



**National Park Service
U.S. Department of the Interior**

**Katmai National Park and Preserve
Alaska**

Brooks Camp Picnic Area Improvement Environmental Assessment

June 2010



Note to Reviewers

If you wish to comment on the proposed project, please use the National Park Service Planning, Environment, and Public Comment (PEPC) system available at <http://parkplanning.nps.gov>.

If you are unable to access the PEPC system, you may mail comments to:

Daniel Noon
Katmai National Park and Preserve
Environmental Planning and Compliance
P. O. Box 7
King Salmon, AK 99613

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment, including the personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee we would be able to do so.

Cover Photo: Brooks Camp Visitor Center and picnic area.
Photo by Daniel Noon, National Park Service, 20 August 2009.

TABLE OF CONTENTS

| | | |
|------------|--|-----------|
| 1.0 | INTRODUCTION | 5 |
| 1.1 | Purpose of and Need for Action | 5 |
| 1.2 | Background | 8 |
| 1.3 | Laws, Regulations, and Policies | 9 |
| 1.4 | Relationship of the Proposal to Other Park Planning | 10 |
| 1.5 | Issues | 12 |
| 1.6 | Permits and Approvals | 15 |
| 2.0 | ALTERNATIVES | 15 |
| 2.1 | Introduction | 15 |
| 2.2 | Alternative A: Maintain Existing Facilities | 16 |
| 2.3 | Alternative B: Improve Picnic Area and Preserve Historic Log Cache | 16 |
| 2.4 | Environmentally Preferred Alternative | 18 |
| 2.5 | Alternatives Eliminated from Detailed Analysis | 19 |
| 2.6 | Mitigation Measures Associated with the Preferred Alternative | 20 |
| 2.7 | Summary and Comparison of Alternatives | 22 |
| 3.0 | AFFECTED ENVIRONMENT | 22 |
| 3.1 | Project Area | 23 |
| 3.2 | Resource Impact Topics | 23 |
| 4.0 | ENVIRONMENTAL CONSEQUENCES | 26 |
| 4.1 | Methodology and Impact Criteria | 26 |
| 4.2 | Cumulative Impacts Analysis Information | 27 |
| 4.3 | Water Quality | 28 |
| 4.4 | Soils and Vegetation | 29 |
| 4.5 | Wildlife and Wildlife Habitat | 30 |
| 4.6 | Cultural Resources | 31 |
| 4.7 | Natural Soundscape | 32 |
| 4.8 | Visitor Experience | 33 |
| 5.0 | LIST OF PREPARERS AND CONTRIBUTORS | 34 |
| 6.0 | REFERENCES | 35 |
| | APPENDIX A – ANILCA Section 810 Summary Evaluation and Findings | 37 |
| | APPENDIX B – ACMP Negative Determination | 43 |
| | APPENDIX C – Estimated Project Costs | 50 |

LIST OF FIGURES

| | | |
|------------|--|----|
| Figure 1.1 | – Location of Brooks Camp within Katmai National Park and Preserve | 5 |
| Figure 1.2 | – Location of Picnic Facilities within the Brooks River Area of Katmai National Park | 6 |
| Figure 1.3 | – Location of Existing Brooks Camp Visitor Facilities and Proposed Project Area | 7 |
| Figure 1.4 | – Historic Brooks Camp Log Cache | 8 |
| Figure 2.1 | – Proposed Alternative Project Area | 17 |
| Figure 2.2 | – Proposed Prefabricated Log Picnic Shelter | 18 |
| Figure 2.3 | – Brooks Falls Trailhead Restroom Facility | 18 |

LIST OF TABLES

| | |
|---|----|
| Table 2.1 – Summary and Comparison of Alternatives..... | 22 |
| Table 4.1 – Impact Levels Summary | 27 |

ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| AAC | Alaska Administrative Code |
| ABA | Architectural Barriers Act |
| ACMP | Alaska Coastal Management Program |
| ADEC | Alaska Department of Environmental Conservation |
| ADF&G | Alaska Department of Fish and Game |
| ADNR | Alaska Department of Natural Resources |
| ANILCA | Alaska National Interest Lands Conservation Act |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| DCP | Brooks River Area Development Concept Plan |
| DO | National Park Service Director’s Order |
| DOI | Department of the Interior |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| EPA | Environmental Protection Agency |
| FONSI | Finding of No Significant Impact |
| GMP | Katmai General Management Plan |
| KATM | Katmai National Park and Preserve |
| MOA | Memorandum of Agreement |
| NEPA | National Environmental Policy Act |
| NOI | Notice of Intent |
| NHPA | National Historic Preservation Act |
| NPS | National Park Service |
| PL | Public Law |
| RM | National Park Service Reference Manual |
| SHPO | State Historic Preservation Office |
| Stat. | Statute |
| USC | United States Code |
| USFWS | United States Fish and Wildlife Service |
| VRAA | Valley Road Administrative Area |
| VTTS | Valley of Ten Thousand Smokes |

1.0 INTRODUCTION

1.1 Purpose of and Need for Action

The National Park Service (NPS) is proposing to improve the Brooks Camp picnic area within Katmai National Park and Preserve (KATM) (Figure 1.1). Brooks Camp is located approximately 30 air miles east of the park headquarters and gateway visitor center in King Salmon, Alaska. Access to Brooks Camp is primarily from King Salmon by either float plane or boat. Most Brooks Camp facilities are located north of the mouth of the Brooks River, near the shore of Naknek Lake. Additional facilities are located south of the river, near the shore of Brooks Lake (Figure 1.2).



Figure 1.1 – Location of Brooks Camp within Katmai National Park and Preserve (NPS).

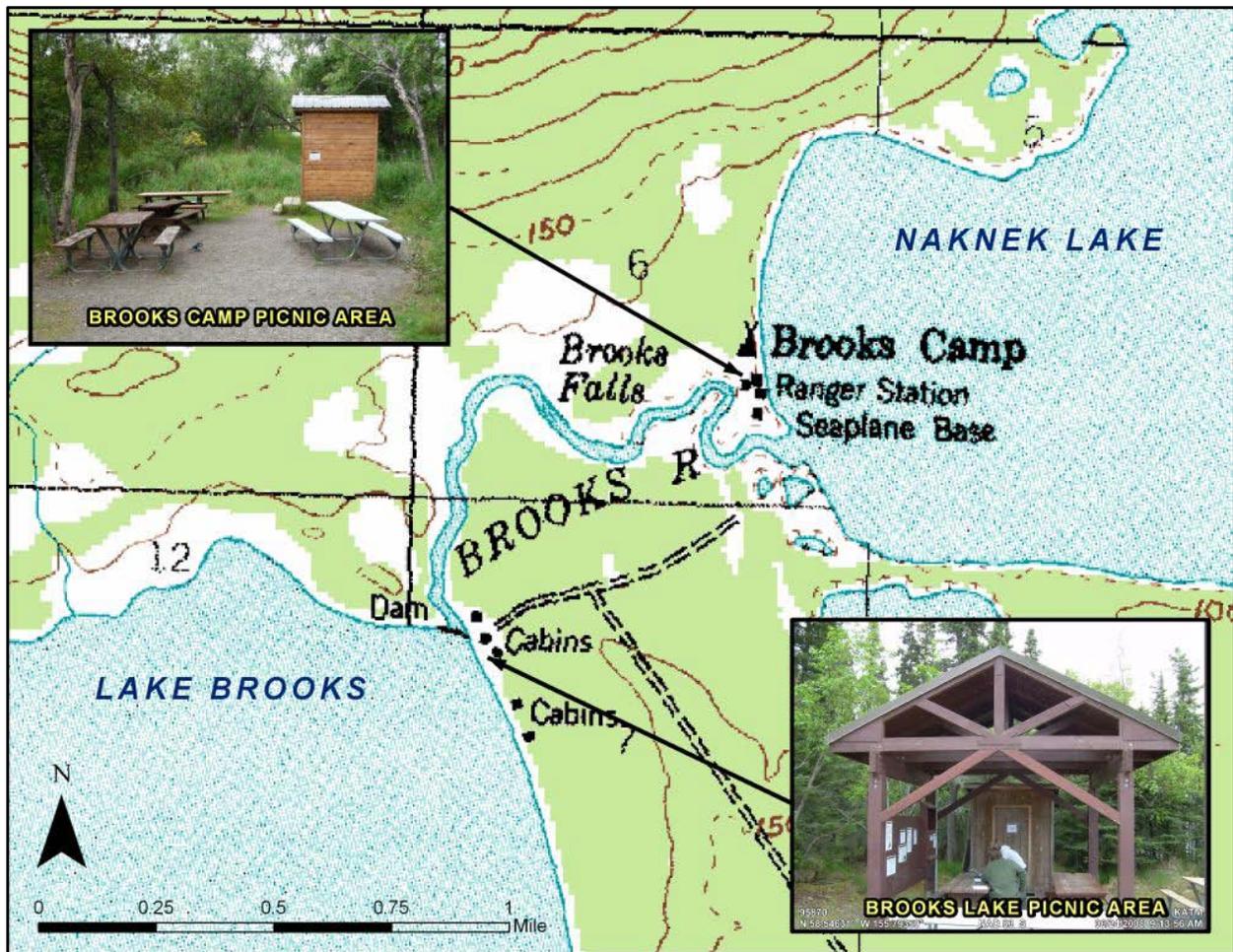


Figure 1.2 – Location of Picnic Facilities within the Brooks River Area of Katmai National Park (NPS).

The Brooks Camp picnic area is located within the middle of the camp approximately 40 feet west of the visitor center and consists of four picnic tables and a food storage building (Figure 1.2). A separate gear cache is located adjacent to the visitor center. The picnic area is the primary location for day-use visitors to prepare and consume food in accordance with regulations set forth in the KATM Compendium (NPS 2010b). The picnic area does not provide adequate shelter from inclement weather and currently only has one picnic table that is wheel chair accessible.

Currently, Brooks Camp visitors utilize the concessioner restroom facility during the summer season (June to mid-September) when water and septic systems are available (Figure 1.3). This facility is situated on a side trail behind the lodge approximately 250 feet south of the visitor center. Since most visitors attend a bear orientation session at the visitor center immediately after arriving and before checking in at the lodge, recreating (ex. fishing, bear viewing), or proceeding to the campground, the restroom facility is not ideally situated under these circumstances. This facility does not meet accessibility standards in accordance with the 1968 Architectural Barriers Act (ABA).

Park staff and visitors utilize Brooks Camp in the spring (March through May) and fall (mid-September through October) “shoulder” seasons when water and septic systems are shut down to prevent freezing

during the overwintering period. During these “shoulder” seasons, staff and visitors utilize an existing pit toilet located adjacent to seasonal housing approximately 600 feet north of the visitor center or the campground vault toilet located approximately 1,300 feet (0.25 mile) north of the visitor center (Figure 1.3). The pit toilet does not meet accessibility standards in accordance with the 1968 Architectural Barriers Act.



Figure 1.3 – Location of Existing Brooks Camp Visitor Facilities and Proposed Project Area (NPS).

A historic log cache is located adjacent to the NPS recreation and storage building (Figure 1.4). The cache represents and conveys the historic activity associated with the establishment of Brooks Camp in the 1950s. Such caches are typically placed in trees or on stilts and are accessible by a removable ladder. The cache is currently resting on the ground and is not being used for storage. Although it is in good condition, it has been deteriorating over a period of about 60 years (NPS no date).

Installing a picnic shelter within the existing Brooks Camp picnic area would provide day-use visitors an accessible place to prepare and consume food. Combining the existing food and gear caches into one centrally located structure near the visitor center would enable visitors to easily drop off or gather food

and gear immediately after arriving or before departing Brooks Camp. Elevating the historic Brooks Camp log cache on a platform would help protect the structure from wood rot and wildlife damage.

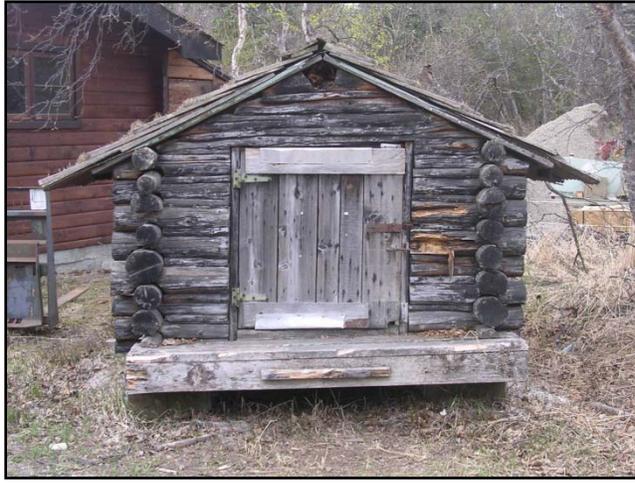


Figure 1.4 – Historic Brooks Camp Log Cache (NPS).

Replacing the existing pit toilet with a new accessible restroom and storage cache building at a site adjacent to the existing picnic area would provide park staff and visitors a more centrally located facility. This site would accommodate visitors before attending the required bear orientation session at the visitor center and enable park staff to utilize the same facility during the “shoulder” seasons when water and septic systems are not available.

All of the proposed facilities would serve current visitation needs and meet accessibility standards on the north side of the Brooks River. These facilities would remain in place as long as day-use and overnight accommodations are needed. The historic log cache would become a restored part of the cultural landscape associated with the historic Brooks Camp ranger station and visitor center.

1.2 Background

1.2.1 Park Purpose and Significance

Katmai National Park and Preserve (KATM), encompassing approximately 4.1 million acres, is located at the head of the Alaska Peninsula, about 290 miles southwest of Anchorage. Established as a National Monument in 1918 to preserve the Valley of Ten Thousand Smokes and the landscape associated with the cataclysmic volcanic eruption of 1912, it was expanded over the years by four presidential proclamations, then enlarged and re-designated a National Park and Preserve by the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 (P.L. 96-487). The implementation language of ANILCA states that KATM is to be managed for the following purposes, among others: to protect habitats for, and populations of, fish and wildlife, including, but not limited to, high concentrations of brown/grizzly bears and their denning areas; to maintain unimpaired the water habitat for significant salmon populations; and to protect scenic, geological, cultural, and recreational features. These purposes are reaffirmed in the KATM Foundation Statement (NPS 2009d) and General Management Plan (GMP) (NPS 1986).

1.2.2 Brooks River Area Purpose Statements

Stemming from the ANILCA legislation and park GMP, the NPS identified three primary purposes for the Brooks River area within the 1996 *Brooks River Area Development Concept Plan* (DCP) (NPS 1996): (1) to protect habitats for, and populations of, fish and wildlife, including, but not limited to, high concentrations of brown bears and their denning areas and maintain the watersheds and habitat vital to red salmon spawning in an unimpaired condition, (2) to provide for the general public resource-based

recreation that does not impair natural and cultural values and (3) to protect and interpret outstanding natural, cultural, geologic and scenic values.

1.3 Laws, Regulations, and Policies

The following laws, regulations, and policies provide guidance for the development of this environmental assessment (EA), including design of the alternatives, analysis of impacts, and creation of mitigation measures to be implemented as part of the preferred alternative.

1.3.1 NPS Organic Act and General Authorities Act

The NPS 1916 Organic Act (39 Stat. 535) and the 1970 General Authorities Act (P.L. 91-383) prohibit impairment of park resources and values. The NPS 2006 *Management Policies* (NPS, 2006) uses the terms “resources and values” to mean the full spectrum of tangible and intangible attributes for which the park was established and is managed, including the Organic Act’s fundamental purpose and any additional purposes as stated in the park’s establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the NPS is to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities to enjoy them.

1.3.2 Coastal Zone Management Act

The Coastal Zone Management Act of 1972 (16 USC 1451-1465) requires federal agency activities within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs. Regulations for the Alaska Coastal Management Program (ACMP) are provided in Title 11, Chapters 110-114 (11 AAC 110-114). Appendix B contains the Coastal Zone Negative Determination for the proposed project.

1.3.3 Architectural Barriers Act

The Architectural Barriers Act of 1968 (42 USC 4151-4157) requires the NPS to comply with the General Services Administration’s regulations adopting accessibility standards for new and altered federally funded facilities.

1.3.4 NPS Management Policies

NPS Management Policies (NPS 2006) provide guidance on how the National Park System is managed. Below are specific sections of NPS Management Policies relevant to the proposed project:

Treatment of Cultural Resources

Section 5.3.5 states: “The Park Service will provide for the long-term preservation of, public access to, and appreciation of the features, materials, and qualities contributing to the significance of cultural resources.”

Accessibility for Persons with Disabilities

Section 9.1.2 states: “Accessibility will be provided consistent with preserving park resources and providing visitor safety and high-quality visitor experiences. In most instances, the degree of accessibility

provided will be proportionately related to the degree of human-made modifications in the area surrounding the facility and the importance of the facility to people visiting or working in the park.”

Comfort Facilities

Section 9.3.3 states: “Comfort facilities will have waste disposal systems that meet Public Health Standards. Levels of use will determine the size and nature of the utility systems provided. Low-water use or waterless (oil and composting) toilets will be considered in locations where there are water-supply and wastewater-disposal problems... Vault toilets and composting toilets that meet public health standards may be used where development or expansion of utilities may not be practical or cost-effective.”

Picnic Areas

Section 9.3.4 states: “Picnic areas and other day use areas to be used for specific purposes... may be provided on a limited basis as appropriate to meet existing visitor needs.”

NPS Directors Orders serve as a vehicle to clarify or supplement NPS Management Policies (NPS 2006). The following Directors Orders (DO), reference manuals (RM), and guidelines (NPS) are relevant to the proposed project:

- DO-28: Cultural Resources Management (NPS 1998b)
- NPS-28: Cultural Resource Management Guideline (NPS 1998c)
- DO-42: Accessibility for Visitors with Disabilities in NPS Programs and Services (NPS 2000)
- DO-83: Public Health (NPS 2004)
- RM-83B1: Wastewater Systems (NPS 2003)

1.3.5 Wastewater Regulations

Wastewater systems managed by the NPS must be in compliance with either the Clean Water Act, as amended (33 USC 1251 et. seq.) or the Primacy Agency designated by Federal law as having oversight responsibility of the Clean Water Act (DO-83). The Primacy Agency responsible for oversight in Alaska is the Alaska Department of Environmental Conservation (ADEC). Alaska wastewater regulations are provided in 18 AAC 72. Section 1.6 provides additional information regarding ADEC consultation for permit and approval requirements.

1.4 Relationship of the Proposal to Other Park Planning

1.4.1 Brooks River Area Development Concept Plan

The 1996 *Brooks River Area DCP* (NPS 1996) describes desired future conditions for natural resources, cultural resources, and visitor experience/interpretation. One of these future conditions is to focus visitor use and development in specific areas in order to minimize disturbance to natural, cultural, and scenic values.

As part of the DCP’s selected alternative, the NPS will relocate or remove existing Brooks Camp facilities to the Beaver Pond terrace, approximately 1.5 miles south of Brooks Camp. In the new location, these facilities would be designed and sited to minimize impacts on the cultural and natural environment, during construction and operation. While the DCP called for eventual relocation or removal of all

facilities on the north side of the river, such a transition will take many years. In the interim, improved and accessible visitor services are needed.

1.4.2 Brooks Maintenance Facility

Beginning in 2006, the NPS investigated the cost requirements of constructing the new maintenance facility near the Beaver Pond terrace location as depicted in the DCP. The NPS concluded that it would have been cost prohibitive to construct the new facility near the Beaver Pond terrace and install underground power back to park facilities at Lake Brooks using a phased implementation approach. The NPS then studied alternative sites for the maintenance facility and concluded that a location on the southwest side of the Valley Road approximately 0.5 mile from Brooks Camp was the farthest south the facility could be located with available funding and still meet the power requirements for the Lake Brooks facilities.

An EA was developed (NPS 2007), public comments were solicited, and a Finding of No Significant Impact (FONSI) was approved by the park superintendent and NPS regional director in 2007. Construction of the new maintenance facility will begin in the summer of 2010.

1.4.3 Valley Road Administrative Area

In December of 2009, the NPS completed an EA (NPS 2009b) for the phased development of the new Valley Road Administrative Area (VRAA). The VRAA will include the maintenance facility previously described in Section 1.4.2 and relocated or replacement Brooks Camp and Lake Brooks housing facilities.

Public comments were solicited and a FONSI was approved by the park superintendent and NPS regional director in March of 2010. The first phase of development, scheduled to begin in the summer of 2011, involves the construction of the entrance road, single-loop housing road, utilities, and two seasonal cabins which will replace the existing Brooks Camp seasonal tent frame quarters.

Subsequent development phases will involve the replacement or relocation of additional Brooks Camp maintenance and housing facilities and the construction of new facilities. The placement of facilities at the VRAA will take place in a sequential process as funding becomes available. This process will consider the operational needs of the park and the concessioner for the time period when facilities are divided between the north and south sides of the river.

1.4.4 Brooks River Visitor Access Improvements

The NPS is currently evaluating several visitor access improvements within the Brooks River area. Improvements would include the replacement of the Brooks River floating bridge and associated surface trails, relocation of the Naknek Lake barge operations area, and reevaluation of the Beaver Pond Terrace primary access site, which is part of the 1996 DCP selected alternative (NPS 1996). The primary purposes of the project are to reduce ground-level bear-human interactions and facilitate traffic flow when bear activity increases near the mouth of the river.

The access improvements are being evaluated through the preparation of a draft Environmental Impact Statement (EIS). The draft EIS is tentatively scheduled for a 60-day public review period beginning in February of 2011.

A Notice of Intent (NOI) to prepare the EIS was published in the *Federal Register* on March 30, 2009. The scoping period began with the publication of the NOI and continued through the end of November of 2009. Two newsletters were developed during the scoping period. These newsletters were developed to inform the public on the different elevated bridge and boardwalk alternatives and provide updates on the EIS process (NPS 2009c).

1.5 Issues

To focus the content of the EA, the NPS selected specific issues and eliminated others from further analysis. Subsequent discussions of the affected environment and environmental impacts related to each alternative focus on these selected issues. A brief rationale for the selection or dismissal of each topic is given below.

1.5.1 Issues Selected for Detailed Analysis

Water Quality

The Clean Water Act, NEPA, and *NPS Management Policies 2006* require consideration of impacts to water quality. Since the proposed project would involve the management of human waste at Brooks Camp, water quality may be affected. This section of the EA will analyze water quality and its possible effects on fish populations and habitats.

Soils and Vegetation

Section 9.1.3.1 of 2006 *Management Policies* directs the NPS to carefully control ground disturbance and site management to prevent undue damage to vegetation and soils (NPS, 2006). Small areas of soil and vegetation may be removed during the proposed project.

Wildlife and Wildlife Habitat

Section 4.4.1 of 2006 *Management Policies* directs the NPS to minimize human impacts on native plants, animals, populations, communities, and ecosystems, and the process that sustain them (NPS, 2006). Terrestrial wildlife such as brown bears, small mammals, and passerine birds and their habitats could be affected by the proposed project.

Cultural Resources

The NPS is responsible for protecting cultural resources from physical damage. The National Historic Preservation Act (NHPA) (P.L. 89-665), National Environmental Policy Act (NEPA) (P.L. 91-190), the NPS Organic Act (39 Stat. 535), NPS 2006 *Management Policies*, and NPS 28: Cultural Resource Management Guideline require the NPS to consider effects of its actions on cultural resources. The proposed project area is located within the Brooks River Archeological District National Historic Landmark and adjacent to the Brooks Camp historic visitor center, which is listed on the National Register of Historic Places.

Natural Soundscape

Section 4.9 of NPS 2006 *Management Policies* directs the NPS to take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural soundscape or other park resources or values (NPS 2006). The proposed project would be accomplished through the use of motorized equipment and hand tools. Sound created by the equipment and tools would affect the natural soundscape within the Brooks River area during the construction period.

Visitor experience

Brooks Camp attracts visitors to view brown bears, enjoy world-class sport fishing, and learn about the long human history of the area. The camp provides park visitors a number of public facilities near the proposed project area, including the visitor center and picnic area. The proposed project would have an effect on visitors who utilize these facilities.

1.5.2 Issues Dismissed from Detailed Analysis

NEPA regulations emphasize the importance of adjusting the scope of each EA to the details of the project and its setting, and focusing on the specific potential impacts of the project. The following issues were considered but dismissed from detailed analysis and are therefore not addressed further in this EA.

Climate Change

Department of the Interior (DOI) Secretarial Order # 3226 directs federal agencies to ensure that climate change impacts are taken into account in connection with Departmental planning and decision making. The 2006 Management Policies (Section 9.1.7) directs the NPS to operate and manage facilities, vehicles, and equipment in a manner to minimize the consumption of energy, water, and nonrenewable fuels. The proposed project would assist the NPS in reducing the consumption of energy and water via more efficient operations. Thus, the proposed project would not be expected to contribute to climate change.

Air Resources

The Clean Air Act (P.L. 88-206), NEPA, and NPS 2006 *Management Policies* require consideration of impacts on air resources. The emissions from the use of excavation and construction equipment would be short-term and negligible during the proposed project.

Natural Lightscape

The NPS recognizes the roles that light and dark periods and darkness play in natural resource processes and the evolution of species (NPS 2006). To prevent the loss of dark conditions and of natural night skies, the NPS will minimize light that emanates from park facilities by designing and installing the minimum level of light sources needed for safety, particularly when a substantial amount of daylight is not present during the “shoulder seasons” (April to May and September to October). The proposed project would not involve the installation of exterior lights within the project area. Low wattage electrical lights may be installed in the divided restroom and storage cache building to provide adequate lighting. These interior lights may have a negligible impact on natural lightscape.

Floodplains and Wetlands

Executive Order 11988 – *Floodplain Management* requires the NPS and other federal agencies to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. Executive Order 11990 – *Protection of Wetlands* requires the NPS and other federal agencies to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The proposed project would occur above the Naknek Lake floodplain and would not occur within wetlands.

Threatened, Endangered, and Other Special Status Species

The NPS has obtained concurrence from the United States Fish and Wildlife Service (USFWS) that activities within the Brooks River area would have no effect on federal endangered, threatened or candidate species. Steller's eider (*Polysticta stelleri*) is the only listed species with the potential to occur within the Brooks River area. The USFWS has evidence indicating that Steller's eiders, listed as threatened under the Endangered Species Act in 1997, migrate through the region. The USFWS has requested that mitigation be followed so that if Steller's eiders are seen in the project areas, the project would not proceed while they are present.

Fish and Fish Habitat

Legislation creating KATM requires the protection of salmon populations and their habitat. *NPS Management Policies 2006* direct the NPS to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and ecological integrity of fisheries. The proposed project would have no direct effects on fish populations or habitats. The water quality sections of the EA will analyze possible indirect effects on local fish populations and habitats (see "Water Quality" in Section 1.5.1).

Wilderness

The Wilderness Act of 1964 (P.L. 88-577) was enacted "to establish a National Wilderness Preservation System for the good of the whole people, and for other purposes." The Act lists criteria for determining suitability of lands for wilderness designation and provides restrictions on activities within a designated wilderness area. ANILCA established 35 designated wilderness areas in Alaska, including the 3.47 million acre Katmai Wilderness, and required the study of non-designated land for wilderness suitability. ANILCA also provided specific use and restriction requirements to designated Wilderness areas within Alaska. Brooks Camp is located outside of the Katmai Wilderness. The proposed project would not affect wilderness resources and values.

Socioeconomics

Equipment and materials would be purchased from sources outside of the King Salmon area. The NPS landing craft would provide transportation of materials from King Salmon to Brooks Camp via Naknek Lake. The NPS would utilize existing excavation and construction equipment located within the Brooks River area. The proposed project is not expected to affect Brooks Camp concessioner operations. Any related impacts on the local King Salmon and Naknek economies would likely be short-term, negligible, and beneficial due to the small size and duration of the project.

Subsistence

ANILCA requires the NPS to evaluate the effect of the proposed project on subsistence uses and needs. The effects of the proposed action on subsistence uses and needs were dismissed from further analysis because (1) Katmai National Park (including the project areas) is closed to subsistence uses and (2) the proposed project would not affect regional subsistence resources or activities outside of the park. Thus, there would be no potential for significant subsistence restrictions. An ANILCA Section 810(a) summary evaluation and analysis is located in Appendix A.

Land Use and Access

ANILCA Section 1306 calls for locating NPS administrative facilities on Native land in the vicinity of NPS units when practicable and desirable. The proposed project requires a site-specific location within

Brooks Camp. Since no adjacent Native lands meet these site-specific requirements, the proposed project would occur within KATM.

A limited fishery for "red fish", or spawned-out sockeye salmon, is authorized for local residents who are descendants of Katmai residents who lived in the Naknek Lake and River drainage (Title 36, Section 13.1204 of the Code of Federal Regulations (36 CFR 13.1204)). The proposed project would not affect the ability for authorized local residents to participate in the traditional "red fish" fishery on Naknek Lake or the mouth of the Brooks River.

A NPS conservation easement and private allotment parcel are located south of the Brooks River, outside of the immediate project area. The project would not increase visitor use nor would it interfere with the provisions of the 1998 Conservation Easement Agreement (NPS 1998).

Environmental Justice in Minority and Low-Income Populations

Executive Order 12898 – *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low income populations and communities. This project would not be expected to have any direct or indirect impacts to minority or low-income populations or communities.

1.6 Permits and Approvals

Alaska Coastal Management Program

11 AAC 110 – *Alaska Coastal Management Program* establishes the consistency review process for federal agencies. The NPS would submit a coastal zone determination and consult with the Alaska Coastal Management Program (ACMP) to ensure the proposed project is consistent with State of Alaska and Lake and Peninsula Borough enforceable policies (Appendix B).

Alaska Department of Environmental Conservation

18 AAC 72 – *Wastewater Disposal* establishes minimum treatment, construction, operation, and maintenance standards for domestic wastewater treatment works and disposal systems. The NPS would coordinate with the Alaska Department of Environmental Conservation (ADEC) to ensure the installation of the restroom vault tanks comply with these regulations and would obtain all necessary approvals and permits before commencing with the proposed project.

2.0 ALTERNATIVES

2.1 Introduction

This chapter describes two alternatives, a No Action alternative and Proposed Action alternative. Table 2.1 provides a summary and comparison of the alternatives and their environmental impacts. The NPS considered the alternatives based on previous NEPA decisions and impacts the alternatives would have on water quality, soils and vegetation, wildlife and wildlife habitat, cultural resources, soundscape, and visitor experience.

2.2 Alternative A: Maintain Existing Facilities (No Action Alternative)

Under the No Action alternative, the Brooks Camp picnic area would not be improved. A picnic shelter would not be constructed within the project area. The historic log cache would not be relocated to the existing picnic area. An interpretive wayside explaining the importance of the Brooks Camp historic structures and a wayfinding exhibit directing visitors to various locations would not be installed. A restroom/storage cache building would not be constructed.

The picnic area would continue to be used by visitors and maintained by the NPS. The picnic area would eventually be relocated to the south side of the Brooks River when day-use operations are no longer required on the north side of the river. The pit toilet would continue to be used by park staff and maintained during the spring and fall “shoulder” seasons. As in the past, the pit toilet would eventually need to be relocated to an adjacent area. This would require the excavation of a new pit. The pit toilet would be removed when it is no longer essential to park operations (NPS 2009b).

This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the Proposed Action on the affected environment (Chapter 3).

2.3 Alternative B: Improve Picnic Area and Preserve Historic Log Cache (Proposed Alternative)

Under the Proposed Alternative, a picnic shelter and restroom facility would be constructed near the existing Brooks Camp picnic area and visitor center (Figure 2.1). The picnic shelter would be approximately 20 feet in length by 12 feet in width and accommodate two to four fully accessible picnic tables (Figure 2.2). The shelter would be constructed of prefabricated logs within the existing picnic area.

Approximately 600 square feet of vegetation, including four to six trees, may be cut and removed to accommodate the new shelter. Ground disturbance would be limited within the Katmai Ash layer, which was deposited in June of 1912 from the eruption of the Novarupta Volcano.

A divided restroom and storage cache building approximately 16 feet in length by 18 feet in width would be constructed of prefabricated logs. A wood deck approximately 3 feet in width would be installed on the front and back sides of the facility. The restroom would be of similar design as the existing restrooms located at the Brooks Campground and Brooks Falls Trailhead (Figure 2.3) and would allow for easy access during waste pumping operations. The building would be protected from wildlife damage by a solar-powered electric fence of similar design currently used on the Brooks Falls Trailhead restroom facility. The building may be equipped with skylights, solar tubes, and/or electrical lights.

Approximately 600 square feet of vegetation may be cut and removed to accommodate the restroom and storage cache building. Two 1,000-gallon vault tanks (each tank approximately 6.5 feet by 6.5 feet by 4.5 feet) would be installed under the restroom facility (approximately 380 cubic feet of subsurface disturbance). A portion of this depth may occur below the Katmai Ash layer. Excavating below this layer may affect archeological resources. If extensive archeological resources are discovered within the area, the restroom/storage cache facility may need to be constructed on an elevated pad. Waste would be

pumped from the tanks annually in the fall during camp shutdown operations and transported to the existing VTTS Road waste disposal area on the south side of the Brooks River. The existing pit toilet outhouse located adjacent to seasonal park housing would be removed and the pit would be filled with weed-free soil, sand, or gravel.

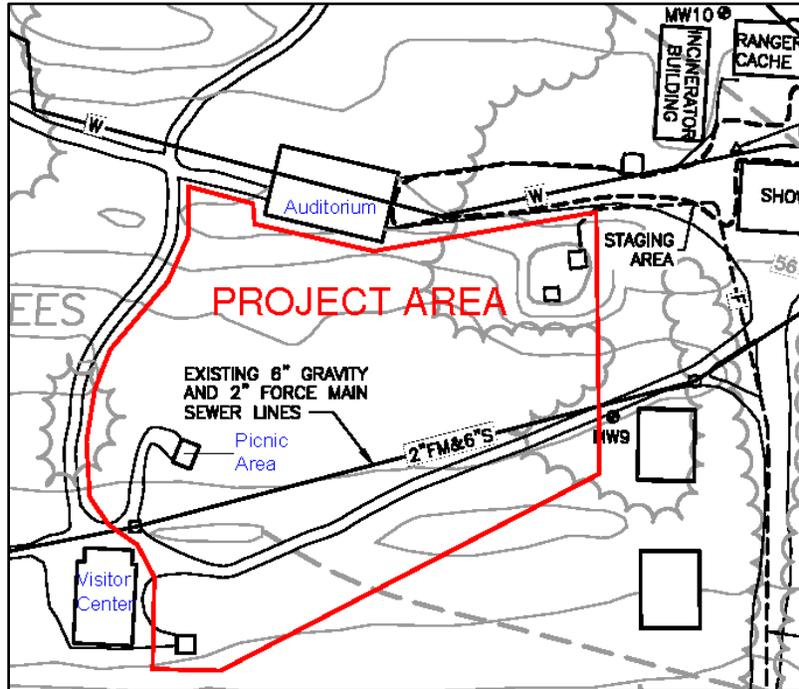


Figure 2.1 – Proposed Alternative Project Area (NPS). The area in red represents the most suitable location for the restroom and storage cache facility based on identified natural and cultural resources and proximity of existing visitor use facilities.

The Brooks Camp historic log cache (Figure 1.4) would be relocated to the picnic area. The cache would be placed atop a set of log supports as it was constructed in the 1950s or positioned near ground level. A wayside may be installed within the picnic area to interpret the importance of the Brooks Camp historic structures.

The picnic area and restroom/storage cache facility would eventually be relocated to the south side of the Brooks River when day-use operations are no longer required on the north side of the river (NPS 2009b). The historic log cache and other Brooks Camp historic structures would eventually be relocated to the Beaver Pond Terrace area south of the Brooks River when the site has been developed (NPS 1996).

Due to cultural resource concerns, the exact locations of the picnic shelter, restroom/storage cache building, historic log cache, and interpretive exhibits within the project area would be determined based on future archeological field work, which would occur before the project is implemented. See Section 2.6 for specific mitigations related to cultural resources.

The NPS would implement the proposed project during the summer of 2010. See Section 2.6 for specific mitigations related to project implementation.

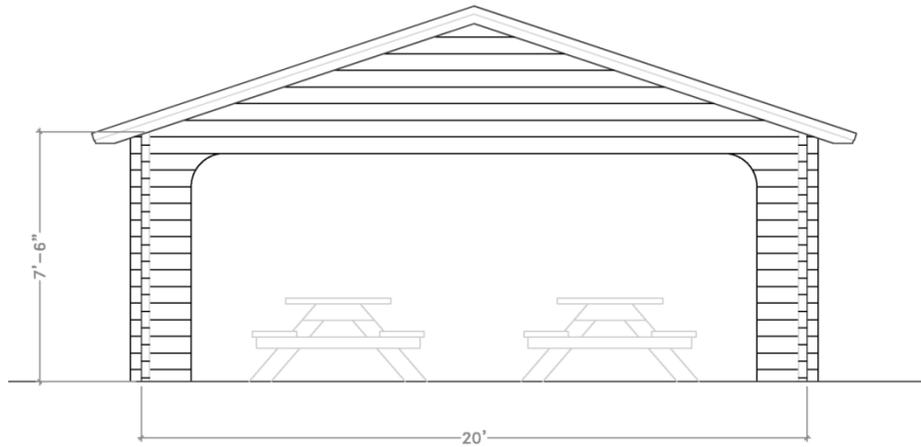


Figure 2.2 – Proposed Prefabricated Log Picnic Shelter (NPS).



Figure 2.3 – Brooks Falls Trailhead Restroom Facility (NPS).

2.4 Environmentally Preferred Alternative

As stated in Section 2.7 (D) of the NPS DO 12 Handbook (NPS 2001), “The environmentally preferred alternative is the alternative that would best promote the national environmental policy expressed in NEPA (§101(b)).” The environmentally preferred alternative is the alternative that not only results in the least damage to the biological and physical environment, but that also best protects, preserves, and enhances historic, cultural, and natural resources.

NEPA §101 Goal Statements:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences.
4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources (42 USC 4321-4347).

Alternative A (No Action Alternative) would best support the goals set forth in NEPA §101, especially those goals associated with the preservation of cultural resources. Alternative B (Preferred Alternative) would assure visitors have safe and healthful facilities; however, this alternative would not fully support the resource preservation goals set forth in NEPA §101 because of the possible impact on historical and archeological resources within the proposed project area.

2.5 Alternatives Eliminated from Detailed Analysis

Three alternatives were eliminated from further analysis due to the feasibility of implementing the alternatives.

2.5.1 Install Flush Toilet Restroom Facility at Brooks Camp

Under this alternative, the NPS would install a flush toilet system. The restroom's sewer system would be connected to the existing Brooks Camp leach field. The restroom would require the installation of water lines to properly flush waste. This alternative was dismissed due to problematic water line freezing conditions and the likelihood of reducing the life span of the existing leach field.

2.5.2 Install Restroom Facility Outside of the Project Area within Brooks Camp

Under this alternative, the picnic shelter, historic log cache, and interpretive exhibits would be installed at the existing picnic area. A new restroom and storage cache facility would be located outside of the proposed project area (Figure 2.1). The existing pit toilet and outhouse would be removed. Since visitors are required to have a bear orientation at the visitor center immediately after arriving at Brooks Camp, constructing the facility outside of the project area would require new visitors to carry food, fuel, and other items a greater distance for proper storage. The project area provides the most suitable location based on the proximity of existing visitor use facilities. This alternative would not meet the purpose of and need for the project as described in Section 1.1.

2.5.3 Removal of Pit Toilet and Relocation of Picnic Area Outside of Brooks Camp

Under this alternative, the existing pit toilet and outhouse would be removed and the existing picnic area, gear and food caches, and historic log cache would be relocated from Brooks Camp to the south side of the Brooks River. Although this alternative would ultimately meet the objectives of the Brooks River DCP (NPS 1996), it would not address visitor needs during the transition period when floatplane operations and visitor arrivals are continuing to take place at Brooks Camp. As long as this occurs, day use facilities, including the picnic area and restroom facilities, would be needed to meet health and safety requirements and attain a positive visitor experience. Currently, this alternative would not meet the purpose of and need for the project as described in Section 1.1.

2.6 Mitigation Measures Associated with the Preferred Alternative

Employee and Visitor Safety, Soundscape, and Visitor Experience

The proposed project would be conducted by NPS staff and contractors in a safe manner. Excavation and transport equipment would be operated only by qualified personnel. Brooks Camp management staff would be informed in advance of scheduled project activities. This information will be used to inform the park staff, visiting public, and commercial service operators about construction activities within the project area.

Water Quality

To protect surface and ground water quality, proposed activities associated with the installation and maintenance of the vault toilet tanks will follow all required NPS and ADEC mitigations. The restroom facility would be located at least 150 feet away from the Brooks Camp drinking water wells.

Soils and Vegetation

Ground disturbance would be limited to the proposed picnic shelter and restroom/storage cache building construction areas. Revegetation efforts would take place concurrently with construction activities. Wherever possible, mats of ground cover and shrubs would be salvaged and used to revegetate disturbed areas.

For all ground-disturbing project components, efforts would be made to avoid introduction of non-native species into the area. Excavation, backfilling, and revegetation would be accomplished with a combination of hand tools and heavy equipment. Cut trees may be used as campground firewood. Stumps, brush, and other organic debris would be removed from the project area.

Threatened, Endangered, and Species of Special Concern

Construction activities would not take place if Steller's eiders (*Polysticta stelleri*) are present within the project area. No trees and shrubs would be cut or removed between April 10 and July 15 in order to protect migratory nesting birds, particularly those birds that are considered species of special concern that may nest within the project area: olive-sided flycatcher (*Contopus borealis*), blackpoll warbler (*Dendroica straita*), and gray-cheeked thrush (*Catharus minimus*) nesting sites.

Wildlife and Wildlife Habitat

To reduce possible negative impacts on brown bears and other wildlife within and immediately adjacent to the project area, project activities would be coordinated between the park management divisions

responsible for implementing the project and protecting wildlife and visitors. Equipment and materials would be properly secured when not in use to prevent wildlife damage.

Cultural Resources

To ensure that the proposed project complies with Section 106 of the National Historic Preservation Act (NHPA), consultation with descendents of local native Alaskans of the Katmai area would occur.

An archaeological investigation would be completed before the project is implemented. Archeologists would survey one or more vault toilet locations. The selected location would have no adverse effect on archeological resources. During the survey, the excavation would be photographed. Artifacts, faunal material, and other samples would be collected, accessioned, and cataloged in accordance with standard NPS curatorial procedures. If a suitable underground vault toilet location cannot be identified without adversely affecting archeological resources, the toilet would be installed in a suitable location on an above-ground gravel pad.

The picnic shelter and restroom facility would be located, screened, and constructed of compatible materials, construction, and scale to avoid adversely affecting the historic setting of the Brooks Camp ranger station and visitor center.

2.7 Summary and Comparison of Alternatives

Table 2.1 presents a summary and comparison of the potential effects of the No-Action and Proposed Alternatives. The environments within which the alternatives would be implemented are discussed in detail in Chapter 3, “Affected Environment” and the potential impacts to the environment are discussed in detail in Chapter 4, “Environmental Effects.”

Table 2.1 – Summary and Comparison of Alternatives

| Impact Topics | Alternative A: No Action | Alternative B: Proposed Action |
|--------------------------------------|--|--|
| Water Quality | <i>Negative minor</i> impact from continued use of existing pit toilet. | <i>Positive minor</i> impact from use of vault toilet system. |
| Soils and Vegetation | <i>Negative minor</i> impact to approximately 16 square feet of vegetation and approximately 100 cubic feet of soils to relocate existing pit toilet. | <i>Negative moderate</i> impact to approximately 1,200 square feet of vegetation and approximately 400 cubic feet of soils to install picnic shelter, historic log cache, interpretive wayside, wayfinding exhibit, and restroom/storage cache building. |
| Wildlife and Wildlife Habitat | <i>Negative minor</i> impact to brown bears and other wildlife and approximately 0.15 acre of wildlife habitat. | <i>Negative minor</i> impact to brown bears and other wildlife and approximately 0.20 acre of wildlife habitat. |
| Cultural Resources | <i>Negative minor</i> impact to historic structures (log cache) by not preserving the structure in relationship to the historic ranger station and visitor center. | <i>Positive minor</i> to historic structures (log cache). No impact to archeological resources and cultural landscapes. Mitigations would be in place to ensure cultural resources are not adversely affected. See Section 2.6. |
| Natural Soundscape | <i>Negative minor</i> impact from the use and maintenance of existing picnic area, storage caches, and pit toilet. | <i>Negative minor</i> impact during installation and subsequent use and maintenance of the proposed structures. |
| Visitor Experience | <i>Negative minor</i> impact from accessibility of existing picnic area and available restroom facilities. | <i>Positive moderate</i> impact from use of picnic shelter, restroom/storage cache facility, and interpretive exhibits. Improved accessibility from the use these facilities. |

3.0 AFFECTED ENVIRONMENT

This chapter provides a description of each project area, presents the relevant resource components of the existing environment, and provides a baseline for the alternative comparisons in Chapter 4, “Environmental Effects.” The relevant resource components discussed in this chapter are water quality, soils and vegetation, wildlife and wildlife habitat, cultural resources, natural soundscape, and visitor experience.

3.1 Project Area

Brooks Camp is located approximately 30 air miles east of KATM park headquarters and gateway visitor center in King Salmon, Alaska. Park staff and visitors travel to Brooks Camp from King Salmon by floatplane or boat. Brooks Camp consists of a visitor and staff facilities, park employee housing, maintenance infrastructure, concessioner facilities, and a campground connected by a series of foot paths.

The project area is located between the Brooks Camp visitor center, ranger station, and auditorium (Figure 2.1) and is approximately 0.5 acre in size.

3.2 Resource Impact Topics

3.2.1 Water Quality

Naknek Lake is the largest freshwater lake in KATM as well as in the National Park System (235 square miles). The lake is exceptionally clear, has a high oxygen concentration, and is supported by a relative abundance of blue-green algae, diatoms, and protozoa. Total phosphorus appears to be a key nutrient within the lake system while nitrogen concentrations are limited. Total dissolved solids are generally higher in Naknek Lake in comparison to the other large KATM lakes due to nearby glacial and volcanic inputs. Summer water temperature stratification between the surface and deepest portions of the lake does not fully develop; instead, the lake circulates through the summer due to coastal winds (Kozlowski, 2007).

The lake levels are generally much lower during the late winter and spring months and increase by as much as nine vertical feet during the summer and fall months. Lake levels increase due to receding glaciers, melting snow pack, and frequent precipitation events.

Naknek Lake is formally recognized by the State of Alaska as important for anadromous fishes, including sockeye salmon (*Onchorhynchus nerka*) and coho salmon (*Oncorhynchus kisutch*) (Johnson and Weiss, 2007). Salmon migrate to spawning areas in the lake and its tributaries in the spring and summer. Non-anadromous fish such as rainbow trout (*Salmo gairdneri*), dolly varden (*Salvelinus malma*), and Arctic grayling (*Thymallus arcticus*) also inhabit Naknek Lake.

Brooks Camp obtains drinking water through a nearby groundwater well located approximately 450 feet from the southwest corner of the Brooks Camp incinerator building (Figure 2.1). Drinking water meets EPA and ADEC standards and is routinely treated and tested.

3.2.2 Soils and Vegetation

The Brooks River area is underlain by largely unconsolidated, surficial deposits, composed primarily of alluvial and glacial gravels. Most of the Brooks Camp area was covered with fine, tan-colored ash following the 1912 eruption of the Novarupta and Katmai calderas, approximately 26 miles southeast of the site. Ash up to about 12 inches thick forms a surficial layer of soil below the organic mat across the site.

The Brooks Camp area is characterized by a white spruce and Kenai birch semi-open woodland with an understory of willow, alder, and cottonwood. Introduced plant species found in the area include shepherd's purse, pineapple weed, clover, and dandelion. Most non-native plant species found at Brooks Camp have become established as a result of inadvertent importation by visitors' footwear and NPS soil disturbing projects.

3.2.3 Wildlife and Wildlife Habitat

The Brooks River area is noted for its outstanding wildlife resources. The salmon runs attract more than 65 brown bears to the area annually. The bears typically remain on the Brooks River through the later part of July, and then disperse to other salmon streams. Bears return to the river in September to catch spawning salmon, particularly in the lower section of the river and along the Naknek lakeshore adjacent to Brooks Camp. Due to the geographic position of the camp in relation to Brooks River and Naknek Lake, bears are frequently observed traveling through camp and the proposed project area to access the river and lake.

Other wildlife species that have been observed within and adjacent to Brooks Camp include wolves, foxes, hares, red squirrels, voles, shrews, and bats. Birds include bald eagles, northern boreal and northern saw-whet owls, common mergansers, Arctic terns, and a variety of migratory passerine birds.

3.2.4 Cultural Resources

Brooks Camp is located within the Brooks River Archeological District National Historical Landmark, established because of the quantity and quality of prehistoric remains. Brooks Camp proper, occupying the point of a terrace which overlooks both lake and river, is situated on a prehistorically heavily occupied section of the landmark. Here the land is comprised of a series of sequential beach ridges and river terraces which intersect at the mouth of the river. It is primarily on these ridges and terraces that prehistoric dwellings were constructed, with activities taking place all around. Occupation of the beach ridges along the Naknek Lake began as early as 4,500 years ago and has been found to extend from near the mouth of Brooks River to the campground.

In March 2010, the Brooks Camp historic ranger station (current visitor center) and boat house (current ranger station) were listed on the National Register of Historic Places (ADNR 2010). These structures represent the early park development and tourism period of KATM, which began after World War II. In addition to these historic structures, the NPS will be proposing to nominate the historic log cache on the National Register and will be conducting additional studies related to other structures and landscapes associated with the post-war early park development and tourism period.

The ethnographic importance of the Brooks River corridor has not been afforded the same level of recognition as the archeological values. The ethnographic resources overlap many of the archeological deposits, but the heart of the ethnographic resources is located near the Brooks River mouth and immediate shoreline on the north side of the river and the shoreline south of the river mouth to a point beyond where the “Beaver Pond” comes closest to Naknek Lake. The ethnographic resources associated with Brooks Camp are rich, varied and include the traditional harvest of redfish or the taking of spawned out red salmon in the Naknek drainage by those Alaska Natives traditionally associated with the area. Other ethnographic resources are largely undocumented and poorly understood. The Brooks River corridor contains numerous burials that are of extreme ethnographic importance to contemporary peoples traditionally associated with this site. The preliminary information that has been recorded suggests that Qit’rwik, or Brooks Camp, is a potential candidate for the National Register of Historic Places as a Traditional Cultural Property.

3.2.5 Natural Soundscape

Natural sounds occurring along the Naknek shoreline and within the Brooks Camp area include waves from the lake, wind, and vocalizations from birds and other wildlife. Common human created sounds heard along the Naknek Lake area include float planes, small transport vehicles, and motor boat engines. Human voices and occasional shouts are heard in areas receiving higher visitation levels, particularly where park and concessioner staff and visitors are located within the Brooks Camp area.

3.2.6 Visitor Experience

The Brooks River area is the most heavily visited site in KATM, receiving approximately 10,000 visitors annually. The three primary visitor activities that occur in the Brooks River area are observing/photographing bears, sport fishing, and tours to the Valley of Ten Thousand Smokes. Other visitor activities include bird watching, hiking, and boating, though to a lesser extent than the three primary activities. The visitor experience is carefully managed by the NPS to protect the resources that contribute to the quality of that experience.

The summer visitor season begins June 1st and extends through mid-September. Based on 2009 NPS Public Use Statistics, it has been estimated that the number of visits to the Brooks Camp Visitor Center from this period is 112 per day. During July 2009, the busiest month of the season, the number of visits to the visitor center has been estimated at 237 visits per day (NPS 2010c).

Overnight Lodging and Camping

Use of the Brooks Camp campground is typically light to moderate through late June, but demand usually exceeds the 60-person limit throughout the month of July. Similarly, Brooks lodge and cabins can accommodate 64 people per night in July and September. The month of August sees light use.

Day Visitation

Day visitation has been responsible for the greatest increase in human use of the Brooks River area. Many private lodges located outside of KATM fly a large number of guests to Brooks River for sport fishing and bear viewing opportunities. Moreover, the involvement of major tour companies based out of Anchorage or other communities has led to an increasing number of people being flown to the Brooks River area for day trips to view bears and ride the bus to the Valley of Ten Thousand Smokes. There are

also a small but growing number of backcountry canoeists and backpackers who begin and end their trips at Brooks Camp.

4.0 ENVIRONMENTAL CONSEQUENCES

This section provides an evaluation of the potential effects or impacts of each of the alternatives on the resources described in the issue statements presented in Section 1.5.1, Issues Selected for Detailed Analysis.

4.1 Methodology and Impact Criteria

The direct, indirect, and cumulative impacts are described for each issue (impact topic) that was selected for detailed analysis (see Section 1.6.1). The impacts for each issue are based on the duration, context (extent), and intensity (magnitude) of the impact. Summary impact levels (negligible, minor, moderate, or major) are given for each issue. Definitions are provided below.

Duration

Temporary: Impacts would last no more than a season, or for the duration of the discreet activity, such as maintenance of a road or trail segment.

Long-Term: Impacts would extend for several years up to the life of the project.

Permanent: Impacts are a permanent change to the resource that would last beyond the life of the project even if the actions causing the impacts were to cease.

Context

Common: The affected resource is widespread, and is not identified in enabling legislation as important to the park, nor is it rare within or outside the park. The portion of the affected resource impacted by the action does not fill a unique role within the park or its region of the park.

Important: The affected resource is identified by enabling legislation, or is rare either within or outside the park. The portion of the affected resource does not fill a unique role within the park or its region of the park.

Unique: The affected resource is identified by enabling legislation, and the portion of the affected resource uniquely fills a role within the park and its region of the park.

Intensity

Intensity

Low: A change in resource condition is perceptible, but does not measurably alter the resource function in the park ecosystem, cultural context, or visitor opportunity.

Medium: A change in a resource condition is measurable or observable, and an alteration is detectable to the resource function in the park ecosystem, cultural context, or visitor opportunity.

High: A change in a resource condition is measurable or observable, and an alteration to the resource function in the park ecosystem, cultural context, or visitor opportunity is clearly and consistently observable.

Table 4.1 – Impact Levels Summary

| Negligible | Minor | Moderate | Major | Impairment |
|--|--|---|---|---|
| Impacts are generally extremely low in intensity (often they cannot be measured or observed), are temporary, and do not affect unique resources. | Impacts tend to be low intensity or of short duration, although common resources may have more intense, longer-term impacts. | Impacts can be of any intensity or duration, although common resources are affected by higher intensity, longer impacts while unique resources are affected by medium or low intensity, shorter-duration impacts. | Impacts are generally medium or high intensity, long-term or permanent in duration, and affect important or unique resources. | Impairment occurs when a resource no longer fulfills the specific purposes in the enabling legislation or its role in maintaining the park’s natural integrity. |

4.2 Cumulative Impacts Analysis Information

Cumulative impacts are defined as the incremental impacts to the environment resulting from adding the proposed action to other past, present, and reasonably foreseeable future actions (also referred to as regional actions), regardless of what agency (federal or non-federal) or person undertakes those actions. Cumulative impacts may result from singularly minor but collectively significant actions taking place over a period of time (CEQ Sec 1508.7).

Cumulative impacts are analyzed by considering the past, present, and reasonable foreseeable future actions taken by the NPS, other agencies, private organizations and individuals in the Brooks River area. These include the following:

- Past construction, conversion, and expansion of numerous NPS and commercial services facilities within the Brooks River area of KATM, including offices, overnight accommodation facilities, historic buildings, maintenance facilities, staff housing, storage structures, bear viewing platforms, utilities, communication systems, roads, and trails.
- Past, present, and future operation of the above facilities and infrastructures, including repairs.
- Brooks River area fuel-contaminated sites monitoring and remediation activities. This includes: (1) the monitoring of previously excavated fuel-contaminated sand from Naknek Lake adjacent to Brooks Camp (NPS 2009a) and (2) future fuel-contaminated sites monitoring and remediation as described in the approved 1997 Brooks Camp Underground Fuel Contamination Corrective Action Plan (NPS 1997).
- Future actions previously approved by the NPS Alaska Regional Director as described in the following environmental assessments: (1) June 2007 Brooks Lake Maintenance Facility (NPS 2007) and (2) December 2009 Brooks River Area Utilities Replacement and Housing Relocation (NPS 2009b).

- The proposed Brooks River Area Visitor Access Improvements Project. The proposed project involves the replacement of the existing Brooks River floating bridge and relocation of the existing Naknek Lake barge landing and access road. The proposed project also reconsiders the construction of the Beaver Pond Terrace primary float plane and boat access site on Naknek Lake as described in Alternative 5 of the DCP (NPS 1996). Public scoping for the proposed project occurred during the summer and fall of 2009. An Environmental Impact Statement (EIS) is currently being developed for the project and will be available for public review in February 2011.
- Implementing the relocation of Brooks Camp to the Beaver Pond Terrace as specified in Alternative 5 of the 1996 DCP (NPS, 1996). Under this alternative, all structures and facilities, including both historic and non-historic structures, would be removed, replaced, or relocated to the south side of the Brooks River.

4.3 Water Quality

4.3.1 Alternative A: No Action

Direct and Indirect Impacts: Under Alternative A, the surface and ground water quality of the Naknek Lake area would be impacted from the continued use of the existing pit toilet and the depositing of human waste within the Brooks Camp area during the spring and fall “shoulder” seasons. These negative impacts would be long-term in duration, common in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect the water resources of the Brooks River area (Section 4.2). It is anticipated that small fuel and oil leaks occurring from the operation of land-based vehicles, boats, and planes would continue to have a negative long-term cumulative effect on water quality. However, the NPS and/or Brooks Camp concessioner are continuing to make improvements with sewage storage, transport, and treatment facilities; improving fuel management practices; and monitoring and remediating fuel-contaminated sediments. These improvements would continue to have a positive long-term affect on the area’s water resources.

Conclusion: The level of impacts on water resources anticipated from Alternative A would be **negative and minor**. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park’s enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.2 Alternative B: Proposed Action

Direct and Indirect Impacts: Under Alternative B, the surface and ground water quality of the Naknek Lake area would be impacted from the discontinued use of the existing pit toilet and the reduction of human waste being infrequently deposited on the ground or in shallow holes within the Brooks Camp area during the spring and fall “shoulder” seasons. These positive impacts would be long-term in duration, common in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect the water resources of the Brooks River area (Section 4.2). It is anticipated that small fuel and oil leaks occurring from the operation of land-based vehicles, boats, and planes would continue to have a

negative long-term cumulative effect on water quality. However, the NPS is continuing to make improvements with sewage storage, transport, and treatment facilities; improving fuel management practices; and monitoring and remediating fuel-contaminated sediments. These improvements would continue to have a positive long-term affect on the area's water resources.

Conclusion: The level of impacts on water resources anticipated from Alternative B would be *positive and minor*. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4 Soils and Vegetation

4.4.1 Alternative A: No Action

Direct and Indirect Impacts: Under Alternative A, soils and vegetation disturbance would be limited to the eventual relocation of the existing pit toilet to an adjacent area, which normally occurs every 4+ years. This impact would consist of an approximate area of 4 feet by 4 feet (16 square feet of surface disturbance) and an approximate depth of 6 feet (100 cubic feet of subsurface disturbance). These negative impacts would be long-term in duration, common in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect soils and vegetation within the Brooks River area. These impacts are related to proposed and previously approved projects described in Section 4.2., the eventual relocation of the existing picnic area and native vegetation restoration efforts would have a positive impact within the Brooks Camp area. The relocated facilities may have negative impacts on soils and vegetation south of the Brooks River. These impacts would depend on whether the area is undisturbed.

Conclusion: The level of impacts on soils and vegetation anticipated from Alternative A would be *negative and minor*. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.2 Alternative B: Proposed Action

Direct and Indirect Impacts: Under Alternative B, soils and vegetation disturbance would be limited to the picnic shelter and restroom and storage cache building installation areas. This impact would occur in two areas. The picnic shelter installation would disturb an area of approximately 25 feet by 15 feet (375 square feet of surface disturbance) in size. The historic log cache and interpretive exhibits would disturb an area of approximately 10 feet by 10 feet (100 square feet of surface disturbance) in size. Support posts/footings for the picnic shelter and historic cache may extend to the Katmai Ash layer to a depth of approximately 12 to 18 inches (15 cubic feet). The restroom and storage cache building installation would disturb a surface area of approximately 25 feet by 20 feet (500 square feet of surface disturbance). The vault toilet tanks under the restroom would disturb a subsurface area of approximately 13 feet by 6.5 feet and a depth of approximately 4.5 feet (380 cubic feet of subsurface disturbance). These negative impacts would be long-term in duration, common in context, and medium in intensity.

Cumulative Impacts: The total surface (approximately 975 square feet) and subsurface (approximately 375 cubic feet) areas of vegetation and soil disturbance under Alternative B would not substantially add to the cumulative impacts from past, present, and future park management actions described in Section 4.2. Specifically, the eventual relocation of the picnic area and restroom/storage cache building and native vegetation restoration efforts would have a positive impact within the Brooks Camp area. The relocated facilities may have a negative impact on soils and vegetation south of the Brooks River. These impacts would depend on whether the area is undisturbed.

Conclusion: The level of impacts on soils and vegetation anticipated from Alternative A would be *negative and moderate*. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.5 Wildlife and Wildlife Habitat

4.5.1 Alternative A: No Action

Direct and Indirect Impacts: Under Alternative A, approximately 0.25 acre of wildlife habitat would continue to be impacted from the presence and use of the existing picnic area, food and gear caches, and pit toilet. Brown bears, small mammals, and migratory birds are frequently observed within and adjacent to these areas. These negative impacts would be long-term in duration, unique in context (Brooks River brown bears), and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect wildlife and wildlife habitat within the Brooks River area. These impacts are related to proposed and previously approved projects described in Section 4.2. Specifically, the eventual relocation of the existing picnic area and habitat restoration efforts would have a positive impact on wildlife and wildlife habitat within the Brooks Camp area. The relocated facility may have a negative impact on wildlife and wildlife habitat south of the Brooks River. These impacts are expected to be low due to the placement of the facility away from high bear density areas.

Conclusion: The level of impacts on wildlife and wildlife habitat anticipated from Alternative A would be *negative and minor*. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.5.2 Alternative B: Proposed Action

Direct and Indirect Impacts: Under Alternative B, approximately 0.50 acre of wildlife habitat would be impacted from the proposed picnic shelter, historic log cache, interpretive exhibits, and restroom and storage cache building. Brown bears, small mammals, and migratory birds are frequently observed within and adjacent to these areas. Compared to Alternative A, these negative impacts would be long-term in duration, unique in context (Brooks River brown bears), and low in intensity. Mitigations would be followed to avoid or greatly minimize direct and indirect impacts (Section 2.6).

Cumulative Impacts: Past, present, and future park management actions would continue to affect wildlife and wildlife habitat within the Brooks River area. These impacts are related to proposed and

previously approved projects described in Section 4.2. Specifically, the eventual relocation of the picnic area and restroom/storage cache building and habitat restoration efforts would have a positive impact on wildlife and wildlife habitat within the Brooks Camp area. The relocated facility may have a negative impact on wildlife and wildlife habitat south of the Brooks River. These impacts are expected to be low due to the placement of the facility away from high bear density areas.

Conclusion: The level of impacts on wildlife and wildlife habitat anticipated from Alternative B would be ***negative and minor***. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.6 Cultural Resources

4.6.1 Alternative A: No Action

Direct and Indirect Impacts:

Archeological Resources – Under Alternative A, subsurface disturbance would be limited to the eventual relocation of the existing pit toilet to an adjacent area, which normally occurs every 4+ years. This impact would consist of an approximate area of 4 feet by 4 feet (16 square feet of surface disturbance) and an approximate depth of 6 feet (100 cubic feet of subsurface disturbance). An archeological investigation would occur before the pit toilet is relocated to ensure no adverse effects to archeological resources occurs.

Historic Structures – Under Alternative A, the historic Brooks Camp ranger station and visitor center would not be impacted. The impacts from not relocating and interpreting the historic log cache would be long-term in duration, important in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect cultural resources within the Brooks River area. These impacts are related to proposed and previously approved projects described in Section 4.2. Specifically, the eventual relocation of the existing picnic area and habitat restoration efforts would have a positive impact on cultural resources. The relocated facility would be placed in an area away from known cultural resources on the south side of the Brooks River.

Conclusion: The level of impacts on cultural resources anticipated from Alternative A would be ***negative and minor***. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.6.2 Alternative B: Proposed Action

Direct and Indirect Impacts:

Archeological Resources – Under Alternative B, subsurface disturbance would be limited to the picnic shelter and restroom and storage cache building installation areas. The extent of these direct and

indirect impacts (ex. area and depth) was previously described in Section 4.4.2. Mitigations would be in place to ensure archeological resources are not adversely affected. See Section 2.6.

Historic Structures – Under Alternative B, the historic setting associated with the historic Brooks Camp ranger station and visitor center would not be impacted by the proposed picnic shelter and restroom/storage cache building. Mitigations would be in place to ensure the historic setting is not adversely affected.

The installation and interpretation of the historic log cache would have a positive impact on historic resources. Overall, these impacts would be long-term in duration, unique in context, and minor in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect cultural resources within the Brooks River area. These impacts are related to proposed and previously approved projects described in Section 4.2. Specifically, the eventual relocation of the existing picnic area and restroom/storage cache building would have a positive impact on cultural resources. The relocated facility would be placed in an area away from known cultural resources on the south side of the Brooks River.

Conclusion: The level of impacts on cultural resources anticipated from Alternative B would be **positive and minor**. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park’s enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.7 Natural Soundscape

4.7.1 Alternative A: No Action

Direct and Indirect Impacts: Under Alternative A, the soundscape would be impacted from routine repair and maintenance activities conducted on the existing picnic area, storage caches, and pit toilet. These impacts would be short-term in duration, common in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect the natural soundscape of the Brooks River area (Section 4.2). Specifically, the eventual relocation of the picnic area, storage caches, and other Brooks Camp structures and facilities would have short-term negative effects during the relocation and long-term positive effects on the north side of the river after the relocation. However, the relocation of Brooks Camp would essentially “shift” the impact on the natural soundscape to another geographic area south of the Brooks River.

Conclusion: The level of impacts on the natural soundscape anticipated from Alternative A would be **negative and minor**. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park’s enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.7.2 Alternative B: Proposed Action

Direct and Indirect Impacts: Under Alternative B, the soundscape would be impacted during the installation of the picnic shelter, historic log cache, interpretive exhibits, and restroom/storage cache building. The natural soundscape would also be impacted from routine repair and maintenance activities conducted on these structures. These impacts would be short-term in duration, common in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect the natural soundscape of the Brooks River area (Section 4.2). Specifically, the eventual relocation of the picnic area, historic log cache, interpretive exhibits, and restroom/storage cache building, and other structures and facilities would have short-term negative effects during the relocation and long-term positive effects on the north side of the river after the relocation. However, the relocation of Brooks Camp would essentially “shift” the impact on the natural soundscape to another geographic area south of the Brooks River.

Conclusion: The level of impacts on the natural soundscape anticipated from Alternative B would be **negative and minor**. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park’s enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.8 Visitor Experience

4.8.1 Alternative A: No Action

Direct and Indirect Impacts: Under Alternative A, visitor experience would be affected from using the existing unsheltered picnic area during periods of inclement weather and from underprovided restroom facilities that meet accessibility requirements. Visitors may not be aware of various points of interest within the Brooks Camp area through the aid of a wayfinding exhibit and an understanding of early park development history through the use of an interpretive wayside and historic log cache exhibit. These impacts would be long-term in duration, common in context, and low in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect visitor experience within the Brooks River area (Section 4.2). Specifically, the eventual relocation of the picnic area, storage caches, and other Brooks Camp structures and facilities may have short-term negative effects during the relocation and long-term positive effects after the relocation to the south side of the Brooks River. The picnic area and storage caches would be placed in an area that reduces the likelihood of human/bear interactions and conflicts.

Conclusion: The level of impacts on visitor experience anticipated from Alternative A would be **negative and minor**. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park’s enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.8.2 Alternative B: Proposed Action

Direct and Indirect Impacts: Under Alternative B, visitor experience would be impacted during the installation of the picnic shelter, historic log cache, interpretive exhibits, and restroom/storage cache building. Visitor experience would be impacted from routine repair and maintenance activities conducted on these structures. In the long-term, visitor experience would improve from the use of accessible facilities with protection from the elements. Visitors would become familiar with various points of interest within the Brooks Camp area through the aid of a wayfinding exhibit and gain an understanding of early park development history through the use of an interpretive wayside and historic log cache exhibit. Overall, these impacts would be long-term in duration, common in context, and medium in intensity.

Cumulative Impacts: Past, present, and future park management actions would continue to affect visitor experience of the Brooks River area (Section 4.2). Specifically, the eventual relocation of the picnic area, historic log cache, interpretive exhibits, and restroom/storage cache building, and other structures and facilities would have short-term negative effects during the relocation and long-term positive effects on the south side of the river after the relocation. Relocating Brooks Camp would “refocus” visitor experience to the south side of the river.

Conclusion: The level of impacts on visitor experience anticipated from Alternative B would be *positive and moderate*. These impacts would not result in impairment of park resources that fulfill specific purposes identified in the Park’s enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

5.0 LIST OF PREPARERS AND CONTRIBUTORS

Katmai National Park and Preserve

Wendy Artz, Wilderness District Ranger
Robert Clanton, Project Manager
Jim Gavin, Facility Manager
Ralph Moore, Superintendent
Daniel Noon, Chief of Environmental Planning
Whitney Rapp, Planning Biologist
Jeanne Roy, Brooks Camp Lead Interpretive Ranger
Jeanne Schaaf, Chief of Cultural Resources
Dale Vinson, Archeologist
Roy Wood, Chief of Interpretation

NPS Alaska Regional Office

Joan Darnell, Environmental Planning and Compliance Team Manager
Steve Peterson, Historic Architect
Brad Richie, Architect
Glen Yankus, Environmental Protection Specialist

6.0 REFERENCES

- Johnson, J. and E. Weiss. 2007. Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southwestern Region, Effective June 1, 2007. Alaska Department of Fish and Game.
- Kozlowski, J. 2007. Katmai National Park Water Resources Information and Issues Overview. National Park Service, Alaska Regional Office. Anchorage, Alaska.
- National Park Service. No date. Historic Assessment Brief: Brooks Camp’s Historic Log Cache. Katmai National Park and Preserve, Alaska.
- _____. 1986. General Management Plan, Wilderness Suitability Review, and Land Protection Plan. Katmai National Park and Preserve, Alaska.
- _____. 1996. Brooks River Area Development Concept Plan Environmental Impact Statement. Katmai National Park and Preserve. Available on the KATM website at: <http://www.nps.gov/katm/parkmgmt/brooksdcp.htm>.
- _____. 1998a. Agreement for the Sale, Purchase, and Conveyance of Lands between the Heirs of Palakia Melgenak and the United States of America.
- _____. 1998b. Director’s Order 28: Cultural Resource Management. National Park Service, Washington. Available on the NPS website at: <http://home.nps.gov/applications/npspolicy/DOrders.cfm>.
- _____. 1998c. Reference Manual 28: Cultural Resources Management Guidelines. National Park Service, Washington. Available on the NPS website at: <http://home.nps.gov/applications/npspolicy/DOrders.cfm>.
- _____. 2000. Director’s Order 42: Accessibility for Visitors with Disabilities in NPS Programs and Services. National Park Service, Washington. Available on the NPS website at: <http://home.nps.gov/applications/npspolicy/DOrders.cfm>.
- _____. 2001. Director’s Order 12 Handbook: Conservation Planning, Environmental Impact Analysis and Decision Making. Available on the NPS website at: <http://home.nps.gov/applications/npspolicy/DOrders.cfm>.
- _____. 2003. Reference Manual 83B1: Wastewater Systems. National Park Service, Washington. Available on the NPS website at: <http://home.nps.gov/applications/npspolicy/DOrders.cfm>.
- _____. 2004. Director’s Order 83: Public Health, National Park Service, Washington. Available on the NPS website at: <http://home.nps.gov/applications/npspolicy/DOrders.cfm>.
- _____. 2006. Management Policies 2006. National Park Service, Washington. Available on the NPS website at: <http://www.nps.gov/policy/mp/Index2006.htm>.
- _____. 2007. Brooks Lake Maintenance Facility Environmental Assessment. Katmai National Park and Preserve, Alaska.
- _____. 2009a. Brooks Camp Fuel-Contaminated Sand Remediation Environmental Assessment. Katmai National Park and Preserve, Alaska.

- _____. 2009b. Brooks River Area Utilities Replacement and Housing Relocation Environmental Assessment. Katmai National Park and Preserve, Alaska. Available on the KATM website at: <http://www.nps.gov/katm/parkmgmt/vraa.htm>.
- _____. 2009c. Brooks River Visitor Access Environmental Impact Statement Scoping Report. Katmai National Park and Preserve, Alaska.
- _____. 2009d. Foundation Statement. Katmai National Park and Preserve, Alaska.
- _____. 2010a. National Register of Historic Places website. Specific listing information for the Brooks Camp historic boat house and ranger station available at: <http://www.nps.gov/history/nr/listings/20100409.htm>
- _____. 2010b. Superintendent's Compendium. Katmai National Park and Preserve, Alaska.
- _____. 2010c. National Park Service Public Use Statistics Office website. Available at: <http://www.nature.nps.gov/stats/>

APPENDIX A

Alaska National Interest Lands Conservation Act (ANILCA) Section 810 Summary Evaluation and Findings

BACKGROUND

Subsistence uses, as defined by the Alaska National Interest Land Conservation Act (ANILCA), section 803, means "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade." Subsistence activities include hunting, fishing, trapping, and collection of berries, edible plants, and wood or other materials.

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the ANILCA. It summarizes the evaluation of potential restrictions to Title VIII Federal Subsistence uses that could result from the NPS proposed actions to excavate contaminated sand from the shoreline of Naknek Lake and remediate the contaminated sand onsite near the Brooks River in Katmai National Park and Preserve (KATM). The *Brooks Camp Beach Area Fuel Spill Remediation Environmental Assessment* (EA) describes a no-action and proposed action for consideration.

II. EVALUATION PROCESS

Section 810(a) of ANILCA states:

"In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands...the head of the federal agency...over such lands...shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be affected until the head of such Federal agency—

- (1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to Section 805;
- (2) gives notice of, and holds, a hearing in the vicinity of the area involved; and determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary...and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions."

A proclamation by President Woodrow Wilson in 1918 created Katmai National Monument from a reservation of approximately 1,700 square miles. Three major purposes of the monument designation were 1) to preserve an area important to the study of volcanism, 2) to preserve the Valley of Ten Thousand Smokes and 3) to conserve an area potentially popular with persons seeking unique scenery and for those with scientific interest. Increased in 1931 to include Brooks Lake, Grosvenor Lake, Lake Colville and part of Naknek Lake; again in 1942 to include offshore islands within five miles of the monument coastline; and again in 1969 to include the remainder of Naknek Lake, the monument grew to contain 4,361 square miles.

With the passage of the ANILCA in 1980 the designation of 3.7 million acres of the monument was changed to a national park, and an additional 308,000 acres was included as a national preserve. Furthermore, 3.4 million acres of the park and preserve were designated as wilderness. The Katmai Preserve was created by the ANILCA Section 202(2) for the following purposes (among others) “to protect habitats for, and populations of, fish and wildlife including, but not limited to, high concentrations of brown/grizzly bears and their denning areas; to maintain unimpaired the water habitat for significant salmon populations; and to protect scenic, geological, cultural and recreational features.” The taking of fish and wildlife for subsistence uses is allowed by the ANILCA within Katmai National Preserve pursuant to Section 203, however, subsistence activities are not authorized within Katmai National Park.

III. PROPOSED ACTION ON FEDERAL PUBLIC LANDS

Under the Proposed Alternative, a picnic shelter and restroom facility would be constructed near the existing Brooks Camp picnic area and visitor center (EA Figure 2.1). The picnic shelter would be approximately 20 feet in length by 12 feet in width and accommodate two to four fully accessible picnic tables (EA Figure 2.2). The shelter would be constructed of prefabricated logs within the existing picnic area.

Approximately 600 square feet of vegetation, including four to six trees, may be cut and removed to accommodate the new shelter. Ground disturbance would be limited within the Katmai Ash layer, which was deposited in June of 1912 from the eruption of the Novarupta Volcano.

A divided restroom and storage cache building approximately 16 feet in length by 18 feet in width would be constructed of prefabricated logs. A wood deck approximately 3 feet in width would be installed on the front and back sides of the facility. The restroom would be of similar design as the existing restrooms located at the Brooks Campground and Brooks Falls Trailhead (EA Figure 2.3) and would allow for easy access during waste pumping operations. The building would be protected from wildlife damage by a solar-powered electric fence of similar design currently used on the Brooks Falls Trailhead restroom facility. The building may be equipped with skylights, solar tubes, and/or electrical lights.

Approximately 600 square feet of vegetation may be cut and removed to accommodate the restroom and storage cache building. Two 1,000-gallon vault tanks (each tank approximately 6.5 feet by 6.5 feet by 4.5 feet) would be installed under the restroom facility (approximately 380 cubic feet of subsurface disturbance). A portion of this depth may occur below the Katmai Ash layer. Excavating below this layer may affect archeological resources. If extensive archeological resources are discovered within the area, the restroom/storage cache facility may need to be constructed on an elevated pad. Waste would be pumped from the tanks annually in the fall during camp shutdown operations and transported to the

existing VTTS Road waste disposal area on the south side of the Brooks River. The existing pit toilet outhouse located adjacent to seasonal park housing would be removed and the pit would be filled with weed-free soil, sand, or gravel.

The Brooks Camp historic log cache (EA Figure 1.4) would be relocated to the picnic area. The cache would be placed atop a set of log supports as it was constructed in the 1950s or positioned near ground level. A wayside may be installed within the picnic area to interpret the importance of the Brooks Camp historic structures.

The picnic area and restroom/storage cache facility would eventually be relocated to the south side of the Brooks River when day-use operations are no longer required on the north side of the river (NPS 2009b). The historic log cache and other Brooks Camp historic structures would eventually be relocated to the Beaver Pond Terrace area south of the Brooks River when the site has been developed (NPS 1996).

Due to cultural resource concerns, the exact locations of the picnic shelter, restroom/storage cache building, historic log cache, and interpretive exhibits within the project area would be determined based on future archeological field work, which would occur before the project is implemented. See EA Section 2.6 for specific mitigations related to cultural resources.

The NPS would implement the proposed project during the summer of 2010. See EA Section 2.6 for specific mitigations related to project implementation.

IV. AFFECTED ENVIRONMENT

The proposed action would affect an area approximately 0.50 acre in size within Brooks Camp (EA Figure 2.1). Concerning subsistence resources within the project area, negative moderate impacts would occur to wildlife and wildlife habitat and soils and vegetation. The proposed action would have a positive minor impact on water quality by greatly reducing water contamination caused by human waste (EA Table 2.1 and Section 4.0).

Naknek Lake and Brooks River provide spawning habitat for primarily sockeye salmon which migrate from Bristol Bay to Naknek Lake and the Brooks River. Most of the salmon harvested in the Naknek River system have been produced within Katmai National Park and many have been produced in the Brooks River/Brooks Lake section of this system. Harvest of salmon generally occurs in the Naknek River downstream of the park boundary; however, a limited fishery for "red fish", or spawned-out sockeye salmon, is permitted. This activity is authorized under separate legislation, subsequent to ANILCA, at 36 CFR 13.1204 to local residents who are descendants of Katmai residents who lived in the Naknek Lake and River drainage. Other subsistence activities are not permitted in Katmai National Park in accordance with the ANILCA Title II Section 203; Title VIII Section 816(a); and Title XIII Section 1314(c).

Subsistence uses are allowed within Katmai National Preserve in accordance with the ANILCA Title II Section 203 and provisions of Title VIII. Katmai National Preserve, encompassing 308,000 acres, is located on the northern end of the Alaska Peninsula in Game Management Unit 9C and contains geologic features, scenery, wildlife and cultural resources of national significance. The ANILCA also

authorized subsistence uses on adjacent federal public lands managed by the Bureau of Land Management (BLM) and the US Fish and Wildlife Service (USFWS).

Subsistence activities in Katmai National Preserve include hunting, trapping, fishing, gathering firewood, picking berries and wild plants, and gathering bird eggs. The area is used for subsistence by residents of Kokhanok, Igiugig, Levelock, Naknek and King Salmon to harvest caribou, brown bear, moose, beaver, snowshoe hare, fox, lynx, mink, wolf, wolverine, ptarmigan, waterfowl, salmon, trout, berries, wild edible plants and other wood resources.

Regional subsistence activities include seasonal gathering of wild edible plants and berries, hunting, trapping, and fishing. The main subsistence species are moose, caribou, furbearers, and fish. Subsistence fish include Coho salmon, king salmon, sockeye salmon, northern pike, burbot, Dolly Varden, arctic grayling, lake trout, rainbow trout, and whitefish. Beaver, coyote, red fox, gray wolf, wolverine, river otter, weasel, lynx, marten, mink, and muskrat are important furbearer resources. Subsistence birds include rock and willow ptarmigan, grouse, ducks, and geese.

The NPS recognizes that patterns of subsistence use vary from time to time and from place to place depending on the availability of wildlife and other renewable natural resources. A subsistence harvest in a given year may vary considerably from previous years because of weather, migration patterns, and natural population cycles.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on subsistence activities by the proposed installation, upgrade, and maintenance of the web camera and communication stations within Katmai National Park, three evaluation criteria were analyzed relative to current subsistence resources that could be impacted.

The evaluation criteria are:

1. The potential to reduce important subsistence fish and wildlife populations by (a) reductions in abundance; (b) redistribution of subsistence resources; or (c) loss of habitat.
2. Potential impacts the action may have on access for subsistence hunters and fishermen.
3. The potential for the action to increase competition among hunters and fishermen for subsistence resources.

1. The Potential to Reduce Populations:

(a) Reduction in Numbers

The proposed project occurring within Katmai National Park is not expected to reduce wildlife species populations. Natural wildlife population and migratory cycles would continue and the ongoing regional subsistence pattern would remain unchanged.

(b) Redistribution of Resources

The proposed action is not expected to redistribute, displace, or stress subsistence wildlife resources.

(c) Habitat Loss

The proposed action is not expected to cause the loss of beneficial or critical habitat for subsistence species such as salmon, caribou, moose, furbearers, grouse, and waterfowl. The proposed activities would not manipulate subsistence habitats or have any measurable impacts on subsistence resources. Provisions of ANILCA, the Federal Subsistence Board, and NPS and Alaska Department of Fish and Game (ADF&G) regulations and policies provide for the adequate protection of fish and wildlife populations within Katmai National Preserve while ensuring a subsistence priority for local rural residents.

2. Restriction of Access:

Under all alternatives, access to subsistence uses in the Katmai National Preserve is not expected to be limited or restricted. None of the alternatives propose changes to access regulations.

3. Increase in Competition

The proposed action is not anticipated to result in increased competition for fish, wildlife, and other subsistence resources on Federal public lands. Provisions of ANILCA, the Federal Subsistence Board, and NPS and ADF&G regulations provide the tools for adequate protection of fish and wildlife populations while ensuring a subsistence priority for local rural residents.

VI. AVAILABILITY OF OTHER LANDS

The proposed action is site-specific to the Brooks Camp area located in Katmai National Park. Since there are no other land in-holdings available within the project area, no other lands are suitable for the project. Subsistence users also have access to and utilize other federal, State and private lands within the region for subsistence activities.

VII. ALTERNATIVES CONSIDERED

Three other action alternatives were eliminated from further analysis due to the feasibility of implementing the alternatives.

Install Flush Toilet Restroom Facility at Brooks Camp

Under this alternative, the NPS would install a flush toilet system. The restroom's sewer system would be connected to the existing Brooks Camp leach field. The restroom would require the installation of water lines to properly flush waste. This alternative was dismissed due to problematic water line freezing conditions and the likelihood of reducing the life span of the existing leach field.

Install Restroom Facility Outside of the Project Area within Brooks Camp

Under this alternative, the picnic shelter, historic log cache, and interpretive exhibits would be installed at the existing picnic area. A new restroom and storage cache facility would be located outside of the proposed project area (EA Figure 2.1). The existing pit toilet and outhouse would be removed. Since visitors are required to have a bear orientation at the visitor center immediately after arriving at Brooks Camp, constructing the facility outside of the project area would require new visitors to carry food, fuel, and other items a greater distance for proper storage. The project area provides the most suitable location based on the proximity of existing visitor use facilities. This alternative would not meet the purpose of and need for the project as described in EA Section 1.1.

Removal of Pit Toilet and Relocation of Picnic Area Outside of Brooks Camp

Under this alternative, the existing pit toilet and outhouse would be removed and the existing picnic area, gear and food caches, and historic log cache would be relocated from Brooks Camp to the south side of the Brooks River. Although this alternative would best meet the objectives of the Brooks River DCP (NPS 1996), floatplane operations and visitor arrivals would continue to take place at Brooks Camp. As long as this occurs, day use facilities, including the picnic area and restroom facilities, would be needed to meet health and safety requirements and attain a positive visitor experience. Currently, this alternative would not meet the purpose of and need for the project as described in EA Section 1.1.

VIII. FINDINGS

This analysis concludes that the Alternative B (proposed action) would not result in a significant restriction of subsistence uses.

APPENDIX B

Alaska Coastal Management Program Consistency Determination

The State of Alaska has an approved coastal zone management program, the Alaska Coastal Management Program (ACMP) which includes regulations in Title 11, Chapter 112 of the Alaska Administrative Code (11 AAC 112). The Alaska Department of Natural Resource's Office of Project Management & Permitting (OPMP) coordinates review of federal consistency determinations as per 11 AAC 110. The Alaska Coastal Policy Council promulgates standards in the ACMP in chapter 112 of Title 11 (11 ACC 112). Coastal Zone Management Act (CZMA) Federal Consistency Regulations (15 CFR 930.35(b)) state that consistency determinations include an evaluation of the relevant policies set forth in the ACMP and applicable district programs.

The National Park Service (NPS) is proposing to improve the Brooks Camp picnic area by installing a picnic shelter, historic log cache, interpretive exhibits, and restroom/storage cache building near the existing visitor center (T. 19S, R. 39W, S. 6 Seward Meridian; 58° 33' 22.15" N / 155° 46' 42.14" W). Lands in the project area fall within the coastal zone of the State of Alaska and the Lake and Peninsula Borough (ACMP "Coastal Zone Boundaries of Alaska" Map #60 for the Mt. Katmai Quadrangle). The project would be located on lands under federal jurisdiction, which are outside the coastal zone.

A detailed description of the proposed project is provided in Section 2.3 of the attached Environmental Assessment (EA).

The following section details the NPS's Consistency Determination analysis by which it was determined that the proposed project would be consistent with the ACMP and affected coastal district's enforceable policies to the maximum extent practicable. In determining effects, the NPS followed 15 CFR 930.33(a)(1) and has included an evaluation of the relevant enforceable policies of the ACMP (11 A.A.C. 112) and the Lake and Peninsula Borough Coastal Management Plan (July 2007). State standards included for analyses are coastal development; natural hazard areas; coastal access; sand and gravel extraction; subsistence; transportation routes and facilities; habitats; and historic, prehistoric, and archaeological resources.

11 AAC 112.200. Coastal Development

- (a) In planning for and approving development in or adjacent to coastal waters, districts and state agencies shall manage coastal land and water uses in such a manner that those uses that are economically or physically dependent on a coastal location are given higher priority when compared to uses that do not economically or physically require a coastal location.
- (b) Districts and state agencies shall give, in the following order, priority to
 - (1) water-dependent uses and activities;
 - (2) water-related uses and activities; and
 - (3) uses and activities that are neither water-dependent nor water-related for which there is no practicable inland alternative to meet the public need for the use or activity.
- (c) The placement of structures and the discharge of dredged or fill material into coastal water must, at a minimum, comply with the standards contained in 33 C.F.R. Parts 320 - 323, revised as of July 1, 2003.

Analysis: The proposed activity is neither water-dependent or water related and is not located adjacent to coastal (salt) waters. The facility would be located in an upland location approximately 100 linear feet from Naknek Lake.

The project location is within an upland area. No discharge of dredged or fill material into coastal (salt) waters would occur.

11 AAC 112.210. Natural Hazard Areas

- (a) In addition to those identified in 11 AAC 112.990, the department, or a district in a district plan, may designate other natural processes or adverse conditions that present a threat to life or property in the coastal area as natural hazards. Such designations must provide the scientific basis for designating the natural process or adverse condition as a natural hazard in the coastal area, along with supporting scientific evidence for the designation.
- (b) Areas likely to be affected by the occurrence of a natural hazard may be designated as natural hazard areas by a state agency or, under 11 AAC 114.250(b), by a district.
- (c) Development in a natural hazard area may not be found consistent unless the applicant has taken appropriate measures in the siting, design, construction, and operation of the proposed activity to protect public safety, services, and the environment from potential damage caused by known natural hazards.
- (d) For purposes of (c) of this section, “appropriate measures in the siting, design, construction, and operation of the proposed activity” means those measures that, in the judgment of the coordinating agency, in consultation with the department’s division of geological and geophysical surveys, the Department of Community and Economic Development as state coordinating agency for the National Flood Insurance Program under 44 C.F.R. 60.25, and other local and state agencies with expertise,
 - (1) satisfy relevant codes and safety standards; or
 - (2) in the absence of such codes and standards;
 - (A) the project plans are approved by an engineer who is registered in the state and has engineering experience concerning the specific natural hazard; or
 - (B) the level of risk presented by the design of the project is low and appropriately addressed by the project plans.

Analysis: The proposed project is not located in a designated natural hazard area.

11 AAC 112.220. Coastal Access

District and state agencies shall ensure that projects maintain and, where appropriate, increase public access to, from, and along coastal water.

Analysis: The policy would not be applicable because the proposed project is not located adjacent to coastal (salt) waters and thus would not affect coastal access. The proposed project would not affect existing public access to the Brooks River area of KATM.

11 AAC 112.260. Sand and Gravel Extraction

Sand and gravel may be extracted from coastal waters, intertidal areas, barrier islands, and spits if there is no practicable alternative to coastal extraction that will meet the public need for the sand or gravel.

Analysis: The policy would not be applicable because no sand and gravel would be extracted from coastal waters for this project. Crushed gravel for construction purposes would be obtained from the existing KATM gravel pit located in an upland area approximately 4.5 miles southeast of the project area along the Valley of Ten Thousand Smokes Road in Katmai National Park and Preserve.

11 A.C 112.270. Subsistence

- (a) A project within a subsistence use area designated by the department or under 11 AAC 114.250(g) must avoid or minimize impacts to subsistence uses of coastal resources.
- (b) For a project within a subsistence use area designated under 11 AAC 114.250(g), the applicant shall submit an analysis or evaluation of reasonably foreseeable adverse impacts of the project on subsistence use as part of
 - (1) a consistency review packet submitted under 11 AAC 110.215; and
 - (2) a consistency evaluation under 15 C.F.R. 930.39, 15 C.F.R. 930.58, or 15 C.F.R. 930.76.
- (c) Repealed 10/29//2004, Register 172.
- (d) Except in nonsubsistence areas identified under AS 16.05.258, the department may, after consultation with the appropriate district, federally recognized Indian tribes, Native corporations, and other appropriate persons or groups, designate areas in which a subsistence use is an important use of coastal resources as demonstrated by local usage.
- (e) For purposes of this section, “federally recognized Indian tribe,” “local usage”, and “Native corporation” have the meanings given in 11 AAC 114.990.

Analysis: The policy would not be applicable because the proposed project is not located within a designated subsistence use area designated under 11 AAC 114.250(g). Per ANILCA, subsistence activities are only permitted in Katmai National Preserve, not in Katmai National Park. The effects of the proposed action on subsistence uses and needs were dismissed from further analysis in the EA because the proposed action is located in the Park.

11 AAC 112.280. Transportation Routes and Facilities

Transportation routes and facilities must avoid, minimize, or mitigate

- (1) alterations in surface and ground water drainage patterns;
- (2) disruption in known or reasonably foreseeable wildlife transit; and
- (3) blockage of existing or traditional access.

Analysis: (1) The proposed project would not alter surface or ground water drainage patterns. (2) The proposed project would remove approximately 0.5 acre of wildlife habitat. Brush and trees in the previously undisturbed area would not be cut between April 10 and July 15 to avoid impacts to nesting birds and to comply with the Migratory Bird Treaty Act.

Mitigation measures would be implemented to minimize bear-human interactions. Immediately adjacent to the project area, bears, small mammals, and other wildlife could be temporarily displaced due to noise and activities associated with construction, causing a short-term adverse impact. Displaced wildlife would not likely have difficulty becoming established elsewhere on lands in close proximity, since no prime or unique habitat would be lost.

(3) Existing access to the Brooks River area would not be blocked.

11 AAC 112.300. Habitats

(a) Habitats in the coastal area which are subject to the program are:

- (1) offshore areas;
- (2) estuaries;
- (3) wetlands;
- (4) tideflats;
- (5) rocky islands and seacliffs;
- (6) barrier islands and lagoons;
- (7) exposed high energy coasts;
- (8) rivers, streams and lakes and the active floodplains and riparian management areas of those rivers, stream and lakes; and
- (9) important habitat.

(b) The following standards apply to the management of the habitats identified in (a) of this section:

- (1) offshore areas must be managed to avoid, minimize or mitigate significant adverse impacts to competing uses such as commercial, recreational or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;
- (2) estuaries must be managed to avoid, minimize or mitigate significant adverse impacts to
 - (A) adequate water flow and natural water circulation patterns; and
 - (B) competing uses such as commercial, recreational or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;
- (3) wetlands must be managed to avoid, minimize or mitigate significant adverse impacts to water flow and natural drainage patterns;
- (4) tideflats must be managed to avoid, minimize or mitigate significant adverse impacts to
 - (A) water flow and natural drainage patterns; and
 - (B) competing uses such as commercial, recreational or subsistence uses, to the extent that those uses are determined to be in competition with the proposed use;
- (5) rocky islands and sea cliffs must be managed to
 - (A) avoid, minimize or mitigate significant adverse impacts to habitat used by coastal species; and
 - (B) avoid the introduction of competing or destructive species and predators;
- (6) barrier islands and lagoons must be managed to avoid, minimize or mitigate significant impacts
 - (A) to flows of sediments and water;
 - (B) from the alteration or redirection of wave energy or marine currents that would lead to the filling in of lagoons or the erosion of barrier islands; and
 - (C) from activities that would decrease the use of barrier islands by coastal species, including polar bears and nesting birds;

- (7) exposed high-energy coasts must be managed to avoid, minimize or mitigate significant adverse impacts
 - (A) to the mix and transport of sediments; and
 - (B) from redirection of transport processes and wave energy;
- (8) rivers, streams and lakes must be managed to avoid, minimize or mitigate significant adverse impacts to
 - (A) natural water flow;
 - (B) active floodplains; and
 - (C) natural vegetation within riparian management areas; and
- (9) important habitat
 - (A) designated under **11 A.A.C. 114.250(h)** must be managed for the special productivity of the habitat in accordance with district enforceable policies adopted under **11 A.A.C. 114.270(g)**; or
 - (B) identified under **(c)(1)(B)** or **(C)** of this section must be managed to avoid, minimize or mitigate significant adverse impacts to the special productivity of the habitat.
- (c) For purposes of this section,
 - (1) “important habitat” means habitats listed in **(a)(1)-(8)** of this section and other habitat in the coastal area that are:
 - (A) designated under **11 A.A.C. 114.250(h)**;
 - (B) identified by the department as a habitat
 - (i) the use of which has a direct and significant impact on coastal water; and
 - (ii) that is shown by written scientific evidence to be biologically and significantly productive; or
 - (C) identified as state game refuges, state game sanctuaries, state range areas or fish and game critical habitat under **A.S. 16.20**;
 - (2) “riparian management area” means the area along or around a waterbody within the following distances, measured from the outermost extent of the ordinary high water mark of the waterbody:
 - (A) for the braided portions of a river or stream, 500 feet on either side of the waterbody;
 - (B) for split channel portions of a river or stream, 200 feet on either side of the waterbody;
 - (C) for single channel portions of a river or stream, 100 feet on either side of the waterbody;
- (d) For a lake, 100 feet of the waterbody.

Analysis: A portion of the proposed project may occur within 100 linear feet of Naknek Lake. This may require the removal of vegetation and subsurface excavation to accommodate the construction of a vault toilet restroom facility and storage cache building. The NPS would consult with the Alaska Department of Environmental Conservation (ADEC) and acquire approvals for the vault toilet before beginning the proposed project.

11 AAC 112.320. Historic, Prehistoric, and Archeological Resources

- (a) The department will designate areas of the coastal zone that are important to the study, understanding or illustration of national, state or local history or prehistory, including natural process.

(b) A project within an area designated under (a) of this section shall comply with the applicable requirements of **A.S. 41.35.010 – 41.35.240** and **11 A.A.C. 16.010 – 11 A.A.C. 16.900**.

Analysis: The proposed project would occur within the Brooks River Archeological District National Historic Landmark. To ensure that the proposed project complies with Section 106 of the National Historic Preservation Act (NHPA), an archaeological investigation would be completed before ground-disturbing activities occur. The descendants of local tribes would be consulted before project implementation. Cultural resources specialists would monitor the project component sites during excavation activities.

Should previously unknown cultural resources be identified during project implementation, work would be stopped in the discovery area. The NPS would perform consultations in accordance with 36 CFR 800.11. The resources would be evaluated to determine if they are eligible to be listed on the National Register of Historic Places. If proposed excavation locations could not be adjusted to avoid adversely affecting eligible cultural resources, the NPS would execute a Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office (SHPO). The MOA would incorporate comments from consulting parties and specify measures to minimize or mitigate adverse effects. The NPS would abide by provisions of the Native American Graves Protection and Repatriation Act of 1992. Any artifacts recovered from the project area would be accessioned, cataloged, preserved, and stored in compliance with the NPS Cultural Management Guidelines.

LAKE AND PENINSULA COASTAL MANAGEMENT PLAN

Enforceable Policies of the Lake and Peninsula CMP that apply to the Brooks River Area Utilities Replacement and Housing Relocation Plan are described below.

Enforceable Policy: Coastal Development:

A-1 Water-Dependent and Water-Related Activities: *See analysis above or 11 AAC 112.200, Coastal Development.*

A-2 Multiple Use: *The policy would not be applicable since the project would not require the placement of fill or structures in coastal waters.*

A-3 Fill Requirements: *The policy would not be applicable since the project would not require the placement of dredged or fill materials in coastal waters.*

Enforceable Policy: Subsistence/Personal Use:

D-1 Development in Subsistence Waters: *The policy would not be applicable because the proposed project is not located within a designated subsistence use area designated under 11 AAC 114.250(g).*

Enforceable Policy: Transportation,

E-1 Maintaining Traditional Coastal Access: *The policy would not be applicable because the proposed project is not located adjacent to coastal (salt) waters and thus would not affect coastal access. Existing access to the Brooks River area of Katmai National Park would not be blocked. See analysis for 11 AAC 112.280 Transportation routes and facilities.*

Enforceable Policy: Natural Hazard Areas

G-1 Erosion and G2 Subdivisions Design: *The proposed project is not located in a designated natural hazard area.*

Enforceable Policy: Recreation

The policy would not be applicable because the proposed project is not located within a designated recreation use area.

Enforceable Policy: Sand and Gravel Extraction and Processing

K-1 Siting of Material Sources: *Analysis: Crushed gravel for construction purposes would be obtained from the existing KATM gravel pit located approximately 4.5 miles southeast of the project area along the Valley of Ten Thousand Smokes Road.*

CONSISTENCY DETERMINATION

Based on the information provided above, the National Park Service finds that the proposed project would be consistent with the ACMP and affected coastal district enforceable policies to the maximum extent practicable.

APPENDIX C

Estimated Project Costs

| Estimated Costs | Alternative A: No Action | Alternative B: Proposed Action |
|---|---|---|
| One Time Construction or Replacement | \$0 | \$100,000 |
| Recurring Annual Costs | \$1,500 (maintaining existing pit toilet, storage caches, and picnic area) | \$7,000 (includes opening and closing facilities at the beginning and end of each year, pumping and transporting waste from vault tanks, and replenishing restroom supplies) |
| Life Cycle | \$35,000 (includes annual maintenance costs for a period of 10 years and one time replacement costs for existing picnic area, storage caches, and outhouse after the 10-year period) | \$270,000 (includes initial one time construction costs, annual maintenance costs for a period of 10 years, and one-time replacement costs after the 10-year period) |