



National Park Service
U.S. Department of the Interior

Rocky Mountain National Park
Colorado

FINDING OF NO SIGNIFICANT IMPACT

CRATER TRAIL

Recommended:

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Superintendent, Rocky Mountain National Park

31 JAN 2018

Date

Approved:

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FEB 5, 2018

Date

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INTRODUCTION

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine alternative actions and environmental impacts associated with the long-term management and use of the Crater Trail. The project is needed to address damage to natural and cultural resources resulting from use of the Crater Trail, and to protect natural resources and cultural resources and preserve wilderness character.

The statements and conclusions reached in this Finding of No Significant Impact (FONSI) are based on documentation and analysis provided in the EA and associated decision file. When necessary, relevant sections of the EA are incorporated by reference below.

SELECTED ALTERNATIVE AND RATIONALE FOR THE DECISION

Based on the analysis presented in the EA, the NPS selected Alternative B – Close the Trail (the selected alternative).

The Crater Trail will be closed, abandoned, and no longer maintained by Rocky Mountain National Park (park) and the trail corridor will be closed to public access. The existing footbridge near the trailhead will be removed, and temporary signs will be placed for up to two seasons informing visitors that the area is closed to the public and is being restored. A buck-and-rail fence will be installed at the trailhead to discourage public access. The parking area at the trailhead will be retained because it provides parking for the Mount Ida Route and other trails in the area.

The total length of abandoned trail will be 1 mile. The abandoned trail surface will be stabilized and revegetated with native vegetation to restore natural conditions. Trail sections that are currently stable with minimal erosion and with no man-made drainage structures could be revegetated with limited seedbed preparation. Unstable eroding trail sections will require implementation of measures to improve drainage and reduce erosion. Erosion control will involve reestablishing the natural contours and drainage patterns by filling in the existing trail with fill material and installing erosion-control measures, such as small temporary check dams made of straw bales or temporary silt fences. A minimum of man-made structures that will biodegrade in time will be left above tree line after restoration is complete; existing erosion-control structures below tree line may be retained, as determined on a case-by-case basis. Erosion-control structures will be made to look as natural as possible.

Passive revegetation will allow natural regeneration to occur from surrounding vegetation, and will most likely be the preference for trail sections below tree line. Active revegetation will involve seeding or planting native vegetation in accordance with the park's Vegetation Restoration Management Plan. Active revegetation will likely be needed for severely eroded sections of the trail in the alpine tundra.

Restoration work will primarily be conducted using hand tools with native material available on-site. Imported fill dirt will be required to restore the grade in eroded trail sections in the alpine tundra and will be delivered to the project site using a helicopter. Helicopter operations will likely last for about 10 hours over a period of 3-10 days per year for up to 3 years. Staging areas will be used to temporarily store tools and will be within the existing tread.

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Monitoring will be conducted to determine revegetation success and to determine the need for implementing weed-control measures per the park's Invasive Exotic Plant Management Plan.

The construction season will occur over a 3- to 4-month period beginning after snowmelt and will continue until snowfall makes trail work impractical, likely in October. From May 1 to August 15, mechanized equipment will not be used; only hand tools will be used to minimize impacts on bighorn sheep during the lambing season. After August 15, use of mechanized equipment will be allowed. Exceptions to the limitation on use of mechanized equipment could occur if monitoring indicated that bighorn sheep were not in the area, as described under *Resource Protection Measures*. Trail work is anticipated to occur in daylight hours Monday through Friday, but weekend work could occur as needed. Trail work is expected to take two to three years.

Because the trail is located in designated wilderness, the park will implement trail work using the management actions that are the minimum necessary for wilderness administration. These will be in accordance with the signed Minimum Requirements Decision Guide prepared by the park that was included in the EA to evaluate alternative methods and tools for trail and resource restoration in wilderness.

Because the selected action will affect historic properties, a memorandum of agreement (MOA) has been executed between the NPS and the Colorado State Historic Preservation Office (SHPO) to resolve adverse effects. The MOA includes stipulations that must be completed before the selected alternative is implemented (Appendix A).

Rationale

Alternative B was selected because it best meets the project purpose to protect bighorn sheep range, archeological resources, wilderness values, the Specimen Mountain Research Natural Area (RNA), and soil and vegetation resources currently being impacted by the Crater Trail.

MITIGATION MEASURES

Refer to Appendix A for a complete list of all mitigation measures that will be implemented for the selected alternative.

AGENCY CONSULTATION

In accordance with Section 106 of the National Historic Preservation Act, the NPS initiated consultation with the SHPO and submitted a cultural resources survey report to the SHPO in November 2016. On April 6, 2017, the NPS submitted a Notice of Adverse Effect and a draft MOA with a request for comment to the SHPO, Advisory Council on Historic Preservation (ACHP), and Grand Lake Historical Society. On May 1, 2017, the SHPO concurred with the NPS determination and provided comments on the draft MOA. The SHPO signed the MOA on July 5, 2017. The Grand Lake Historical Society sent a letter of support on May 12, 2017. The ACHP did not send a reply.

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The American Indian tribes traditionally associated with the park (Arapaho Tribe of the Wind River Reservation, Wyoming; Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, Montana; Cheyenne and Arapaho Tribes, Oklahoma; Comanche Nation, Oklahoma; Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana; Shoshone Tribe of the Wind River Reservation, Wyoming; Southern Ute Indian Tribe of the Southern Ute Reservation, Colorado; Ute Indian Tribe of the Uintah and Ouray Reservation, Utah; and Ute Mountain Tribe of the Ute Mountain Reservation, Colorado, New Mexico, and Utah) were notified of the EA in September 2016 and were provided with copies of the cultural resources survey report in December 2016. The tribes were also provided with the Notice of Adverse Effect and a draft MOA with a request for comment in April 2017, and were notified of the availability of the EA for review during the public comment period. The Cheyenne and Arapahoe, Southern Ute, Northern Cheyenne, Northern Arapaho, and Comanche Nation replied to the Notice of Adverse Effect or public review EA. All replies supported the selected action.

In a December 23, 2016 letter to the U.S. Fish and Wildlife Service (USFWS), the park determined that the selected alternative may affect, but is not likely to adversely affect, Canada lynx, North American wolverine, and greenback cutthroat trout. The park also determined that the selected alternative would have no effect on any other federally listed threatened, endangered, or candidate species. The USFWS concurred with the park's findings on January 23, 2017.

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The Council on Environmental Quality regulations at 40 Code of Federal Regulations Section 1508.27 identify 10 criteria for determining whether the selected alternative will have a significant effect on the human environment. The NPS reviewed each criterion given the environmental impacts described in the EA and determined there will be no significant direct, indirect, or cumulative impacts under any of the criteria.

As described in the EA, the selected alternative has the potential for adverse impacts on vegetation and soils, bighorn sheep, historic structures, archeological resources, research natural areas, wilderness, and visitor use and experience; however, no potential for significant adverse impacts was identified.

Some trampling of vegetation will likely occur during restoration and will be limited to within about 25 feet or less from the existing trail. Trampled vegetation will likely recover to preconstruction conditions within 1 to 2 years. Closing the trail will eliminate most recent human use of the Crater Trail area, resulting in benefits to vegetation and soils from reduced foot traffic.

Closing the trail will allow for revegetation of the trail and disturbed areas along the trail (approximately 0.48 acre of restored vegetation), which will benefit the subalpine forest and alpine tundra plant communities within the analysis area. About 0.16 acre of alpine habitat and about 0.32 acre of subalpine habitat will be restored. Restoration of alpine plant communities will likely take decades because of the short growing season and their fragile nature. The vegetation in the subalpine zone will likely recover within a few years, with understory plants filling in beneath the existing tree canopy. Reestablishing vegetation will benefit soils by protecting them from additional erosion.

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Closing the trail could result in displacement and increased stress of bighorn sheep during the 3- to 4-month summer construction period, ending when snowfall makes continued work impractical. The rehabilitation process will occur over 2 to 3 years and will involve the use of a helicopter to deliver fill soil as needed. Use of a helicopter will create additional noise that could affect bighorn sheep over a period of about 3 to 10 days during the 6- to 8-week construction season. Potential effects on bighorn sheep from increased human presence could include increased physiological stress, changed behavior such as less time foraging and more time watching the surroundings, and changed movement patterns (displacement to nearby habitat). Use of helicopters could disturb bighorn sheep and reduce their foraging efficiency by causing the animals to expend more energy reacting to the helicopters while foraging. These effects will impact individuals or small groups of bighorn sheep and will only occur during the 6- to 8-week construction season. Impacts on bighorn sheep will be minimized by implementing the mitigation measures described in Appendix A.

Restoration of the vegetation in the trail tread would improve bighorn sheep habitat. Closing the trail will eliminate most human use of the Crater Trail area. Because bighorn sheep may respond to human disturbance and avoid areas with hikers, closing and revegetating the trail could lead to increased use of the area by bighorn sheep. This will be a permanent benefit to the entire bighorn sheep population in the Crater Trail area. As described in the EA, the Crater and surrounding areas are important year-round habitat for bighorn sheep, and interactions with visitors at the mineral lick at the Crater have been identified in the past. Overall, closing and revegetating the trail will be beneficial for bighorn sheep over the long term by eliminating an ongoing source of disturbance for the sheep.

Obliterating and revegetating the existing Crater Trail will result in an adverse effect from the loss of the historic trail and will exclude the trail from National Register of Historic Places (NRHP) eligibility. The adverse effects on historic structures have been resolved through an executed MOA between the NPS and SHPO. The MOA includes a stipulation that the NPS will complete a plan that will inform the public about why the Crater Trail was closed and rehabilitated. This could include a display at the visitor center or other media communication methods. The plan will be archived at the park and a copy will be sent to the SHPO.

Ground disturbance from obliterating and revegetating the existing trail will result in an adverse effect on archeological resources. Adverse effects have been resolved through an executed MOA between the NPS and SHPO. The MOA includes a stipulation to complete limited data recovery according to NPS standards, as outlined in Director's Order (DO) 28: *NPS Cultural Resources Management Guideline, Revision 5* (DO-28) and in the *Secretary of the Interior's Standards and Guidelines for Archeological and Historic Preservation*. The primary objective of data recovery is to prevent the loss of site-specific archeological information. The park will develop the data recovery plan in coordination with the SHPO. The selected action will not impair archeological resources with implementation of the stipulations in the MOA.

The presence of trail crews (3 to 4 months for 2 to 3 years) and potential use of a helicopter to import materials (3 to 10 days each year for 2 to 3 years) will be an intrusion into the Specimen Mountain RNA, which is incompatible with the purpose of the RNA; however, these disturbances will be temporary, lasting only 3 to 4 months per year for 2 to 3 years.

Closing the trail will benefit resources protected by the RNA, including wildlife displaced by visitors using the trail. Because the Crater and surrounding areas, such as Shipier Mountain, will

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no longer be accessible to visitors via the Crater Trail, the value of the RNA to serve as an example of an undisturbed ecosystem and research area will be enhanced. Ongoing effects on the resources protected by the RNA (e.g., impacts on alpine tundra from erosion and creation of social trails, and displacement and increased stress to bighorn sheep resulting from visitors hiking on the trail and off-trail) will be reduced or eliminated. These benefits will extend year-round and will last indefinitely.

Abandoning and restoring the trail will reestablish 0.48 acre of vegetation and wildlife habitat, which will benefit the RNA by reducing the evidence of human influence and improving the value of the RNA to serve as an example of an undisturbed ecosystem and research area. The alpine tundra and subalpine forest will likely take decades to recover to a condition where no human disturbance is evident; therefore, the beneficial effects of restoring the trail will occur gradually over many years. Once restoration work on the trail is complete, the objectives of the RNA to serve as a baseline or reference area with limited human impacts will be improved. The presence of the trail is inconsistent with the purposes of the RNA, and removing the trail will provide a substantial benefit to the RNA by permanently removing this inconsistency.

Unnatural sounds during trail closure and revegetation work will generally be low, and disturbance will be mostly contained to the narrow trail corridor. Exceptions include potential use of mechanized equipment, such as chainsaws, and use of a helicopter for material delivery, which will temporarily degrade the quality of wilderness. Once construction is complete, the untrammelled quality of the wilderness will be preserved with no change following removal of the trail. Opportunities for solitude and primitive and unconfined recreation will be permanently degraded under the selected alternative. The wilderness will continue to provide opportunities for primitive recreation, but permanently closing the trail will reduce opportunities for hiking in the wilderness. Although opportunities for hiking will be reduced, closing the trail is consistent with the intent of the park's Backcountry/Wilderness Management Plan, which classifies the Crater Trail within Management Class 1, generally does not include trails, has little evidence of impacts by humans, and is generally moderate to difficult to access.

The other wilderness features of value (cultural resources and research and education) could be affected by closing and rehabilitating the trail. Although portions of an archeological site will be destroyed by trail rehabilitation activities, the majority of the site will remain protected from further erosion. Removing the trail will permanently degrade the wilderness quality of other features of value by obliterating the trail, as described in the EA under Historic Structures.

Although removing the trail will have some adverse effects on wilderness, the overall effect on wilderness quality will be beneficial by protecting archeological resources from future degradation. Removing the trail will benefit the undeveloped and natural qualities of wilderness. Removing public access will help protect alpine tundra from additional impacts from hikers creating social trails.

Opportunities to visit the Crater and view the bighorn sheep herd and other wildlife in the area will be curtailed due to the trail closure. The selected alternative will have an adverse impact on visitor use by creating higher use on other trails in the park. Visitor use will only be affected during a brief portion of the hiking season in the park because most visitors hike the trail during the 6- to 8-week period from the end of the bighorn sheep lambing season in mid-August until snowfall makes traveling the higher elevation areas of the trail impractical, generally in October. Closing the trail will permanently eliminate public access to about 1 mile of trail of the 355 miles

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of trails that make up the park's trail system. Prior to the current 3-year closure, the Crater Trail was traveled by about 3,000 hikers per year, which is a small number considering the much higher use of many other trails in the park. Visitors displaced from the Crater Trail closure will likely choose to hike on other trails in the park, resulting in an increase of about 3,000 visitors per year on other trails in the park.

The project will not result in the loss or destruction of significant scientific, cultural, or historical resources.

There will be no significant impacts on public health, public safety, or unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified in the EA. Implementation of the selected alternative will not violate any federal, state, or local environmental protection laws.

CONCLUSION

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

Based on the foregoing, it has been determined that an EIS is not required for this project and, thus, will not be prepared.

Appendix A

Mitigation Measures

To minimize impacts related to the selected alternative, the National Park Service (NPS) will implement Best Management Practices (BMPs) and resource protection measures.

BMPs are primarily focused on hand construction because most of the trail work will occur in wilderness areas with limited use of mechanized equipment.

GENERAL MEASURES

- The construction area limits will be clearly defined and delineated to keep ground disturbance to a minimum. No disturbance will occur beyond these limits other than protection measures for erosion/sediment control.
- All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project area upon project completion. Construction debris will be hauled from Rocky Mountain National Park (park) to an appropriate disposal location.
- The park has developed a comprehensive list titled "Construction Stipulations for Native Plant Conservation and Restoration" to help minimize impacts on natural resources. These measures cover all aspects of trail construction, including implementation, construction limits, equipment, clearing and grubbing, excavation, topsoil salvage, vegetation salvage, rough grading, finish grading, imported aggregate and soil, placement of topsoil, erosion control, seeding, and mulching and will be incorporated into contract documents. The park will also apply the 2006 Vegetation Restoration Management Plan to guide revegetation activities.

WATER RESOURCES

- BMPs will be used to minimize erosion and the introduction of sediments to aquatic habitat during and after construction.
- All vehicle and equipment fueling will occur more than 100 feet from any surface water in a location where a fuel spill will not be able to enter the water. A spill prevention and response plan that regulates the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment, will be prepared.

WILDLIFE AND SPECIES OF CONCERN

- The park will ensure that personnel conducting trail restoration will be instructed on appropriate behavior in the presence of wildlife and on proper storage and handling of food, garbage, and other attractants.
- Potential impacts on species of concern, including boreal toads, will be avoided by conducting trail restoration work outside of the breeding season in wetlands. The restriction will start as soon as ice is melted off ponds/streams. If presence of amphibians is verified, the

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restriction will stay in place until metamorphosis, which can be as late as October. If amphibians are not present, the work can move forward.

- From May 1 to August 15, mechanized equipment will not be used; only hand tools will be used to minimize impacts on bighorn sheep during the lambing season. After August 15, use of mechanized equipment will be allowed. Exceptions to this limitation will be as follows: 1) if monitoring of bighorn sheep is conducted prior to work commencing and no ewes or young lambs are identified in the area, use of mechanized equipment can commence; and 2) if monitoring of bighorn sheep is conducted prior to work and ewes or lambs are observed, use of mechanized equipment may commence in coordination with bighorn sheep observations to assess disturbance and, if no adverse impacts are observed, mechanized equipment use can continue independent of bighorn sheep monitoring.
- If bighorn sheep are observed, park staff will not approach them and will wait for them to leave the area. If the sheep change behavior (e.g., stop grazing, have one member constantly watch, or stand up from a bedded position), park staff will retreat from the area until the sheep vacate the area and then continue work.

VEGETATION

- All equipment entering the park will be cleaned and pressure washed to remove foreign soil, vegetation, and other materials that may contain nonnative seeds or vegetation.
- Imported fill dirt will be from a weed-free source to ensure that it is free of noxious weeds.
- All disturbed areas will be revegetated with native species. Revegetation plantings, if necessary, will use native species from genetic stocks originating in the park. Revegetation efforts will focus on recreating the natural spacing, abundance, and diversity of native plant species. All disturbed areas will be restored as nearly as possible to preconstruction conditions shortly after construction activities are completed.
- In an effort to avoid introduction of exotic plant species, no hay bales will be used. Hay often contains seed of undesirable or harmful invasive exotic plant species. Therefore, on a case-by-case basis, the following materials may be used for any erosion control that may be necessary: rice straw, wood straw, straws determined by the NPS to be weed-free (e.g., Coors barley straw or Arizona winter wheat straw), cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.
- Any nonnative invasive plant infestations discovered in the project area will be treated on a yearly basis for a minimum of 3 years following project completion. Nonnative invasive plant species will be managed in accordance with the park's Invasive Exotic Plant Management Plan.

SOILS

- Erosion-control measures that provide for soil stability and prevent movement of soils into waterways will be implemented, such as silt fence structures made of burlap or biodegradable mesh.

CULTURAL RESOURCES

- The park will ensure that all personnel who work on the trail are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Personnel will also be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment traffic will be minimized in the area of the site. Equipment and materials staging areas will also avoid known archeological resources.

An MOA to resolve adverse effects on historic properties has been executed with the SHPO. The following stipulations will be adhered to as described in the MOA:

- The NPS will ensure that archeological work conducted pursuant to the MOA is carried out by, or under the direct supervision of, a person or persons meeting the minimum appropriate qualifications set forth in the Department of the Interior's "Professional Qualifications" (49 Federal Register 44738-46739).
- The NPS will ensure subsurface cultural deposits are protected in-situ to the maximum extent possible.
- The NPS will conduct cultural resource awareness training for staff involved in trail obliteration and revegetation activities.
- An archeological monitor will be on-site to monitor ground-disturbing activities.
- The NPS will complete a plan that will inform the public about why the Crater Trail was closed and rehabilitated. This could include a display at the visitor center and/or other media communication methods, in consultation with the SHPO.
- The plan will be archived at the park and a copy will be sent to the SHPO.
- The NPS will conduct limited data recovery according to NPS standards, as outlined in Director's Order 28: *NPS Cultural Resources Management Guideline, Revision 5* (D0-28) and in the Secretary of the Interior's Standards and Guidelines for Archeological and Historic Preservation. The primary objective of data recovery is to prevent the loss of site-specific archeological information. The park will develop the data recovery plan in coordination with the SHPO. Results of the data recovery will be compiled and sent to the SHPO for review and comment.
- After limited data recovery, the NPS will obliterate, stabilize, and revegetate the trail through 5LR91 following the Rocky Mountain National Park Vegetation Restoration Management Plan (2006) and additional guidelines listed below.
 - Minimally to moderately eroded trails shall be scarified. Topsoil shall be spread loose to a minimum depth of 4 inches over all disturbed areas. The area will be seeded with native alpine species.
 - Moderately to severely eroded trails shall be scarified. Biodegradable soil erosion devices shall be applied to the disturbed area. Sterile fill may be used to stabilize the area. Topsoil shall be spread loose to a minimum depth of 8 inches over all disturbed areas. The area will be replanted and seeded with native alpine species.

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- Conserved topsoil shall be spread a minimum of 2 inches loose depth over all disturbed areas. Imported topsoil shall be fertile, friable, free draining, sandy loam free of subsoil, refuse, stumps, roots, brush, weeds, rocks larger than 1 inch and shall be sterilized.
- Following the conclusion of the undertaking described in the MOA, the NPS shall provide all parties to the MOA a draft report detailing work undertaken pursuant to its terms within 120 days. The report will present the results of the data recovery, including all analyses. The report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the NPS's efforts to carry out the terms of the MOA. All samples will be permanently stored at the park curation facility until funding is available to perform additional, as-needed, analyses. All field and lab analysis forms, field notes, photographs, maps, and the final report will be curated in the park's collections.
- If previously unknown archeological resources are discovered during obliteration or revegetation activities, all work in the immediate vicinity of the discovery will be halted and the procedures of 36 Code of Federal Regulations (CFR) 800.13[c] will be followed. In the unlikely event that Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered, all work in the immediate vicinity of the discovery will be halted and the procedures of 43 CFR 10.3 will be carried out including taking immediate steps to protect the discoveries in situ, notifying the 9 aforementioned tribes, conducting tribal consultation, and developing and executing a plan of action.

VISITOR USE AND EXPERIENCE

- Signs, press releases, and other communication methods will be used to inform visitors about construction, trail access, and any trail closures during construction.
- Barriers or signs will be used to prevent visitor travel on abandoned trail segments to allow restoration of these areas.

AIR QUALITY AND SOUNDSCAPES

- All construction motor vehicles and equipment will have mufflers conforming to original manufacturer specifications that are in good working order to prevent excessive or unusual noise, fumes, or smoke.
- To reduce noise and emissions, construction equipment will not be permitted to idle for longer than is necessary, preferably less than 2 minutes when not in use.

PUBLIC HEALTH, SAFETY, AND PARK OPERATIONS

- Appropriate barriers and barricades will be used to clearly delineate work areas and prevent visitor travel near construction areas.
- Construction crews will wear appropriate attire such as hard hats, gloves, and goggles to protect themselves from natural hazards. Visitors will not be allowed into construction zones.

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- Trucks hauling debris and other loose materials will be covered to maintain adequate freeboard to prevent spillage to paved surfaces.
- Emergency response protocols will be developed for implementation during construction. Construction activities will be conducted in accordance with established safety protocols.
- Employees and construction crews will be required to park their vehicles in designated locations.
- Construction workers and supervisors will be informed about the special sensitivity of park values, regulations, and appropriate housekeeping.

Appendix B

Non-Impairment Determination

By enacting the National Park Service (NPS) Organic Act of 1916 (Organic Act), Congress directed the U.S. Department of the Interior and the NPS to manage units "to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (54 United States Code 100101). NPS *Management Policies 2006*, Section 1.4.4 explains 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 National Park Service. 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."

An action constitutes impairment when its impacts "harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values" (NPS 2006, Section 1.4.5). To determine impairment, the NPS must evaluate the "particular resources and values that will 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 on any park resource or value may constitute impairment, but an impact would be more likely to constitute an 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;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance (NPS 2006, Section 1.4.5).

Fundamental resources and values for Rocky Mountain National Park are identified in the enabling legislation for the park. 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

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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 NPS 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 will have significant effects.

This non-impairment determination has been prepared for the selected alternative, as described in the Finding of No Significant Impact for the Crater Trail. Those topics remaining to be evaluated for impairment include vegetation and soils, bighorn sheep, historic structures, archeological resources, research natural areas (RNAs), and wilderness.

VEGETATION AND SOILS

The Crater Trail crosses subalpine and alpine vegetation communities. Native vegetation within the project area is described on pages 24 and 25 of the Environmental Assessment (EA). No special status plant species occur in the project area.

Soils in the project area are described on pages 26 and 27 of the EA. The existing trail above tree line is deeply incised in areas due to erosion of the volcanic fine-grained soils.

The selected alternative will abandon and revegetate the existing trail. The abandoned trail surface will be recontoured and revegetated with native vegetation to restore natural conditions, using both passive and active revegetation techniques. Some trampling of vegetation will likely occur during restoration and will be limited to within about 25 feet or less from the existing trail. Trampled vegetation will likely recover to preconstruction conditions within 1 to 2 years. Closing the trail will eliminate most human use of the Crater Trail area, resulting in benefits to vegetation and soils from reduced foot traffic. The selected alternative will restore and revegetate about 0.48 acre (about 0.16 acre of alpine habitat and about 0.32 acre of subalpine habitat) within the abandoned trail corridor. Restoration of alpine plant communities will likely take decades because of the short growing season and their fragile nature. The vegetation in the subalpine zone will likely recover within a few years, with understory plants filling in beneath the existing tree canopy. Reestablishing vegetation will benefit soils by protecting them from additional erosion.

The selected alternative will not result in an impairment of vegetation and soils because the abandoned trail will be revegetated and stabilized to reduce erosion and soil loss. In addition, a substantial portion of the area of impact is in areas of previous disturbance within the trail tread.

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BIGHORN SHEEP

The Crater and surrounding areas are important lambing grounds for bighorn sheep. Bighorn sheep are also attracted to the Crater by the presence of natural mineral licks. In recent years, up to 90 bighorn sheep have been observed at one time in the Crater area.

The selected alternative could result in displacement and increased stress in bighorn sheep during the 3- to 4-month summer construction period. The rehabilitation process will occur over 2 to 3 years and will involve the use of a helicopter to deliver fill soil as needed. Use of a helicopter will create additional noise that could affect bighorn sheep over a period of about 3 to 10 days during the 6- to 8-week trail restoration period. Potential effects on bighorn sheep from increased human presence could include increased physiological stress, changed behavior such as less time foraging and more time watching the surroundings, and changed movement patterns (displacement to nearby habitat). Use of helicopters could disturb bighorn sheep and reduce their foraging efficiency by causing the animals to expend more energy reacting to the helicopters while foraging. These effects will impact individuals or small groups of bighorn sheep, and will only occur during the 6- to 8-week construction season.

To minimize impacts on bighorn sheep during the lambing season, mechanized equipment will not be used from May 1 to August 15; only hand tools will be used. After August 15, use of mechanized equipment will be allowed. Exceptions to this limitation will be as follows: 1) if monitoring of bighorn sheep is conducted prior to work commencing and no ewes or young lambs are identified in the area, use of mechanized equipment can commence; and 2) if monitoring of bighorn sheep is conducted prior to work and ewes or lambs are observed, use of mechanized equipment may commence in coordination with bighorn sheep observations to assess disturbance and, if no adverse impacts are observed, mechanized equipment use can continue independent of bighorn sheep monitoring. If bighorn sheep are observed, park staff will not approach them and will wait for them to leave the area. If they change behavior (e.g., stop grazing, have one member constantly watch, or stand up from a bedded position), park staff will retreat from the area until the sheep vacate the area and then continue work.

Restoration of the trail with native vegetation will reestablish bighorn sheep habitat within the trail tread (about 0.16 acre of alpine habitat and about 0.32 acre of subalpine habitat). Some trampling of vegetation providing habitat for bighorn sheep will likely occur during restoration and will be limited to within about 25 feet or less from the existing trail. Trampled vegetation will likely recover to preconstruction conditions within 1 to 2 years. Closing the trail will eliminate most human use of the Crater Trail area. Because bighorn sheep may respond to human disturbance and avoid areas with hikers, closing and revegetating the trail could lead to increased use of the area by bighorn sheep. This will be a permanent benefit to the entire bighorn sheep population in the Crater Trail area. As described in the EA, the Crater and surrounding areas are important year-round habitat for bighorn sheep, and interactions with visitors at the mineral lick at the Crater have been identified in the past.

The selected alternative will not result in an impairment of bighorn sheep because overall, closing and revegetating the trail will be beneficial for bighorn sheep over the long term by eliminating an ongoing source of disturbance and stress for the sheep. Also, the abandoned trail will be revegetated and stabilized to reduce erosion and soil loss, which will protect and restore bighorn sheep habitat.

HISTORIC STRUCTURES

Crater Trail is a section of the Specimen Mountain Trail, a historic property. Obliterating and revegetating the existing Crater Trail will result in an adverse effect from the loss of the historic trail and will exclude the trail from National Register of Historic Places (NRHP) eligibility. The adverse effects on historic structures have been resolved through an executed MOA between the NPS and the SHPO. The MOA includes a stipulation that the NPS will complete a plan that will inform the public about why the Crater Trail was closed and rehabilitated. This could include a display at the visitor center or other media communication methods. The plan will be archived at the park and a copy will be sent to the SHPO. The selected action will not impair historic structures with implementation of the stipulations in the MOA.

ARCHEOLOGICAL RESOURCES

Five archeological sites have been identified along or near the Crater Trail. As described in the EA, the selected alternative will result in ground disturbance from obliterating and revegetating the existing trail and will result in an adverse effect on an archeological site. Continuing trail erosion has exposed buried cultural deposits, and using hand tools and imported fill to obliterate the trail may further impact cultural deposits.

Adverse effects have been resolved through an executed MOA between the NPS and SHPO. The MOA includes a stipulation to complete limited data recovery according to NPS standards, as outlined in Director's Order (DO) 28: *NPS Cultural Resources Management Guideline, Revision 5* (DO-28) and in the *Secretary of the Interior's Standards and Guidelines for Archeological and Historic Preservation*. The primary objective of data recovery is to prevent the loss of site-specific archeological information. The park will develop the data recovery plan in coordination with the SHPO. The selected action will not impair archeological resources with implementation of the stipulations in the MOA.

RESEARCH NATURAL AREAS

Closing the trail would benefit resources protected by the Specimen Mountain RNA, including wildlife that are displaced by visitors using the trail. Because the Crater and surrounding areas, such as Shippler Mountain, would no longer be accessible to visitors via the Crater Trail, the value of the RNA to serve as an example of an undisturbed ecosystem and research area would be enhanced. Ongoing effects on the resources protected by the RNA (e.g., impacts on alpine tundra from erosion, creation of social trails, and displacement of bighorn sheep resulting from visitors hiking on the trail and off-trail) would be reduced or eliminated. These benefits would extend year-round and would last indefinitely.

Abandoning and restoring the trail would reestablish 0.48 acre of vegetation and wildlife habitat, which would benefit the RNA by reducing the evidence of human influence and improving the value of the RNA to serve as an example of an undisturbed ecosystem and research area. The alpine tundra and subalpine forest would likely take decades to recover to a condition where no human disturbance is evident; therefore, the beneficial effects of restoring the trail would occur gradually over many years. The presence of trail crews will be an intrusion into the Specimen Mountain RNA, which is incompatible with the purpose of the RNA; however, this disturbance

FINDING OF NO SIGNIFICANT IMPACT

will be temporary, lasting only 3 to 4 months per year for 2 to 3 years. Also, a helicopter will be used for a total of 3 to 10 days during this period to deliver fill material.

Once restoration work on the trail is complete, the objectives of the RNA to serve as a baseline or reference area with limited human impacts would be improved. The presence of the trail is inconsistent with the purposes of the RNA, and removing the trail would provide a substantial benefit to the RNA by permanently removing this inconsistency. The selected action will not impair research natural areas.

WILDERNESS

The selected alternative involves obliteration and restoration of a trail section in wilderness. These activities will impact the untrammeled, undeveloped, and natural character of wilderness, along with opportunities for solitude or primitive and unconfined recreation.

Unnatural sounds during trail closure and revegetation work will generally be low, and disturbance will be mostly contained to the narrow trail corridor. Exceptions include potential use of mechanized equipment, such as chainsaws, and use of a helicopter for material delivery, which will temporarily degrade the quality of wilderness. Once construction is complete, the untrammeled quality of the wilderness will be preserved with no change following removal of the trail. Opportunities for solitude and primitive and unconfined recreation will be permanently reduced under the selected alternative. The wilderness will continue to provide opportunities for primitive recreation, but permanently closing the trail will reduce opportunities for hiking in the wilderness. Although opportunities for hiking will be reduced, closing the trail is consistent with the intent of the park's Backcountry/Wilderness Management Plan, which classifies the Crater Trail within Management Class 1, generally does not include trails, has little evidence of impacts by humans, and is generally moderate to difficult to access.

The wilderness features of value (cultural resources and research and education) could be affected by closing and rehabilitating the trail. Archeological resources will be protected by reducing ongoing erosion, which is affecting an archeological site. Removing the trail will permanently degrade the wilderness quality of other features of value by obliterating the trail, as described in the EA under Historic Structures. Although removing the trail will have some adverse effects on wilderness, the overall effect on wilderness quality will be beneficial by protecting archeological resources from future degradation.

Removing the trail will benefit the undeveloped and natural qualities of wilderness. Removing public access will help protect alpine tundra from additional impacts from hikers creating social trails.

Overall, the selected alternative will have adverse effects on wilderness qualities during the 3- to 4-month construction period occurring over 2 to 3 years and will have a beneficial effect on the undeveloped and natural character of the wilderness after construction is complete. The selected alternative will adversely affect opportunities for solitude and unconfined recreation, but this change is consistent with the park's Backcountry/Wilderness Management Plan. Thus, the selected alternative will not impair designated wilderness.

CONCLUSION

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 will be no impairment of park resources and values from implementation of the selected alternative. The NPS has determined that implementation of the selected alternative will not constitute an impairment of the resources or values of Rocky Mountain National Park. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA, comments provided by the public and others, and the professional judgment of the decision maker guided by the direction of NPS *Management Policies 2006*.

REFERENCES

- National Park Service (NPS). 2006. NPS Management Policies 2006. Available at: <https://www.nps.gov/policy/mp2006.pdf>.
- U.S. Department of Interior (U.S. DOI). 1983. Secretary of the Interior's Standards and Guidelines for Archeological and Historic Preservation.

Appendix C

Responses to Public Comments

The Environmental Assessment (EA) was made available for public review, and comments were accepted by Rocky Mountain National Park (park) from October 13, 2017 through November 22, 2017. Public meetings were held in Grand Lake on October 24, 2017 and in Estes Park on November 8, 2017 to present the results of the EA and answer questions.

During the public comment period, the National Park Service (NPS) received 34 correspondences through the NPS's Planning Environment and Public Comment (PEPC) system.

Responses to public comments address substantive comments that were received during the public review period. According to NPS policy, substantive comments are those that 1) question the accuracy of the information in the EA, 2) question the adequacy of the environmental analysis, 3) present reasonable alternatives that were not presented in the EA, or 4) cause changes or revisions in the proposal.

Many comments addressed issues already adequately covered in the EA. No comments warranted development of an additional alternative or reconsideration of alternatives that were considered but dismissed. Therefore, the alternatives remain as described in the EA, and no changes were made in the assessment of environmental consequences.

The park only responded to substantive public comments; those comments and responses are provided below.

Comment 1: Make access available for a nominal fee and provide a ranger led educational experience to enhance awareness of the importance of both. Rather NPS needs to be creative with new ideas in planning and protecting park resources through permit systems, time limited access and other mechanisms. It was very clear to me during my review of the Crater NEPA document that the NPS already has its mind made up to close the trail and did not seriously and rationally consider other options. The option I proposed in September, 2014 of a limited permit system to reduce but not eliminate access could easily have been combined with rehabilitation of the existing trail or realigning the trail. Alternatives to simply close the trail do exist and can address all issues, but NPS simply ignores these options. Certainly, there is a compromise alternative that will satisfy the resource protection needs and allow some public access.

Response: The NPS gave careful consideration to allowing continued access through a permit system, once the annual bighorn sheep protection closure was lifted each year, and dismissed the idea. This alternative is described on page 23 of the environmental assessment as, "Close Trail and Allow Limited Access with Adaptive Management." The NPS considered but dismissed this alternative, or other forms of it, due to the additional demands on staff time to issue permits and monitor compliance in an era of dwindling budgets, significant deferred maintenance needs, reduced staffing, and dramatic increases in visitation. But more importantly, continued use would not address concerns related to natural and cultural resource damage. Closure of the trail is the optimal way to meet the purpose of this project, which is to protect bighorn sheep range, archeological resources, wilderness values, the Specimen Mountain

Research Natural Area, and soil and vegetation resources, including alpine tundra, currently being impacted by the Crater Trail.

Comment 2: Re-countour (sic), re-grade, and re-seed the former trail to blend in to the natural environment as much as possible. You may need to put wooden check-boards with metal/wooden stakes to hold the wooden check-boards in place, rock around the wooden checkboards to prevent wood rot over time, and rock and dirt over the most severe rutted sections to prevent further/future erosion from rain and snowmelt. Perhaps more permanent materials could be used for the water bars so that less maintenance is needed in the future.

Response: The NPS would stabilize and revegetate the abandoned 1-mile long trail through a variety of methods, described on page 9 of the environmental assessment and supported in the Minimum Requirement Decisions Guide for wilderness.

Comment 3: The volcanic rocks could have interpretive signs, which would help visitors understand their differences compared to most of the park's rocks, especially their young ages and how those were determined. I think this educational opportunity is too valuable to miss, considering the state of people's confusion about geologic time and the proximity of the volcanic rocks to the main road.

Response: The park interprets its volcanic geologic history through various personal and non-personal services. Personal services include a weekly geology hike from the Alpine Visitor Center during the summer, as well as conversations with volunteers who staff Farview Curve. Wayside exhibits at the Lava Cliffs interpret the volcanic origins of the Never Summer Mountains, and the park carries a publication titled *Geology Along Trail Ridge Road* that contains a section on the volcanic origins of the Never Summer Mountains and volcanic features on the western portion of Trail Ridge Road.

Comment 4: There are other trails in Rocky where erosion is far worse than at the Crater and other park resources are impacted. For example, the trail to the summit of Flattop Mountain is heavily incised and eroded to the point that hikers walk in a channel and have to make huge steps up or jump down in some areas where rocks have been placed to stabilize the trail. Is the proposal to close the Crater the proverbial slippery slope that will lead to more proposals and actual decisions to close other trails in Rocky?

Response: No. The closure of the Crater Trail represents a singular situation in the park with damaged natural and cultural resources, located in wilderness, a research natural area, and associated with a bighorn sheep protection area. The NPS acknowledges the damaged condition of other trails in the tundra, such as Flattop Mountain Trail, and has this trail and other similar trails on a long-term management schedule for continued maintenance. There are no plans to permanently close other trails in the park.

Comment 5: NPS commits a significant act of omission in the EA regarding the bighorn sheep. It fails to state (and therefore hides from the public) that the sheep on the west side of the Park range outside of the Park. Rocky does not include the full seasonal range of this sheep herd and the sheep can frequently be found outside the Park boundary north of Thunder Pass, on the west side of the Never Summer Mountains, east towards Corral and Trap Parks, Long Draw Reservoir and into the Colorado State Forest State Park. Further, these sheep are legally hunted outside of the Park boundary by the state of Colorado in Bighorn Sheep Hunting Unit S-19.

Further, as the ewes and lambs utilize their entire summer range they are forced to interact with hikers, hunters, anglers and others enjoying the areas outside of the Park. I have witnessed negative interactions between hikers and this sheep herd outside of the NPS boundary during the period the NPS describes as sensitive for the ewes and lambs of this sheep herd. Closing the Crater Trail will not eliminate human/sheep interactions that might affect the sheep. NPS does not hold a monopoly on managing the opportunity of humans to interact with this sheep herd.

Response: We agree that the bighorn sheep range is broad and extends to areas outside the national park. We also agree the bighorn sheep management is shared across multiple agencies and that these agencies may use a variety of techniques to manage bighorn sheep. Within the park, the Crater and the Specimen Mountain areas provide habitat and a natural mineral lick during the lambing and lactating period. It is the only known location where ewes from two herds overlap, and this occurs only during the lambing season. Numbers of bighorn in this area are higher than in any other area of the park. For these reasons the bighorn receive a greater level of protection in this area then they do at other times of year when dispersed throughout their range. Rocky Mountain National Park has used the seasonal closure since 1971 as a management approach to protecting the bighorn sheep population during this critical timeframe and ensuring they can access the mineral lick with minimal disturbance. This management strategy is in line with NPS wildlife management policies.

Comment 6: Annual Closure until September 1, then allow access until snow closes Trail Ridge Road. The trail is already closed until mid-August to minimize disturbance for the bighorn sheep during the lambing and early rearing season. Closing the trail until September 1st annually, will continue to protect the young bighorns, minimize human traffic in the area after the peak of the visitation season and reduce the impacts of human use on the area. Many people are already aware of the current closure and extending it for 2 weeks will not greatly interfere with the opportunity to use the area.

Response: Extending the closure until September 1 with continued use of the existing trail would not meet the purpose and need of the project which, in addition to protecting bighorn sheep range, includes protection of archeological resources, wilderness values, the Specimen Mountain RNA, and soil and vegetation resources currently being impacted by the Crater Trail.