

Draft Environmental Assessment

Cascade Trail Repair Project

Denali State Park, Alaska

FEMA-1663-DR-AK (Public Assistance)

April 2009



U.S. Department of Homeland Security
FEMA Region X
130 228th Street SW
Bothell, WA 98021-979



FEMA

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Prepared for:

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Acronyms and Abbreviations

AAC	Alaska Administrative Code
ACWA	Alaska Clean Water Actions
ADFG	Alaska Department of Fish and Game
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
ATV	all-terrain vehicle
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DEC	Alaska Department of Environmental Conservation
DNR	Alaska Department of Natural Resources
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
MBTA	Migratory Bird Treaty Act
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NWI	National Wetlands Inventory
PA	Public Assistance
PSS	palustrine scrub-shrub
RPW	Relatively Permanent Water
SC	Species of Special Concern
SHPO	Alaska State Historic Preservation Office
TMDL	Total Maximum Daily Load
TNW	Traditional Navigable Water
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service

1.0 Purpose and Need for Action

1.1 INTRODUCTION

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to support the Alaska Department of Natural Resources (DNR), Division of Parks and Outdoor Recreation, by providing partial funding to repair damaged segments along the existing Cascade Trail, in Denali State Park (see Figure 1.1-1). Heavy rains in the region in August 2006 caused extensive damage to portions of the trail. The President declared a disaster in the region on October 16, 2006, because of severe storms, flooding, landslides, and mudslides. Along some portions of the damaged trail, repair work is needed along the existing alignment. Along other portions of the damaged trail, DNR is proposing to realign the trail, especially along its steeper portions, to minimize the risk of similar damage during future storms. As the DNR has not yet finalized the specific repair plans for the trail, the analysis presented in this document is based on discussions with the DNR about the construction techniques and an identified general trail corridor.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, provides federal assistance programs for both public and private losses sustained in disasters. FEMA provides assistance to private citizens, public entities, and non-profit groups following declared disasters. Under the Federal Disaster Public Assistance (PA) program, FEMA provides federal funding for repairs to restore property and facilities to their pre-disaster condition or function. The purpose of FEMA's Public Assistance program is to assist communities in recovering from damages caused by natural disasters.

1.2 AUTHORITY AND JURISDICTION

The National Environmental Policy Act (NEPA) of 1969 requires FEMA to evaluate the effects of the potential alternatives of a proposed action on the human and natural environments. Two alternatives for the Cascade Trail repair project are compared in this Environmental Assessment (EA): a No Action Alternative and the Proposed Action. Under NEPA, FEMA is obligated to evaluate the effects of the proposed project in an EA or an environmental impact statement (EIS). FEMA has determined that an EA is the appropriate document for the scope of this project and does not anticipate the need to prepare an EIS.

1.3 PROPOSED FEDERAL ACTION

The proposed federal action by FEMA is to provide partial project funding to the DNR to repair portions of Cascade Trail that were damaged during floods in 2006 (FEMA disaster project 1663-DR-AK).

1.4 PURPOSE AND NEED

The purpose of the FEMA PA program is to assist local communities that request funding to recover from damages caused by presidentially declared disasters. The purpose of the project is for DNR to improve trail environmental and safety conditions for hikers that affect portions the Cascade Trail

from storms that occurred in 2006 (FEMA disaster project 1663-DR-AK). The trail must be located in a flood-free location, consistent with the Public Assistance program. The need for the project is for DNR to continue to provide park users safe access to Kesugi Ridge, to alleviate hiker pressure and reduce effects on other trails that access Kesugi Ridge, and to provide access to and from the Kesugi Ridge backcountry in case of emergency.

The NEPA EA process allows FEMA to determine whether to issue a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS), which is required under NEPA for federal actions that may have a significant effect.

1.5 LOCATION AND BACKGROUND

Cascade Trail is located in Denali State Park, in the Matanuska-Susitna Borough. Denali State Park encompasses 324,240 acres, adjacent to Denali National Park to the north and west. Land ownership in the state park includes state and private inholdings. Cascade Trail is a primitive, minimally maintained 3.4-mile hiking trail in the central portion of the state park. It connects the Byers Lake Loop Trail and Campground, just west of Alaska Highway #3 (also called the George Parks Highway), with the network of state park trails along Kesugi Ridge. The trailhead for the Byers Lake Loop Trail, which leads to Cascade Trail, is at milepost 147 along the Parks Highway. The trail is used for day hiking, wildlife viewing, hunting, and camping. Despite the storm-related damage, the trail is currently open to public use.

The storm damage to Cascade Trail extends approximately 8,000 linear feet and includes the destruction of one bridge crossing at an unnamed creek. Most of the trail damage is associated with the downcutting and widening of many of the steeper trail sections, when the capacity of water bars and exposed tree root systems to slow stormwater runoff was overwhelmed and unable to prevent degradation of the trail and the adjacent vegetation. In some portions of the damaged trail, repair work is needed along the existing alignment to repair stormwater water diversions such as water bars. In other portions of the damaged trail, DNR is proposing to relocate or realign the trail to avoid oversteep sections and similar damage during future storms. The repaired trail segments will be about 8,000 feet long (because of relocation and switchbacks), and the new bridge will be 20 feet long and 30 inches wide near the old crossing location. The DNR has not yet finalized the specific repair plans for the trail.

1.6 SCOPING AND ISSUE SUMMARY

1.6.1 SCOPING

FEMA initiated the scoping process by sending out a scoping letter on November 14, 2008, to agencies and interested parties. The scoping letter explained the NEPA process and the proposal for repairing the existing trail. The public, agencies, and Tribes were afforded 30 days to provide comments. The scoping letter, mailing list, and all comments received can be found in Appendix A. The purpose of the scoping process was to inform agencies and stakeholders about the proposed project and allow the public, agencies, and Tribes to provide comments regarding the scope of the project, the proposed alternatives, and any issues of concern that should be considered in the NEPA EA. The public involvement process is fully described in Chapter 4 (*Consultation and Coordination*).

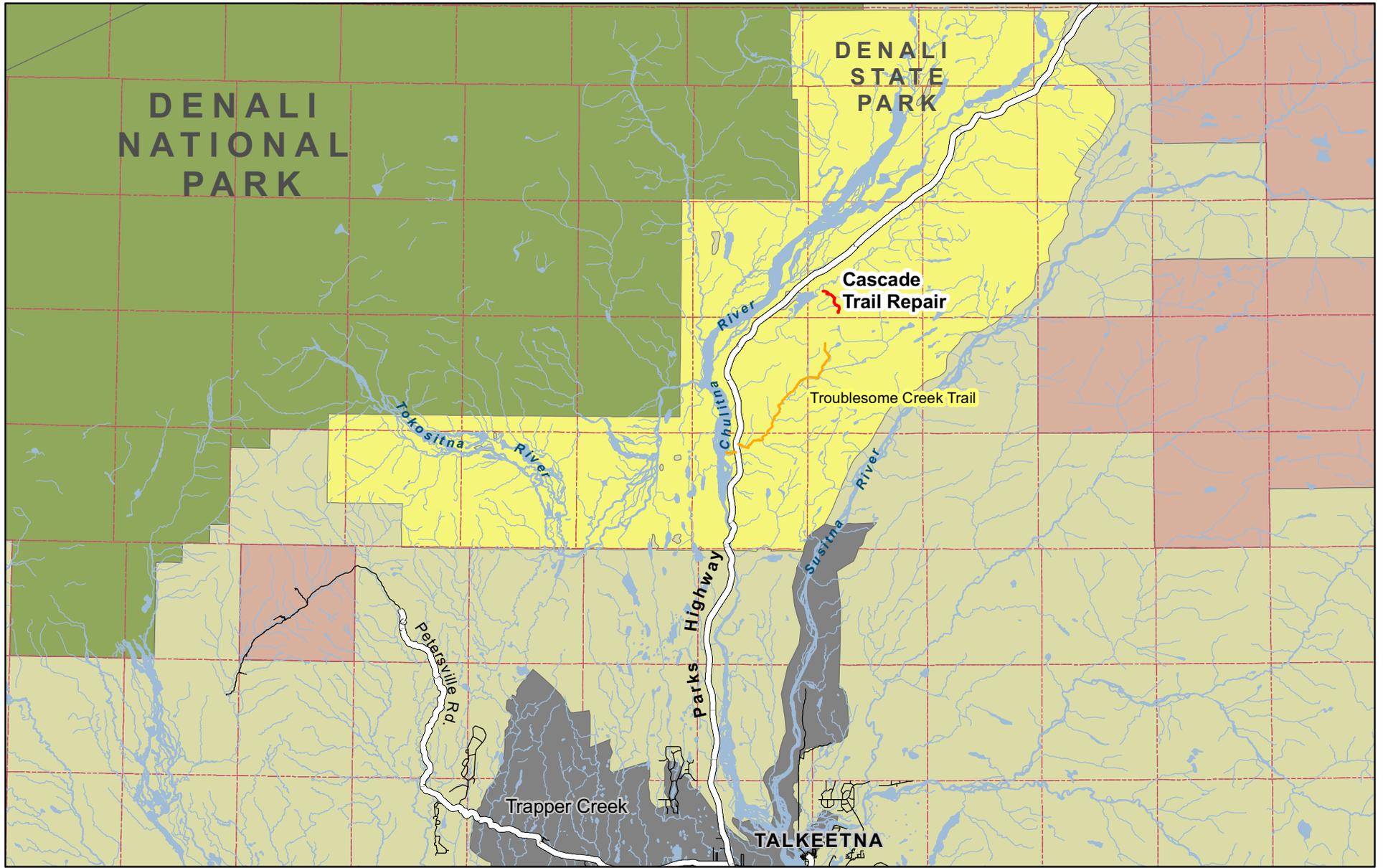
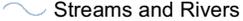
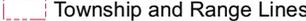
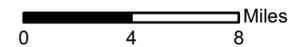


Figure 1.1-1. Project Vicinity

- | | |
|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|  Cascade Trail | Land Ownership |
|  Troublesome Creek Trail |  Bureau of Land Management (BLM) |
|  Roads |  National Park Service (NPS) |
|  Streams and Rivers |  Denali State Park |
|  Township and Range Lines |  Populated Areas |
| |  Other |



1.6.2 SUMMARY OF ISSUES

FEMA has identified a number of issues that need to be addressed in this EA. There were three responses to the scoping letter regarding the project (Table 1.6-1), all from regulatory agencies. Copies of the response letters are provided in Appendix A.

Table 1.6-1. Summary of Public Scoping Response Issues.

Agency	Issue or Comment Summary	Response in this EA
Department of the Army, U.S. Army Engineer District	Notification of the presence of waters of the U.S. in the project vicinity	See Sections 3.2 and 3.3.
State of AK Department of Military and Veteran Affairs	Notification that no issues or comments on the proposed project.	Comment noted.
Alaska State Historic Preservation Office	Determination of No Historic Properties Affected	Comment noted. See Section 4.2.2.

Based on a preliminary screening of resources in the project area, this EA includes an analysis of the following resources:

- Geology and soils
- Hydrology, water quality, and floodplains
- Vegetation and wetlands
- Fish and wildlife
- Recreation
- Environmental justice
- Cultural resources
- Cumulative effects

The following resources were evaluated during the screening process, and it was determined that these resources would not be affected by the project: land use, transportation and access, visual quality, air quality and noise, threatened and endangered species, and topography. Thus, these resource areas are not covered further in this document.

1.7 RELATED ACTIVITIES

The August 2006 storms caused extensive flooding and damage in the region. Other damage in Denali State Park included similar damage to the Troublesome Creek Trail (also shown on Figure 1.1-1 for context and comparison), as well as a major washout along Highway 3. These projects are being addressed under separate processes and are unrelated to the Cascade Trail repair effort. Storm-related damage also occurred in areas outside of the state park within both the Matanuska-Susitna and Denali boroughs.

2.0 Alternatives, Including the Proposed Action

The following section describes the alternatives that are being considered for the repair and realignment of the Cascade Trail, and the process that was used to develop these alternatives. Two alternatives are analyzed: the No Action Alternative and the Proposed Action. The following narrative describes the alternatives development process, the No Action and Proposed Action alternatives, and elements common to both alternatives.

2.1 ALTERNATIVES DEVELOPMENT

NEPA requires federal agencies to consider a reasonable range of alternatives that meet the purpose and need of a proposed action. The NEPA alternatives development process allows FEMA to work with interested agencies, Tribes, the public, and other stakeholders to develop alternatives that respond to identified issues. The Proposed Action was developed by DNR. The outcome of the alternatives development process is described below

2.2 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

A number of alternatives were reviewed but eliminated from further consideration in this EA because they did not meet the project purpose and need, they were not practical, or they were not applicable to FEMA funding under its Public Assistance program. These alternatives are listed and described below.

- **Trail Abandonment** – Given the trail’s location near and across several active stream channels and along relatively steep slopes, it is likely that future storm events could continue to wash out segments of the trail and contribute to erosion-related problems in the basin. One alternative would be to permanently close and abandon the trail to avoid such future problems. This potential alternative was eliminated from further consideration, however, as it would not meet the purpose and need of the project – namely, to assist DNR in continuing to provide adequate recreation opportunities and public access in Denali State Park. Cascade Trail is not an isolated trail segment; rather, it is a popular route that connects the Byers Loop Trail to the network of additional state park trails along Kesugi Ridge (including backcountry trails). Abandoning the trail would represent a loss of a valuable and popular trail segment and important access in the state park.
- **Repair Cascade Trail along its Existing Alignment** – Another potential alternative would be to repair Cascade Trail along its existing alignment, essentially restoring it to pre-disaster conditions. This alternative was eliminated from further consideration, as the trail location is likely to experience storm-related damage in the future, including continued erosion on steep slopes. Repairing the damaged segments in steep slope problem areas would not alleviate the erosion issues nor meet the purpose of the project or the Public Assistance program.
- **Moving the Entire Trail Alignment** – A final potential alternative initially examined was the rerouting of the entire existing alignment of Cascade Trail, moving it to a different location within the state park. This potential alternative was eliminated from further

consideration, as it was determined that the effects associated with siting and constructing an entirely new trail were substantially greater than that of the Proposed Action (i.e., rerouting segments of the trail that are prone to storm-related flood damage and erosion). In addition, this portion of the state park is characterized by steep slopes and several smaller stream systems; there is no other trail alignment that would successfully avoid such features.

2.3 ALTERNATIVE A - NO ACTION

Under the No Action Alternative, FEMA would not provide funding to DNR to repair and realign the Cascade Trail. The trail would remain in its present condition of disrepair and would remain open to recreational access and use.

2.4 ALTERNATIVE B - PROPOSED ACTION

Under the Proposed Action, FEMA would provide funding to the DNR to repair and realign the damaged portions of the Cascade Trail for continued use as an active recreation trail in the state park. The Proposed Action includes design, construction related to trail repair, and construction related to new trail alignment, all intended to restore the trail to its pre-disaster function and capability. The design, construction, and long-term maintenance of the trail repair project would comply with applicable rules and regulations and would require DNR to adhere to state and federal regulations regarding best management practices (BMPs) for construction. Construction would not occur when weather and/or ground conditions would cause excessive erosion. Clearing of vegetation along the trail would be kept to a minimum to minimize habitat disturbance.

Construction activities associated with trail repair include clearing any debris that currently blocks the trail or infringes upon the right-of-way; replacing a small foot bridge that crosses an unnamed stream that was destroyed during the storm event; and stabilizing any areas that are actively eroding. Construction would be implemented by a trail crew; no mechanized equipment would be used. Construction activities associated with realigning portions of the trail include route selection and site-specific design; clearing and grubbing existing vegetation within the clearing limits of the new trail alignment; and installing switchbacks in steeper segments of the trail to prevent erosion. It is anticipated that approximately 8,000 linear feet of new and repaired trail alignment would be required as part of the repair project, with a focus of installing switchbacks along the steeper portions of the trail alignment. The specifics of trail relocations have not yet been developed for the steeper damaged sections of the trail, but the general relocation corridor and repair areas are identified in Figure 2.4-1.

Construction would be conducted over one season (i.e., approximately 2 or 3 months). A 5-person crew would likely be employed to accomplish the repair and realignment activities. Small-scale construction equipment and hand tools (including chainsaws) would primarily be required for the construction work. Trail location, tread width, and the steep topography make the use of all-terrain vehicles (ATVs) or larger construction equipment (such as a bobcat) impractical. The total estimated cost of the project is approximately \$183,888.

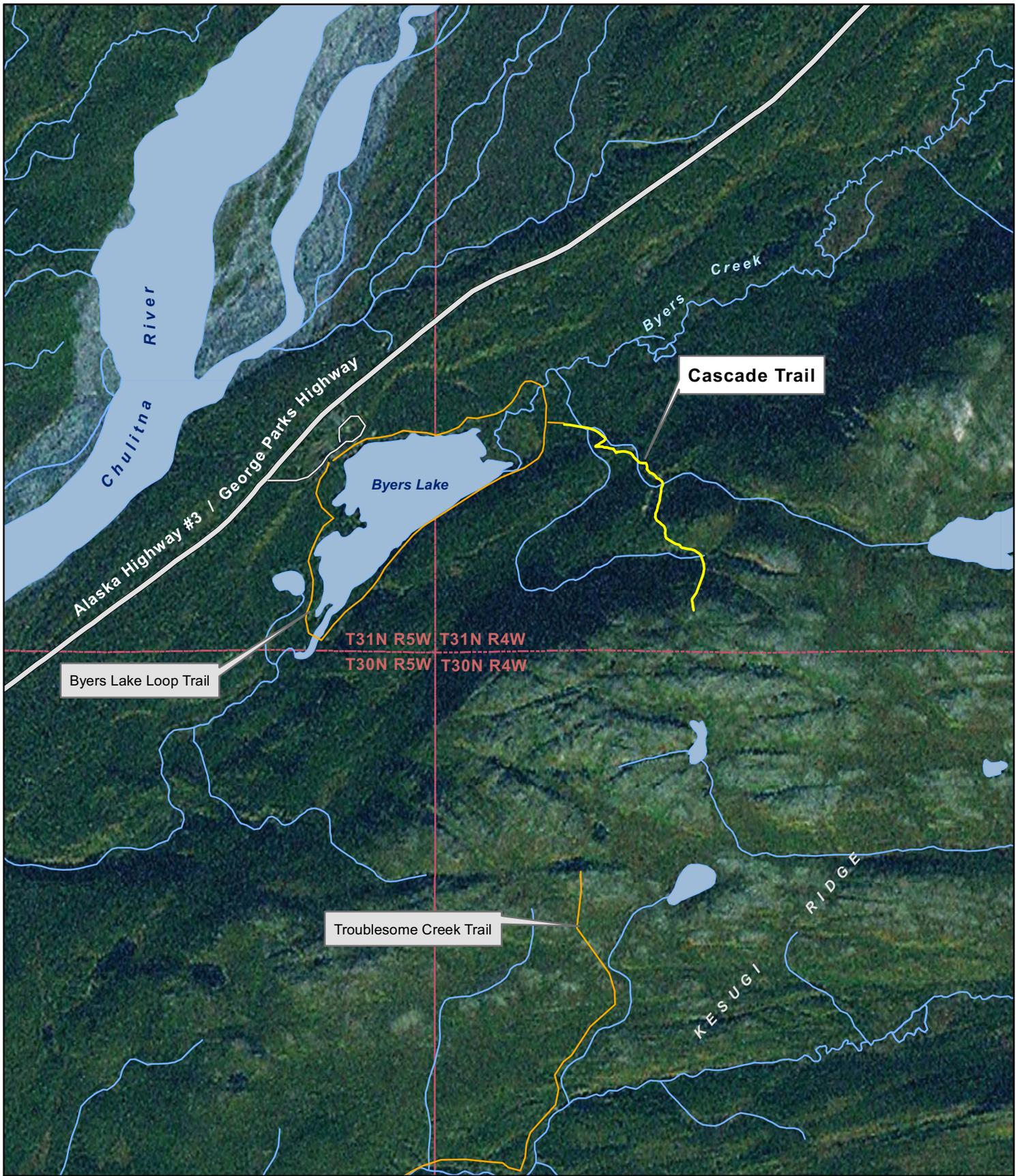
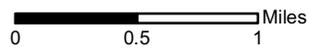


Figure 2.4-1. Project Location

-  Current alignment of Cascade Trail
-  Other trails
-  Roads
-  Cities
-  Streams and Rivers
-  Open Water
-  Township Range Lines

The full map extent is within the boundaries of Denali State Park
 T30N, R5W; T30N, R4W; T31N, R5W; T31N, R4W



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Specific standards to minimize effects during construction include, but are not limited to: (1) limiting ground disturbance (clearing, grubbing, grading) to that essential for construction of the project; (2) timing construction activities that expose large areas of soil to occur during the dry spring, summer, or early fall when the threat of erosion from disturbed areas is minimal; (3) incorporating erosion control measures such as mulching, seeding, or planting; and (4) completing construction activities prior to the onset of the rainy period, around the middle of October.

2.5 ELEMENTS COMMON TO BOTH ALTERNATIVES

While the No Action and Proposed Action alternatives represent distinctly different alternatives, there are some common elements between the two alternatives. These common elements are:

- **Water Quality, Erosion and Sediment Control** - DNR will continue to implement measures to preserve the water quality of local streams and prevent excess erosion and sedimentation associated with its lands and facilities.
- **Cultural and Historic Resources** - DNR will continue to comply with Sections 106 and 110 of the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA). FEMA and DNR, as required under 36 Code of Federal Regulations (CFR) 800, will consult with the Alaska State Historic Preservation Office (SHPO) and interested Tribes to determine if sites are eligible for inclusion on the National Register of Historic Places (National Register), evaluate effects of an action on eligible properties, and identify preservation or mitigation options. Specifically, DNR will monitor construction activities for any new or upgraded facilities and stop work and consult with the Tribes and the SHPO if any cultural resources are discovered during construction.
- **Access** - The public will continue to have access to DNR lands in the state park in accordance with current policies that consider public safety and protection of cultural and natural resources.
- **Public Information** - DNR will continue to apply its standards for appropriate, clear, and consistent signage regarding public use of their lands and facilities. DNR also will continue to provide information materials through existing entities, websites, and recreation areas.

2.6 SUMMARY OF EFFECTS

Table 2.6-1 provides a summary of the effects described and analyzed in Chapter 3 (*Affected Environment and Environmental Consequences*).

Table 2.6-1. Summary of Effects of the No Action and Proposed Action Alternatives

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action
Geology and Soils	No significant adverse effects	Reduces erosion potential compared to current conditions, resulting in minor beneficial effects. No significant adverse effects
Hydrology, Water Quality, and Floodplains	No significant adverse effects	Potential for minor, short-term sedimentation associated with construction activities; potential minor sedimentation effects from seasonal use of repaired trail; no significant adverse effects
Vegetation and Uplands	No significant adverse effects	Approximately 0.37 acres of land would be cleared of existing vegetation for new trail construction; no significant adverse effects
Fish and Wildlife	Potential for minor effects on fish and wildlife from seasonal use of existing trail; no significant adverse effects	Potential for minor, short-term effects on fish and wildlife populations associated with trail construction activities; small amount of habitat loss associated with new trail alignment; potential minor effects from seasonal use of trail; no significant adverse effects
Recreation	Moderate, long-term adverse effect associated with loss of use of state park trail	Beneficial effect associated with repaired trail; no significant adverse effects
Environmental Justice	No significant adverse effects	No significant adverse effects
Cultural Resources	Potential for disturbing previously unidentified cultural resources unlikely; no significant adverse effects	Potential for disturbing previously unidentified cultural resources unlikely; no significant adverse effects
Cumulative Effects	No significant adverse cumulative effects	Minor cumulative effects associated with construction of new trail alignment, such as vegetation clearing and removal; no significant adverse cumulative effects

3.0 Affected Environment and Environmental Consequences

3.1 GEOLOGY AND SOILS

3.1.1 AFFECTED ENVIRONMENT

3.1.1.1 Geology

The geology of the Cascade Trail project area is dominated by Kesugi Ridge, a foothill formed by uplifting, deformation, and faulting that culminated in the geologic processes forming the Alaska Range by the end of the Tertiary Period (i.e., approximately 65 million to 1.8 million years before present). The current topography of Kesugi Ridge and the adjacent river valleys results largely from the effects of glaciers and associated outflow and sediments during four major glaciations in the Quaternary period (i.e., approximately 2.5 million years ago to the present).

3.1.1.2 Soils

No soil type maps are available for the area crossed by the Cascade Trail. However, based on soils data compiled in the Denali State Park Management Plan (Alaska State Parks 2006), the following soil types are likely associated with the Cascade Trail project area and support similar types of vegetation. Mountainous uplands in the park frequently have Puntilla silt loam soils, which are well-drained soils formed in a mantle of ash-influenced loess overlying glacial till. This soil type occurs on mountain side slopes and supports communities of Sitka alder (*Alnus viridis* ssp. *sinuata*), wood fern (*Dryopteris dilatata*), and bluejoint reedgrass (*Calamagrostis canadensis*). In stream drainages and depressions, these soils frequently have tight glacial till that prevents downward flow of water and may support more hydrophytic vegetation. Soils in alpine areas at higher elevations in the park are generally uneven as a result of frost heaving and generally consist of two soil series - Chuit silt loam and Nakochna silt loam. On lower hillslopes, Kroto and Strandline silt loam soils are well-drained ash-influenced loess soils overlying glacial till that may support mixed forests of white spruce (*Picea alba*) and paper birch (*Betula papyrifera*) with an understory of alder and ferns. Spenard silt loam, Slikok muck, and Chichanta peat occur as minority inclusions of hydric soils within Kroto and Strandline silt loam soils; they are generally poorly drained soils occurring in association with depressional areas, muskeg borders, seep slopes of moraines, floodplains, and lake edges, and may support a variety of wetland vegetation types. Permeability and runoff rates for these soils are generally variable, although the potential for erosion is always present on steeper slopes.

3.1.2 ENVIRONMENTAL CONSEQUENCES

This section describes the potential effects of the No Action Alternative and the Proposed Action on soil resources within the immediate vicinity of the project. Mitigation measures to offset any identified effects are also provided, as applicable.

3.1.2.1 Methodology and Threshold of Significance

Methodology

Two EDAW biologists conducted a site visit on August 24, 2008, to collect information on general site conditions including steep-angled slopes potentially subject to erosion, eroded landscape features, and vegetation communities in the project area. The assessment of the potential effects of trail repair on geology and soils was made by using information obtained from field observations of basin and ridge topography and soils as well as the park's written summary of the types and scale of damages along Cascade Trail.

Threshold of Significance

Under NEPA, significance is determined by assessing the effect of a proposed action in terms of its context and the intensity of its effects. The No Action Alternative and the Proposed Action were determined to result in a significant effect associated with soils or erosion if they would:

- Cause long-term erosion of soils that cannot be prevented by implementation of erosion control measures, best management practices (BMP), sound trail design, and periodic maintenance.

3.1.2.2 Alternative A: No Action

Environmental Consequences

Under the No Action Alternative, the existing damaged 8,000 linear feet of trail would remain in its current degraded condition. The existing trail course runs through several different vegetation types or habitats (described in more detail in Section 3.3, *Vegetation and Wetlands*), including mixed forest, tall scrub, and alpine tundra. The potential for erosion varies primarily by vegetation type, as described below.

Portions of the trail that traverse mixed forest habitats are up to 15 feet wide in places as hikers navigate around and over exposed tree roots on eroded sections of steep trail on side slopes and on the fall line of the slope. The erosion and subsequent widening of the trail has exposed more bare ground and increases the potential for additional erosion during periods of heavy rainfall.

In tall scrub habitat, the current trail system follows the fall line of the slope through much of the steep mid-elevation portions of the trail. The lower elevation portion of the tall scrub vegetation is less steep and has many muddy depressions in areas most likely supporting sensitive wetlands. Hikers have widened the trail and trampled side paths to avoid deeper puddles and to navigate steep, eroded trail sections. In the alpine tundra habitat areas, storm runoff is unchecked within the trail path and has created up to 6 inches of down-cutting for several hundred feet. Hikers have created a new parallel track to avoid the down-cut trail, resulting in trampling of fragile low scrub vegetation and an increase in the amount of compacted bare soil. The current degraded condition of the trail in the vicinity of sensitive vegetation types is likely to continue and worsen over time through normal use by hikers as well as during periodic high runoff during storm events.

Mitigation Measures and Residual Effects

There are no proposed mitigation measures, and residual effects are likely to remain or worsen as described above.

Significant and Unavoidable Adverse Effects

The No Action Alternative has a low potential for adverse effects, provided the recommended mitigation measure is implemented and enforced. However, the steep gradient of the trail will continue to make both the trail and adjacent sensitive vegetation types susceptible to ongoing and worsening adverse effects from heavy surface runoff during large storm events.

3.1.2.3 Alternative B: Proposed Action

Environmental Consequences

Under the Proposed Action, the repair of the existing trail would focus on reducing the potential for erosion and future degradation of the trail and adjacent vegetation during normal hiker use and during large storm events. The trail would be narrowed and better defined, permitting the wider sections that are currently bare ground to recover and re-establish natural vegetation cover. The replacement of the destroyed bridge would involve constructing a new bridge as close as possible to the footprint of the old bridge foundations, and any work within the sensitive riparian vegetation would be avoided. Construction of rerouted portions of the trail is expected to total approximately 8,000 linear feet of new trail in mixed forest and tall scrub vegetation areas. The rerouted trail would bypass the steep sections of the trail and sections that traverse low, wet areas. The grade of the rerouted trail would not exceed 12 percent and would be less in most places. Appropriate erosion control measures would be specified as part of the final trail design. The reroute would avoid sensitive habitats to the greatest extent possible. In areas where complete avoidance of sensitive habitats is not possible, short sections of wooden boardwalk would be constructed to cross the sensitive habitat. No filling or excavating of sensitive habitats would be performed during placement of the boardwalk, and effects on sensitive habitats are anticipated to be short term and not adverse. Rerouted portions of the trail would provide a lower gradient trail for hikers and a durable trail less susceptible to erosion during large storm events.

In summary, implementation of the Proposed Action would result in some short-term erosion effects, but these effects are not considered significant. Over the long term, the Proposed Action would reduce the potential for trail-related erosion, representing a beneficial effect.

Mitigation Measures and Residual Effects

No additional mitigation measures are proposed under the Proposed Action, and residual effects are not anticipated.

Significant and Unavoidable Adverse Effects

There are no significant and unavoidable adverse effects associated with Proposed Action.

3.2 HYDROLOGY, WATER QUALITY, AND FLOODPLAINS

3.2.1 AFFECTED ENVIRONMENT

The Cascade Trail and adjacent lands are in the southern interior region of Alaska, approximately 100 miles north of Anchorage, in the Chulitna River basin watershed, a subwatershed of Cook Inlet basin. This basin drains to Cook Inlet and the Pacific Ocean.

South-central Alaska, including the Chulitna drainage, has a transitional climate receiving both maritime and arctic climatic influences. The climate is transitional because of the moderating maritime influence on temperature by the Gulf of Alaska and the cooling continental and arctic influence from the northern winds, although these are often blocked by the Alaska and Talkeetna mountain ranges. The project area is cool during the summer (with an average temperature of approximately 50⁰F) and cold during winter (with an average temperature of approximately 0⁰F). Snowfall makes up a large portion of the annual precipitation, although the area also receives a significant amount of rainfall.

Streams and rivers in the Chulitna drainage generally have steep gradients in their headwater sections, and are flat in their lower reaches. Stream and wetland densities are high within the Chulitna drainage, with many riparian wetlands and stream oxbows. The Cascade Trail traverses through mid and upper elevation areas until it meets the Troublesome Creek Trail on Kesugi Ridge. Elevations range from approximately 900 to 4,550 feet throughout the watershed.

The Chulitna River is unimpounded, as are the small streams near the Cascade Trail, with no alterations to the natural hydrology in the project area. Cascade Trail crosses Cascade Creek twice, once in the lower and once in the upper section. The creek is relatively small and may contain very low flow some years during the dry season. Recreation is the main activity in the watershed, and few facilities exist that currently affect hydrology or water quality. Some areas of the trail path are steep, and may channel some runoff down portions of the trail during storm events. Runoff during high precipitation storm events may carry sediment to fish-bearing creeks or one of the smaller non-fish bearing tributaries.

No water bodies in the Cascade Trail project area are listed as having water quality issues (DEC 2008a).

3.2.2 ENVIRONMENTAL CONSEQUENCES

Potential environmental consequences associated with each alternative on hydrology, water quality, and floodplains are considered from regulatory and ecological perspectives.

3.2.2.1 Regulatory Considerations

Clean Water Act Section 303 and the Alaska Clean Water Actions Policy

The Alaska Department of Environmental Conservation (DEC) administers the federal Clean Water Act (CWA) in Alaska. In addition, DEC participates in the implementation of the Alaska Clean Water Actions (ACWA) policy, which was initiated in 1999. Through the ACWA process, the Departments of Environmental Conservation, Natural Resources, and Fish and Game work together

to focus state and federal resources on the waters of greatest need, addressing issues of water quality, water quantity, and aquatic habitat (DEC 2008b). Cooperating agencies have developed a water body nomination and ranking process, using established criteria, that prioritizes assessment, stewardship, and corrective action needs for polluted waters and waters at risk of pollution. These criteria include the statutory criteria as well as severity of pollution and uses to be made of the waters, per the Clean Water Act § 303(d)(1)(A). In 2006, the U.S. Environmental Protection Agency (EPA) Region 10 completed a review and accepted the DEC Strategy (DEC 2008b).

CWA Section 303(d) requires identification of waters that do not meet water quality standards where a Total Maximum Daily Load (TMDL) needs to be developed. Alaska's Integrated Report Section 303(d) water bodies list was reviewed to see if it included any water bodies in the project area. No water bodies in the Cascade Trail project area are listed on DEC's Section 303(d) list (DEC 2008a).

Section 404 of the Clean Water Act is described under Section 3.3, *Vegetation and Wetlands*.

Clean Water Act, Section 401

Section 401 of the Clean Water Act requires applicants proposing projects with a federal nexus to obtain certification for activities that could result in the discharge of pollutants into waters of the United States. Certification is obtained from the state in which the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters must also comply with CWA Section 401. In Alaska, DEC is tasked with granting CWA 401 certification.

Executive Order 11988 (Floodplain Management)

Executive Order (EO) 11988 (Flood Plain Management), established in May 1977, addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project to:

- Avoid incompatible floodplain development;
- Be consistent with the standards and criteria of the National Flood Insurance Program (NFIP);
- Restore and preserve natural and beneficial floodplain values;
- Involve the public in the decision-making process for floodplain activities; and
- Evaluate effects, both by the floodplain and on the floodplain.

Part of the purpose of the project, and in compliance with the Public Assistance program, is to realign portions of the trail outside of the active floodplain.

3.2.2.2 Methodology and Threshold of Significance

Methodology

Two EDAW biologists assessed the affected environment on August 24, 2008, characterizing the watershed in field notes and through photo-documentation of notable features in the project area. Existing information was gathered from the Matanuska-Susitna Borough, Denali State Park, the

State of Alaska DEC, and a literature review for applicable scientific information pertaining to water quality and hydrology within the affected area. The analytic approach focused on the following:

- The level and intensity of effect(s) associated with the proposed trail restoration;
- Current hydrology, water quality and floodplains; and
- The potential of any project activities to affect flow rates, paths, and pollutant loads.

Threshold of Significance

The No Action Alternative and the Proposed Action would be determined to result in a significant effect on hydrology, water quality, and floodplains if they would:

- Violate any water quality standards or waste discharge requirements, create or contribute runoff water that would provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality;
- Result in a substantial net loss of the 100 year floodplain; or
- Alter the existing drainage pattern within the project area in a manner that would result in substantial erosion or siltation on or off the site, result in flooding on or off the site.

3.2.2.3 Alternative A: No Action

Environmental Consequences

Alternative A would leave the trail as it currently exists. Minor effects on water quality may occur as a result of hikers walking through streams and sedimentation because of erosion where people traverse off trail. These effects would be very small.

Mitigation Measures and Residual Effects

No mitigation measures for water quality or hydrology are proposed under the No Action Alternative, and residual effects are not anticipated.

Significant Unavoidable Adverse Effects

No significant or unavoidable adverse effects on water quality, hydrology, and floodplains (or by floodplains) are anticipated from the No Action Alternative.

3.2.2.4 Alternative B: Proposed Action

Environmental Consequences

The Proposed Action would involve the clearing and restoration of 8,000 feet of trail (24 inches wide) to its prestorm event condition. No changes to surface hydrology are proposed, and surface hydrology is highly unlikely to be affected by trail clearing and restoration activities.

Construction activities, including clearing, brushing, grubbing, and on-site construction of a stream crossing, would expose soils for a short time during the dry season. BMPs would be utilized to ensure that no run-off or sediments reach riparian areas. The proposed trail route was chosen to avoid wetlands, riparian habitats, and erosion-prone areas. Restoration of the Cascade Trail may be a minor long-term source of sediment to streams down-slope of the project area during heavy rain events. Trail construction would employ BMPs to minimize the erosion and sediment potential, and steps would be taken to avoid any material from escaping to streams in the area.

Mitigation Measures and Residual Effects

No additional mitigation measures for hydrology or water quality are proposed under the Proposed Action, and residual effects are not anticipated in addition to the normal wear-and-tear and periodic maintenance activities.

Significant and Unavoidable Adverse Effects

No significant or adverse effects on water quality, hydrology, and floodplains (or by floodplains) are anticipated from the Proposed Action.

3.3 VEGETATION AND WETLANDS

3.3.1 AFFECTED ENVIRONMENT

3.3.1.1 Upland Vegetation

The upland vegetation types associated with the Cascade Trail are primarily mixed forest at the lower elevation, and tall scrub vegetation occurs along stream drainages and elevations between mixed forest and alpine tundra. Alpine tundra dominates Kesugi Ridge at the highest elevations of the Cascade Trail and consists of a mixture of low scrub and herbaceous vegetation.

The tree layer in the mixed forest areas is dominated by paper birch and white spruce. The shrub layer species include highbush cranberry (*Viburnum edule*), devil's club (*Oplomanax horridus*), green mountain-ash (*Sorbus scopulina*), early blueberry (*Vaccinium ovalifolium*), false azalea (*Ferruginea menziesii*), trailing black currant (*Ribes laxiflorum*), and northern black currant (*Ribes hudsonianum*). The herb layer is dense and low with bunchberry (*Cornus canadensis*), western oak fern (*Gymnocarpium dryopteris*), false toadflax (*Geocaulon lividum*), crowberry (*Empetrum nigrum*), bog blueberry (*Vaccinium uliginosum*), and trailing raspberry (*Rubus pedatus*). A taller herb layer occurs, often in association with the edges of the shrubs listed above but also mountain alder (*Alnus crispa*) and Sitka alder. The more common tall herbaceous species are wood fern (*Dryopteris dilatata*), fireweed (*Epilobium angustifolium*), claspleaf twistedstalk (*Streptopus amplexifolius*), monkshood (*Aconitum delphiniifolium*), bluejoint reedgrass, horsetail (*Equisetum* sp.), and ladyfern (*Athyrium filix-femina*).

The alpine tundra associated with the Cascade Trail is dominated by a mixture of low-growing shrubs and herbaceous species that form a dense vegetation cover. The common low shrub species include crowberry, bog blueberry, alpine azalea (*Loiseleuria procumbens*), twinflower (*Linnaea borealis*), alpine bearberry (*Arctostaphylos alpina*), Alaska spiraea (*Spiraea beauverdiana*), and dwarf arctic birch (*Betula nana*). Herbaceous species growing among the shrubs include Sitka burnett (*Sanguisorba stipulata*), arctic wormwood (*Artemisia arctica*), nagoonberry (*Rubus arcticus*), narcissis-flowered anemone (*Anemone narcissiflora*), common club moss (*Lycopodium annotinum*), alpine holy grass (*Hierochloe alpina*), alpine bluegrass (*Poa alpina*), bunchberry, Swedish dwarf cornell (*Cornus suecica*), lousewort (*Pedicularis* sp.), starflower (*Trientalis arctica*), and various species of sedge (*Carex* sp.).

3.3.1.2 Wetlands and Wetland Vegetation

Tall scrub vegetation is general dominated by mountain alder, although Sitka alder and willow (*Salix* sp.) generally contribute to the characteristically tall shrub layer. Alder is the dominant species along the main creek drainage, Cascade Creek. Willow is more abundant in small, low-lying wet depressions and swales surrounded by tundra at higher elevations. Bluejoint reedgrass, lady fern, and wood fern comprise the dominant cover in the understory of the alder and willow canopies. Bunchberry, trailing raspberry, cloudberry (*Rubus chamemorous*), bog blueberry, Alaska spiraea, green cornlily (*Veratrum viride*), alpine azalea, and claspleaf twistedstalk are common herb layer species along shrub margins. The mid-elevation portion of Kesugi Ridge between lowland forest and alpine tundra supports tall shrub vegetation type that likely represents, at least in part, palustrine scrub shrub (PSS) wetland vegetation.

The National Wetlands Inventory (NWI) depicts wetland habitats in proximity but not overlapping the portions of Cascade Trail proposed for repair. The U.S. Army Corps of Engineers (Corps) has provided an Approved Jurisdictional Determinations Form (POA_2008-1583_JD3), available at <http://www.poa.usace.army.mil/reg/ApprovedJDs.htm>, for the Cascade Trail repair project. The determination recognizes Cascade Creek as a Relatively Permanent Water (RPW) that flows into Byers Creek (RPW) and abutting wetlands, and eventually the Chulitna River, a Traditional Navigable Water (TNW). The jurisdictional determination of abutting wetlands present in the flat, lowland areas adjacent to Cascade Creek, Byers Creek, and Byers Lake is that they are all outside the steep portions of Cascade Trail proposed for trail repair and reroutes.

3.3.1.3 Rare Plant Species

For the purposes of this EA, rare plant species include species that are federally listed as threatened or endangered, or are proposed for listing as threatened or endangered. There is only one federally listed plant species - Aleutian shield-fern (*Polystichum aleuticum*) - in Alaska, and there is no potential for it to occur in the project area.

3.3.2 ENVIRONMENTAL CONSEQUENCES

This section presents an analysis of the potential effects of the No Action Alternative and the Proposed Action on vegetation resources within the immediate vicinity of the Cascade Trail repair project.

3.3.2.1 Regulatory Considerations

Section 404 of the Clean Water Act (CWA)

Actions affecting waters of the United States and the discharge of dredged or fill material into U.S. waters, including wetlands, are regulated by Section 404 of the Clean Water Act (CWA). The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States. The Corps regulates Section 404 activities and provides approvals, permits, and water quality certifications, as applicable.

Executive Order (EO) 11990

Executive Order (EO) 11990 on Protection of Wetlands defines wetlands as “those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.” The EO directs federal agencies to avoid, to the extent possible, both short-term and long-term adverse effects associated with the occupancy and modifications of wetlands. FEMA uses the Eight-Step Planning Process to meet the requirements for complying with EO 11990 as required by regulation 44 CFR Part 9. Step 1 of the planning process is to determine whether the proposed action is located in a wetland; as described above in Section 3.3.1.2 (*Wetlands and Wetland Vegetation*), all jurisdictional wetlands in the vicinity are outside the portions of Cascade Trail proposed for trail repair and reroutes.

3.3.2.2 Methodology and Threshold of Significance

Methodology

Two EDAW biologists conducted a site visit on August 24, 2008, to collect information on general site conditions, special habitat features (including wetlands), and vegetation communities in the project area. Existing information was gathered from Denali State Park staff regarding site conditions at Cascade Creek and from a literature review for applicable data pertaining to vegetation types in the project vicinity, particularly sensitive wetland habitats. The analytical approach to assessing environmental consequences focuses heavily on project design elements that avoid and minimize the potential for effects on sensitive wetland resources.

Threshold of Significance

The No Action Alternative and the Proposed Action were determined to result in a significant effect on vegetation or wetlands if they would:

- Disturb or degrade a substantial amount of sensitive natural communities such as wetlands, riparian habitats, and alpine tundra.

3.3.2.3 Alternative A: No Action

Environmental Consequences

Under the No Action Alternative, the existing damaged 8,000 linear feet of trail would remain in its current degraded condition. The portion of the trail that traverses the mixed forest vegetation type is up to 15 feet wide in places, as hikers navigate around and over exposed tree roots on eroded sections of steep trail on side slopes and on the fall line of the slope. The erosion and subsequent widening of the trail have exposed more bare ground and increase the potential for additional erosion during periods of heavy rainfall.

In tall scrub areas, the current trail system follows the fall line of the slope through much of the steep mid-elevation portions of the trail. The lower elevation portion of the tall scrub vegetation is less steep and has many muddy depressions in areas most likely supporting sensitive PSS wetlands. Hikers have widened the trail and trampled side paths to avoid deeper puddles and to navigate steep, eroded trail sections. In the alpine tundra areas, storm runoff is unchecked within the trail path and has created up to 6 inches of down-cutting for several hundred feet. Hikers have created a new parallel track to avoid the down-cut trail, resulting in trampling of fragile low scrub vegetation and an increase in the amount of compacted bare soil. The current degraded condition of the trail and sensitive vegetation types are likely to continue and worsen over time through normal use by hikers as well as during periodic high runoff during storm events. This would have minor adverse effects on vegetation.

Significant and Unavoidable Adverse Effects

There are no significant adverse effects on wetlands or vegetation (including rare plant species) associated with the No Action Alternative.

3.3.2.4 Alternative B: Proposed Action

Environmental Consequences

Under the Proposed Action, the repair of the existing trail would focus on lessening the potential for erosion and future degradation of the trail and adjacent vegetation during normal hiking use and large storm events. The trail would be narrowed and better defined, permitting the wider sections that are currently bare ground to recover and re-establish natural vegetation cover. The replacement of the destroyed bridge would involve constructing the new bridge as close as possible to the footprint of the old bridge foundations, and work within the sensitive riparian vegetation would be avoided. Construction of rerouted portions of the trail is expected to total approximately 8,000 linear feet of new trail that would removed 0.37 acres of mixed forest and tall scrub vegetation. The rerouted trail would bypass the steep sections of the trail and sections that traverse low wet areas. The grade of the rerouted trail would not exceed 12 percent and would be less in most places. Appropriate erosion control measures would be specified as part of the final trail design. Rerouted portions of the trail would avoid sensitive habitats to the greatest extent possible. In areas where complete avoidance of sensitive habitats is not possible, short stretches of wooden boardwalk would be constructed to cross the sensitive habitat. No filling or excavating of sensitive habitats would be performed during placement of the boardwalk, and effects on sensitive habitats are anticipated to be short term and not adverse. Rerouted portions of the trail would provide a lower gradient trail for hikers and a durable trail less susceptible to erosion during large storm events.

In summary, implementation of the Proposed Action would result in some minor habitat modification in the project area. However, these effects are not considered significant. There would be no project effects on wetlands.

Mitigation Measures and Residual Effects

Under the Proposed Action, no mitigation measures are proposed, and residual effects are not anticipated.

Significant and Unavoidable Adverse Effects

There are no significant and unavoidable adverse effects on wetlands or vegetation (including rare plant species) associated with the Proposed Action.

3.4 FISH AND WILDLIFE

Fish and wildlife in the Cascade Trail project area are described in this section, including migratory bird species protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act.

3.4.1 AFFECTED ENVIRONMENT

For purposes of this fish and wildlife analysis, the project area includes the Cascade Trail and all habitat and lands within 200 feet of the trail.

3.4.1.1 General Wildlife Species and Habitat

The project area provides habitat for a variety of mammals and birds, salmon and non-sport fish, many invertebrate species, and one amphibian species. Moose (*Alces alces*), brown bear (*Ursus arctos horribilis*), black bear (*Ursus americanus*), gray wolf (*Canis lupus*), and lynx (*Lynx canadensis*) are some of the large diurnal mammals in the project area. Beaver (*Castor canadensis*), porcupine (*Erythron dorsatum*), red fox (*Vulpes vulpes*), snowshoe hare (*Lepus americanus*), little brown bat (*Myotis lucifugus*), and several species of lemmings (e.g., *Lemmus sibiricus*), voles, and shrews also are supported by habitat in the project area. Game bird species likely to be found in the project area include spruce grouse (*Dendragapus canadensis*) and rock ptarmigan (*Lagopus muta*), and several species of waterfowl. Migratory passerines are also present in high numbers in the summer, including warblers, flycatchers, thrushes, waxwings, sparrows, longspurs, shrikes, and woodpeckers. Some migratory bird species are seasonal residents without fidelity to the project area and will use other sites during periods of human disturbance. One amphibian species may be present, the wood frog (*Rana sylvatica*).

Habitat in the immediate vicinity of the project area is a mix of boreal spruce-fir forests with dense willow and alder shrub thickets in riparian areas. White spruce occurs in drier soils, and balsam poplar (*Populus balsamifera*) is found in and near riparian areas. Small trees (alder, willow) and shrubs (blueberries, grass, fireweed, rose [*Rosa* sp.]) form a single, dense layer in the understory. Snags and downed wood are present in the project area near wetlands, and many downed trees along the existing trail are the result of recent flooding and erosion events.

3.4.1.2 Aquatic Habitat

One crossing occurs along the Cascade Trail route over Byers Creek, and two crossings occur over Cascade Creek.

3.4.1.3 Fish

Sockeye salmon (*Oncorhynchus nerka*) occur in Byers Creek, crossed by the Cascade Trail outside of the proposed project area. Non-salmon fishes that may occur include arctic grayling (*Thymallus arcticus*), slimy sculpin (*Cottus cognatus*), rainbow trout (*Oncorhynchus mykiss*), and Dolly Varden (*Salvelinus malma*) (ADFG 2008a). Anadromous salmon are not found in the smaller tributaries.

3.4.1.4 Special-Status Species

Special-status wildlife and fish species in this analysis are defined as wildlife and fish species that are protected by federal agencies as part of their land management operations, or that are considered sensitive, rare, or at risk by state resource conservation agencies and organizations. Specifically, this includes species that are state listed as rare, threatened, or endangered; those considered as candidates for listing as threatened or endangered; or species listed by the Alaska Department of Fish and Game (ADFG) as wildlife species of special concern. The special status species that may occur in the project vicinity are listed in Table 3.4-1. There are no species listed or proposed as threatened or endangered under the federal Endangered Species Act in the project vicinity.

Table 3.4-1. Species of Concern and Federally Protected Species Potentially Occurring in the Project Area.

Common name (<i>Scientific name</i>)	ADFG Status	Federal Status	Habitat Association	Protective Statute	Causes of Declines
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	SC	Candidate	Mixed riparian forests	MBTA	Loss of winter habitat ¹
Grey-cheeked Thrush (<i>Catharus minimus</i>)	SC	none	Shrub thickets	MBTA	Loss of winter habitat ²
Blackpoll Warbler (<i>Dendroica striata</i>)	SC	none	Boreal forests and thickets	MBTA	Loss of winter habitat ³
Peregrine Falcon (<i>Falco peregrinus</i>)	SC	none	Cliffs, prairies, tundra	MBTA	Pesticides ²
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	none	none	Boreal and riparian forests	BGEPA	Pesticides ²
Golden Eagle (<i>Aquila chrysaetos</i>)	none	none	Open forests, prairies, cliffs	BGEPA	Pesticides ²

SC=Species of Special Concern; MBTA= Migratory Bird Treaty Act; BGEPA=Bald and Golden Eagle Protection Act.

¹ Peterson and Fichtel 1992; Robertson and Hutto 2007.

² ADFG 2008b.

³ Hunt and Eliason 1999.

3.4.2 ENVIRONMENTAL CONSEQUENCES

3.4.2.1 Regulatory Considerations

Federal and state regulations applicable to fish, wildlife, and habitat are summarized below.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) provides that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill...any migratory bird, or any part, nest or egg of any such bird, included in the terms of conventions” with certain other countries (16 U.S. Code [U.S.C.] 703). This prohibition includes direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds in Alaska, including the recently delisted bald eagle (USFWS 1995).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act, originally passed in 1940, prohibits the take, possession, sale, purchase, barter, offer to sell, purchase, or barter, transport, export, or import, of any bald or

golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668(a); 50 CFR 22). “Take” means to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” a bald or golden eagle. The term “disturb” under the Bald and Golden Eagle Protection Act was recently defined within a final rule published in the Federal Register on June 5, 2007 (72 Fed. Reg. 31332). “Disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Alaska Species of Special Concern

Alaska maintains a list of species of special concern through an administrative listing established in May 1993 and amended in October 1998 by the Commissioner of Fish and Game (Title 5 Alaska Administrative Code [AAC] 93.001-93.060; AS16.05.050). Under this listing, the ADFG reviews special status species and recommends management actions to protect or mitigate species declines prior to Endangered Species Act (ESA) listing. Management options are broader and may be implemented at an earlier stage and with greater flexibility through the ADFG species of special concern program than under endangered species listings.

3.4.2.2 Methodology and Threshold of Significance

Methodology

Two EDAW biologists assessed the affected environment on August 24, 2008, characterizing habitats, plants, and wildlife in field notes and through photo-documentation of notable features. Existing information was gathered from the Matanuska-Susitna Borough, Denali State Park, and a literature review for applicable scientific information pertaining to species and habitats within the affected area. The analytic approach focused on the following:

- The level and intensity of effect(s) associated with the proposed trail restoration,
- The level of species use of the affected environment,
- Home ranges and habitat needs of species using the affected environment,
- The relative importance of the affected environment to species, and
- The uniqueness of the affected environment within the landscape.

Threshold of Significance

The No Action Alternative and the Proposed Action were determined to result in a significant effect on wildlife if they would:

- Have a significant adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by ADFG;

- Substantially degrade the quality of the environment, substantially reduce the habitat of a wildlife species, reduce the number, or restrict the range of a state endangered, rare, or threatened species; or
- Interfere substantially with the movement of any native resident or migratory wildlife or fish species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

3.4.2.3 Alternative A: No Action

Environmental Consequences

Under the No Action Alternative, vegetation would likely soon overtake some areas where the trail is damaged or eroded. Fish and wildlife habitat in the project area may be affected by continued erosion and widening of the trail by hikers. It is unlikely that wildlife use or populations in the area would be measurably altered under the No Action Alternative.

Significant and Unavoidable Adverse Effects

No significant or adverse effects on fish, wildlife, or their habitat (including any special status species or species protected by state or federal regulations) are anticipated from the No Action Alternative.

3.4.2.4 Alternative B: Proposed Action

Environmental Consequences

The removal of live trees, snags, or shrubs during repair and construction of the Cascade Trail may affect many songbird species by removing potential nesting or foraging habitat. These effects are considered to be insignificant as higher quality habitat is located nearby. Additionally, the area of effect is small in comparison to the ample available habitat surrounding the project area.

The project area may support a variety of mammals, as described in Section 3.4.1 (*Affected Environment*). Modifications to habitat may affect these species; however, habitat modifications under the Proposed Action are small and would rarely result in the removal or disturbance of mature vegetation. These effects are considered to be insignificant as large areas of high-quality habitat are located nearby.

The project area may also provide foraging habitat and refuge for transient large mammals. The large mammal species that may be present in the project area include moose, brown bear, black bear, red fox, and lynx. The amount of land cleared under the Proposed Action is insignificant in comparison with the home ranges of these species. As a result, there would be no effect on large mammals from the Proposed Action.

The wood frog is the only amphibian species that may be found in the project area. The Proposed Action is likely to have no effect on amphibians because trail repairs would not affect wetland, riparian, or woodland habitat outside of the current trail footprint. The rerouted portion of the trail has been specifically chosen to avoid and minimize effects on wetlands, the breeding habitat of wood frogs.

Trail repairs and rerouting would require vegetation removal and soil work, which could potentially result in sedimentation to the stream and the removal of some vegetation from riparian areas. Fish are not present in the streams crossed by the Cascade Trail.

Removal of less than 0.37 acres of habitat is expected because of the rerouted portions of the trail. BMPs will be employed to ensure that no run-off or sediment reaches streams or sensitive areas. The Proposed Action would not have a significant adverse effect on any special-status species due to the small amount of vegetation removed, the small size of the project footprint, and the use of low-effect methods such as hand tools, small chainsaws, and foot travel for trail repairs and rebuilding.

In summary, implementation of the Proposed Action would result in some minor disturbances to wildlife during the construction period (a short-term effect), as well as the removal of minor amounts of wildlife habitat (a long-term effect). However, these effects are expected to be minor.

Mitigation Measures and Residual Effects

No mitigation measures are recommended for fish and wildlife due to the proposed project, and residual effects are not anticipated.

Significant and Unavoidable Adverse Effects

No significant or unavoidable adverse effects on fish, wildlife, or habitats (including any special status species or species protected by state or federal regulations) are anticipated from the Proposed Action.

3.5 RECREATION

3.5.1 AFFECTED ENVIRONMENT

The existing public recreation facilities at Denali National Park are nearing or exceeding capacity. Denali State Park and private sector development provide opportunities essential to meet the public's ever-increasing recreational requirements in the region. The services and facilities at Denali State Park provide views of Denali, campgrounds, trails, waysides, public use cabins, and information centers. While the state park by itself can never hope to meet the ever-increasing recreational needs of the public, its services and facilities require maintenance and improvements of antiquated design elements to remain viable and sustain its future as a recreational attraction even at current usage levels. Park visitation peaks in the summer, although usage in the "shoulder season" and in winter is increasing, along with general increases in resident human populations and off-peak visitors from out-of-state. More visitors during the shoulder season means that more hikers are using state park trails during a time of year when precipitation is on the rise and trails are becoming increasingly wet and susceptible to damage by hikers. Antiquated trail design and heavy trail use by hikers have certainly contributed to the susceptibility of the trail system in the state park to damage from heavy rains in the region, like those that occurred in August 2006 and caused excessive surface runoff that damaged Cascade Trail.

The Cascade Trail is a popular 3.4-mile trail in Denali State Park, connecting the Byers Lake recreation facilities via the Byers Lake Loop Trail to the Kesugi Ridge Trail and Upper Troublesome Creek Trail. The Cascade Trail is heavily used in the summer by hikers and in the winter by snowshoers and cross-country skiers.

3.5.2 ENVIRONMENTAL CONSEQUENCES

This section describes the potential effects of the No Action Alternative and the Proposed Action on recreation opportunities and activities within the immediate vicinity of the project. Mitigation measures to offset any identified effects are also provided, as applicable.

3.5.2.1 Regulatory Considerations

There are no regulatory considerations for recreation resources, although the continued use of the Cascade Trail is consistent with land use goals and objectives as specified in the Denali State Park Management Plan (Alaska State Parks 2006).

3.5.2.2 Methodology and Threshold of Significance

Methodology

Two EDAW biologists conducted a site visit on August 24, 2008, to collect information on general site conditions, recreation facilities and opportunities, and plant and animal communities in the project area. Existing information was gathered from Denali State Park and a literature review for applicable scientific information pertaining to recreation opportunities within the affected area. The analytical approach focused on the following:

- The level and intensity of trail use, and

- Accessibility of the trail for multiple recreational uses.

Threshold of Significance

The No Action Alternative and the Proposed Action were determined to result in a significant effect on recreation if they:

- Would affect the safety of travelers; or
- Would have a direct or indirect effect on the quantity or quality of trails that provide access to and from the popular Kesugi Ridge Trail destination.

3.5.2.3 Alternative A: No Action

Environmental Consequences

Under the No Action Alternative, the existing trail would continue to provide access to the Kesugi Ridge backcountry. Keeping the trail open is important to provide park users access to Kesugi Ridge, to alleviate hiker pressure and reduce effects on other trails that access Kesugi Ridge, and to provide access to and from the Kesugi Ridge backcountry in case of emergency. However, continued use of the trail in its degraded condition and the high potential for future erosion because of the current trail layout straight up and down steep slopes represent the potential for residual effects on recreation. Under wet conditions steep slopes become slippery, and exposed tree roots in the trail become difficult and potentially hazardous to traverse. Hikers have widened the trail in numerous areas as they traverse around trail hazards; the trail is currently 10 to 15 feet wide in many of these areas. The steep layout of the trail makes it susceptible to further erosion during future storm events and further degradation as hikers attempt to circumvent trail hazards. Thus, continuation of the existing conditions would have a long-term adverse effect on recreation users of the park.

Significant and Unavoidable Adverse Effects

Under the No Action Alternative, there would be no significant effects.

3.5.2.4 Alternative B: Proposed Action

Environmental Consequences

Under the Proposed Action, the resulting trail would be longer and have a lower gradient, making it more durable under adverse conditions like those experienced during storm events in August 2006. The gentler trail gradient would provide for surface water management and be less likely to damage the trails. Under wet ground conditions, the trail would be easier to traverse with fewer hazards such as slippery roots and steep, muddy slopes for hikers to circumvent. The Proposed Action represents a long-term beneficial effect for recreation resources in the project area.

One bridge replacement would be required, although it would be placed a couple of feet upstream or downstream of the existing bridge, in a narrower location to facilitate building the bridge with no in-water work. Denali State Park staff would build abutments away from the bank to support the bridge, and no construction would occur in the stream.

Mitigation Measures and Residual Effects

No mitigation measures are proposed under the Proposed Action, and residual effects are not anticipated.

Significant and Unavoidable Adverse Effects

There are no significant and unavoidable adverse effects on recreation resources associated with Proposed Action.

3.6 ENVIRONMENTAL JUSTICE

3.6.1 AFFECTED ENVIRONMENT

Environmental justice refers to the potential effects on minority and low-income populations, especially disproportionate adverse or unfair effects on those populations. For the analysis of environmental justice, the affected environment is defined as the Matanuska-Susitna Borough population; statistics for the state of Alaska are also provided for comparison. Table 3.6-1 lists the race and ethnicity of the Matanuska-Susitna Borough and Alaska state residents as reported by the 2000 U.S. Census of Population and Housing. The most prevalent race or ethnicity in the affected area is identified as White, with American Indians and Alaskan Natives the most prevalent minority group at 5.5 percent of the total population.

Table 3.6-1. Race/Ethnicity in Matanuska-Susitna Borough and Alaska State, 2000.

Race/Ethnicity	Matanuska-Susitna Borough (Percent)	Alaska State (Percent)
White	87.6	69.3
Black	0.7	3.5
American Indian and Alaska Native	5.5	15.6
Asian	0.7	4.0
Pacific Islander and Native Hawaiian	0.1	0.5
Some other race	0.9	1.6
Two or more races	4.6	5.4
Hispanic or Latino (of any race)	2.5	4.1

Source: U.S. Census Bureau 2004.

Low-income households are defined by the U.S. Census Bureau as those households with income at or below 80 percent of area median household income. Poverty estimates for 2005, the most recent year for which data are available, estimated median household income in Matanuska Susitna Borough at \$57,134; for Alaska as a whole it was \$55,477 (U.S. Census Bureau 2008).

Approximately 11.3 percent of the Matanuska Susitna Borough lived below the poverty threshold (i.e., \$45,707), compared to 10.8 percent of the population of Alaska as a whole (i.e., \$44,382) (see Table 3.6-2).

3.6.2 ENVIRONMENTAL CONSEQUENCES

3.6.2.1 Regulatory Considerations

Under NEPA, federal agencies are required to evaluate their actions for the potential to cause “disproportionately high and adverse human health and environmental effects on minority and low-income populations,” as stated in Executive Order 12898 (Environmental Justice, 59 Federal Register 7629 [1994]). Potential effects are evaluated by examining the demographics of the area affected by the proposed action(s) and the potential of those actions to have adverse effects on minority and low-income populations.

Table 3.6-2. Income and Poverty in Matanuska Susitna Borough and Alaska State, 2005.

Low-Income Populations	Matanuska-Susitna Borough	Alaska State
# of Low Income Households	8,414	69,093
Low income population (percentage)	11.3%	10.8%
Median Income	\$57,134	\$55,477

Source: U.S. Census Bureau 2008.

3.6.2.2 Methodology and Threshold of Significance

Methodology

The methodology used to evaluate effects on environmental justice included a review and comparison of minority and low income populations in the Matanuska-Susitna Borough with Alaska state minority and low income populations. The Council on Environmental Quality (CEQ) defines “minority” to consist of the following groups: Black/African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaskan Native, and Hispanic/Latino populations (CEQ 1997). For this analysis, “minority” also includes all other non-white racial categories within the U.S. Census Bureau’s 2000 Census of Population and Housing such as “some other race” and “two or more races.” The poverty threshold, or low-income population, is defined by the U.S. Census Bureau as those households living on less than 80% of the median income for an area (U.S. Census Bureau 2008).

Data were obtained from the U.S. Census Bureau. The Matanuska-Susitna Borough was the finest scale for which demographic data are available. Quantification for a significant proportion of the population is determined by following EPA guidelines published in *Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analysis* (EPA 1998). According to these guidelines, a minority population refers to a minority group or groups that comprise greater than 50 percent of the affected area’s general population. No guidelines are published for determination of a significant low-income population; therefore, we propose that a low-income population exists if there is a community whose general population is comprised of 25 percent or more of households living under the poverty threshold.

Threshold of Significance

The No Action Alternative and the Proposed Action would result in a potential determination of significant effect on environmental justice if the affected environment:

- Would include one or many minority groups as greater than 50 percent of the affected area’s general population; or
- Would include a population with 25 percent or more of its residents living under the poverty threshold; and
- The alternative would result in a “disproportionately high and adverse effect” on either or both of these populations.

3.6.2.3 Alternative A: No Action

Environmental Consequences

Neither minority populations nor low-income populations reach thresholds of significance in the project area. Low-income households comprise 11.3 percent of the Matanuska-Susitna Borough and do not reach the minimum threshold of 25 percent; therefore, adverse effects on the low-income population are not differentiated from the population as a whole, and no adverse effects would be expected. Likewise, minority populations comprise 12.4 percent of the total population, below the 50 percent threshold criteria for determining significant effects on minority populations.

Under the No Action Alternative, the Cascade Trail would remain in disrepair and provide a lesser level of service to the public, including minorities and low-income groups. Environmental justice effects from the No Action Alternative may result in reduced recreational opportunities for low-income and minority populations, although these effects are expected to be below the threshold of significance. These effects would be on par with the effects on the general population and therefore not disproportionate.

Mitigation Measures and Residual Effects

No mitigation measures are proposed for environmental justice under the No Action Alternative, and residual effects are not anticipated.

Significant and Unavoidable Adverse Effects

No significant or unavoidable adverse effects on environmental justice are anticipated from the No Action Alternative.

3.6.2.4 Alternative B: Proposed Action

Environmental Consequences

Neither minority populations nor low-income populations reach thresholds of significance in the project area. Disproportionate effects on minority or low-income populations would not be created through implementation of the project.

The Proposed Action may provide employment opportunities to the general population, including low-income and minority groups, because of contracting needs for trail construction services through the Alaska State Parks Department. The Alaska State Parks standard bid procedure for trail building projects includes provisions intended to ensure equal opportunities for minority and low-income groups (Alaska Statute 41.21.020).

No significant adverse effects on environmental justice would be created as a result of this proposed method of contracting for construction services.

Mitigation Measures and Residual Effects

No mitigation measures are proposed for the Proposed Action. Environmental justice effects from the Proposed Action are expected to be below the threshold of significance, and residual effects are not anticipated.

Significant and Unavoidable Adverse Effects

No significant or unavoidable adverse effects are anticipated from the Proposed Action.

3.7 CULTURAL RESOURCES

Cultural resources, also referred to as historic properties, include resources of historical and/or archaeological significance. For purposes of this document, the term “archaeological resources” is used to refer to prehistoric or historical subsurface sites or objects; and the term “historic resources” is used to refer to above-ground historic buildings, sites, objects, structures, or districts.

In determining the Area of Potential Effect (APE) for an undertaking, consideration must be given to those effects that would occur immediately and directly as well as those that are reasonably foreseeable and may occur later, are farther removed in distance, or are cumulative, but might still result from the undertaking. Areas immediately and directly affected by the Proposed Action include those areas within the project footprint. The APE for the Proposed Action has been defined to include the alignment of the existing Cascade Trail, focusing on segments that would be repaired to predisaster condition.

3.7.1 AFFECTED ENVIRONMENT

In a letter dated May 4, 2007, the Alaska State Historic Preservation Office (SHPO) indicated that they have the following records of reported archaeological or historic sites in the project vicinity (i.e., near the Byers Lake loop trail and Cascade trail):

- TAL-111: Prehistoric lithic flakes, located 0.1 miles north of the Byers Lake loop trail, T.31N., R.04W, Section 30; and
- TAL-119: Byers Lake cabins, north side of Byers Lake, T.31N., R.05W., Section 25.

During the August 25 through 28, 2008, site visit, an archaeologist working with FEMA conducted a general survey of the project area and observed no previously unreported historic properties. In addition, the archaeologist determined that there is a low likelihood for historic properties to exist in the project area. As part of the Tribal consultation process, FEMA sent a scoping letter and a separate consultation letter to the Native Village of Cantwell, the Tribal entity closest to the project (Appendix A). No response was received from either inquiry.

3.7.2 THRESHOLD OF SIGNIFICANCE

The National Historic Preservation Act (specifically, Section 106), the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act provide guidance for addressing potential effects on cultural resources. General guidance also is provided by Alaska’s Historic Preservation Plan (DNR 2008). The unanticipated discovery of previously unreported cultural resources during project work would trigger additional consultation with the Alaska SHPO and tribal interests under the appropriate laws and implementing regulations.

3.7.3 ENVIRONMENTAL CONSEQUENCES

3.7.3.1 Alternative A: No Action

Under the No Action Alternative, FEMA would not fund the trail repair project, and there would be no repair or related activities. No ground disturbance or clearing would occur, and previously unreported cultural resources are unlikely to be present within the APE. Therefore, the No Action

Alternative would have no significant effect on cultural resources, and associated thresholds of significance would not be exceeded.

3.7.3.2 Alternative B: Proposed Action

Environmental Consequences

Under the Proposed Action, trail repair activities (clearing and brushing, grubbing, excavation, and grading) would disturb approximately 0.37 acres within the clearing limits. The level of activity and use at the site would not change from the current condition and is not planned for areas with identified cultural resources. If cultural resources were discovered during project activities, the SHPO and tribes would be notified, and consulted with. However, the possibility of effects on cultural resources is considered unlikely since there are no identified cultural resources within the APE. No significant adverse effects are anticipated, and the associated thresholds of significance would not be exceeded.

According to the SHPO (letter dated May 4, 2007; see Appendix A), the TAL-114 site is far enough from proposed project activities and would not be affected by the Proposed Action; the nature of the work should not affect TAL-119.

In response to the scoping letter associated with this project, the SHPO has issued a determination that there are “no historic properties affected” (see Appendix A).

FEMA will include the following as a condition of any funding associated with the Proposed Action: In the event that historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted and all reasonable measures taken to avoid or minimize harm to property until such a time as FEMA, in consultation with the SHPO, determines that appropriate measures have been taken to ensure that the project is in compliance with the National Historic Preservation Act.

Mitigation Measures and Residual Effects

No mitigation measures are proposed under either alternative. DNR would implement its standard construction BMPs. If cultural resources were encountered during construction, all ground-disturbance would be stopped and the SHPO would be contacted.

3.8 CUMULATIVE EFFECTS

Cumulative effects are those that result from the incremental effect of a proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other action (40 CFR 1508.7).

The Proposed Action is for FEMA to support DNR by providing partial funding for the reconstruction of the Cascade Trail in Denali State Park, Alaska. Potential cumulative effects from the Proposed Action in addition to other activities in the area are primarily from clearing of vegetation and soil disturbance associated with the trail restoration activities. These activities could have minor cumulative effects on soils; hydrology, water quality, and floodplains; vegetation and wetlands; fish and aquatic life; and general wildlife. However, these effects are not considered significant given their extent and degree.

Use of the Denali State Park as a site for recreational activities is expected to increase as local and regional populations grow and as the Denali area continues to be an international recreation destination. DNR has developed and will continue to develop long-range recreation plans that address increased demand for recreational facilities in the state park. Implementation of these plans is expected to maintain recreational activities and facilities at a level that does not create significant negative effects.

4.0 Consultation & Coordination

4.1 PUBLIC INVOLVEMENT

FEMA sent a scoping letter to agencies, Tribes, and local interested parties on November 14, 2008. The letter provided a description of the proposed project and requested comments on issues and concerns, the range of alternatives, and potential effects regarding the project. The scoping letter distribution list and a summary of received comments are included in Appendix A.

4.1.1 COMMENTS ON THE DRAFT EA

FEMA's Draft EA will be released for public review. The public will be afforded 30 days to review and provide comments on the Draft EA.

4.2 AGENCY AND TRIBAL CONSULTATION AND COORDINATION

FEMA consulted with several federal and local agencies throughout the EA process to gather valuable input and to meet regulatory requirements (see scoping list). This coordination was integrated with the public involvement process.

4.2.1 ENDANGERED SPECIES ACT

The evaluation of endangered species contained in this EA serves as FEMA's biological assessment as required under the Endangered Species Act (ESA). There are no federally listed or proposed threatened or endangered species in the project vicinity. FEMA has determined that the Preferred Alternative will not affect any federally listed or proposed threatened or endangered species.

4.2.2 NATIONAL HISTORIC PRESERVATION ACT

In compliance with Section 106 of the National Historic Preservation Act, DNR sent a letter to the SHPO in April 2007 requesting information on any archaeological or historic sites that might be present in the project area and the Area of Potential Effect. In a letter dated May 4, 2007, the SHPO replied that they have records of two sites in the project area, but that the Proposed Action would not affect either site (see Appendix A).

During the scoping process, FEMA contacted the Alaska SHPO and requested that they inform FEMA if they were aware of cultural resources or other important sites in the vicinity of the project (scoping letter dated November 14, 2008; see Appendix A). In response to the scoping letter, the SHPO sent a notice dated December 11, 2008, with a "no historic properties affected" determination.

On September 29, 2008, FEMA sent a letter to the President of the Native Village of Cantwell explaining the project and requesting information or concerns relevant to the project. No reply was received regarding this request.

4.2.3 COMPLIANCE WITH EXECUTIVE ORDERS 11990 AND 11988

Executive Orders 11990 and 11988 direct federal agencies to consider the effects of their projects on wetlands and floodplains, respectively. CFR 44 Part 9 sets forth the policy, procedure, and responsibilities to implement and enforce both EO 11990 and EO 11988. Part 9.4 of the CFR defines *Actions Affecting or Affected by Floodplains or Wetlands* to mean actions that have the potential to result in the long- or short-term effects associated with: (1) the occupancy or modification of floodplains, and the direct or indirect support of floodplain development; or (2) the destruction and modification of wetlands and the direct or indirect support of new construction in wetlands. The analysis presented in this EA is intended to meet the intent of the two executive orders and the associated policy, procedures, and responsibilities listed in the CFR. As analyzed in Section 3.2 (*Hydrology, Water Quality, and Floodplains*) and Section 3.3 (*Vegetation and Wetlands*), the Proposed Action would have no significant effects on wetland or floodplain resources in the project area.

4.2.4 TRIBAL COORDINATION

The relationship between federal agencies and sovereign Tribes is defined by several laws and regulations addressing the requirement of federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing federal undertakings. Among these are the following:

- National Environmental Policy Act
- Executive Order 12875, Enhancing the Intergovernmental Partnership
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments
- Executive Order 13084, Consultation and Coordination with Indian Tribal Governments

FEMA has adhered to these laws and regulations as applicable to the development of the EA.

5.0 Preparers

Federal Emergency Management Agency

Jerry Creek, Environmental Specialist

EDAW, Inc.

Jim Keany, Senior Ecologist, Project Manager

Richard Dwerlkotte, Botanist

Amberlynn Pauley, Terrestrial Ecologist

Peter Carr, Editor and Planner

6.0 Distribution

Federal Agencies

U.S. Fish and Wildlife Service
Attn: Frances Mann
605 West 4th Avenue, Room G-61
Anchorage, AK 99501

NOAA Fisheries' National Marine Fisheries Service
222 West 7th Avenue, Box 43
Anchorage, AK 99513

U.S. Army Corps of Engineers
Department of the Army, U.S. Army Engineer District
Alaska Regulatory Division
Attn: LeRoy Phillips
P.O. Box 6898
Elmendorf AFB, AK 99506-0898

U.S. Department of Homeland Security
FEMA Region X
Attn: Charles Diters, Historic Preservation Specialist
130 228th Street SW
Bothell, WA 98021-9796

State Agencies

Alaska Department of Fish and Game
Attn: Mike Daigneault, Division Manager
333 Raspberry Road
Anchorage, AK 99518

Alaska Department of Natural Resources
Attn: Dick Mylius, Division of Mining, Land and Water
550 West 7th Avenue, Suite 1070
Anchorage, AK 99501-3562

Alaska Division of Homeland Security & Emergency Management
Department of Military and Veteran Affairs
Attn: Mark Passmore
PO Box 5750
Ft. Richardson, AK
99505-5750

State of Alaska, Department of Environmental Conservation
Anchorage Office
555 Cordova Street
Anchorage, AK 99501-2617

Alaska Office of History and Archaeology
Attn: Judith Bittner, State Historic Preservation Officer
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Tribal Governments

Mr. Gordon Carlson, President
Native Village of Cantwell
PO Box 94
Cantwell, AK 99729

Matanuska-Susitna Borough

Matanuska-Susitna Borough
Attn: Dan Keyes, Recreational Services Division Manager
350 E. Dahlia Avenue
Palmer, AK 99645

Matanuska-Susitna Borough
Attn: Fran Seager-Boss, Cultural Resources Specialist
350 E. Dahlia Avenue
Palmer, AK 99645

Matanuska-Susitna Borough
Attn: Warren Templin
350 E. Dahlia Avenue
Palmer, AK 99645

7.0 References

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- Robertson, Bruce A., and Richard L. Hutto. 2007. Is selectively harvested forest an ecological trap for olive-sided flycatchers? *The Condor* v.109 n.1 p109-121.

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Appendix A
Correspondence and Consultation

MEMORANDUM

Department of Natural Resources

State of Alaska

Division of Parks and Outdoor Recreation
Office of History & Archaeology



TO: Dan Valentine
Denali State Park

DATE: May 4, 2007

FILE NO: 3130-2R DPOR

FILED

FROM: Judith E. Bittner *Judy*
State Historic Preservation Officer

TELEPHONE NO.: 269-8720

SUBJECT: Denali State Park, repair of trails damaged
by August 2006 floods

The Office of History and Archaeology has reviewed your correspondence (received April 27, 2007) regarding the referenced project under Section 41.35.070 of the Alaska Historic Preservation Act. Based on the Alaska Heritage Resources Survey (AHRIS) records in our office, there are no reported archaeological or historic sites in the following trail project areas:

- Ermine Hill Trail, Giardia Creek Bridge
- Little Coal Creek Trail
- Little Troublesome Creek Trail
- Upper Troublesome Creek Trail

Two historic bridges are located in the vicinity of the Montana Creek State Recreation Area:

- TAL-11 Montana Creek Railroad Bridge
- TAL-125 Montana Creek (highway) Bridge

Both of the bridges appear to be outside of the project area.

The following AHRIS sites are reported along the Byers Lake Loop Trail and Cascade Trail:

- TAL-114: Prehistoric lithic flakes-located 0.1 miles north of the Byers Lake Loop Trail, T.31N., R.04W., Section 30
- TAL-119: Byers Lake Cabins-north side of Byers Lake, T.31N., R.05W., Section 25

TAL-114 (lithic flakes) is far enough away to not be impacted by the trail improvements provided that the trail is not rerouted in this area. The nature of the work should not impact TAL-119 (cabins).

We concur that no historic properties will be affected by any of the trail repair projects. It is important to remember however, that most of the trails in Denali State Park have not been systematically surveyed by archaeologists. In the event that previously unreported cultural resources are inadvertently discovered as a result of ground altering activities, work that may disturb these resources should be stopped immediately. The Office of History and Archaeology (269-8721) should be consulted regarding significance of the finds and appropriate actions to be taken to avoid, minimize or mitigate adverse impacts.

Please contact Stefanie Ludwig at 269-8720 if you have any questions or if we can be of further assistance.

TALDI

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region X
130 228th Street SW
Bothell, WA 98021



FEMA RECEIVED

OCT 06 2008

29 September 2008

OHA

Ms. Judith Bittner, State Historic Preservation Officer
Alaska Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Re: NHPA §106 Compliance, FEMA-DR-1663-AK PW 79, Troublesome Creek Trail, and PW 81, Cascade Trail, Denali State Park

Dear Ms. Bittner:

Pursuant to 36 CFR §800, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has taken steps necessary to identify historic and archaeological properties located within the Area of Potential Effect (APE) of the above-referenced projects. The purpose of this letter is to request your concurrence with FEMA's determinations in this matter.

Through the Alaska Division of Homeland Security and Emergency Management, the Division of Parks and Outdoor Recreation of the Alaska Department of Natural Resources has applied to FEMA for funding assistance to repair and reconstruct two foot trails in Denali State Park. Severe storms during the period 15-25 August 2006 damaged sections of these trails, as generally depicted on the enclosed maps. This storm event was declared a Presidential disaster as FEMA-1663-DR-AK. FEMA is proposing to fund 75% of the cost for this project through its Public Assistance (PA) program.

Your office has already commented on these projects in a memorandum (File No: 3130-2R DPOR, 4 May 2007) to Dan Valentine. At the time, you concurred with Mr. Valentine's determination that no historic properties would be affected by the proposed trail repair projects. However, the correspondence did not define the APE of the undertakings. FEMA has determined that the APE will consist of a linear right of way less than 20' wide. At Troublesome Creek Trail, the work will encompass about three miles of trail work (within an overall trail length of about 8 1/2 miles), and at Cascade Trail, about 1 1/2 miles. This yields a total of about ten acres between the two projects.

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date. 11-18-2008
File No.: 3130-1R FEMA 52

FEMA Historic Preservation Specialist Charles Diters visited the Cascade Trail project area on 25 August 2008, walking all but the portion of the trail above tree line, and found no indications of any cultural resources not already identified in the earlier correspondence. He did not walk the Troublesome Creek Trail. However, the trail work in both cases will take place on relatively steep slopes not well suited for human habitation.

FEMA will include the following as a condition of funding:

In the event historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted and all reasonable measures taken to avoid or minimize harm to property until such time as FEMA, in consultation with the State Historic Preservation Officer (SHPO), determines appropriate measures have been taken to ensure that the project is in compliance with the National Historic Preservation Act.

Based on these conditions, and on your earlier correspondence, FEMA has concluded in accordance with 36 CFR §800.4(d)(1) that there are no historic properties within the APE of this undertaking. Thank you for your review of this project. If you have any questions or comments, please contact Mr. Diters at charles.diters@dhs.gov, or by telephone at (907)764-0062.

Sincerely,



for Mark G. Eberlein
Regional Environmental Officer

Enclosures

Cc: James Keany, EDAW



FEMA

November 14, 2008

See Distribution List

Subject: Scoping of Issues for Two Proposed Projects in Denali State Park: (1) Troublesome Creek Trail (DR-1663-AK PW-79); and (2) Cascade Trail (DR-1663-AK PW-81-1)

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to support the Alaska Department of Natural Resources (DNR), Division of Parks and Outdoor Recreation, by providing partial funding to repair damaged segments along two trails in Denali State Park: (1) the Troublesome Creek Trail, and (2) the Cascade Trail. President Bush declared a disaster in the region on October 16, 2006, because of severe storms, flooding, landslides, and mudslides during the period August 15 to August 25, 2006. The purpose of these two proposed projects is to provide FEMA–Public Assistance funding to the DNR to repair and realign the existing trails.

Troublesome Creek Trail

The flood damage to Troublesome Creek Trail extends approximately 22,000 linear feet and includes erosion and deposition of woody debris on segments of the trail in the floodplain, segments on tall bluffs above the river lost when high flows undercut the bluffs causing them to slide, as well as the destruction of four wooden stream crossings and three wooden bridges that span tributaries to Troublesome Creek. In some portions of the damaged trail, repair work is needed along the existing alignment to maintain featured scenic attractions and viewpoints along Troublesome Creek. In other portions of the damaged trail, DNR and FEMA are proposing to realign the trail, moving it out of the active floodplain and away from the edges of tall bluffs to avoid similar damage during future storms. The DNR has not yet finalized the specific repair plans for the trail. Because of the storm damage and safety considerations, the Troublesome Creek Trail is currently closed to recreation use, and repairs are required prior to reopening this popular state park trail. See Figure 1 (attached).

Cascade Trail

The storm damage to Cascade Trail extends approximately 8,000 linear feet and includes the destruction of one bridge and downcutting and widening of many of the steeper trail sections. In the damaged areas, the capacity of water bars and exposed tree root systems to slow stormwater runoff was overwhelmed and unable to prevent degradation of the trail and the adjacent vegetation. In some portions of the damaged trail, repair work is needed along the existing alignment to repair stormwater water diversions such as water bars. In other portions of the damaged trail, DNR and FEMA are proposing to relocate the trail to avoid oversteep sections and similar damage during future storms. The new trail will be about 10,000 feet long (because of relocation and switchbacks), and the new bridge will be 20 feet long and 30

inches wide near the old crossing location. The DNR has not yet finalized the specific repair plans for the trail. Despite the storm-related damage, the Cascade Trail remains open for public use. See Figure 2 (attached)

The Scoping Process

The purpose of this letter is to invite you to participate in the “scoping process” for either or both projects by reviewing the initial proposals as outlined in this letter and providing comments to support the development of two Environmental Assessments (EAs). The National Environmental Policy Act (NEPA) requires FEMA to evaluate the impacts of these proposed actions on the human and natural environments. FEMA intends to develop a separate EA for the action of repairing and partially realigning each of the existing two trails. We are asking your assistance to identify issues and concerns, develop alternatives to the proposed actions, and identify potential impacts of implementing these projects.

Your written comments or, if your agency has not comments, a written confirmation of receipt of this notice stating that your agency has no comments to contribute on this proposal during the project scoping phase (comments must be received by December 14, 2008) should be sent to FEMA’s consultant:

Jim Keany – Jim.Keany@edaw.com
EDAW
815 Western Avenue, #300
Seattle WA, 98104

If you have questions about this letter, the projects, or if you want to receive a copy of the Draft EA documents for review and comment when they are released later during the planning process, please feel free to contact Jerry Creek, Environmental Specialist via email (jerry.creek@dhs.gov) or phone (425-482-3748) or me via email (mark.eberlein@dhs.gov) or phone (425-487-4735).

Sincerely,



Mark Eberlein
Regional Environmental Officer
FEMA Region 10

Enclosure: Project Maps
Distribution List

Figure 1: Proposed Site Location – Troublesome Creek Trail Repair Project

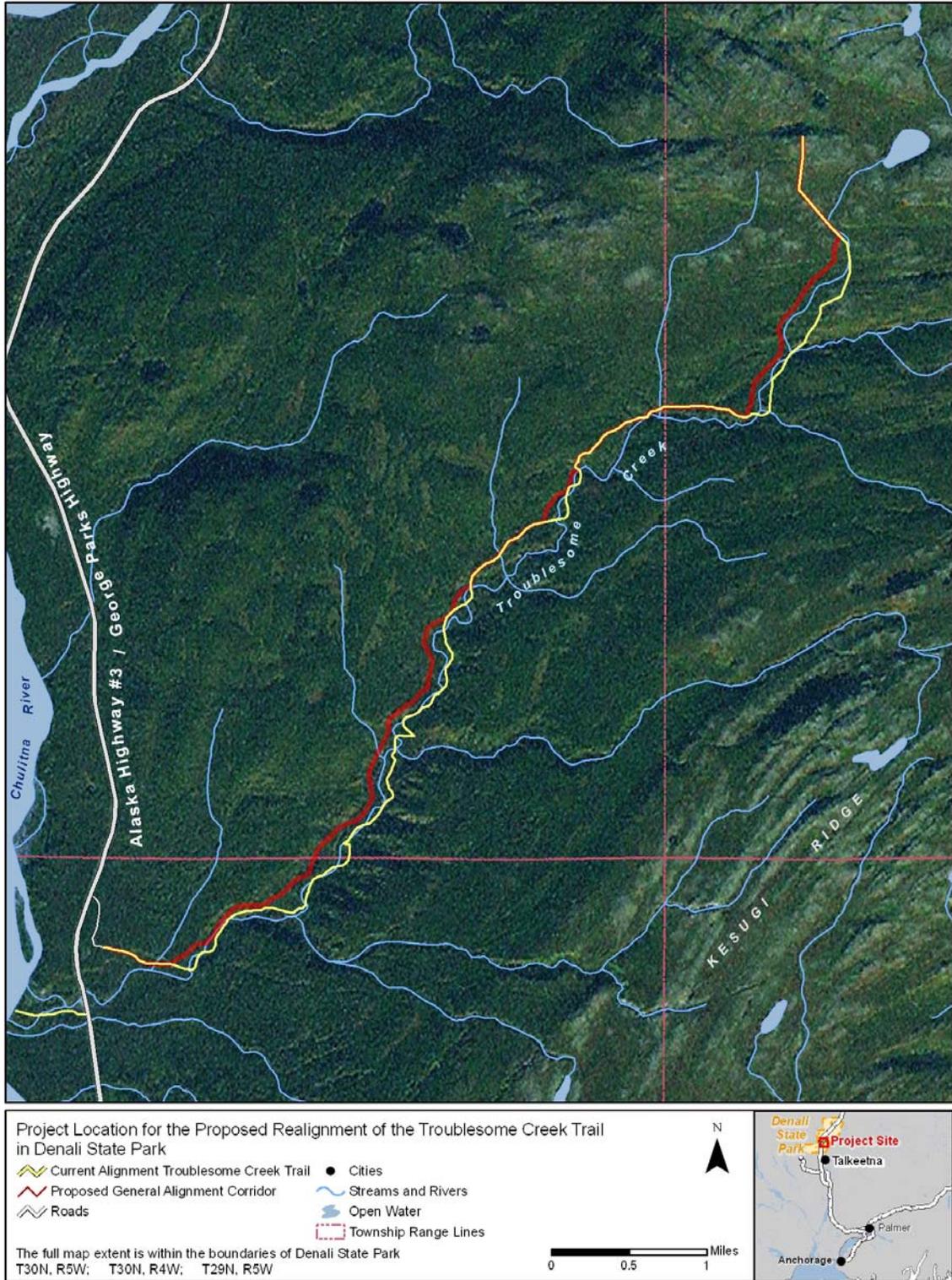
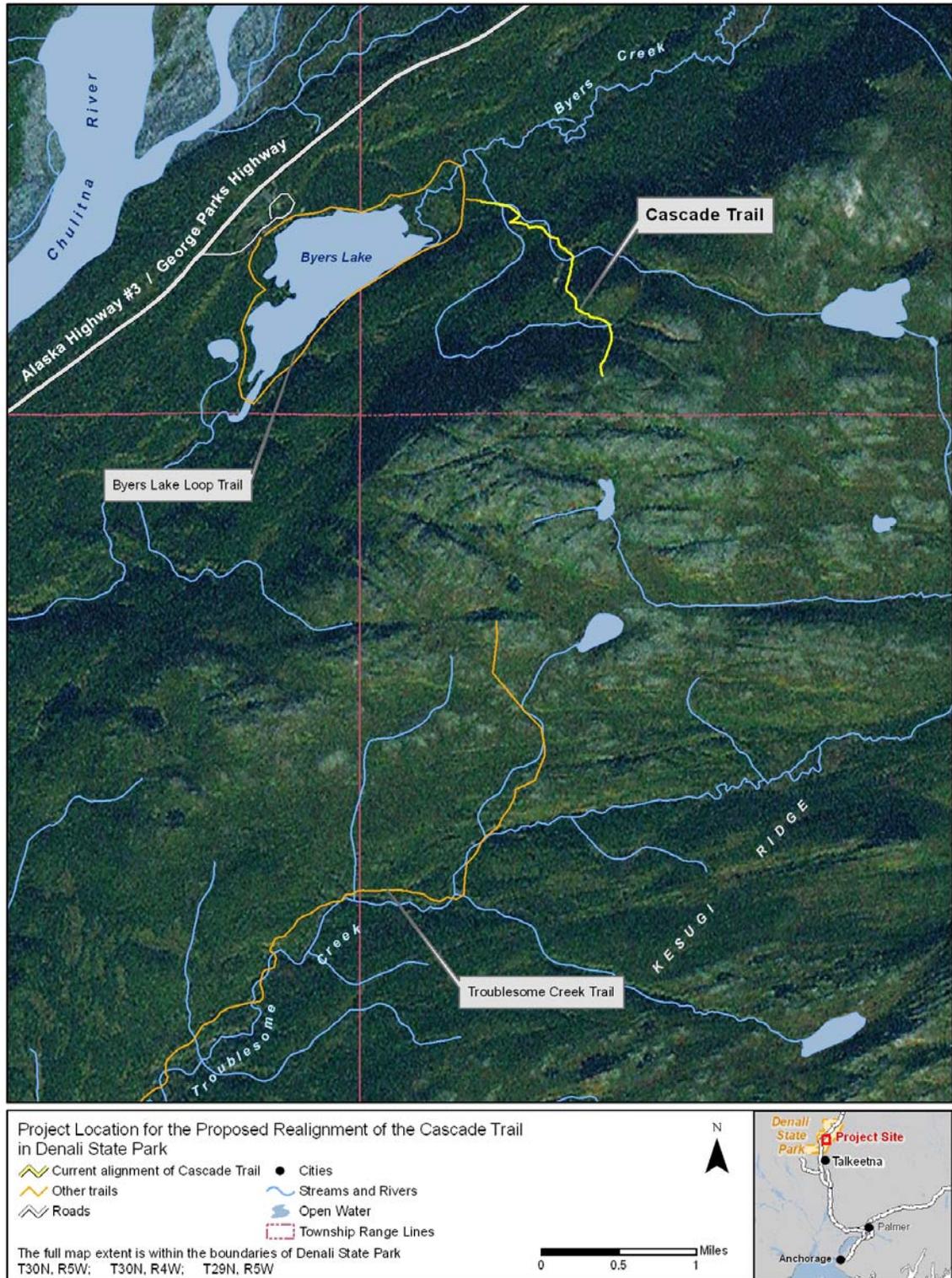


Figure 2: Proposed Site Location – Cascade Trail Repair Project



**Troublesome Creek and Cascade Trail Repair Projects
Environmental Assessment
Scoping Letter Distribution List**

Federal Agencies

U.S. Fish and Wildlife Service
Attn: Frances Mann
605 West 4th Avenue, Room G-61
Anchorage, AK 99501

NOAA Fisheries' National Marine Fisheries Service
222 West 7th Avenue, Box 43
Anchorage, AK 99513

U.S. Army Corps of Engineers
Department of the Army, U.S. Army Engineer District
Alaska Regulatory Division
Attn: LeRoy Phillips
P.O. Box 6898
Elmendorf AFB, AK 99506-0898

US Department of Homeland Security
FEMA Region X
Attn: Charles Diters, Historic Preservation Specialist
130 228th Street SW
Bothell, WA 98021-9796
(907)764-0062

State Agencies

Alaska Department of Fish and Game
Attn: Mike Daigneault, Division Manager
333 Raspberry Road
Anchorage, AK 99518

Alaska Department of Natural Resources
Attn: Dick Mylius, Division of Mining, Land and Water
550 West 7th Avenue, Suite 1070
Anchorage, AK 99501-3562

Alaska Department of Natural Resources
James King, Division of Parks and Outdoor Recreation
550 W. 7th Ave, Ste 1380
Anchorage, AK 99501-3561

Alaska Department of Natural Resources
Division of Parks and Outdoor Recreation, Southcentral Region
Mat-Su/Copper Basin Area Office
Attn: Wayne Biessel
HC 32 Box 6706
Wasilla, AK 99654

Alaska Division of Homeland Security & Emergency Management
Department of Military and Veteran Affairs
Attn: Mark Passmore
PO Box 5750
Ft. Richardson, AK
99505-5750

State of Alaska, Department of Environmental Conservation
Anchorage Office
555 Cordova Street
Anchorage, AK 99501-2617

Alaska Office of History and Archaeology
Attn: Judith Bittner, State Historic Preservation Officer
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Tribal Governments

Mr. Gordon Carlson, President
Native Village of Cantwell
PO Box 94
Cantwell, AK 99729



FEMA

29 September 2008

Mr. Gordon Carlson, President
Native Village of Cantwell
PO Box 94
Cantwell, AK 99729

Dear Mr. Carlson:

The Alaska Division of Parks and Outdoor Recreation has applied to the Federal Emergency Management Agency (FEMA) for funding assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act to assist in the repair and reconstruction of two trails in Denali State Park. These trails were damaged by flooding during the period 15-25 August 2006, which resulted in a Presidentially declared disaster, FEMA-DR-1663-AK.

These two trails, Troublesome Creek Trail (PW 79) and Cascade Trail (PW 81), are shown on the enclosed maps. In accordance with §106 of the National Historic Preservation Act and the regulations in 36 CFR §800, FEMA is taking steps to identify any properties of historic, archaeological, or cultural interest in the vicinity of these projects.

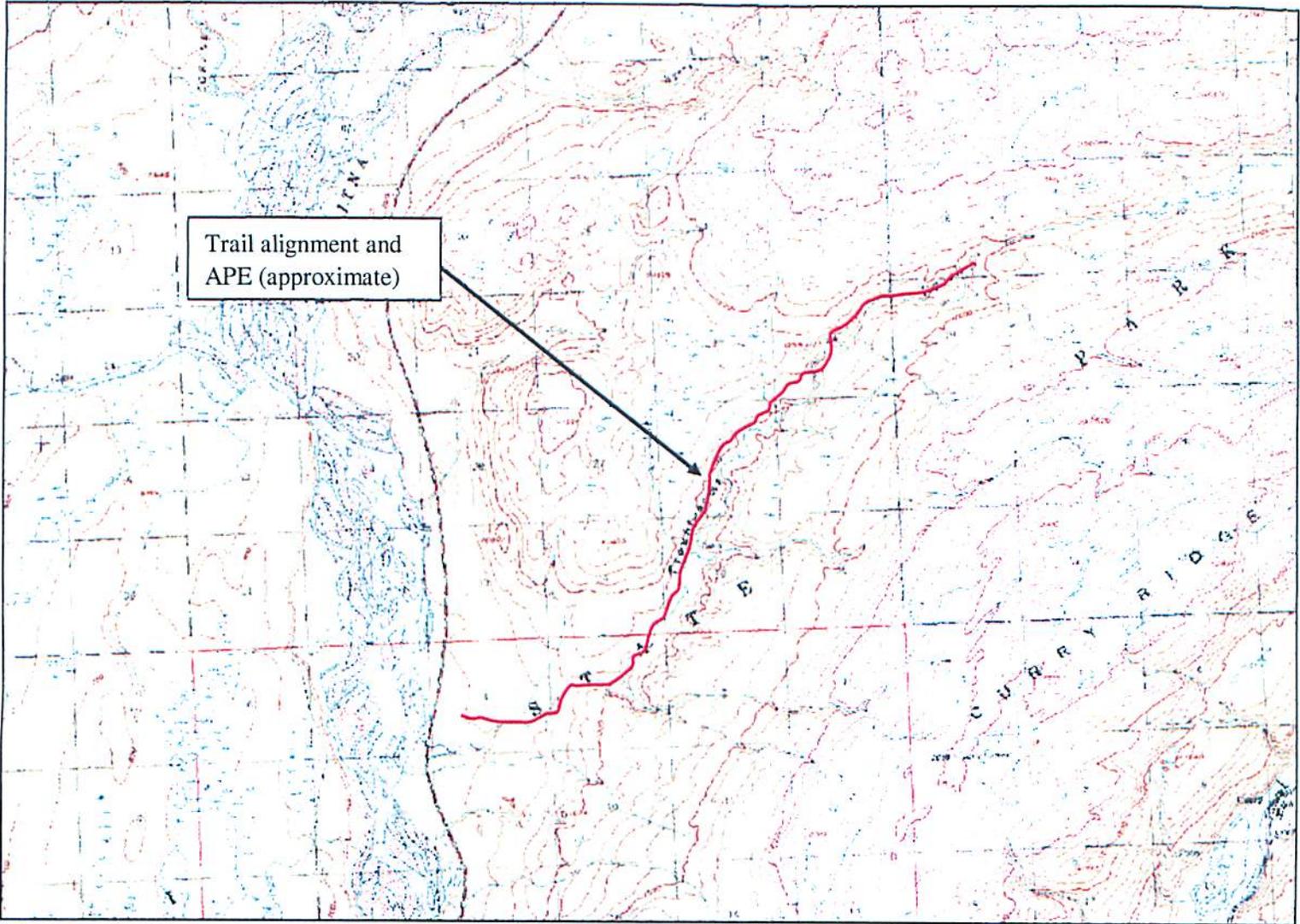
FEMA would appreciate any information or concerns you may have regarding Native cultural values in these project areas. Please address any correspondence to me at the above address. If you have any questions, please contact Mr. Charles Diters, Historic Preservation Specialist, at charles.diters@dhs.gov, or by telephone at (907)764-0062. Thank you very much.

Sincerely,


for Mark G Eberlein
Regional Environmental Officer

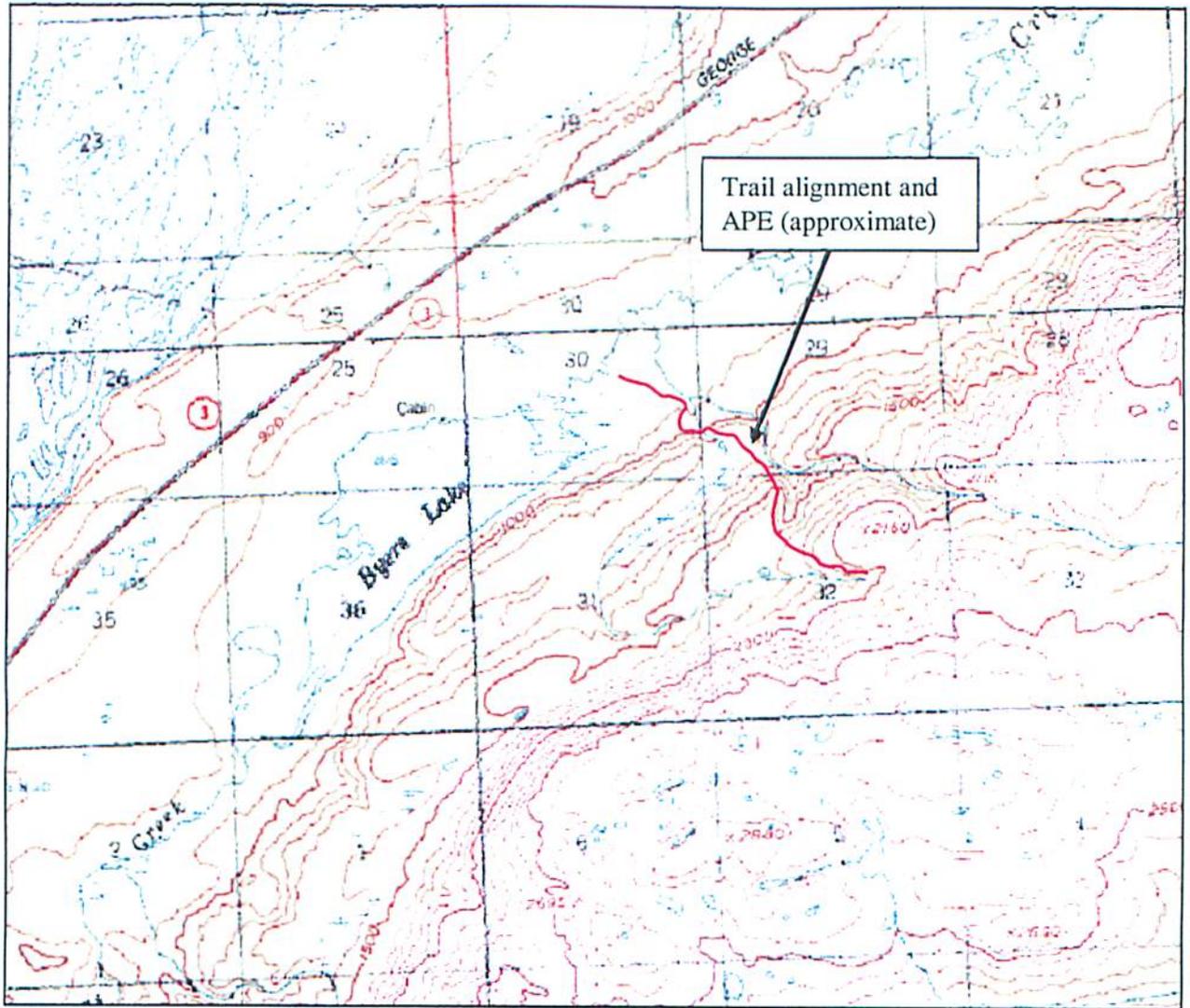
Enclosures

Cc: James Keany, EDAW



Trail alignment and
APE (approximate)

Map 1: Location of Troublesome Creek Trail, Denali State Park
FEMA DR-1663-AK PW 79



Map 2: Location of Cascade Trail, Denali State Park
FEMA DR-1663-AK PW 81

Due to the high volume of reviews, our office is no longer writing letters of concurrence in cases where there are no historic properties affected by a given project. Instead, the cover letter is being stamped with **"No historic properties affected"** and being returned to the applicant. The stamp will serve as evidence of consultation with the State Historic Preservation Officer as required by Section 106 of the National Historic Preservation Act. We will continue writing letters in situations where there are historic properties that may be affected by a given project.

If the project design is altered in any way, we will need to review the undertaking again.

If cultural resources are inadvertently discovered as a result of ground altering activities, work that may disturb these resources should be stopped immediately. The State Historic Preservation Office (907-269-8721) should be consulted regarding significance of the find and appropriate actions to be taken.

3130-1R FEMA

U.S. Department of Homeland Security
Region X
130 228th Street SW
Bothell, WA 98021-9796

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date. 12-11-2008
File No.: 3130-1R FEMA
TK



FEMA

RECEIVED

November 14, 2008

NOV 19 2008

See Distribution List

OHA

Subject: Scoping of Issues for Two Proposed Projects in Denali State Park: (1) Troublesome Creek Trail (DR-1663-AK PW-79); and (2) Cascade Trail (DR-1663-AK PW-81-1)

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to support the Alaska Department of Natural Resources (DNR), Division of Parks and Outdoor Recreation, by providing partial funding to repair damaged segments along two trails in Denali State Park: (1) the Troublesome Creek Trail, and (2) the Cascade Trail. President Bush declared a disaster in the region on October 16, 2006, because of severe storms, flooding, landslides, and mudslides during the period August 15 to August 25, 2006. The purpose of these two proposed projects is to provide FEMA-Public Assistance funding to the DNR to repair and realign the existing trails.

Troublesome Creek Trail

The flood damage to Troublesome Creek Trail extends approximately 22,000 linear feet and includes erosion and deposition of woody debris on segments of the trail in the floodplain, segments on tall bluffs above the river lost when high flows undercut the bluffs causing them to slide, as well as the destruction of four wooden stream crossings and three wooden bridges that span tributaries to Troublesome Creek. In some portions of the damaged trail, repair work is needed along the existing alignment to maintain featured scenic attractions and viewpoints along Troublesome Creek. In other portions of the damaged trail, DNR and FEMA are proposing to realign the trail, moving it out of the active floodplain and away from the edges of tall bluffs to avoid similar damage during future storms. The DNR has not yet finalized the specific repair plans for the trail. Because of the storm damage and safety considerations, the Troublesome Creek Trail is currently closed to recreation use, and repairs are required prior to reopening this popular state park trail. See Figure 1 (attached).

Cascade Trail

The storm damage to Cascade Trail extends approximately 8,000 linear feet and includes the destruction of one bridge and downcutting and widening of many of the steeper trail sections. In the damaged areas, the capacity of water bars and exposed tree root systems to slow stormwater runoff was overwhelmed and unable to prevent degradation of the trail and the adjacent vegetation. In some portions of the damaged trail, repair work is needed along the existing alignment to repair stormwater water diversions such as water bars. In other portions of the damaged trail, DNR and FEMA are proposing to relocate the trail to avoid oversteep sections and similar damage during future storms. The new trail will be about 10,000 feet long (because of relocation and switchbacks), and the new bridge will be 20 feet long and 30

inches wide near the old crossing location. The DNR has not yet finalized the specific repair plans for the trail. Despite the storm-related damage, the Cascade Trail remains open for public use. See Figure 2 (attached)

The Scoping Process

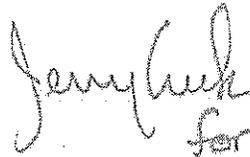
The purpose of this letter is to invite you to participate in the "scoping process" for either or both projects by reviewing the initial proposals as outlined in this letter and providing comments to support the development of two Environmental Assessments (EAs). The National Environmental Policy Act (NEPA) requires FEMA to evaluate the impacts of these proposed actions on the human and natural environments. FEMA intends to develop a separate EA for the action of repairing and partially realigning each of the existing two trails. We are asking your assistance to identify issues and concerns, develop alternatives to the proposed actions, and identify potential impacts of implementing these projects.

Your written comments or, if your agency has not comments, a written confirmation of receipt of this notice stating that your agency has no comments to contribute on this proposal during the project scoping phase (comments must be received by December 14, 2008) should be sent to FEMA's consultant:

Jim Keany – Jim.Keany@edaw.com
EDAW
815 Western Avenue, #300
Seattle WA, 98104

If you have questions about this letter, the projects, or if you want to receive a copy of the Draft EA documents for review and comment when they are released later during the planning process, please feel free to contact Jerry Creek, Environmental Specialist via email (jerry.creek@dhs.gov) or phone (425-482-3748) or me via email (mark.eberlein@dhs.gov) or phone (425-487-4735).

Sincerely,



Mark Eberlein
Regional Environmental Officer
FEMA Region 10

Enclosure: Project Maps
Distribution List

MEMORANDUM

Department of Natural Resources

State of Alaska

Division of Parks and Outdoor Recreation
Office of History & Archaeology



TO: Dan Valentine
Denali State Park

DATE: May 4, 2007

FILE NO: 3150-2R DPOR

PAID

FROM: Judith E. Bittner *Judy*
State Historic Preservation Officer

TELEPHONE NO.: 269-8720

SUBJECT: Denali State Park, repair of trails damaged
by August 2006 floods

The Office of History and Archaeology has reviewed your correspondence (received April 27, 2007) regarding the referenced project under Section 41.35.070 of the Alaska Historic Preservation Act. Based on the Alaska Heritage Resources Survey (AHRs) records in our office, there are no reported archaeological or historic sites in the following trail project areas:

- > Ermine Hill Trail, Giardia Creek Bridge
- > Little Coal Creek Trail
- > Little Troublesome Creek Trail
- > Upper Troublesome Creek Trail

Two historic bridges are located in the vicinity of the Montana Creek State Recreation Area:

- > TAL-11 Montana Creek Railroad Bridge
- > TAL-125 Montana Creek (highway) Bridge

Both of the bridges appear to be outside of the project area.

The following AHRs sites are reported along the Byers Lake Loop Trail and Cascade Trail:

- > TAL-114: Prehistoric lithic flakes-located 0.1 miles north of the Byers Lake Loop Trail, T.31N., R.04W., Section 30
- > TAL-119: Byers Lake Cabins-north side of Byers Lake, T.31N., R.05W., Section 25

TAL-114 (lithic flakes) is far enough away to not be impacted by the trail improvements provided that the trail is not rerouted in this area. The nature of the work should not impact TAL-119 (cabins).

We concur that no historic properties will be affected by any of the trail repair projects. It is important to remember however, that most of the trails in Denali State Park have not been systematically surveyed by archaeologists. In the event that previously unreported cultural resources are inadvertently discovered as a result of ground altering activities, work that may disturb these resources should be stopped immediately. The Office of History and Archaeology (269-8721) should be consulted regarding significance of the finds and appropriate actions to be taken to avoid, minimize or mitigate adverse impacts.

Please contact Stefanie Ludwig at 269-8720 if you have any questions or if we can be of further assistance.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898

Regulatory Division
POA-2008-1583

Mr. Jim Keany
EDAW
815 Western Ave., # 300
Seattle, WA 98104

DEC 09 2008

Dear Mr. Keany:

**SUBJECT: Scoping of Issues for Two Proposed Projects in Denali State Park:
(1) Troublesome Creek Trail and (2) Cascade Trail**

Thank you for the opportunity to provide scoping comments with regard to repair and realignment of damaged segments along two trails in Denali State Park. These are known as the Troublesome Creek Trail and the Cascade Trail. The location for the Troublesome Creek Trail is Section 3,4,34,35,26,25,24, 19,18,17,8., T. 29,30 N., R.4W.,5W., Seward Meridian, Quad Map Mt. Talkeetna B-1, Latitude 62.6710 N., Longitude -150.1306 W. The location for the Cascade Trail is Section 30,29,32, T. 30 N., R.5 W., Quad Map Talkeetna B-1, Latitude 62.7434 N., Longitude -150.0922. Access to both trails is from the Parks Highway in Denali State Park north of Talkeetna, Alaska.

This proposed project has been assigned the file number POA-2008-1583, Cascade Trail Repair Project which should be referred to in future correspondence.

Based on our review of the information you furnished and available to us, we have determined the above property contains waters of the U.S., including wetlands, under the Corps' regulatory jurisdiction. Under the above file number, a copy of the Approved Jurisdictional Determination form is available at <http://www.poa.usace.army.mil/reg/ApprovedJDs.htm>

Therefore, DA authorization is required if you propose to place fill material into waters of the U.S., including wetlands and/or perform work in navigable waters of the U.S. Enclosed is a pamphlet to assist you in applying for a DA permit.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified by the Alaska District.

This approved jurisdictional determination is valid for five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date. Enclosed is a Notification of Administrative Appeal Options and Process and Request for Appeal form (see section titled "Approved Jurisdictional Determination").

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

You may contact me via email at Valanne.glooschenko@usace.army.mil, by mail at the address above, by phone at (907) 753-2786, or toll free from within Alaska at (800) 478-2712, if you have questions. For additional information about our Regulatory Program, visit our web site at www.poa.usace.army.mil/reg.

Sincerely,



Valanne Glooschenko
Regulatory Specialist

Enclosures

STATE OF ALASKA

**DEPARTMENT OF MILITARY
AND VETERANS AFFAIRS**
*DIVISION OF HOMELAND SECURITY
AND EMERGENCY MANAGEMENT*

SARAH PALIN, GOVERNOR

P.O. Box 5750
Ft. Richardson, AK 99505-5750
Phone: (907) 428-7000
Fax: (907) 428-7009
Toll Free: (800)478-2337
www.ak-prepared.com

December 16, 2008

Mr. Jim Keany
EDAW
815 Western Avenue, #300
Seattle, WA 98104

Subject: Scoping of Issues – For Two Proposed Projects in Denali State Park:
Troublesome Creek Trail (DR-1663-AK PW-79) and Cascade Trail
(DR-1663-AK, PW – 81-1)

Dear Mr. Keany:

The State of Alaska Division of Homeland Security and Emergency Management (DHS&EM) received the Scoping of Issues letter for the above subject dated November 14, 2008. DHS&EM has no comments regarding the proposed projects.

I understand the State has missed the deadline. The State has no issues regarding the scoping of issues.

If you have any questions about this letter, please feel free to contact me via email at mark.passmore@alaska.gov or by telephone at 907-428-7053.

Sincerely,



Mark L. Passmore
State Public Assistance Officer

mlp:dms

CC: Mark Eberlein, Regional Environmental Officer, FEMA Region X