hiking trails.

Under Alternative C, approximately 3.2 miles of new hiking trails within the Monument boundary will be created and the current Lenox Crater Trail will be obliterated and naturalized (0.3 miles). Because some activities identified in this alternative fall outside the scope and definitions of zones

in the GMP (2002), this alternative introduces modifications to GMP zoning using updated resource inventory and monitoring information.

Changes from the GMP (2002) include: reduction of acreage for the Extended Learning Zone, the establishment of a Guided Adventure Zone, and the identification of new Hiking Zones. Since the creation of the GMP, detailed volcanic feature inventories and mapping has been completed, along with the acquisition of high-resolution digital maps of steep volcanic cinder terrain to perform long-term impact analyses across the landscape. Currently, a project is underway to map and document the effects of past and ongoing recreational activities on the volcanic resources within the Monument. As a result of this analysis, Monument staff can accurately map trends that may occur as a result of visitation and other physical activities.

Archeological (Downum 2009; Kleinman 2012) and vegetation (Schelz 2012) surveys were completed in the entire Monument and site specifically for this project. The NPS is now able to apply a considerable amount of new information on the Monument's geologic and cultural resources. This allows for site-specific planning to provide for new visitor access and activities, while protecting and preserving the most unique volcanic eruption features and fragile volcanic cinder terrain within the Monument. These surveys and volcanic features inventories provide an accurate baseline for long term monitoring of resource conditions and visitor impacts and can be utilized to adjust the proposed new visitor access and activities should impacts exceed planning thresholds.

The NPS is currently cooperating with the United States Forest Service to plan and implement key connector trails on the Coconino National Forest. Two proposed trail corridors have been tentatively identified – one would connect the Bonito Campground to the proposed NPS trail that parallels the park entrance road north of Lenox Crater. The other would connect to the new trail system within the monument to provide a return loop around the southern side of Lenox Crater to the Visitor Center. All trails located on the Coconino National Forest within the EA are approximate and would be finalized in a separate NEPA analysis by the United States Forest Service.

In addition, the creation of a Guided Adventure Zone north of the Scenic Loop Road and Sunset Crater Volcano will be identified. Visitors would explore monument resources within this zone as part of a guided group. No development or delineated trails would exist. Intimacy with resources, learning, social interaction among the group, and the security of a guided experience would be key elements. Hiking with a guide will be the predominant activity in this area.

Mitigation Measures

- Prior to NPS staff guided hikes within the new Guided Adventure Zone, visitors will receive orientation to the fragile nature of unique volcanic features and open cinder slopes.
- No trees over 14 inches diameter-at-breast-height will be removed.
- No aspen or Douglas fir trees will be removed.
- Plants and patches of Sunset Crater beards tongue and Sunset Crater ladies tresses will be surveyed in advance of trail construction, and avoided when trail routes are laid out.
- NPS-guided hike leaders will be trained to identify the Sunset Crater beards tongue and Sunset Crater ladies tresses so they could be avoided.

- To minimize the amount of ground disturbance, staging and stockpiling areas will be in previously disturbed areas, away from visitor use areas to the extent possible. All staging and stockpiling areas will be returned to pre-construction conditions.
- Wherever possible, new facilities will be located to avoid impacts to important Monument resources and values. Construction will take advantage of previously disturbed areas wherever possible.
- Revegetation and recontouring of disturbed areas will take place following construction and will be designed to minimize the visual intrusion of the trail system. Revegetation efforts will strive to reconstruct the natural spacing, abundance, and diversity of native plant species using native species. Control methods will be implemented to minimize the introduction of noxious weeds. Some trees may be removed, but other existing vegetation at the site will not be disturbed to the extent possible.
- If imported fill is needed to complete project objectives, the materials will be volcanic material of similar texture and color to match the construction site. In addition, all fill will not contain any invasive species.
- If fuels and hazardous materials are used, a spill-protection plan must be approved by the Park Safety Officer.
- Excavated soil may be used in the construction project; excess soil will be stored in approved areas and covered to prevent windblown dust.
- Topsoil will be removed and conserved separately then placed back on top after the work is completed. Materials will be stockpiled away from the edge of excavation and not placed within the drip line of remaining trees.
- Areas to be cleared will take precautions to protect the existing vegetation. Temporary barriers to protect existing trees, plants, and root zones will be provided. Excavation within drip lines of trees and shrubs will be hand cleared and excavated to minimize root damage. Fill material will be placed in depressions caused by clearing or grubbing unless further excavation or earthwork is indicated.
- If any previously unrecorded threatened, endangered, or special status species are discovered during construction, then all work will stop until qualified personnel evaluate the impact. Modifications will be allowed to any contracts or work plans for measures determined necessary to protect the threatened, endangered, or special status species.
- Site disturbance, including earthwork and clearing of vegetation, will be limited to a 100 feet wide corridor along the proposed trail alignment and a 50 feet wide perimeter around the proposed parking areas.
- Should construction unearth previously undiscovered cultural resources, work will be stopped in the area of any discovery and an NPS archeologist will consult with the Arizona State Historic Preservation Officer and the Advisory Council on Historic Preservation, as necessary, according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
- According to 2006 *Management Policies*, the National Park Service will strive to construct facilities with sustainable designs and systems to minimize potential environmental impacts. Development will not compete with or dominate monument features, or interfere with natural processes, such as the seasonal migration of wildlife or hydrologic activity associated

with wetlands. To the extent possible, the design and management of facilities would emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings. The National Park Service also reduces energy costs, eliminates waste, and conserves energy resources by using energy-efficient and cost-effective technology. Energy efficiency is incorporated into the decision-making process during the design and acquisition of buildings, facilities, and transportation systems that emphasize the use of renewable energy sources.

Alternatives Considered

Three alternatives were evaluated in the EA including the no action alternative and two action alternatives. Under Alternative A, No Action, the management of the existing trail conditions would continue and no new trails would be constructed. Alternative B analyzed the construction of a short section of trail identified in the Monuments General Management Plan (GMP) from the Bonito Campground to Lenox Crater. Alternative C, the Trail Plan and GMP Amendment, is the preferred alternative as described in the previous section.

Environmentally Preferable Alternative

According to the Council on Environmental Quality (CEQ) regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

Alternative A, no-action, is not the environmentally preferred alternative because it retains current trails that do not meet safety standards and beneficial range of uses within the Monument. Because the current Lenox Crater Trail is constructed at an unsustainable grade to the top of the cinder cone, significant erosion and impacts occur that need to be mitigated on a regular basis. By not improving this design, the trail will not provide future generations a culturally pleasing and esthetic surrounding. In addition, the design of this trail does not preserve the natural aspects of the volcanic landscape.

Alternative B, found in the General Management Plan's preferred alternative, is not the environmentally preferred alternative. Lenox Crater Trail would remain in its current alignment and remain at an unsustainable grade to the top of the cinder cone. Significant erosion and visitor impacts occur that need to be mitigated on a regular basis to improve the effected trail. By not improving this design, the trail will not provide future generations a culturally pleasing and esthetic surrounding. In addition, the design of this trail does not preserve the natural aspects of the volcanic landscape.

Alternative C, the Loop Trails and GMP Amendment, is the environmentally preferred alternative. Although this option has a more extensive trail system, adding approximately eight miles of new trails (approximately 3 miles in the Monument, and potentially 5 miles on the Coconino National Forest after the completion of the U.S. Forest Service compliance process), the management of this area is much more realistic and reasonable for monument staff. Confining visitor impacts to within the newly established trail corridors and the Guided Adventure Zone, impacts to resources are more isolated and designed to avoid very sensitive areas susceptible to visitor impacts. These trails, built

with sustainable designs and modern construction techniques, will last for multiple generations while providing the widest range of beneficial uses and resource protection.

Why the Selected Action Will Not Have a Significant Effect on the Human Environment

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

Implementation of the preferred (selected) alternative will result in some adverse impacts; however, the overall benefit of the project, particularly to monument operations and visitor experience, outweighs these negative effects. The adverse effects are summarized as follows. Construction activities will disturb soil conditions, geologic formations, and vegetation in the project area to a negligible to minor degree. Minor, temporary, adverse impacts to visitor use and experience will result from increased noise and dust associated with construction activities. Obliterating the current Lenox Crater Trail will also temporarily, adversely affect the visitor experience to a minor degree.

The overall benefit of implementing the preferred (selected) alternative is that park operations will be improved to a moderate degree because with the construction of a newly designed trail on Lenox Crater trail maintenance will be reduced. In addition, the construction of new trails will increase visitor opportunities outside their vehicles. Further, the improved hiking trail network will provide safer and easier access for monument visitors to adjacent Forest Service attractions.

The degree to which the proposed action affects public health or safety

The preferred alternative will have an overall beneficial effect on public health and safety. The new trail system will minimize many of the current unsafe conditions associated with the existing hiking trails, thereby providing a safer system for the Monument's staff and visitors. The construction of approximately 8 miles of new trail will also promote healthy lifestyles for Monument visitors and staff to.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

The preferred alternative will not impact unique characteristics of the park lands. The following are not present within the project area: prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

The degree to which the effects on the quality of the human environment are likely to be highly controversial

Throughout the environmental compliance process, the proposals to construct a new hiking trail system and amend the GMP were not highly controversial. Additionally, future effects are not expected to generate future controversy.

The degree to which the possible effects on the quality on the human environment are highly uncertain or involve unique or unknown risks

The effects of constructing and obliterating hiking trails are straightforward and do not pose uncertainties. The environmental process has not identified any effects that may involve highly unique or unknown risks.

The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

The preferred alternative is not expected to set a precedent for future actions with significant effects. Future actions not identified within this EA would be considered in a subsequent NEPA analysis. Furthermore, the preferred alternative will not represent a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were analyzed in the EA. No significant cumulative impacts were identified.

The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

No adverse effects are anticipated with this project. Surveys within the area of potential effect did not reveal any historic properties listed or eligible for listing in the National Register of Historic Places. A letter dated June 21, 2013 from the Arizona State Historic Preservation Office concurs with the NPS determination of "no adverse effect" to historic properties per §106 of the National Historic Preservation Act. However, in the event previously unknown historic properties are identified during the implementation of the project, specific cultural resource mitigations are included in the EA.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

There will be "no effect" on endangered or threatened species or habitat per §7 of the Endangered Species Act. State listed salvage plants, Sunset Crater beards tongue and Sunset Crater ladies tresses, are known to exist near the project area. However, a plant survey was conducted within the project area and the results indicate that no endangered or threatened species were to be impacted (Schelz 2013). If these plants are identified during trail construction, they will be avoided.

Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment

The action will not violate any federal, state, or local laws or environmental protection laws.

Public Involvement and Native American Consultation

The EA was made available for public review and comment during a 30-day period ending July 26, 2013. To notify the public of this review period, a letter was mailed to stakeholders, Native American tribes, interested parties, and newspapers. Copies of the document were sent to certain agencies, Native American tribes, interested parties, and to those who requested a copy during the review period. Copies were also made available at the Monument's Visitor Center and posted on the NPS PEPC website at <http://parkplanning.nps.gov/sucrtrails>.

Three comments were received during this review period. One comment was from the Arizona State Historic Preservation Office who stated their concurrence for the proposal to obliterate and construct hiking trails within the monument. The other two comments were from the Hopi Tribe

and Yavapai-Prescott Indian Tribe. Both concurred with the NPS findings and support Alternative C. However, they requested to be consulted if the project would likely affect any historic properties or traditional cultural properties.

Conclusion

As described above, the preferred alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The preferred alternative will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to widespread, short- to long-term, and negligible to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law. Based on the foregoing, NPS has determined that an EIS is not required for this project and thus will not be prepared.

Approved:

Gaura E. Joss
John Wessels

8/27/13
Date

Acting Regional Director, Intermountain Region, National Park Service

Appendix – Non-Impairment Finding

National Park Service's *Management Policies, 2006* require analysis of potential effects to determine whether or not actions would impair park resources. 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. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment, but an impact would be more likely to constitute an impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

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.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action would have major (or significant) effects.

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relate back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, topics remaining to be evaluated for impairment include geological resources.

Fundamental resources and values for Sunset Crater Volcano National Monument are identified in the General Management Plan and enabling legislation. According to those documents, of the impact topics carried forward in this environmental assessment, only geological resources are considered necessary to fulfill specific purposes identified in the establishing legislation of the monument; are key to the natural or cultural integrity of the monument; and are identified as a goal in the monument's General Management Plan or other relevant NPS planning document. Regardless, impairment determinations are included for all impact topics analyzed in the EA, unless dismissed in the preceding paragraph.

Geological Resources and Soil – Sunset Crater Volcano National Monument was established to research and interpret its excellently preserved volcanic features. This project involves the potential disturbance of up to 228 acres that would result in negligible to minor adverse impacts to geological resources and soil. Although geological resources and soil are a fundamental resource at the park, the preferred alternative would result in only negligible to minor (impact ranges from the lowest levels of detection to noticeable), long-term, site-specific beneficial impacts to geological resources and soil; therefore, there would be no impairment to geological resources and soil.

In addition, mitigation measures for these resources would further lessen the degree of impact to and help promote the protection of these resources. For geological resources and soil, the most unique and fragile volcanic features would be entirely avoided by the new hiking trail routes. A monitoring program is being implemented to assess any resource degradation damage resulting from trail alignments and/or visitor activity over the long term. Monitoring information will be utilized by the Superintendent to determine if inadvertent resource degradation is occurring, whether impacts are exceeding acceptable thresholds under this EA, and whether additional mitigation, trail closures, or area closures are necessary to protect the monument's unique volcanic features and terrain.

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there would be no impairment of park resources and values from implementation of the preferred alternative.