

FINDING OF NO SIGNIFICANT IMPACT

Lower Thunder Creek Trail and Camp Modifications

2020

Introduction

This Finding of No Significant Impact (FONSI) documents the decision of the National Park Service (NPS) to adopt the proposed action in the Lower Thunder Creek Trail and Camp Modifications Environmental Assessment (EA), which is Alternative I. This alternative was evaluated against Alternative II: No Action. These were the two alternatives fully analyzed in the EA. This FONSI documents the NPS determination that no significant impacts to the quality of the human environment will occur from rerouting 1,500 feet of trail for hiker and stock use, relocating the McAllister hiker and group camp, and constructing a new administrative camp near Junction camp, all on the Thunder Creek Trail in Ross Lake National Recreation Area and North Cascades National Park.

Selected Alternative and Rationale for the Decision

The NPS selected Alternative I, the proposed action, because it best meets the purpose and need of the project and provides the best long-term resource protection and stewardship of wilderness character. The project will allow the NPS to continue to provide the same recreational opportunities in Thunder Creek that visitors have enjoyed for many years, while having only minor and short-term adverse effects on wilderness character and other local resources, mostly related to construction. Removal of the washed-out bridge I-beams will trade short-term adverse effects of helicopter noise with a long-term benefit of removing large sights of modern human development from wilderness. The trail reroute will remove the threat of trail erosion by Thunder Creek and improve the alignment for stock use. Compared to the previous camp, improvements to camp design and layout will provide long-term benefits to local resource protection. The modest addition of an administrative camp has been found to have effects that are not significant and provide for increased overnight use along the trail. The No Action alternative is unacceptable because it eliminates the overnight camping opportunities that have existed for many years, which relates to the recreation public purpose of wilderness (see Appendix E in the EA for past use of camps). Great care was taken to site the proposed camps in locations that would have minimal impacts to sensitive resources and to ensure 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.

Purpose and Need for Federal Action

The purpose of this action is to preserve wilderness character in lower Thunder Creek by minimizing the impacts associated with recreation. This is accomplished by rerouting the trail to safely accommodate both hiker and stock use and the continued policy of maintaining designated campsites within the wilderness. The preservation of wilderness character includes natural and cultural resources and wilderness-centered visitor opportunities.

The need for the project arises from the National Park Service's responsibilities under the Organic Act of 1916 and the Wilderness Act of 1964. Maintaining the wilderness character, allowing for recreation, and minimizing impacts to resources are further addressed in the North Cascades

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National Park Wilderness Management Plan (NPS 1989) and Ross Lake National Recreation Area General Management Plan (NPS 2012). These provide the legislative and policy framework for the NPS and its actions, including the proposed action. For more information on the Park Complex including purpose and significance see the Foundation Document (NPS 2017).

The effects of erosion, flooding, increased visitor use, and resource protection concerns have created the need for action. The trail follows the top edge of a large actively eroding bluff above Thunder Creek just west of McAllister Stock camp. There is limited space between the bluff and McAllister Stock camp to continue to incrementally move the trail eastward. One corner on the trail has been infringed upon by a slow-moving mass movement classified as a slump or creep, to the point it presents a hazard for stock use. In November 2017 a large flood on Thunder Creek completely washed out the pedestrian bridge that provided access from the main trail to McAllister Hiker camp. The debris of the bridge now sits on a gravel bar in Thunder Creek and is comprised of wood and two 50-foot long, 2,300-pound steel I-beams. The concrete, wood, and rock abutments remain on the bedrock bench above Thunder Creek. A survey that same year identified approximately thirty large diameter hazard trees in the McAllister Hiker camp, necessitating closure of the entire camp to protect the natural condition of the forest there. McAllister Hiker camp includes a single large group site for up to twelve people and four smaller sites designed to accommodate up to four backpackers each. Normally, in accordance with established policy, the NPS would fell hazard trees in designated camps to abate the risk of falling dead and dying trees. In this instance, the hazard trees in the vicinity of McAllister Hiker camp are valuable wildlife habitat and the NPS prefers not to cut such a large number of trees and instead prefers to move the camp. In turn, relocation of the camp supports wilderness character by maintaining the area so it “generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work... substantially unnoticeable” (Section 2(c), Wilderness Act of 1964). The NPS trail crew often occupies McAllister and Junction Stock camps when conducting annual trail maintenance work, often for weeks at a time. This results in competition with the public for camp space in the valley. The NPS prefers to alleviate this competition by relocating McAllister Hiker and constructing a new administrative camp near the other Junction camps.

Selected Alternative

The selected alternative consists of all actions described as proposed in the EA - there are no modifications based on public comment or agency scoping. Under the selected alternative, the NPS will:

- Reroute ~1,500 feet of the Thunder Creek trail for stock and hiker use in the vicinity of McAllister Stock camp. This includes construction of a new puncheon bridge over a small creek.
- Relocate the McAllister Hiker camp to the vicinity of McAllister Stock camp. The new improved camp would retain the same capacity of one 12-person group camp and four 4-person camps.
- Expand McAllister Stock camp by building a cook area 100 feet from tent pads.

- Construct a new administrative camp that can accommodate stock and NPS staff only near Junction Stock camp.
- Construction of all elements would take approximately sixty-four days on a reoccurring schedule of eight days working and 6 days off (alternating 7 nights in a row in a camp and 7 nights out). The trail crew would camp at both McAllister Stock and Junction Stock during construction with most time spent at McAllister Stock.
- The work proposed is within the standard operating procedures, training, and experience of the NPS trail crew and there no special safety concerns for workers or visitors. The trail crew practices standard precautions and mitigations to reduce the spread of invasive plants, avoid or reduce impacts to sensitive species, protect water quality, and to reduce disruption to visitors' experience.

The new trail will be constructed to current "All Purpose" trail standards with a 24" wide trail tread and vegetation cleared along the corridor 8-feet wide by 10-feet high. During construction the trail crew will endeavor to remove as few trees as possible, but up to twenty trees ranging in size from 12-to-18 inches in diameter at breast height (DBH) may be removed.

A small puncheon trail bridge (10-foot span) will be built onsite using primarily native material including trees smaller than 18 inches DBH and decking from the old Thunder Creek Bridge that washed out. The work will require various hand tools, power saws, and other small power tools such as hand drills. Trail relocation will take an eight-person trail crew approximately thirty-two days.

To address the loss of the previous group site at McAllister Hiker camp, a new group site will be constructed ~500 feet east of the current McAllister Stock camp. This will include a single separate cook area at least 100 feet away from four dirt tent pads that can accommodate up to four 2-to- 3-person tents. The tent pads will be organized in two separate campsites so that the site could be used as two separate sites as well as for up to a 12-person group. This camp will have a new open air pit toilet with a Wallowa toilet box. Up to 400 feet of new access trails will be constructed with an 18-inch wide tread and vegetation cleared in a 4-foot wide by 8-foot high corridor. Construction of all the camp elements may remove up to fifteen standing dead trees ranging in size from 12-to-24 inches DBH.

The current layout of McAllister stock camp has a cook area/fire ring so close to the tent pads that the risk of bear human conflict is increased. To reduce this risk the NPS will rehabilitate the existing cook area and build a new cook area located ~100 feet to the west of the current camp. To provide NPS staff space to camp that will not conflict with public use, the NPS will construct a new administrative camp east-southeast of Junction Stock camp. This administrative camp is intended for NPS staff use only. This new camp will have up to four dirt tent pads, a cook area, a new Wallowa toilet, two hitch rails, a metal tool storage box (moved from Junction Stock camp), and up to 400 feet of access trails (the portion to the hitch rails will be cleared for the wider standard for stock access and the hiker camp standard above for human only access). Construction of all the camp elements may remove up to ten trees ranging in size from 12 to 18 inches DBH.

Construction of the camps will take an eight-person trail crew approximately thirty-two days and require various hand tools, power saws, and other small power tools such as hand drills. See the minimum requirements analysis (MRA) in Appendix A of the EA for an explanation of prohibited uses in the designated wilderness and when those uses can be relaxed following the proper analysis. The dimensions of the tent pads will be approximately 8-feet by 10-feet and the cook areas up to 20-feet by 24-feet. Tent pads may be elevated so that they are clearly delineated for use as a tent pad using logs or rocks as cribbing for ~40 cubic feet of fill. The fill will be leftover mineral soil from trail construction. All new camps will have signs installed that clearly show visitors where the cook areas, tent/sleeping areas, toilet, and water sources are. These signs will meet the current standards for the Stephen Mather Wilderness that have appropriate symbols routed and burned into 4X4 posts installed in the ground. In addition, each area will have a rock fire ring installed since campfires are allowed in all of the camps covered in this proposal. In order to facilitate proper food storage for visitors using the public camps, bear wires will be installed at each of the new cook areas mentioned above. To the greatest extent possible the camp locations and design have been chosen to fit as many of the “preferred design features” (PDFs) listed in Appendix B of the EA. These PDFs are chosen to minimize resource impacts and conflicts as much as possible for camp developments. For example, the landforms and geologic hazards of potential camp areas are considered by reviewing the park’s geologic landform map (see Appendix C in the EA for camp area landform maps). In addition, campsites will be sited so that adjacent parties are not within sight of each other or of the main trail in order to provide solitude in the campsites. A conceptual layout of what a four-site hiker camp might look like based on many PDFs is shown in Figure 8 of the EA.

Finally, there will be limited restoration of the abandoned trail near McAllister Stock camp and campsites at McAllister Hiker camp as access, staffing, and funding allow. Any structures, such as fire grates/rings, tent pad cribbing logs, and trail structures will be removed. Old tent pads will be scarified. Further restoration will rely on natural processes such as forest decay and regrowth. Abandoned trails will be scarified, “naturalized” by spreading logs, brush, and duff across the surface, and then planted with seeds or seedlings of native plants. The bridge abutments which include a mix of native rock, concrete, and wood will be demolished and removed. The washed-out bridge will be disassembled, and the stringers removed from the wilderness by helicopter (see MRA in Appendix A of EA). This will require up to 3 flights to remove the bridge.

Other Alternatives Considered

Alternative II: No Action

Under the No Action Alternative, the Thunder Creek Trail would likely undergo incremental rerouting to respond to future erosion of the river bluff, likely by a combination of user-created social trail formation and perhaps some minor trail rerouting by the NPS in the future. McAllister Hiker camps would remain closed. Administrative use would continue as well as NPS staff sharing McAllister Stock and Junction Stock camps capacity with the public.

There would be limited restoration of the abandoned campsites as detailed above under Alternative I.

The washed-out bridge would be disassembled but left in the wilderness. As needed, decking or other small parts could be used in future maintenance projects in the area. Otherwise, what is not able to be feasibly hiked or packed out by stock would remain in the wilderness. The bridge stringer and any other large parts would be winched from the river bar into the adjacent forest out of sight of the trail. The bridge abutments, which are fixed in place and include a mix of native rock, concrete, and wood, would be left in place.

Summary of Preliminary Options Considered and Dismissed:

Re-Open McAllister Hiker Camp

The alternative of re-opening the existing McAllister Hiker camp and reinstalling the washed-out bridge that spanned Thunder Creek was considered but dismissed from detailed analysis. The primary reason for dismissal is that re-opening as a designated campsite would necessitate felling more than thirty hazard trees, many which are large diameter mature trees, which was deemed too great of an environmental impact. In addition, this camp is located in suitable northern spotted owl habitat and felling suitable nest trees would have created unacceptable impacts. Dismissing this option has the added benefit that there is no longer a need for a bridge across Thunder Creek thereby removing an installation in designated wilderness and reducing maintenance needs and potential for damage from future floods.

Other Locations Considered

Several other locations to replace and redistribute the camp capacity of McAllister Hiker Camps were considered but dismissed:

- A potential new location was identified just north of and across Fisher Creek from Tricouni camp. This location was dismissed because it was located in excellent suitable nesting habitat for northern spotted owl.
- The option was discussed to replace the capacity of McAllister Hiker camps by adding to existing camps such as Neve, McAllister Stock, Tricouni, and Junction Camps. Alternatives with various combinations of these were dismissed after the proposed action site was identified. It is challenging to find a site that meets as many PDFs as possible and the proposed action site meets some of the most critical. Expanding the footprint at several different locations introduces a higher level of uncertainty as to what the environmental impacts would be. Additionally, the location of McAllister camps along the trail provides a desirable distance for many people (~7 miles) for a first day of backpacking up the Thunder Creek trail.

Capacity Changes

While there will be a small increase in capacity in the proposed action with the construction of an administrative camp near Junction Stock, addressing changes in capacity (either increases or decreases) in lower Thunder Creek was dismissed because this is beyond the scope of this particular review. Addressing overnight capacity beyond the site-specific level is a larger question that needs to be addressed systematically across the Stephen Mather Wilderness. The NPS plans to take this up in the next few years in a comprehensive wilderness stewardship plan.

Project Work Solely with Non-motorized Tools

Removal of the washed-out bridge debris was considered with stock animals, but the steel I-beams (50-foot long and 2,300-pounds) are too large to be removed intact. The prospect of cutting up the I-beams by hand so that stock may transport them out would be an onerous, extremely time-consuming task that is considered unfeasible due to risks of repetitive stress injury to workers. It may be possible to cut up the I-beams with motorized tools for stock removal, but this would result in long durations of motorized noise in the wilderness, more noise than would be produced by solely using a helicopter for removal.

Use of non-motorized tools only was considered and dismissed from detailed analysis in this EA, but it is considered in more detail in the MRA. While many construction tasks outlined in the proposed action could be accomplished without motorized tools, when the project is considered on balance with all the other trail maintenance needs in the wilderness, power tools are deemed to be the minimum tool for use in designated wilderness. Chainsaw and motorized tool use for the project work helps a limited number of trail crew members to keep all trails and designated camps in the Park Complex up to established standards. Not keeping trails to maintenance standards results in numerous short and long-term impacts to wilderness character that the NPS considers unacceptable. See Appendix A for more details.

Mitigation Measures Incorporated in the Selected Alternative

The following best management practices would minimize the degree and/or extent of adverse impacts and will be implemented under the Selected Alternative.

- Wilderness: The project leader shall report helicopter flight time and number of landings and sling loads to the Wilderness Coordinator for incorporation into the park's wilderness character monitoring database.
- Human Health & Safety: Ensure all employees are qualified for the job they are doing (chainsaw operator, etc.). A Job Hazard Analysis should be done prior to the work being started - addressing issues at each site. Ensure a plan is in place for safely managing visitors at all worksites. Employees will follow park/national (once fully implemented) chainsaw policy and wear appropriate PPE at all times. Employees will follow standard crew practice of a thorough site evaluation and independent hazard assessment for all high-risk activities.
- Archaeology: Should any of the western red cedar trees become hazard trees, Trails workers shall contact the park archeologist before they are felled.
- Archaeology: If unidentified cultural resources are encountered during the implementation of the project, NPS cultural resources staff should be notified immediately and all work in the proximate area should be halted until the resources can be evaluated by a professional, in consultation with the Washington state Department of Archaeology and Historic Preservation and the associated tribes.

- Vegetation: All equipment, boots should be cleaned and free of weed seeds and propagules to reduce weed infestations. No fill in the form of gravel should be added to the site from sources outside of the park.
- Species Listed under the Endangered Species Act: Conservation Measures are listed below to ensure project impacts to Northern Spotted Owl (NSO) are insignificant or discountable:
 1. The disruptive activities listed below should be limited or suspended within the threshold distances in the event that a NSO or its nest is discovered. This is based on current guidance on auditory and visual harassment threshold distances for NSO nests:

Activity	Harassment Threshold Distance
Blasting	0.25 mile (440 yards)
Portable rock drill	180 feet (60 yards)
Small helicopter	330 feet (110 yards)
Chainsaw use	195 feet (65 yards)

2. Before felling a hazard tree in NSO suitable habitat during the early nesting season (March 1 to July 15), it will be inspected for suitable nest tree (SNT) characteristics. If the tree does not have SNT characteristics it would be felled, if it does it would be felled after July 15. Likewise, even if a hazard tree doesn't have SNT characteristics any trees that would be contacted when it was felled would be inspected for SNT characteristics and the appropriate decision made. Data on SNT characteristics will be collected for each hazard tree. The most up to date definition of a SNT provided by USFWS will be used by NPS staff.
3. Helicopter Use:
 - a. Helicopters should fly a minimum of 400 feet above tree-tops to avoid potential disturbance to NSOs. This 400-foot minimum particularly applies during the sensitive early nesting season, which is between March 1 and July 15.
 - b. Hovering of a small helicopter shall not occur within 330 feet of a known NSO activity center at any time during the nesting season between March 1 and September 30.

Public Involvement and Agency Consultation

Public Scoping

The formal public scoping period was announced by press release and on the park's Facebook page and began on April 2, 2020 and extended through May 1, 2020. Comments were collected via the NPS PEPC page, <https://parkplanning.nps.gov/>. Five correspondences were received from four individuals and one from the North Cascades Conservation Council. Three comments were in support of the proposed action, one comment pointed out the minimum requirements clause in the Wilderness Act, two comments sought clarification on the proposed action, one

correspondence/letter suggested changes to the no action alternative, and expressed concerns about motorized tool and helicopter use in wilderness.

Public EA Review

The public review period for the EA was announced by press release and on the park's Facebook page. The EA was posted online to <https://parkplanning.nps.gov/> and a news release. Public comment was available from June 15, 2020 to July 14, 2020 via the NPS PEPC page. Six public correspondences were received from four individuals and two organizations. Within those correspondences five comments were in support of the proposed action and two were opposed. Twenty-one substantive comments were identified which are summarized below (Table 1). Some comments with similar concerns were consolidated for the summary.

Table 1: RESPONSE TO PUBLIC COMMENT (page numbers and figures reference those in the EA)

Concern/Comment	Response
Is the camp layout shown in Figure 8 in the EA the proposed layout of the new McAllister Hiker Camp?	The camp layout depicted in Figure 8 is conceptual and much finer scale than the map in Figure 6. It is meant to provide the reader with a spatial depiction of some of the preferred design features listed in Appendix B. The actual layout of the camp will blend preferred design features with the topography, vegetation, and proximity to the trails and existing camps.
Although it is clear that the proposal is limited in scope and directed towards the McAllister hiker and stock camps, would it not be valuable to include an initial discussion about camp capacity even if that discussion became part of a larger wilderness plan in the future? Does this proposal maintain the current capacity due to a lack of space for expansion in the proposed new area?	As stated in the EA, "addressing changes in capacity (either increases or decreases) in lower Thunder Creek was dismissed because this is beyond the scope of this particular review. Addressing overnight capacity beyond the site-specific level is a larger question that needs to be addressed systematically across the Stephen Mather Wilderness." (p. 12). Likewise, the purpose of the project is "to preserve wilderness character in lower Thunder Creek by minimizing the impacts associated with recreation." (p. 3), not to address overnight camping capacity in Thunder Creek. Addressing the question of overnight camping capacity in a single valley or the Stephen Mather Wilderness is complex and would require additional resource surveys and analysis, more than are necessary to analyze this project.

Concern/Comment	Response
<p>I am concerned about the impact of moving so many spaces together. As more hikers are clustered in one camping area, the potential for conflict rises. The proximity also reduces the ability for privacy and solitude that is one of the major appeals of nature.</p>	<p>One of the design goals for the new campsites, particularly tent pads, are to space them out so that distance, topography, and/or vegetation provides screening for privacy and solitude. As mentioned in the Figure 8 caption and Appendix B the following design features will be used to foster privacy and solitude: “camp areas at least 100 feet away from water, sleeping areas at least 100 feet away from cook areas, separation between sites and trails to provide privacy and solitude, and the toilet at least 200 feet away from water. Trail junctions are signed to clearly indicate what a trail leads to.”</p>
<p>Is the removal of the bridge necessary? Does it have negative impacts on natural and cultural resources?</p>	<p>As is documented in the minimum requirements analysis and final EA (see Errata below), leaving the bridge stringers and abutments would have long-term negative effects on the undeveloped quality and the quality for opportunities for solitude of wilderness character. The I-beams in wilderness are clear signs of modern human civilization and have no historic significance. There would be no anticipated effects to water quality, hydrology, wildlife, endangered species, or any other natural resources/processes. The long-term negative effects of leaving the bridge stringers would be primarily aesthetic and symbolic. The NPS considers this impact unacceptable.</p>
<p>Is it necessary to remove the bridge stringers with a helicopter?</p>	<p>As is documented in the final EA and minimum requirements analysis, removal of the bridge I-beams with a helicopter longline operation is the safest option for NPS staff, least impactful to local resources, and has the least impact to wilderness values.</p>
<p>If the agency determines the bridge girders need to be removed, another option could have been considered. A cutting torch could slice up the girder into pieces that could be packed out. While a modern piece of equipment, it is not noisy and many models are easily portable.</p>	<p>If the I-beams were cut up with a much quieter cutting torch into pieces of manageable size and weight to be removed by pack stock, these pieces would need to be winched up and across Thunder Creek to the trail at the top of the bluff. This is approximately 200 feet in distance and 80 feet of elevation gain. There are also concerns about starting a wildfire because of the proximity of the I-beams to dense vegetation. This could be mitigated by cutting only in late season on the gravel bar when river flows are low, but then there are concerns about slag contamination on the river bar. Due to concerns about</p>

Concern/Comment	Response
	safety (a non-standard operation) and resource damage (particularly soils, trees, vegetation, and water quality) this option was considered but dismissed from further analysis.
What will the NPS do with the I-beams once they are removed from Lower Thunder Creek?	The I-beams would be put in storage and reused if their condition and dimensions are suitable for another project. Alternatively, the steel may be recycled.
How would removal of the McAllister bridge debris be considered with respect to cultural resources and has the Upper Skagit Tribe been consulted on this issue given that Thunder Creek is part of the traditional territory of the Tribe?	<p>The entire proposed action was transmitted to consulting parties as part of NPS compliance with Section 106 of the National Historic Preservation Act.</p> <p>“Consultation was initiated with the Upper Skagit Indian Tribe, Sauk-Suiattle Indian Tribe, Swinomish Indian Tribal Community, and the Washington State Historic Preservation Officer (SHPO) on August 30, 2019. Because there were no existing surveys within the project area, the park also sent along a survey plan for comment. Per the request of the Upper Skagit Tribe, the park met with them in person on September 9th to further discuss the project and invited the tribe to accompany the park while field work was completed. The Sauk-Suiattle Tribe responded to park requesting a clarification in the Area of Potential Effect boundary, which was provided. After the completion of field work, the NPS staff spoke with the Tribes again to discuss two potential cultural resources in the project area. Following those discussions, the resources were recorded as an archeological site. The final report and National Historic Preservation Act Section 106 determination of effect was sent to the tribes and SHPO for comment on February 14, 2020.” (p. 21 of the EA).</p>
Does the NPS have a full complement of hand tools available for felling and limbing trees, drilling holes, winching logs and rocks, or has it entirely shifted to use of power tools in and outside of designated Wilderness?	As stated in the proposed action all work would utilize a mix of non-powered hand tools and motorized tools. The trail crew practices precautions and mitigations with all work practices including power tool use to reduce the spread of invasive plants, avoid or reduce impacts to sensitive species, protect water quality, reduce disruption to visitors’ experience, and provide a safe working environment for visitors and staff in the area.

Concern/Comment	Response
<p>North Cascades Conservation Council is concerned that the NPS has considerably understated the plans to use chainsaws for more actions than simply cutting a few trees. Won't chainsaws also be in use intermittently over the estimated 32 working days planned, e.g., to frame tent pads, clear brush and other uses involving wood? This cumulative impact is not identified in the EA.</p>	<p>The NPS described the direct and indirect impacts of the proposed action on wilderness character in Section 3.3.1 on pages 16-19 of the EA. For example: "The noise from chainsaws and other small power tools would be intermittent over the approximately sixty-four days of construction of the trail reroute and camps. Chainsaws are usually only powered on for a few minutes at a time to make cuts for puncheon bridge parts and campsite components, cut down trees, and clear downed trees. Many days chainsaws would not be used, but on those days that they would be used their use is unlikely to exceed a few hours." (p. 17). In addition the NPS analyzed the potential impact of chainsaw noise on northern spotted owl in consultation with the USFWS and found the effects were unlikely to affect this species</p>
<p>The use of motorized equipment and the construction of permanent structures in Wilderness are actions that require the preparation of an EIS. These are not normal actions for Wilderness, nor should they be. The very narrow exception for this kind of use is governed by section 4(c) of the Wilderness Act.</p>	<p>There are no impacts related to power tool use that rose to the level of significance to require an EIS. Some power tool use has been determined to be the minimum tool in order to reduce the time McAllister Stock and Junction Stock camps are occupied by trail crew and accomplish this project work AND maintain the trail system to standards for foot and stock users in the Stephen Mather Wilderness. The longer this project takes the fewer trails will be able to be kept up to the Complex's trail standards. Keeping the trail system to standard prevents widespread localized impacts to soils, vegetation, and cultural resources along the trail corridor. Specifically:</p> <ul style="list-style-type: none"> • Trails and designated camps not maintained would negatively affect the natural quality of wilderness character by directly and indirectly degrading natural resources (e.g. by erosion, the development of social trails, and improper human waste disposal). • Trails not maintained would negatively affect opportunities for primitive recreation by reducing opportunities for primitive recreation for stock users and other visitors who prefer or need trails for recreational access.

Concern/Comment	Response
	<ul style="list-style-type: none"> • While opportunities for solitude may be reduced at times on popular trails during the day, the backcountry permit system is designed to preserve solitude for overnight visitors at the designated campsites. Also, the trail system can more effectively disperse recreationists to more remote cross-country zones which have outstanding opportunities for solitude and unconfined recreation. • Maintained trails allow for the discovery, appreciation, enjoyment, and maintenance of historic structures. Maintained trails also allow American Indian Tribes to experience and reconnect with their traditional lands.
<p>The Minimum Requirements Decision Guide seems to not understand what trammeling is and seems to erroneously conflate it with trampling. For example, "If trails and campsites are kept to standards then this promotes effective drainage and use of the facilities that minimizes trammeling effects.</p>	<p>Maintenance of trails and campsites includes that of drainage structures. If trail ditches, drains, culverts, etc. are plugged with sediment and debris, then this trammels the flow of runoff from snow and rain. Maintenance of drains is very important on the west slopes of the North Cascades which can see 60 to 120+ inches of precipitation per year. Plugged drainage structures can cause significant damage to hillslopes due to erosion.</p>
<p>Construction of tent pads using motorized tools is certainly in excess of the minimum necessary. If structures are needed, signing can show where the tent locations are found on the ground.</p>	<p>Tent pads at designated campsites in the Stephen Mather Wilderness include both flat dirt areas cleared of vegetation and those constructed with logs or rocks and soil fill. While the proposed action states that elevated tent pads will be constructed at the new McAllister Hiker camp, in practice the trail crew workers may use some discretion as to the tent pad design appropriate to site soils, topography, and vegetation. Research has shown that a clearly delineated tent pad is effective in containing trampling impacts from campers (e.g. Marion et. al 2018; see Appendix B for citation)</p>

Agency and Tribal Consultation

State and Tribal Historic Preservation Officers

Section 106 of the National Historic Preservation Act seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation with parties with an interest on the effects on historic properties (36 CFR 800.1). Consultation was initiated with the Upper Skagit Indian Tribe, Sauk-Suiattle Indian Tribe, Swinomish Indian Tribal Community, and the Washington State Historic Preservation Officer (SHPO) on August 30, 2019. Because there were no existing surveys within the project area, the park also sent along a survey plan for comment. Per the request of the Upper Skagit Tribe, the park met with them in person on September 9th to further discuss the project and invited the tribe to accompany the park while field work was completed. The Sauk-Suiattle Tribe responded to park requesting a clarification in the Area of Potential Effect boundary, which was provided. After the completion of field work, the NPS staff spoke with the Tribes again to discuss two potential cultural resources in the project area. Following those discussions, the resources were recorded as an archeological site. The final report and National Historic Preservation Act Section 106 determination of effect was sent to the tribes and SHPO for comment on February 14, 2020. The Park Superintendent signed the final Assessment of Effect on July 31, 2020.

U.S. Fish and Wildlife Service

The Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) requires all federal agencies to consult with the USFWS to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. The NPS began technical assistance with a USFW Biologist during a site visit with NPS staff to the proposed camps on August 5 and 6, 2019. Based on the analysis in this EA and BA, the National Park Service has determined that the proposed action is not likely to adversely affect federally threatened northern spotted owl within the project areas. The Biological Assessment prepared for this Plan/EA was submitted to USFWS on February 10, 2020 with a request for their review and concurrence with this determination. Concurrence was received from USFWS on July 30, 2020.

Why the Selected Alternative Will Not Have a Significant Effect On the Quality of the Human Environment

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

Degree to which the proposed action affects public health or safety: The Selected Alternative will improve a small portion of Thunder Creek Trail, particularly for stock users. The project will have this beneficial impact on public health and safety, but otherwise the net effect is mostly unchanged.

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: As analyzed in the EA, there will be no significant effects on any unique characteristics of the geographic area.

Degree to which the effects on the quality of the human environment are likely to be highly controversial: No highly controversial effects were identified through the NEPA process, including scoping, the environmental assessment, and public comment.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks: No highly uncertain or unique or unknown risks were discovered during the preparation of the environmental assessment.

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 selected alternative neither establishes a precedent for future actions with significant effects nor represents 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 breaking it down into small component parts: The selected alternative is not related to other actions with individually insignificant, but cumulatively significant impacts. Cumulative impacts were analyzed in the EA for any resources with any direct or indirect impacts.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources: The selected alternative will not adversely affect any historic districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or which may cause loss or destruction of significant scientific, cultural, or historical resources. Consultation with the Washington SHPO has been completed. The SHPO concurred that no adverse effects on historic properties will occur under the selected alternative.

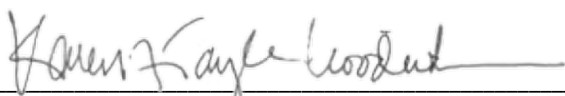
Degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973: The NPS has determined and the USFWS has concurred that the proposed action is not likely to adversely affect federally threatened northern spotted owl within the project areas. The NPS determined that the project will have “no effect” on all other listed species that may be present in or

near the project area.

Whether the action threatens a violation of federal, state, or local environmental protection laws: As demonstrated by the analysis in the environmental assessment, the selected alternative is compliant with all federal, state, and local environmental protection laws.

Finding

Implementation of the Lower Thunder Creek Trail and Camp Modifications project as described above will not have significant impacts on the human environment. The determination is sustained by the analysis in the EA, agency consultations, the inclusion and consideration of public scoping comments overall, and the capability of mitigations to reduce or avoid impacts. Adverse environmental impacts that could occur are negligible to minor in intensity, duration, and context. As described in the EA, there are no highly uncertain controversial or unacceptable impacts, unique or unknown risks, significant cumulative effects, or elements of precedence. There are no previous, planned, or implemented actions, which in combination with the selected alternative will have significant effects on the human environment. Requirements of the National Environmental Policy Act have been satisfied and preparation of an Environmental Impact Statement is not required. The park will implement the Selected Alternative as soon as practical.

Recommended:		7/30/2020
	Karen F. Taylor-Goodrich , Superintendent North Cascades National Park Service Complex	Date

Approved:	_____	
	Woodrow Smeck , Acting Regional Director Interior Regions 8, 9, 10, and 12, National Park Service	Date

Errata

The following corrections, additions, and deletions have been made to the Lower Thunder Creek Trail and Camp Modifications EA and in appropriate places in the final minimum requirement analysis, where applicable. Additions and corrections are italicized; strikeouts indicate a deletion.

2.3: ALTERNATIVES CONSIDERED BUT DISMISSED

2.3.4 Project Work Solely with Non-motorized Tools

Removal of the washed-out bridge debris was considered with stock animals, but the steel I-beams (50-foot long and 2,300-pounds) are too large to be removed intact. The prospect of cutting up the I-beams by hand so that stock may transport them out would be an onerous, extremely time-consuming task that is considered unfeasible due to risks of repetitive stress injury to workers. It may be possible to cut up the I-beams with motorized tools for stock removal, but this would result in long durations of motorized noise in the wilderness, more noise than would be produced by solely using a helicopter for removal. *If the I-beams were cut up with a much quieter cutting torch into pieces of manageable size and weight to be removed by pack stock, these pieces would need to be winched up and across Thunder Creek to the trail at the top of the bluff which is approximately 200 feet in distance and 80 feet elevation gain. Due to concerns about safety and resource damage (particularly soils, trees and vegetation) this option was considered but dismissed from further analysis.*

3.3.1: Environmental Consequences Alternative I: Proposed Action (p. 17), did not mention the effects of removing the bridge stringers from wilderness (though it is indicated by checkboxes in the MRA and accounted for in Table 1 (p. 19):

Undeveloped

For the proposed McAllister Hiker there would be no net change in camp facilities since the proposal is a relocation of an existing camp. The addition of the McAllister Stock cook area is a slight expansion of the camp and therefore a slight negative effect on this quality. *The removal of the bridge stringers would be a long-term positive effect on this quality, since it would fully remove a clear sign of human development from the wilderness.* The Junction administrative camp is a new development and therefore a negative long-term effect to the undeveloped quality. Helicopter and chainsaw use would result in short-term effects to the undeveloped quality. The presence of trail crews and other NPS staff has no effect on this quality.

Outstanding Opportunities for Solitude and Primitive and Unconfined Type of Recreation (second paragraph)

For the proposed McAllister camp there would be no net change in camp facilities since the proposal is a relocation of an existing camp. The Junction Administrative camp would be a new development and therefore would have some long-term effects on this quality. The effects on opportunities for solitude would likely be mixed. The presence of a new *camp* development could negatively impact solitude if visitors were to come across the camp or NPS staff camping there. However, by moving administrative use out of the existing camps this means that those camps would have fewer users at times and therefore provide increased opportunities for solitude for visitors camping there.

Opportunities for primitive recreation would be improved by constructing the administrative camp,

thereby creating more opportunities for camping visitors by moving trail crew and other administrative camping use out of the Junction Hiker and Stock camps. *The removal of the bridge stringers would be a long-term positive effect on this quality by removing the possibility of cross-country travelers encountering these large sights of modern human civilization in wilderness.*

3.3.2: Environmental Consequences Alternative II: No Action Alternative, Outstanding Opportunities for Solitude and Primitive and Unconfined Type of Recreation (p.20), did not mention the effects of removing the bridge stringers from wilderness (though it is indicated by checkboxes in the MRA and accounted for in Table 1 (p. 19):

Outstanding Opportunities for Solitude and Primitive and Unconfined Type of Recreation (paragraph 1)

Restoring the closed McAllister Camps would have a long-term positive effect on opportunities for solitude by removing a sight associated with people and keeping this camp closed would result in less people allowed to camp in the area, increasing opportunities for solitude. However, this would have a long-term negative effect on opportunities for primitive recreation since it would mean the elimination of a camping opportunity in this area popular with backpackers. *Leaving the bridge stringers in wilderness would be a long-term negative effect since the possibility would remain for cross-country travelers encountering these large sights of modern human civilization in wilderness.* Refraining from constructing an administrative camp at Junction would also result in mixed effects. By limiting capacity, and thus the number of people in the area, this would continue to preserve opportunities for solitude. However, this would also continue to result in trail crew competing for camping space in Junction Stock camp with continued loss of opportunities for primitive recreation for the public.

DETERMINATION OF NON-IMPAIRMENT

Lower Thunder Creek Trail and Camp Modifications

2020

By enacting the NPS Organic Act of 1916 (Organic Act), Congress directed the U.S. Department of the Interior and the National Park Service (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 U.S.C. 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 Management Policies 2006, Section 1.4.5). The NPS Management Policies also state that: "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; 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 general management plan or other relevant NPS planning documents as being of significance" (NPS Management Policies 2006, Section 1.4.5).

Fundamental values for North Cascades National Park Service Complex are identified in the enabling legislation for the park and the park's 2017 Foundation Document. Based on a review of these documents, the fundamental resources and values for North Cascades National Park Service Complex are North Cascades landscapes, glaciers, ecosystem and biodiversity, wilderness, culture and history, access to authentic education and research, diverse recreation, the Skagit River, Lake Chelan and the Stehekin River.

Resources that were carried forward for detailed analysis in the Environmental Assessment for the “Lower Thunder Creek Trail and Camp Modifications” include: federally threatened species (northern spotted owl), archeological resources, and wilderness character. Accordingly, a non-impairment determination is made for each of these resources as it pertains to the selected alternative:

Federally Threatened Species: Northern Spotted Owl

The Thunder Creek drainage lies in a late-successional coniferous forest dominated by Douglas-fir (*Psuedotsuga menziesii*), western red cedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*) with the occasional co-subdominance of western white pine (*Pinus monticola*) and lodgepole pine (*Pinus contorta*) in drier sites. Forest stands exhibit a complex structure with multi-storied layers of live, dead, and dying trees, as well as many fallen trees. Some standing dead and fallen trees are quite large and all classes of decay are present. Many snags display bird, insect, and mammal activity, including pileated woodpecker holes, beetle galleries, and snags whose bases are shredded by bears and other mammals. Live standing trees in some parts of the drainage exceed 120 feet in height and 75 inches in diameter at breast height, with isolated trees estimated to be in excess of 500 years old. These stand characteristics provide high-quality habitat for several mammal and bird species including northern spotted owl (NSO).

Contrarily, habitat within the proposed action areas display low-quality features for NSO nesting due to a low percentage of canopy closure, scattered trees with larger openings on the forest floor, limited vertical structure, minimal large-sized fallen trees, and trees that are shorter in height and smaller in diameter that show few signs of deformities needed for NSO nesting. Overall, habitat within the action areas is inconsistent with the majority of low elevation habitat within the drainage, at least in part due to a notably drier micro-environment possibly resulting in less productive and complex forest stands. Consequently, habitat within the proposed action areas may be more suitable, at best, for temporary dispersal of recently fledged NSOs as they seek to establish new territories of their own. Connectivity to more suitable spotted owl nesting habitat is patchily distributed in the drainage, largely due to natural topographical variation. At best, both of these project areas are characterized as marginal for spotted owl dispersal habitat. The habitat in the proposed action areas was surveyed/assessed during a site visit in August 2019 by US Fish and Wildlife Service (USFWS) and NPS staff at both the McAllister and Junction proposed camp areas.

Impacts: Use of power tools and helicopter flights may impact individuals if in the vicinity of the activity. This is unlikely, but the trail crew doing the work will be cognizant NSOs may be around and, if necessary, employ conservation measures outlined in the mitigations for this project

Conclusion: Locations for the proposed camps were chosen to minimize overlap with high quality NSO habitat. Construction of the camps and trail reroute will cause short-term increases in noise and disturbance in the immediate project area. However, since the habitat is considered limited for NSO nesting and marginal for dispersal habitat, and to date there are no known NSO activity centers or nests located in the vicinity, coupled with the infiltration of barred owl activity

in the drainage, the project is unlikely to affect NSOs. Subsequent human use of the area will not cause significant changes in current amounts of use or disturbance, as the proposed action areas already experience moderate human and stock use.

Archeological Resources

The upper Skagit River Valley, including its tributary Thunder Creek, has been used by humans for at least 9,000 years and therefore is expected to harbor archeological resources from pre-historic times to early 20th century mining activities. Ground-breaking activities in the proposed action triggered the need to conduct an archeological survey. National Park Service archeologists conducted background research in the Washington Information System for Architectural and Archaeological Records Data (WISAARD) and NPS archives and found that few existing identification efforts had occurred prior to this survey. A new inventory was implemented which was comprised of pedestrian and subsurface survey with seventy shovel test pits excavated within the Area of Potential Effect (APE). These efforts resulted in the identification of one new archeological site recorded as FS-343. For the purposes of this project, this archeological site will be treated as if it is eligible for listing on the National Register of Historic Places. Consultation through the National Historic Preservation Act Section 106 process with the Washington state Department of Archaeology and Historic Preservation, the Upper Skagit Indian Tribe, Sauk-Suiattle Indian Tribe, and the Swinomish Indian Tribal Community did not reveal additional archeological sites or historic properties with religious or cultural significance potentially affected by the proposed action.

Impacts: Following the identification of site FS-343, archeologists were able to design the layout of the camp to avoid the site as much as possible. However, due to the restrictions of the local geography, there is not as much separation of the site and campground as is desired. There is still a chance that the site may be incidentally damaged due to use and maintenance of the campground.

Conclusion: As a mitigation for the potential damage to the site, NPS archeologists agreed with Department of Archaeology and Historic Preservation and the associated tribes to regularly monitor the conditions of site FS-343. If damage is recorded at the site in future years additional mitigation measures may need to be taken in order to keep the site in good condition. With these mitigations in place consulting parties agreed that the implementation of this project will result in a no adverse effect to historic properties.

Wilderness Character

Preserving wilderness character is identified as the central mandate of the Wilderness Act of 1964 (Public Law 88-577). Thus wilderness character is a key resource for this project that needs to be evaluated against the standard of non-impairment. The Stephen Mather Wilderness was designated in 1988 and includes the proposed project area. The Thunder Creek Trail, McAllister, McAllister Stock, Junction, and Junction Stock camps all existed prior to wilderness designation and are identified as established camps in the Park Complex's 1989 Wilderness Management Plan, thus setting a baseline of wilderness character condition related to recreational developments. The system of maintained trails and designated camping by permit are designed

to preserve wilderness character by containing and concentrating recreational use to specific areas and to prevent overcrowding. Further, overnight visitors are encouraged to practice [Leave No Trace](#) principles to assume personal responsibility for preserving wilderness character in these settings. Impacts are listed below by applicable qualities of wilderness character.

Impacts:

Undeveloped

For the proposed McAllister Hiker there will be no net change in camp facilities since the proposal is a relocation of an existing camp. The addition of the McAllister Stock cook area is a slight expansion of the camp and therefore a slight negative effect on this quality. The Junction administrative camp is a new development and therefore a negative long-term effect to the undeveloped quality. Helicopter and chainsaw use will result in short-term effects to the undeveloped quality. The presence of trail crews and other NPS staff has no effect on this quality.

Natural

For the proposed McAllister Hiker camp the new layout to keep separation between cooking and sleeping areas and installation of bear wires should reduce human-wildlife conflicts improving the natural quality for the long-term. In addition, the new location, out of forest with larger trees, should lower the impacts to the natural quality in relation to the previous camp location because of a lessened long-term need to fell diseased or dead hazard trees. The new McAllister Stock cook area is proposed to increase the separation between cooking and sleeping areas and have installation of a bear wire for a small long-term positive effect. However, the Junction administrative camp is a new development and therefore will have some long-term effects to the natural quality in the local area by creating a space occupied by people which may displace some wildlife and create an area that is no longer in a wholly natural condition. Helicopter and chainsaw use will result in short-term effects to the natural soundscape, primarily due to noise disturbance to wildlife that could be in the area. Presence of trail crews and other NPS staff will have a minimal effect on this quality.

Outstanding Opportunities for Solitude and Primitive and Unconfined Type of Recreation

The sight and sound of helicopters, chainsaws, and any other motorized tools will have short-term negative effects on opportunities for solitude for any visitors in the area at the time of use. Removal of the I-beams currently resting on a gravel bar of Thunder Creek will be rigged for helicopter longline transport before the helicopter arrived, thus the disturbance from their removal will be limited to a few minutes during each turn while each I-beam was hooked up and the helicopter transits over wilderness. The helicopter will likely hover 200-300 feet above the river channel. This will be in clear sight of a portion of the Thunder Creek Trail. The noise from chainsaws and other small power tools will be intermittent over the approximately sixty-four days of construction of the trail reroute and camps. Chainsaws are usually only powered on for a few minutes at a time to make cuts for puncheon bridge parts and campsite components, cut down trees, and clear downed trees. Many days chainsaws will not be used, but on those days that they will be used their use is unlikely to exceed a few hours.

For the proposed McAllister camp there will be no net change in camp facilities since the proposal is a relocation of an existing camp. The Junction Administrative camp will be a new development and therefore will have some long-term effects on this quality. The effects on opportunities for solitude will likely be mixed. The presence of a new development could negatively impact solitude if visitors were to come across the camp or NPS staff camping there. However, by moving administrative use out of the existing camps this means that those camps will have fewer users at times and therefore provide increased opportunities for solitude for visitors camping there. Opportunities for primitive recreation will be improved by constructing the administrative camp, thereby creating more opportunities for camping visitors by moving trail crew and other administrative camping use out of the Junction Hiker and Stock camps.

By rebuilding the capacity of McAllister Hiker camp in a new location the proposed action will restore at least 280 permitted nights of visitor demand, keeping this opportunity for primitive recreation in the McAllister area.

Construction of the Junction Administrative camp will free up camp space in both Junction Hiker and Stock Camps for stock groups and hiker groups. Large groups of up to 12 people often use the larger capacity stock camps. In some years the camp may be needed for projects that take longer to accomplish such as bridge repairs or trail reroutes. This camp will also accommodate other NPS staff such as backcountry rangers and resources staff for approximately one week of nights each year. Thus, given the level of anticipated use this will make Junction Stock camp available for public use with maximum opportunity for public reservations for approximately three weeks of nights per year

Other Features of Value

The only known effects to cultural resources that contribute to this quality are outlined in the Archeological Resources section above.

Conclusion: Great care was taken to site the proposed camps in locations that will have minimal impacts to sensitive resources and the long-term impacts will not cause impairment to local resources. Likewise, the short-term adverse impacts are transient and will not cause impairment.

Summary

Therefore, as guided by the review of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA, advice from subject matter experts, 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 rerouting 1,500 feet of trail for hiker and stock use, relocating the McAllister hiker and group camp, and constructing a new administrative camp near Junction camp, all on the Thunder Creek Trail.