National Park Service
U.S. Department of the Interior

Katmai National Park and Preserve
Alaska

Brooks River Area Utilities Replacement and Housing Relocation Environmental Assessment
December 2009

Comments on this environmental assessment (EA) may be submitted during the 30-day open comment period via the national planning web site at http://parkplanning.nps.gov.

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TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Purpose and Need for Action 1
Figure 1: Regional Map 2
Figure 2: Vicinity Map 3
1.2 Background 4
1.3 Park Purpose and Significance 5
1.3.1 Brooks River Area Purpose Statements 6
1.3.2 Brooks River Area Significant Resource Statements 6
1.4 Laws, Regulations, and Policies 7
1.4.1 NPS Organic Act and General Authorities Act 7
1.4.2 Other Laws and Regulations 7
1.5 Relationship of Proposal to Other Planning Projects 8
1.6 Issues 8
1.6.1 Issues Selected for Detailed Analysis 9
1.6.2 Issues Dismissed from Further Analysis 10
1.7 Permits and Approvals Needed to Implement the Project 11

2.0 ALTERNATIVES 12
2.1 Alternative 1: No Action Alternative 12
2.2 Alternative 2: Single Loop Alternative (Proposed Action/Preferred Alternative) 12
Figure 3: Alternative 2, Single Loop 13
Table 2-1: Proposed Facilities for Valley Road Administrative Area 15
Table 2-2: Additional Brooks Camp Maintenance and Housing Facilities Planned for Removal or Relocation under Current EA 16
2.3 Alternative 3: Double Loop Alternative 18
Figure 4: Alternative 3, Double Loop 19
Table 2-3: Summary of Alternatives 21
Table 2-4: Summary of Alternative Impacts 22
2.4 Environmentally Preferred Alternative 23
2.5 Mitigation Measures 23
2.5.1 Cultural Resources 24
2.5.2 Visitor Experience 24
2.5.3 Wildlife and Wildlife Habitat 24
2.5.4 Natural Sound 24
2.6 Alternatives Considered but Eliminated from Detailed Study 25

3.0 AFFECTED ENVIRONMENT 26
3.1 Project Area 26
3.2 Cultural Resources 26
3.3 Natural Soundscape 27
3.4 Vegetation and Soils 28
3.4.1 Vegetation 28
3.4.2 Soils 28

3.5 Visitor Experience 29
3.6 Water Resources 30
3.7 Wildlife Habitat 30
3.7.1 Mammals 30
3.7.2 Birds 31

4.0 ENVIRONMENTAL CONSEQUENCES 32
4.1 Methodology and Impact Criteria 32
4.2 Analysis of Impacts 35
4.2.1 Cultural Resources 35
4.2.2 Natural Soundscape 37
4.2.3 Vegetation and Soils 38
4.2.4 Visitor Experience 41
4.2.5 Water Resources 43
4.2.6 Wildlife 44

5.0 CONSULTATION AND COORDINATION 47
5.1 Agency Consultation and Coordination 47
5.2 List of Preparers 47
5.3 Contributors/Advisors 47

APPENDICES

Appendix A: Subsistence Analysis, ANILCA 810 Summary Evaluation and Findings 50
Appendix B: Valley Road Administrative Area Facilities 55
Appendix C: Coastal Zone Management 58

ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ANILCA	Alaska National Interest Lands Conservation Act
CFR	Code of Federal Regulations
cm	centimeter
DCP	Development Concept Plan
DO	Director's Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
E.O.	Executive Order
FONSI	Finding of No Significant Impact
GMP	General Management Plan
kW	kilowatt
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NOI	Notice of Intent
NPS	National Park Service
NRHP	National Register of Historic Places
T&E	threatened and endangered
the Park	Katmai National Park and Preserve
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VRAA	Valley Road Administrative Area

1.0 INTRODUCTION

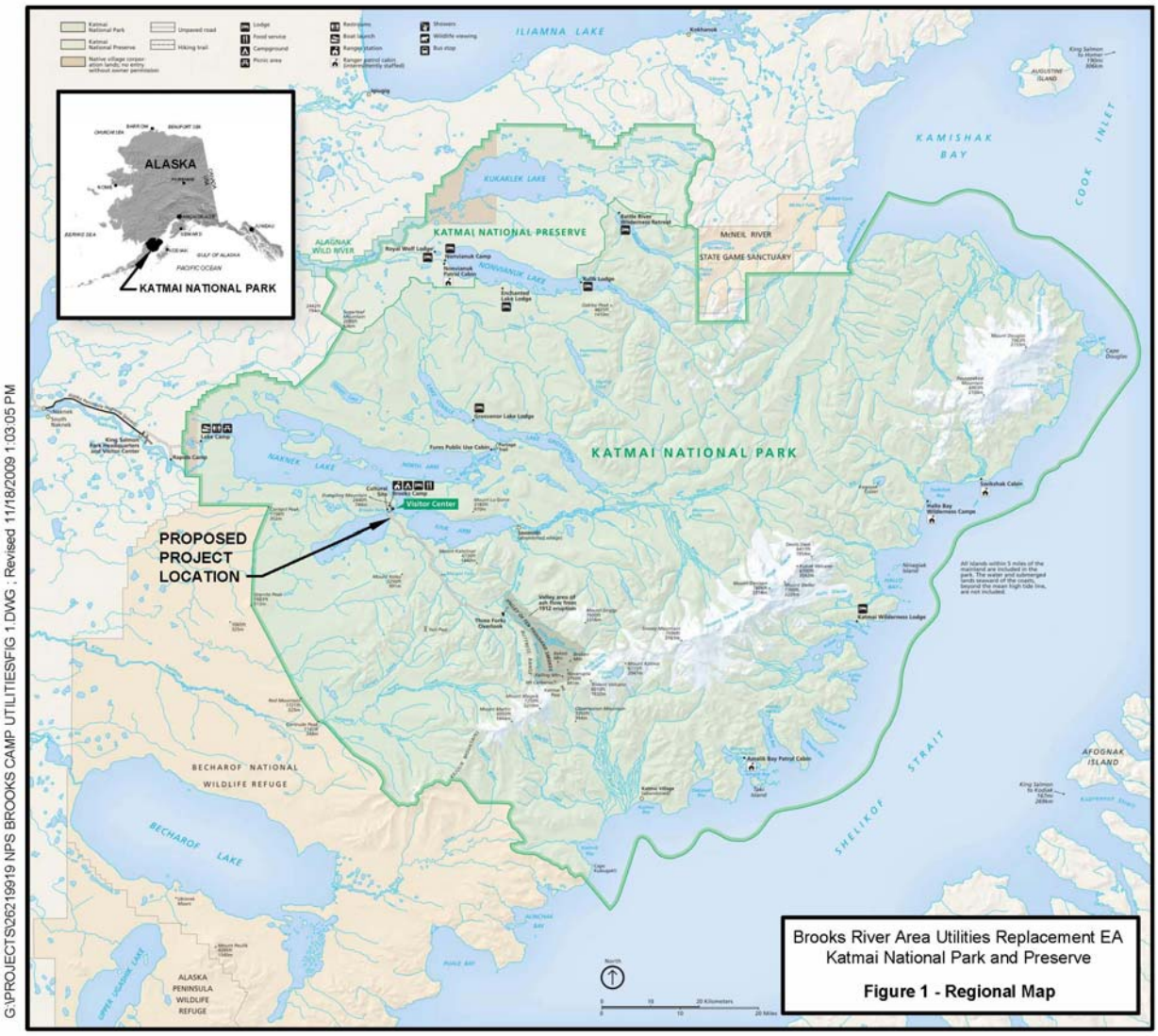
The National Park Service (NPS) is proposing to construct replacement utility systems for Brooks Camp, at Katmai National Park and Preserve (Katmai or the park) (Figure 1). This project is in preparation to move staff to the south side of Brooks River, about 1 mile from the existing location. The project would facilitate this move of support facilities to the south side of the river through site planning and layout, utility installations, and housing relocation. The project site would be immediately adjacent to the recently constructed gravel pad for the new maintenance facility along the Valley of Ten Thousand Smokes Road (Valley Road), near its intersection with the road from Lake Brooks to the Lower Viewing Platform (Fig. 2). The new maintenance and housing area is referred to as the Valley Road Administrative Area (VRAA).

These projects have been identified in the Katmai National Park and Preserve Final Development Concept Plan (DCP) and Environmental Impact Statement (EIS) for the Brooks River Area (1996) and the Katmai National Park and Preserve General Management Plan, Wilderness Suitability Review, Land Protection Plan (GMP) (1986). Beginning in 2006 the NPS investigated the cost requirements of constructing the new maintenance facility at the Beaver Pond Terrace location. The NPS concluded that it would have been cost prohibitive to construct a new maintenance facility near the Beaver Pond Terrace as depicted in the DCP/EIS and install underground power back to the Lake Brooks facilities using a phased implementation approach. The NPS then studied a new site for the maintenance facility and chose the location farthest south along the Valley Road that would still meet the power requirements for the Lake Brooks facilities. This environmental assessment (EA) implements direction from the DCP/EIS, and provides project detail for construction of the utilities to support the new VRAA (Figure 2).

This EA analyzes three alternatives and their impacts on the environment: Alternative 1: No Action, Alternative 2: Single Loop, and Alternative 3: Double Loop. The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500 *et seq*.). The purpose and need for the project is described in Section 1.1 and the proposed action and alternatives are described in Section 2 of this EA.

1.1 Purpose and Need for Action

The project is needed to accomplish phased implementation of the DCP/EIS goals to relocate facilities and infrastructure to the south side of the Brooks River. This goal was established to protect natural and cultural resources, improve visitor safety by reducing the potential for bear/human encounters, and address health and safety issues associated with failing utilities and infrastructure. This project would replace electrical systems at Brooks Camp and Lake Brooks by relocating them to the VRAA, away from sensitive resource areas (Fig. 2). The VRAA was identified in the prior EA for the maintenance facility (NPS, 2007), and now needs a site plan for utilities and future housing locations. The proposed project would eventually link electrical systems; however, water would still be withdrawn from the current well in Brooks Camp and there would be no sewer connection across the Brooks River. The existing Brooks Camp leach field would remain in place, and hopefully, its “life” extended through the phased removal of facilities. NPS replaced the generators and underground utility lines at Brooks Camp in 2009 to extend the life of the electrical system. The project would also address fire suppression to protect structures, heating systems for facilities, and fuel to provide power and heat.



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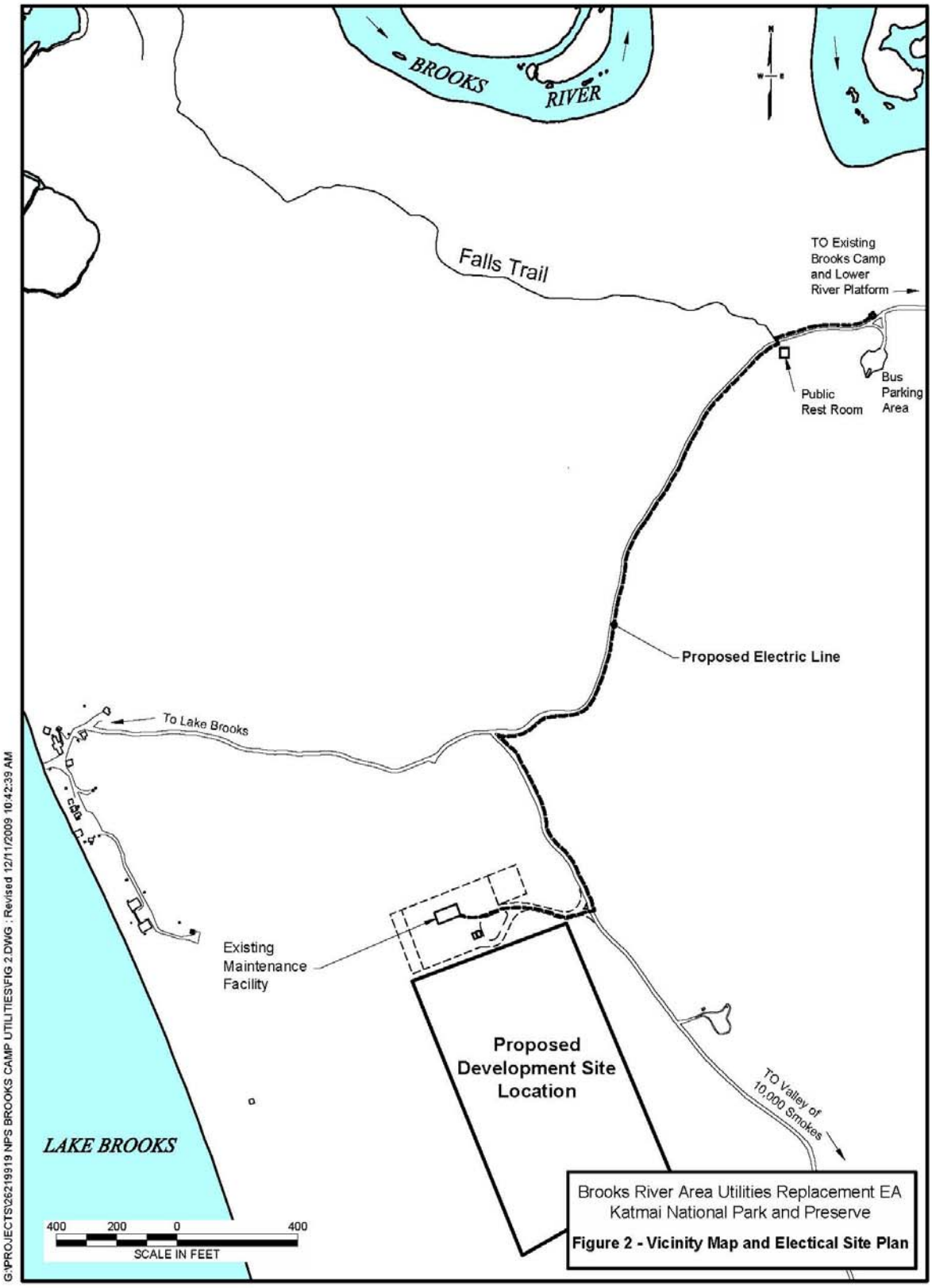
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SCALE IN FEET
Brooks River Area Utilities Replacement EA
Katmai National Park and Preserve
Figure 2 - Vicinity Map and Electical Site Plan
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1.2 Background

Katmai National Park and Preserve (Katmai or the park), encompassing approximately 4.7 million acres, is located at the base of the Alaska Peninsula (Figure 1), 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 five presidential proclamations in order to protect brown bears and other wildlife and fish spawning habitat. The monument was then enlarged and re-designated a National Park and Preserve by the Alaska National Interest Lands Conservation Act (ANILCA) in 1980. The following five Proclamations enlarged Katmai National Monument: Herbert Hoover – 1931, Franklin D. Roosevelt – 1936 and 1942, Lyndon Johnson – 1969, and Jimmy Carter – 1978. Congressional legislation in 1980, ANILCA, enlarged and re-designated Katmai National Monument as Katmai National Park and Preserve.

King Salmon is the closest permanent town to the project area and is the location of Katmai's park headquarters. It is about 9 miles west of the park and approximately 284 miles southwest of Anchorage. The community is on the north bank of the Naknek River on the Alaska Peninsula. A 15-mile road connects King Salmon to Naknek, but there are no road connections to the rest of the state. King Salmon is the main departure point and gateway for Brooks Camp visitors.

Brooks Camp is located in the west-central region of the park, outside of designated wilderness areas. Primary access to the seasonal camp is by floatplane from multiple origins or boat from King Salmon. The camp lies near the outlet of Brooks River, a 1.5 mile long drainage extending from Lake Brooks into Naknek Lake. The Brooks River divides park and concession operations. The area north of the river includes Brooks Lodge and other concessioner and NPS buildings, including the ranger station, maintenance facilities, seasonal housing cabins and tent platforms, a visitor center, auditorium, picnic area, and campground. Utility systems north of the river include a well, the leach field, and electrical power generation system which serve the lodge and NPS operations. The area south of the river includes several bear viewing platforms on the Brooks River. At Lake Brooks, there are NPS employee housing cabins, maintenance facilities, an electrical power generation system, a sewage leach field, and a picnic area.

Brooks Camp was established in the 1950s on the north side of the Brooks River. It is currently open to the visiting public from early June through mid-September and receives approximately 10,000 visitors per year (NPS monthly public use reports). NPS staff is stationed there from April through October, depending on park maintenance projects and weather conditions. Concession staff is stationed there from mid-May through mid-September. The Brooks River is an important migratory and spawning stream for red salmon (*Oncorhynchus nerka*), whose seasonal presence attracts large numbers of brown bears. Over the course of two peak periods in July and September, a total of up to 100 bears will frequent the area to feed on the salmon in the immediate vicinity of Brooks River. The area is listed as the Brooks River Archeological District National Historic Landmark (NHL) in recognition of the importance of the extensive archeological remains preserved there. Important ethnographic and historic resources present at Brooks Camp are being evaluated as a Cultural Landscape.

The site includes a concessioner-operated lodge with a capacity for 64 overnight guests, a campground with a capacity for 60 people, housing for 70 park and concessioner employees, and various support structures. All power, heat, fuel, water, sewer, and road maintenance is provided by NPS. The utility systems were installed in the mid-1970s and have begun to fail, necessitating temporary measures in order to keep Brooks Camp operational.

Brooks Camp does not have road access or an airport. Most visitors and supplies arrive by floatplane with Naknek Lake as the primary landing site and Lake Brooks as the secondary landing site. The community of King Salmon is located approximately 30 miles to the west of Brooks Camp and is the

regional supply hub and the location of park headquarters. Supply access via barge from King Salmon is limited to late June through October, due to winter ice, as well as seasonal fluctuations in water levels that affect navigation. Construction work is complicated by a short construction season, the remote location, limited housing, communications limited to satellite systems, and seasonally concentrated bear activity at the project area.

In 1996, the NPS made the decision to move the camp to a new location, approximately 1.5 miles south of the existing camp. The VRAA is an undisturbed woodland area, substantially away from any current roads or development. Beginning in 2006, the NPS investigated the cost requirements of constructing the new maintenance facility at the Beaver Pond Terrace location. The NPS concluded that it would have been cost prohibitive to construct a new maintenance facility near the Beaver Pond Terrace as depicted in the DCP/EIS and install underground power back to the Lake Brooks facilities using a phased implementation approach. The NPS then studied sites for the maintenance facility and concluded that its planned location was the farthest south along the Valley Road the facility could be located and still meet the power requirements for the Lake Brooks facilities. The clearing of the new maintenance area began in 2007. Construction of the new maintenance facility building will begin in 2010. This site, now known as the VRAA, would also serve as the new staff housing area. The NPS has reviewed Council on Environmental Quality, Department of Interior, and NPS environmental compliance regulations and guidelines and determined that the location of the new support facility is not a substantial change to the DCP/EIS and would not require a supplemental EIS. This project would site support facilities and utility infrastructure in the vicinity of the maintenance facility.

Tent-frame seasonal housing at Brooks Camp

1.3 Park Purpose and Significance

Park purpose statements for Katmai can be viewed in the GMP (NPS, 1986) and DCP/EIS (NPS, 1996). In addition, the DCP contains an overview of the park, preserve, and the Brooks River area. The purpose and significance statements for the Brooks River area as stated in the Katmai National Park and Preserve Foundation Statement (2009a) are:

- *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;*
- *to protect scenic, geological, cultural and recreational features.*

1.3.1 Brooks River Area Purpose Statements

Stemming from the ANILCA legislation, the NPS identified three primary purposes for the Brooks River area: (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 (NPS, 1996).

Brown bears at Brooks River Falls

1.3.2 Brooks River Area Significant Resource Statements

The 1996 DCP/EIS describes the area's significant resources as:

- *Katmai National Park and Preserve contains the largest concentration of protected brown bear populations in the world, many of which can be easily viewed by the public in the Brooks River area.*
- *The Brooks River channel serves as an important spawning area for red salmon. A falls in the river slows salmon migration and concentrates numerous salmon into a small area to be fed upon by brown bears.*
- *The gathering of brown bears to feed on migrating salmon at Brooks Falls provides a world-class wildlife viewing and photography opportunity of brown bears in a natural setting.*
- *Brooks River, Lake Brooks, and Naknek Lake support world-class recreational fisheries for rainbow trout and red salmon. Quality sportfishing opportunities exist in the river and adjoining lakes for Arctic grayling and lake trout.*
- *The immense size of the surrounding landforms, their topographic relief, volcanic and glacial origins, and their active geologic processes, in addition to the many expansive freshwater lakes, make the area an outstanding scenic resource.*
- *The Brooks River area contains an internationally significant concentrations of ethnographic historic and prehistoric cultural remain spanning a 4,500-year period.*

1.4 Laws, Regulations, and Policies

1.4.1 NPS Organic Act and General Authorities Act

The NPS Organic Act of 1916 directed the Secretary of the Interior and the NPS to manage national parks and monuments to:

> "…conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (16 United States Code [USC] 1).

The NPS Organic Act also granted the Secretary of the Interior the authority to implement "rules and regulations as he may deem necessary or proper for the use and management of the parks, monuments, and reservations under the jurisdiction of the National Park Service" (16 USC 3).

The General Authorities Act of 1970 and amendments passed in 1978 to the NPS Organic Act expressly articulated the role of the national park system in ecosystem protection. The amendments further reinforce the primary mandate of preservation by stating:

> "The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the national park system and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided for by Congress" (16 USC 1-a1).

Further, the NPS Organic Act and General Authorities Act prohibit the impairment of park resources and values. The 2006 NPS Management Policies use the terms "resources and values" to mean the full spectrum of tangible and intangible attributes for which the park is established and managed, including the NPS Organic Act's fundamental purpose and any additional purposes as stated in the park's establishing legislation. The park resources and values are intended to be managed so that they continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

Section 4 of this EA contains an evaluation of whether impacts of an alternative would lead to an impairment of park resources. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

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

1.4.2 Other Laws and Regulations

ANILCA, Section 1306 calls for locating NPS administrative facilities on Native land in the vicinity of the NPS when practicable and desirable. For the Brooks Camp administrative facilities, the site is located within the boundary of the conservation system unit. Currently, with the DCP planned move of facilities and functions south of the Brooks River, ample federal land area is available for foreseeable site development. Thus, Section 1306 (b)(2) does not apply; the NPS has no need to acquire additional private real property for this project, including parcels from nearby Native lands.

1.5 Relationship of Proposal to Other Planning Projects

Other plans have been developed for Katmai, which include the 1986 Katmai GMP and the 1996 DCP/EIS. The GMP is a broad planning document, setting general management direction for the park, including direction to develop the DCP/EIS to address management issues in the Brooks River area. Two key statements in the GMP direct that proposed developments would be designed to avoid impacts on the significant known archaeological resources of the area, and to limit conflicts between bears and visitors in the Brooks Camp area.

The DCP/EIS provides analysis and management direction for the Brooks River area of Katmai. It describes future conditions for natural resources, cultural resources, and visitor experience/interpretation. Future conditions that are especially pertinent to this project include protecting and maintaining habitat vital to red salmon and rainbow trout spawning and juvenile development cycles; protecting ecosystem functions; enhancing the visitor experience by focusing visitor use and development in specific areas in order to minimize disturbance to natural, cultural, and scenic resources. This EA implements direction from the DCP/EIS and provides adequate project detail for implementation.

Construction began in 2007 for the maintenance facility (NPS, 2007), located on the south side of the Brooks River, approximately 500 feet south of the intersection of the Valley Road and the road from Lake Brooks to the Lower Viewing Platform (Fig. 2). The project, due to be completed in 2013, consists of a 250 foot by 200 foot gravel yard, approximately 400 feet of access road, a 3,500 square foot maintenance building, and supporting utilities including a new well and septic tank/leach field. It also includes diesel-powered electric generation and bulk fuel storage relocated from the shore of Lake Brooks, with power provided from this new location to the facilities on the shore of Lake Brooks.

A future project is proposed to facilitate implementation of the DCP by construction of an elevated bridge and pedestrian walkway to replace the existing floating bridge across the Brooks River. The Notice of Intent (NOI) to prepare the Brooks River Visitor Access EIS was issued in March 2009. A Record of Decision is projected for 2011. If approved, it is anticipated that project construction would be accomplished in 2013-2014. This project is also evaluating a new location for a NPS barge landing area in a less resource sensitive site, away from bears and out of the view of visitors.

The NPS is proposing to improve the existing Brooks Camp day-use picnic facility in 2010 by constructing a picnic shelter(s), replacing the existing food and gear storage caches, and installing a toilet. The existing picnic area does not provide enough adequate space to meet the needs of day-use visitors. Visitors utilize the concessioner restroom facility during the summer season (June to mid-September) when water and septic systems are available. Since most visitors are required to attend a bear orientation session immediately after arriving and before checking in at the lodge, recreating (ex. fishing, bear viewing), or proceeding to the campground, the facility is not ideally situated under these circumstances. Park staff and visitors also 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 or the campground vault toilet. Replacing the existing unsanitary pit toilet with a new vault/flush toilet at a site adjacent to the existing picnic area would provide park staff and visitors a more centrally located Brooks Camp toilet facility. These facility additions/upgrades would be removed or relocated to the south side of the Brooks River when the NPS determines their use is no longer needed at Brooks Camp. An EA for the proposed picnic area improvements will be developed during the winter of 2009-2010.

1.6 Issues

To focus this EA, specific issues were selected for further analysis and others were eliminated from evaluation. The issues selected for analysis or dismissed were determined through internal scoping with the park and NPS regional staff. The issues are evaluated in Section 4.0, Environmental Consequences.

1.6.1 Issues Selected for Detailed Analysis

Cultural Resources

Consideration of effects to cultural resources is required under the National Historic Preservation Act (NHPA) of 1966 and NEPA. The Brooks Camp area was first listed on the National Register as the Brooks River Archeological district; later its status was elevated to a NHL. The district is now being evaluated as a Cultural Landscape. While the proposed project would move facilities away from the densest concentrations of cultural resources, the proposed utility lines along the Valley Road would be adjacent to an archeologically sensitive area.

Natural Sound

Director's Order (DO) 47 covers soundscape preservation and noise management, affirming the need to preserve and/or restore natural sounds. Natural sounds in the vicinity of the project area could be temporarily impacted by construction and demolition activities. Electric generators and transformers would be located in the project area. Human sounds are concentrated in the developed sites, particularly during the peak use season of the summer months.

Soils and Vegetation

The NPS seeks to maintain the natural vegetation and soils in the park. Existing soil strata and vegetation could be altered or removed and land contours could be changed as a result of construction and demolition activities. New areas could also be impacted; invasive plants could colonize disturbed soils.

Visitor Experience

Visitor use areas are not currently separated from maintenance and administrative facilities. The project would decrease the amount of administrative facilities on the north side of the river. The proposed site for utility and administrative facility construction is not a visitor use site. Visitors on the Valley Road Tour could notice increased human activity on the first part of the road. Facility removal and construction activities could affect visitor use patterns in the area. The project would provide dependable power for visitors to the Brooks Camp area.

Water Resources

The system does not have the redundant leach field that is a current requirement of the Alaska Department of Environmental Conservation (ADEC). If the current system fails, there is a risk to water resources, particularly Naknek Lake. The fuel tanks located in Brooks Camp and Lake Brooks pose a risk of fuel contamination to water resources; locating fuel tanks at the new maintenance facility, away from surface water resources, would reduce risks to water resources.

Wildlife Habitat

One of the key purposes of the park identified in legislation is the preservation of wildlife and habitat. The Brooks River area significant resource statements in particular state that Katmai National Park and Preserve contains the largest concentration of protected brown bear populations in the world, many of which can be easily viewed by the public in the Brooks River area (NPS, 1996). A variety of mammals, birds, and fish utilize the Brooks River in the vicinity of the project area. The proposed project would move some of the human activity and facilities to less sensitive bear habitat. Construction and demolition activities associated with the proposed project could cause animals to disperse from nearby areas. Wildlife habitat could be impacted from facility and utility construction and demolition, including habitat for migratory birds.

1.6.2 Issues Dismissed from Further 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

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 be expected to assist the NPS to reduce the consumption of energy and nonrenewable fuels in the long term, via more efficient operations. Thus, the proposed project would not be expected to contribute to climate change.

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 staff safety, particularly when a substantial amount of daylight is not present during the "shoulder seasons" (April to May and September to October).

Environmental Justice

Executive Order (E.O.) 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 result in changes to human health or the environment with disproportionately high and adverse effects on minority or low-income populations or communities.

Floodplains

E.O. 11988, *Floodplain Management*, requires all federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. The project area is not located within a regulatory floodplain. Surface water bodies (Brooks River, Naknek Lake, and Lake Brooks) are near the project area. The levels of Naknek Lake and the Brooks River fluctuate between early spring and summer. This project is not expected to impact the floodplain and therefore this EA does not address E.O. 11988, *Floodplain Management*.

Subsistence

The ANILCA §810(a) Summary Evaluation and Finding (Appendix A) concluded that the Proposed Action would not result in a restriction of subsistence uses in the project area.

Threatened and Endangered Species

The Endangered Species Act requires an analysis of impacts on all federally listed threatened and endangered (T&E) species, as well as species of special concern listed by the State of Alaska. There are no listed federal T&E species within the proposed project area; however, there is a species of concern (olive-sided flycatcher) that may inhabit the spruce forests around the project area during the summer months. This species has been previously observed within the park along the Valley Road. Although no specific habitat protection plan has been developed by the U.S. Fish and Wildlife Service (USFWS) and/or the State of Alaska, the species itself, along with all other migratory birds, are protected under the

Migratory Bird Treaty Act. Tree removals would not occur between April 10 and July 15. A Steller's eider has been observed along the Lake Camp road. Although not know from Brooks Camp, USFWS protocols would be followed if the species was observed.

Wetlands

E.O. 11990, *Protection of Wetlands*, requires all federal agencies to minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural beneficial values of wetlands in the conduct of the agency's responsibilities for: 1) acquiring, managing, and disposing of federal lands and facilities; 2) providing federally undertaken, financed, or assisted construction and improvements; and 3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. Although wetlands occur throughout the park, the Brooks Camp area has not been mapped under the USFWS National Wetlands Inventory System. The proposed project sites have been surveyed by qualified environmental scientists and the project would not occur in or affect wetlands. Therefore, this EA does not address E.O. 11990, *Wetlands Protection*.

Wilderness

The project area is zoned for development and not within a designated or eligible wilderness area; therefore, this topic was dismissed from further analysis in this EA.

1.7 Permits and Approvals Needed to Implement the Project

The NPS would submit a Consistency Determination letter to the State of Alaska, Department of Natural Resources, to request concurrence that this project is consistent with the standards of the Alaska Coastal Management Program enforceable policies to the maximum extent practicable. This project would also be reviewed by the Lake and Peninsula Borough (L&PB) for provisions under the borough coastal management plan. The NPS would apply for appropriate authorizations and permits identified during the review process.

NPS would obtain permits and approvals required for utility systems and services, including the wastewater project components. The well was included in the *Brooks Lake Maintenance Facility EA* (2007); water permits would be obtained in conjunction with that project.

A Storm Water Pollution Prevention Plan would be completed in accordance with the Alaska Department of Transportation and Public Facilities Storm Water Contractor Guidance for Preparing and Executing Storm Water Pollution Prevention Plans, which would comply with the National Pollution Discharge Elimination System General Permits for Storm Water Discharges from Construction Activities that are classified as Associated with Industrial Activity. This is to comply with Section 402 of the Clean Water Act.

Since the project would not occur in or affect wetlands, a Department of the Army Section 404 permit would not be required.

2.0 ALTERNATIVES

This chapter includes a description of the no action and action alternatives and a brief summary of the impacts of the alternatives. Also discussed are any alternatives and actions that have been considered but dismissed from further analysis. Table 2-3 summarizes the components and attributes of each alternative. Table 2-4 summarizes the predicted impacts for each alternative on the issues of concern.

The Proposed Action and alternatives were developed through an interdisciplinary team process that included tiering from earlier plans, including the 1996 DCP/EIS and 1986 GMP. The process considered regional and Katmai staff recommendations to management. Numerous internal staff discussion and scoping meetings led to the project elements proposed and the concepts considered.

2.1 Alternative 1: No Action Alternative

Under Alternative 1, the NPS would continue to operate, administer, and maintain the existing facilities at the Brooks Camp area of Katmai. No facilities or utilities would be removed or constructed. Existing needs would not be addressed and would likely continue at the present level, or worsen over time as facilities age and degrade. Cultural and natural resources would continue to be threatened. This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the action alternatives.

2.2 Alternative 2: Single Loop Alternative (Proposed Action/Preferred Alternative)

Under Alternative 2, housing would be located on a single loop road, which would be constructed adjacent to the recently constructed gravel pad for the proposed maintenance facility located near the intersection at the beginning of the Valley Road (Figure 3).

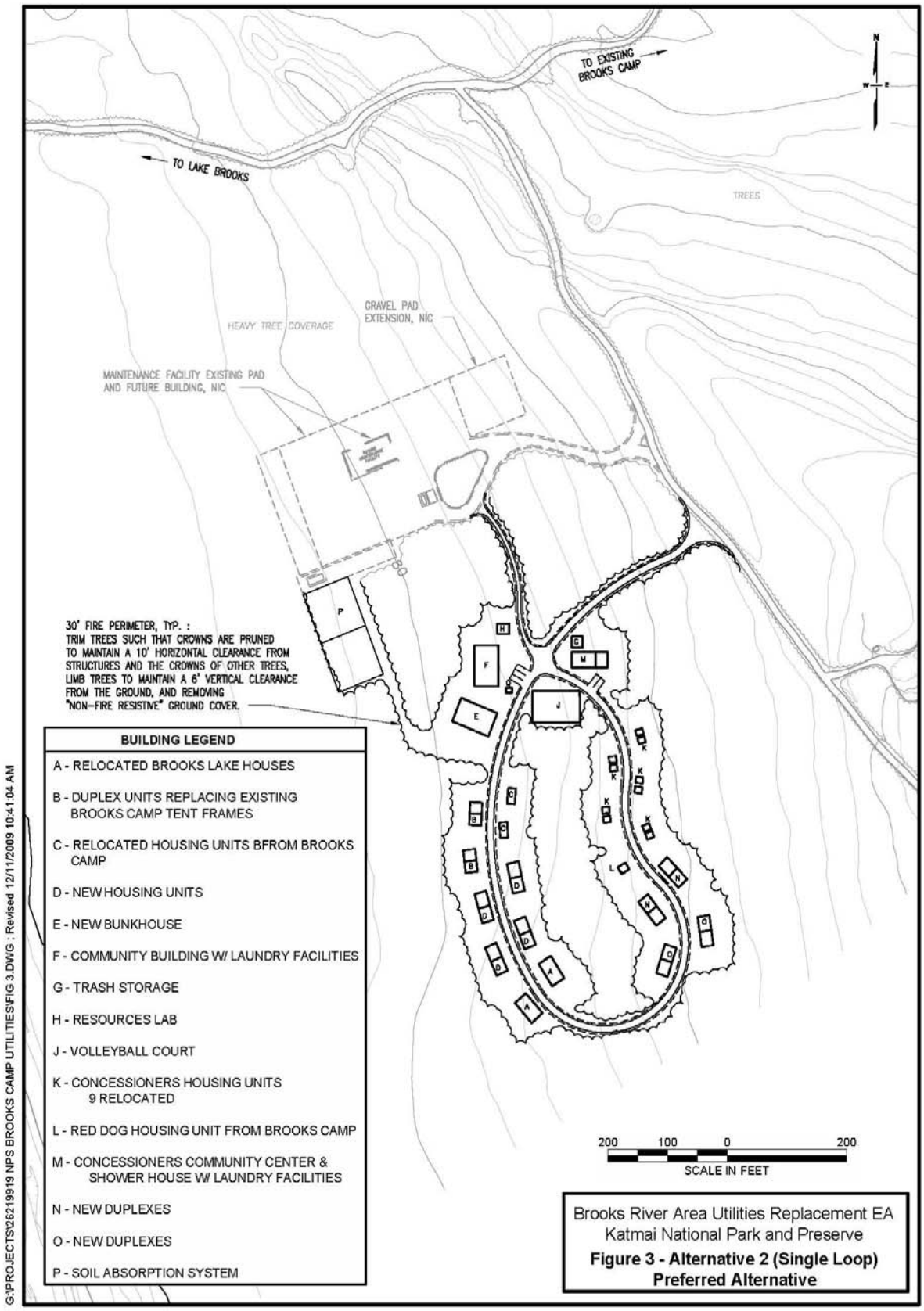
The site design combines two linear layouts that connect in a loop; the west side of the loop would contain service buildings, a community building, and housing for NPS employees, while the east side of the loop would contain building sites and service facilities for the Brooks Lodge concessioner. The design is intended to provide physical and visual separation between the two, while allowing maintenance equipment to pass and utility loops to be created.

This layout incorporates long sweeping curves to enhance visibility for potential bear encounters. The loop maintains its role as an infrastructure corridor, minimizing the impact of development on the forest vegetation. The utilities (water, wastewater, power, heat) would run on a central spine; the building placement on each side of the path would allow branching of the utility lines.

A driveway would connect the head of the loop with the Valley Road. The gravel roadway would be approximately 1, 800 feet long and 11 feet wide and consist of approximately 12 to 16 inches of compacted material over compacted subgrade with an approximate 4-inch cap of compacted D1 gravel. Finish travel way elevations would be built up from the existing grade to provide positive drainage away from the improved areas. Structural fill would be used to construct these travel ways. Structural fill and backfill would be comprised of non-frost susceptible material. The existing gravel pit along the Valley Road would be used as a gravel source.

A utility corridor/foot trail would connect the maintenance facility and the new housing area (Figure 3). The footpath would be approximately 280 feet long and 8 feet wide and consist of approximately 12 inches of compacted material over compacted subgrade with an approximate 2-inch cap of crushed gravel.

The project site would be cleared of the existing trees and stripped of the organic materials only as required for the construction of the access road, housing units, and utilities. Approximate acreage cleared would be 6.1 acres.



Brooks River Area Utilities Replacement EA
Katmai National Park and Preserve
Figure 3 - Alternative 2 (Single Loop) Preferred Alternative

Temporary tent-frame housing, in use for 25-years.

Under this alternative, maintenance facilities and employee housing identified in Table 2-1 would be replaced or relocated from Brooks Camp and Lake Brooks to the new VRAA. The relocation would take place as a sequential process when funding and staff time are available. This process would 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. In addition to the replacement or relocation of existing facilities, new facilities would be added to the VRAA (Appendix B).

Vegetation clearing for building construction or relocation would occur in phases and only when a facility is ready to be sited. A 30-foot fire perimeter would be maintained around all structures. Trees would be trimmed so that crowns would be pruned to maintain a 10-foot horizontal clearance from structures and the crowns of other trees. Remaining trees would be limbed to maintain a 6-foot vertical clearance from the ground.

Table 2-1 lists the proposed facilities for the VRAA. Table 2-2 lists additional Brooks Camp maintenance and housing facilities planned for removal or relocation.

Table 2-1. Proposed Facilities for Valley Road Administrative Area

Facility	Overnight Occupancy	Description
Five housing units	14	Relocate or replace five Brooks Camp cabins. Relocation or replacement would depend on existing cabin condition and ability to move each cabin from Brooks Camp to the new administrative area.
Three housing units	10	Relocate or replace three Lake Brooks cabins. Relocation or replacement would depend on existing cabin condition and ability to move each cabin from Lake Brooks to the new administrative area. Existing historic Lake Brooks fisheries cabin would remain in place.
Bunkhouse	12	Replace Brooks Camp transient housing (existing Yurt and one seasonal wall tent).
Community building	0	Replace existing Brooks Camp community room and laundry room.
Trash storage	N/A	New construction provides a central location to store trash before removal or incineration.
Incinerator	N/A	New construction to incinerate solid waste (trash) at new administrative area
Resources lab	0	New construction provides NPS the ability to base research and resources management activities within the Brooks River area of KATM.
Ten concessioner housing units (no kitchens or bathrooms)	10	Relocate from Brooks Camp and convert 9 double occupancy cabins to single occupancy (one cabin is currently single occupancy)
Four concessioner housing units (8 duplex units)	16	New construction with kitchens and bathrooms to accommodate staff from former double occupancy cabins (see above)
Concessioner community building	0	Community building for concession staff.
Soil absorption system (leach field)	N/A	New construction to provide sewage treatment for administrative area
Vault toilet	N/A	New construction to provide sewage storage during “shoulder seasons” (spring and fall) when water and power are not available. Potentially the facility could be converted to a flush toilet during the summer.

Note: Total occupancy for NPS staff = 44; total occupancy for concession staff = 26

Table 2-2. Additional Brooks Camp Maintenance and Housing Facilities Planned for Removal or Relocation under Current EA

Facility	Description
Primary generator building	Remove generators after VRAA power line is connected to Brooks Camp and rehabilitate building for water treatment functions.
Small generator building	Remove after VRAA power line is connected to Brooks Camp.
Diesel fuel tanks (electric generation)	Remove after VRAA power line is connected to Brooks Camp.
Ranger cache and community room	Remove after new community building is constructed and cache is relocated to another Brooks Camp building.
Outhouse	Remove after new Brooks Camp picnic area vault toilet is constructed.
Food and gear caches	Remove after new food and gear storage building are constructed at the Brooks Camp picnic area.
Historic food cache	Rehabilitate and relocate to appropriate site for visitor interpretation.
Maintenance shop, laundry room, and wash house	Convert to ranger cache and storage after maintenance facility and community building are constructed.
Incinerator	Remove after new incinerator is constructed and solid waste can be safely transported to the VRAA.
Propane, flammables, paint storage buildings/lockers, and other small ancillary structures	Remove after new maintenance facility is constructed.

NPS would determine when individual structures are to be relocated or replaced. Relocated structures would be moved over the existing Brooks Camp road and trail system to the Naknek lakeshore. From there the structures would be transported over the lake to the south side of the river and hauled over the existing Valley Road to the VRAA. Transport operations would occur either when the lake is frozen during the winter months or when lake water levels are high enough to support barge operations in the summer and early fall months. Any structure determined not suitable for relocation would be replaced with a new structure at the VRAA followed by the removal of the existing structure from Brooks Camp.

Alternative 2 includes installation of several utility components: water, wastewater, power, heat, fuel, and fire suppression.

Water

A new water storage and distribution system would be provided to serve the support facilities to be relocated from the existing Brooks Camp to the VRAA on the south side of the river. This system would originate at a well near the maintenance yard (presently under construction). Water from the well would require chlorine treatment. Water distribution systems would be composed of high density polyethylene pipe material. Storage sufficient for potable water would be provided. The system would be designed to accommodate winterization, including shallow bury with drain points, sloping of pipes for drainage, valving to facilitate shut offs, and heating systems to prevent late season freezing.

The initial construction would install the water mainline distribution piping with stub-outs to future structures. This project would install blue posts to locate the end of the water service stubs.

Wastewater

A new wastewater collection system would be provided with septic tank(s) and soil absorption system (leach field) to support facilities at the VRAA. The wastewater pipe material would be high density polyethylene. The approximate size of the primary and alternative soil absorption system leach field's area of disturbance in acres would be 0.4 acres.

Each structure supplied with water service would be equipped with at least a 4-inch sewer service. These sewer service lines would lead to at least a 6-inch main collection pipe that would outfall to the new on-site septic tank and soil absorption system.

The initial construction would install the sewer mainline collection piping with stub-outs to future structures. Green posts would be installed to locate the end of the sewer service stubs.

Power

This alternative would provide new power generation and a new electrical distribution system to serve Brooks Camp and the VRAA. Two 35-kilowatt (kW) diesel-powered generators, as well as bulk diesel and gasoline storage, would be relocated from their present location at Lake Brooks to the new maintenance facility. The generators would be installed in weather-proof and sound-proof enclosures, in close proximity to the heating plant and maintenance facility. As the phased build-out at the new housing area proceeds, the power generation capacity would need to be expanded to meet the increased demands.

The NPS intends to provide 120/208 volt electrical distribution system to facilities in the new housing area to minimize the number of transformers required.

A high voltage electrical line would eventually provide power to Brooks Camp. The line would be placed in a 3-inch conduit and buried to a depth of 24 inches in the Valley Road and the road to Brooks Camp. The line would begin at the maintenance facility and terminate at the bus parking area (Figure 2). About 500 feet from the parking area, the line would be installed in steel conduit buried to a depth of about 6 inches on the north side of the road to avoid affecting archeological resources. Pull boxes would be installed about every 300 feet along the new buried roadside electric line.

At Brooks Camp, a new high voltage electrical distribution line would be installed between the utility building and the lodge office or the fish cleaning building. The line would be buried in 4-inch conduit adjacent to an existing line.

These lines would eventually be connected. The type of river crossing for the utility lines (overhead lines, buried in river bottom, or hung from bridge) would be decided in the decision document for the Brooks River Bridge and Boardwalk EIS.

Whenever feasible, alternative energy sources, including solar and wind, would be used to replace or augment power generated from fossil fuels.

Heat

A central boiler plant would be constructed to circulate a propylene glycol and water solution through a single main distribution loop heating system to virtually all of the facilities proposed to be constructed at or relocated to the new VRAA. The boilers could also be utilized to generate hot water for showers, lavatories, and sinks.

Fuel

Diesel would be used for heating and power generation. Two above ground tanks would be installed to provide storage of diesel to fuel the on-site generator that would supply power for the facilities. The new tanks would be dual wall self-diked welded steel construction with a capacity of 8,000 gallons each (16,000 gallons total). The new 8,000-gallon diesel fuel tanks would replace the existing 4,000-gallon diesel fuel tank relocated from Lake Brooks to the maintenance yard. This increase in diesel fuel capacity would provide generated power to the entire VRAA and Brooks Camp and fuel for vehicles and equipment.

Other fuel types (such as propane) were considered; however, they were not deemed to be feasible. For 100 kW generators at current loading, it is estimated that propane would result in consuming 77 percent more energy than diesel. Further, because the volumetric heat content of propane is 75 percent of diesel,

this would result in 140 percent more gallons of fuel being transported across the lake, or almost 2.5 times as many trips as are presently made. At current rates for fuel, propane costs are almost four times more than diesel for a summer's worth of fuel for Brooks Camp.

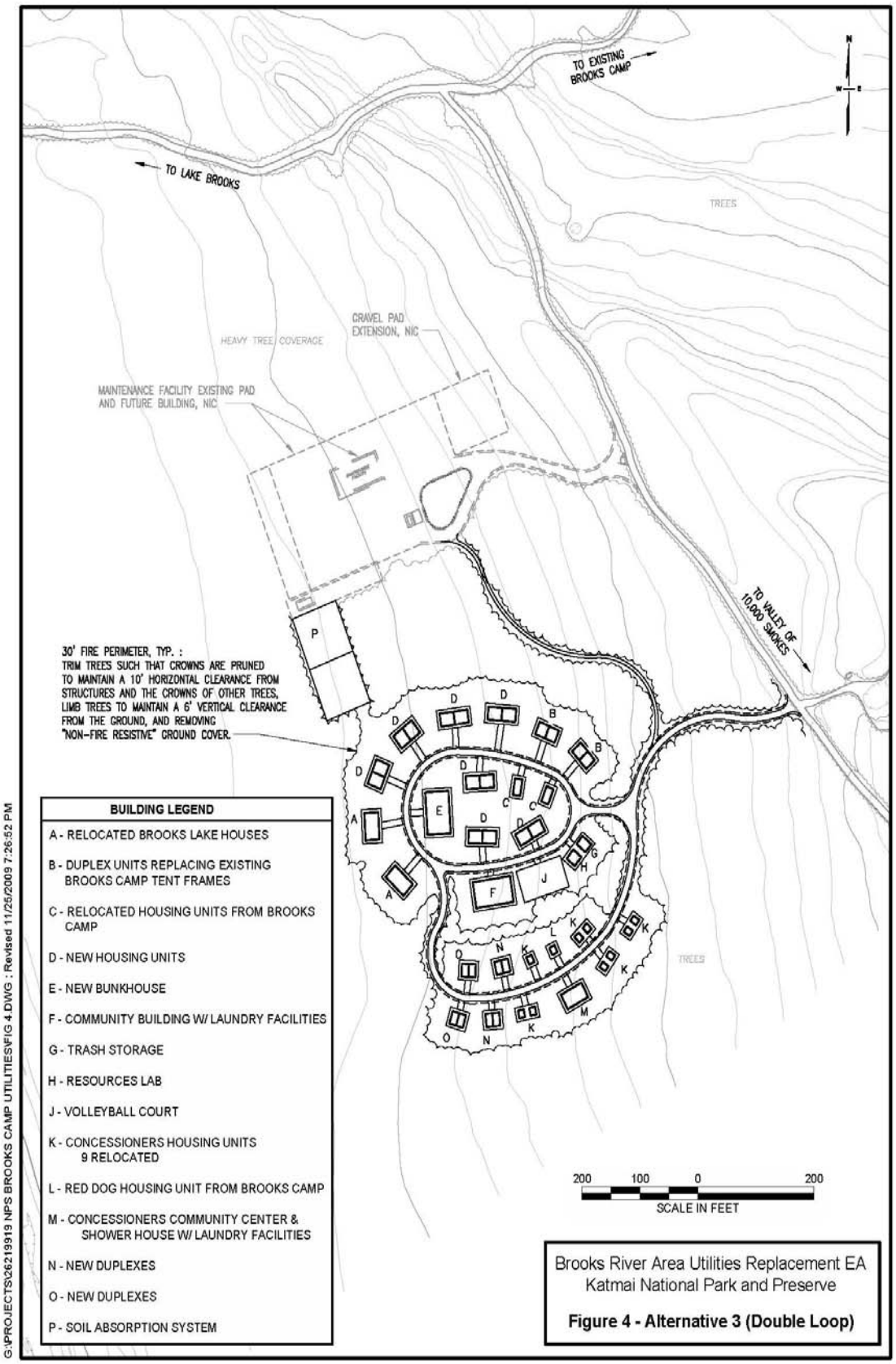
Fire Suppression

A mist system would be installed for fire suppression to protect the new structures. The purpose of clearing around housing units is to create defensible space around structures to comply with fire code regulations. Approximately 6.1 acres would be cleared under Alternative 2.

Brooks Camp cabin

2.3 Alternative 3: Double Loop Alternative

Under Alternative 3, a housing area would be located on a double loop road, which would be adjacent to the recently constructed gravel pad for the proposed maintenance facility, located near the intersection at the beginning of the Valley Road. Connecting spurs would also be constructed to the maintenance building site and to the existing gravel road to the northeast (Figure 4).



Brooks River Area Utilities Replacement EA
Katmai National Park and Preserve

Figure 4 - Alternative 3 (Double Loop)

The site design focuses on consolidating the development and minimizing its footprint. The NPS facilities would be located around the north loop and the facilities for the Brooks Lodge concessioner would be located along the ancillary southern loop. The placement of buildings would follow the loops, with small access paths to the individual building sites. The design is intended to provide physical and visual separation between the two, while allowing maintenance equipment to pass and utility loops to be created.

This layout considers curve design to enhance visibility for potential bear encounters. The loop maintains its role as an infrastructure corridor, minimizing the impact of development on the forest vegetation. The utilities (water, wastewater, power, heat) would run on a central spine; the building placement on each side of the path would allow branching of the utility lines.

A driveway would connect the head of the loop with the Valley Road. The gravel roadway would be approximately 1,950 feet in length, 11 feet in width, and consist of approximately 12 to 16 inches of compacted material over compacted subgrade with a 4-inch cap of compacted D1 gravel. Finish travel way elevations would be built up from the existing grade to provide positive drainage away from the improved areas. Structural fill would be used to construct these travel ways. Structural fill and backfill would be comprised of non-frost susceptible material. The existing gravel pit along the Valley Road would be used as a gravel source.

A utility corridor/foot trail would connect the maintenance facility and the new housing area (Figure 4). The footpath would be approximately 550 feet in length, 8 feet in width, and consist of approximately 12 inches of compacted material over compacted subgrade with a 2-inch cap of crushed gravel.

The project site would be cleared of the existing trees and stripped of the organic materials only as required for the construction of the gravel access and loop road and the individual structures. Approximate acreage cleared would be 5.8 acres.

Under this alternative, maintenance facilities and employee housing identified in Table 2-1 would be replaced or relocated from Brooks Camp and Lake Brooks to the new VRAA. The relocation would take place as a sequential process when funding and staff time are available. This process would 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. In addition to the replacement or relocation of existing facilities, new facilities would be added to the VRAA (see Appendix B).

Vegetation clearing for building construction or relocation would occur in phases and only when a facility is ready to be sited. A 30-foot fire perimeter would be maintained around all structures. Trees would be trimmed so that crowns would be pruned to maintain a 10-foot horizontal clearance from structures and the crowns of other trees. Remaining trees would be limbed to maintain a 6-foot vertical clearance from the ground.

Appendix B lists the proposed facilities that would eventually be sited at the new housing area; the facilities would be the same as for Alternative 2, with only the locations varying. Alternative 3 includes installation of several utility components: water, fire suppression, wastewater, power, heat, and fuel. These components are the same as previously described for Alternative 2.

Table 2-3. Summary of Alternatives

	Description	Attributes	Disturbed Area
Alternative 1 – No Action	No facilities or utilities would be removed or constructed. NPS would continue to operate, administer, and maintain the existing facilities at Brooks Camp.	Existing needs would not be addressed and could worsen over time as facilities age and degrade. This alternative does not address the goals of the 1996 DCP/EIS.	The existing disturbed area, approximately 3.1 acres, in sensitive bear habitat north of the river would remain disturbed.
Alternative 2 – Single Loop Alternative (Proposed Action)	New housing area constructed on a single loop road in the VRAA, adjacent to the gravel pad for the maintenance facility. Single loop gravel road approximately 1,800 feet with approximately 280 feet utility corridor/foot trail connecting the housing area to the maintenance facility site.	Meets goal of 1996 DCP/EIS. Site design combines two linear layouts that connect in a single loop with consideration of physical and visual separation between NPS on the west side and the concessioner on the east side of the loop. Allows maintenance equipment to pass. Layout incorporates long sweeping curves to enhance visibility and safety for bear encounters.	Approximately 267,340 square feet (6.1 acres) south of the river would be disturbed. The existing disturbed area, approximately 3.1 acres, north of the river would be restored.
Alternative 3 – Double Loop Alternative	New housing area constructed on a double loop road in the VRAA, adjacent to the gravel pad for the maintenance facility. Double loop gravel road approximately 1,950 feet with approximately 550 feet utility corridor/foot trail connecting the new site to the maintenance facility site.	Meets goal of 1996 DCP/EIS. Site design consolidates development and minimizes cleared area footprint through a double loop design. NPS facilities would be located around the northern loop and park concessioner's facilities would be located along an ancillary southern loop. Layout incorporates long sweeping curves to enhance visibility and safety for bear encounters.	Approximately 254,235 square feet (5.8 acres) south of the river would be disturbed. The existing disturbed area, approximately 3.1 acres, north of the river would be restored.

Table 2-4. Summary of Alternative Impacts

Impact Topic	Alternative 1 – No Action Alternative	Alternative 2 – Single Loop Alternative (Proposed Action)	Alternative 3 – Double Loop Alternative
Cultural Resources	Potential impacts to cultural resources if Brooks Camp leach field fails. There would be continued impacts to this resource under the No-Action alternative, especially to cultural landscapes if structures and management activities remain/continue at Brooks Camp. Sites continue to be impacted by facility development and maintenance in the National Historic Landmark (NPS, 1996). *Minor contribution to cumulative impacts; minor to moderate overall.*	Reduced potential for impacts to cultural resources; cultural landscapes would be improved through the removal of non-compatible structures from the north side of the river. *Countervailing effects. Overall minor beneficial impact.*	Same as Alternative 2
Natural Sound	No new impacts to natural sound. Existing generator noise north of the river would continue.	Moderate impacts to natural sound. *Minor contribution to cumulative impacts. Overall moderate impact.*	Same as Alternative 2
Vegetation	No new impacts to vegetation. Vegetation north of the river would not be restored.	Localized impacts to vegetation (approximately 6.1 acres). *Minor contribution to cumulative impacts; minor overall.*	Localized impacts to vegetation (approximately 5.8 acres). *Minor contribution to cumulative impacts; minor overall.*
Soils	Potential impacts to soils if infrastructure (leach field) fails. *Minor to moderate contribution to cumulative impacts. Overall minor to moderate impact.*	Localized soil compaction, loss of soil cover, exposure to erosion (approximately 6.1 acres). Reduced risk of soil impacts due to failed infrastructure. *Countervailing effects. Overall minor impact.*	Localized soil compaction, loss of soil cover, exposure to erosion (approximately 5.8 acres). Reduced risk of soil impacts due to failed infrastructure. *Countervailing effects. Overall minor impact.*
Visitor Experience	Potential impacts to visitor experience if infrastructure fails; threat to public health. Human and bear conflict continue (NPS, 1996). *Minor contribution to cumulative impacts. Moderate overall impact.*	Reduced risk of failed infrastructure. Temporary construction impacts to visitor experience. *Minor contribution to cumulative effects. Moderate beneficial overall impact.*	Same as Alternative 2
Water Resources	Potential impacts to water resources if infrastructure fails. *Minor to moderate contribution to cumulative impacts. Minor to moderate overall impact, depending upon severity of system failure.*	Reduced risk of failed infrastructure. Temporary construction impacts of changes to local runoff and drainage. *Countervailing effects. Overall minor to moderate beneficial impact.*	Same as Alternative 2
Wildlife Habitat	There would be continued impacts to brown bear habitat if structures and management activities remain/continue at Brooks Camp. Human and bear conflict continue (NPS, 1996). *Minor contribution to cumulative impacts. Moderate overall impact.*	Localized impact to common wildlife habitat (approximately 6.1 acres). Relocation of facilities to south side of Brooks River would improve management of unique habitat on north side. *Minor contribution to cumulative effects. Overall minor beneficial impact.*	Localized impact to common wildlife habitat (approximately 5.8 acres). Relocation of facilities to south side of Brooks River would improve management of unique habitat on north side. *Minor contribution to cumulative effects. Overall minor beneficial impact.*

Notes: Direct and indirect impact summary in standard text; *cumulative and overall impact summary in italics.* Refer to Chapter 4 of this document for more detailed analysis.

2.4 Environmentally Preferred Alternative

As stated in Section 2.7 (D) of the NPS DO 12 Handbook (NPS implementation guidelines for NEPA), "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).

The No Action alternative, Alternative 1, does not support the goals set forth in NEPA §101.

The single loop alternative, Alternative 2, would address the goals of the 1996 DCP/EIS. Alternative 2 would maintain visual separation between the NPS facilities and the concessioners' facilities while allowing maintenance equipment to pass and utility loops to be created. The long sweeping curves of the single loop in Alternatives 2 are intention to enhance visibility to reduce human/bear encounters. Tight radius turns decrease visibility (Coffman Engineers, 2009). Under Alternative 2, the direct impact of new development to native vegetation would be approximately 6.1 acres.

The double loop alternative, Alternative 3, would address the goals of the 1996 DCP/EIS. Alternative 3 would incorporate sweeping curves to enhance visibility to reduce human/bear encounters. The double loop design minimizes the cleared area footprint; however, NPS and concessioner facilities would be more crowded than in Alternative 2. Under Alternative 3, the direct impact of new development to native vegetation would be approximately 5.8 acres.

Based on having less adverse impact on the environment (5.8 acres), the environmentally preferred alternative in this EA is Alternative 3, the double loop alternative. Alternative 2 is not the environmentally preferred alternative because it would impact 6.1 acres. Alternative 1 is not the environmentally preferred alternative because it would not accomplish the purpose and need of the project. Alternative 2 is the NPS preferred alternative because of aesthetic and functional separation between NPS and concessioner facilities.

2.5 Mitigation Measures

Mitigation measures are specific actions that would reduce impacts, protect park resources, and protect visitors. The following mitigation measures would be implemented by the proposed action alternative and are assumed in the analysis of impacts.

2.5.1 Cultural Resources

To ensure that that each project component complies with section 106 of the National Historic Preservation Act, an archaeological investigation would be completed before ground-disturbing activities would be implemented. NPS cultural resource specialists would conduct a field survey of the proposed sites where ground disturbance would take place. In addition, the descendants of local tribes would be consulted before work would begin.

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 (NRHP). If proposed excavation locations could not be adjusted to avoid adversely affecting eligible cultural resources, the NPS would execute a Memorandum of Agreement with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office that would incorporate comments from consulting parties. The Memorandum of Agreement would specify measures to minimize or mitigate adverse effects. Furthermore, as appropriate, the NPS would abide by provisions of the Native American Graves Protection and Repatriation Act of 1992. Determinations of eligibility could be conducted of historic Lake Brooks maintenance structures to determine appropriate treatment. At present a determination of eligibility is being conducted for the Lake Brooks Maintenance Project. Any artifacts recovered from park property at the project site would be accessioned, cataloged, preserved, and stored in compliance with the NPS Cultural Management Guidelines.

2.5.2 Visitor Experience

Procedural steps would be taken to ensure that project construction and operation would minimally interfere with visitor use of park areas. This would be accomplished by means such as moving most of the materials and accomplishing tasks that may inhibit visitor movement during traditionally lower use time periods.

2.5.3 Wildlife and Wildlife Habitat

The transport of equipment, supplies, and project personnel from Naknek Lake and/or Lake Brooks to the project area and vice versa would be limited to periods of low bear use. Appropriate measures would be taken at the project site and construction crew camp site to ensure equipment, supplies, fuel, food, and trash are properly stored away from bears. This may be accomplished through the use of bear resistant containers and buildings and the installation of electrified perimeter fencing. As much as possible, supplies and equipment would be staged in the vicinity of work areas during periods of low bear use to minimize bear and human interactions.

To avoid the possibility of bears becoming food-conditioned, the NPS would implement solid waste management and fish transport and cleaning procedures for the construction and management of the VRAA. For example, food waste could be contained inside bear-resistant structures and waste containers, leach fields could be enclosed by bear fence, and existing fish transport and cleaning procedures could be employed at new sites.

In accordance with the Migratory Bird Treaty Act (16 USC 703), there would be no tree cutting from April 10th to July 15th in order to protect nesting migratory birds. If Steller's eiders are observed within the project area, proper USFWS protocol would be followed. If species of special concern identified by the State of Alaska and/or by the USFWS are identified within the project area, the USFWS and/or Alaska Department of Fish and Game would be notified, as appropriate.

2.5.4 Natural Sound

To the extent practicable, construction and operation actions would not interfere with the natural sounds of the areas (i.e., bird calls and rustling leaves). On-site machinery would meet manufacturer

specifications for noise emissions. Any machinery imported to the site would be current with necessary maintenance and equipped with current technology to help mitigate noise emissions.

2.6 Alternatives Considered but Eliminated from Detailed Study

Fuel types – NPS selected a diesel powered fuel utility system instead of a propane powered fuel system to maximize fuel efficiency. A Generator Fuel Analysis conducted for NPS determined that at use of propane would result in a 140 percent increase in the number of gallons of fuel being transported across Naknek Lake, or 2.5 times the current number of trips made.

Domestic water – A cast iron pipe system and a ductile iron pipe system were dismissed for use in distribution of domestic water in favor of a more light weight and corrosion resistant material. For winterization of the domestic water system, a compressor driven blown down and freeze resistant solution purge method were dismissed as alternatives in favor of a more cost effective winterization method.

Fire Suppression – A distribution sprinkler system was dismissed as it requires complete infrastructure installation; decreases flexibility for building design changes; increases maintenance, winterization, and water needs; and can only protect one building at a time.

Wastewater – A cast iron pipe system and a ductile iron pipe system were dismissed for use in distribution of sewage in favor of a more light weight and corrosion resistant material.

Power – Supply from the existing Brooks Camp was dismissed as was a new generator sized for a complete build out that would run under-loaded and require increased maintenance. A 277/480 volt distribution to each building site was not selected as it would require individual transformers at each building site.

Heat – A central heating system in a stand-alone building was dismissed as it would not allow for waste heat recovery from generators, require an increase in the quantity of fuel oil piping, and would require fuel oil pumping.

3.0 AFFECTED ENVIRONMENT

3.1 Project Area

The project area consists of the Brooks River area, which contains Brooks Camp, Lake Brooks maintenance area, and the new VRAA (Figure 2). For more information regarding facilities and structures in the area refer to Section 1.2.

Elevations at Brooks Camp range from 42 to 62 feet above mean sea level. Elevations within the project areas range from 46 to 92 feet above sea level. The site is covered by a mixed forest of white spruce and birch and understory vegetation of alder, grasses, and forbs. The groundwater flow is generally to the southeast at Brooks Camp and the drinking water aquifer is not hydraulically connected with shallower aquifers.

The Brooks River area has no road system on the north side of the Brooks River; however, the trails accommodate a variety of small motorized vehicles. Secondary trails within and between facilities (such as the leach field and NPS housing) are approximately 8 to 10 feet in width and are compacted native soils. NPS Brooks Camp employee housing, including wall tents and cabins, is located along a main gravel trail parallel with the lake border and west of the campground. The campground is managed by the NPS and is located at the far northern end of the development. The campground has a strong connection to Naknek Lake, through pathways and view corridors.

Most of the existing structures in Brooks Camp are constructed with a modular log-style building system, relying on milled cedar timbers for walls on an elevated wood-framed platform floor. These systems are well-suited to remote locations due to easy construction, prepackaging for shipment, durability, low maintenance, and a rustic appearance similar to log cabins. Modular log-style buildings have provided consistency with repeated use of recognizable and uniformly-colored material.

The existing maintenance area at Lake Brooks is ecologically similar to the Brooks Camp area and contains primarily bunkhouses, in addition to an old log cabin, a generator, fuel tanks, boat ramp, vault toilet, and maintenance facilities. South of the Brooks River, there is a road that connects the Brooks Camp area, near Naknek Lake, with the Lake Brooks maintenance area (Figure 2). The Valley Road originates from this road. It is a single-lane gravel road, about 23 miles long, which leads to an overlook in the Valley of Ten Thousand Smokes.

3.2 Cultural Resources

The Brooks River area contains the Brooks River Archeological District NHL, and is being evaluated as a Cultural Landscape. The Brooks River Archeological District includes at least 22 discrete National Register listed archaeological sites. The remains of ancient camps and settlements in the form of buried archeological deposits and surface depressions marking semi-subterranean house ruins occur on abandoned beach ridges and terraces along the shores of Naknek Lake, Brooks River, and Lake Brooks. Archeological research along Brooks River defined nine cultural phases, the earliest beginning about 4,500 before present and continues to include the ancestors of the Alutiiq people who inhabit the Alaska Peninsula today. The demonstrated capacity of the Brooks River District to yield unique archeological information for understanding past humans of Alaska is the basis of its NHL designation. Abundant spawning runs of anadromous fish supplemented by terrestrial flora and fauna sustained substantial permanent settlements at Brooks Camp until early historic times when permanent settlements shifted to the Savonoski River and lower Naknek River (NPS, 2007).

An archeological survey took place in 2009 for the placement of a potential power intertie between the VRAA and Brooks Camp.

No ethnographic assessment has been completed for the Brooks River corridor. Ethnographic resources include landscapes, objects, plants and animals, geographic place names, or sites and structures that are important to a people's sense of purpose or way of life. Groups foster preservation of traditional lifeways

by using ethnographic resources to pass beliefs, traditions, and history to new generations through legends or accounts. Historically the area around the mouth of the Brooks River, or Qit'rvik, appears to have been a satellite encampment to the villages along the Savonoski River used primarily as a fishing camp. The encampment contained a few substantial winter cabins located around the mouth of the river. Ethnographic resources that Native peoples associate with Qit'rvik include, but are not limited to the following: red salmon; landscape features such as the beach line, the river mouth, and to a lesser degree the falls; former fish racks, cabin and tent sites, and other historic era habitation sites; selected plants used in the past for medicinal purposes and as food; a few historic era burials; Dumpling Mountain; and Iliuk Arm of Naknek Lake; waterfowl; trapping lines; and dog team stake yards. The ethnographic resources overlap many of the archeological deposits, but ethnographic resources are centered on the Brooks River mouth and adjacent river banks, and the Naknek Lake shore south of the river mouth to near the Beaver Pond. Other ethnographic resources may be present. The Brooks River corridor contains numerous burials that are of extreme ethnographic importance to contemporary people associated with the Brooks River area. Qit'rvik is potentially eligible for listing on the NRHP as a Traditional Cultural Property (NPS, 2007).

3.3 Natural Soundscape

In accordance with DO 47-Sound Preservation and Noise Management (NPS, 2000), an important part of the NPS mission is to preserve natural soundscapes associated with national park units. A soundscape refers to the total acoustic environment of an area. Both natural and human sounds may be desirable and appropriate in a soundscape, depending on the purposes and values of the park. Season, animals, vegetation, climatic conditions, topography, and proximity to water all influence the production and propagation of sounds.

The NPS has developed an inventory and monitoring program that identifies "acoustic zones" within national parks. Acoustic zones are areas of similar vegetation, land cover, topography, elevation, and climate that typically contain similar animals, physical processes, and other sources of natural sounds. The NPS has not yet identified acoustic zones within Katmai.

Natural and man-made sounds in the Brooks River area vary seasonally, with the most activity in the spring and summer. Migratory songbirds such as thrushes, juncos, and the golden-crowned sparrow return in the spring, and mammals such as moose, wolverine, and particularly brown bears become more active with the departure of winter. Winds can rustle the leaves and branches of vegetation, particularly broadleaf varieties such as birch trees. In the vicinity of the Brooks River, Naknek Lake, and Lake Brooks, moving water and fish activity also generate sounds. During storms, waves crashing on the beach of Naknek Lake are frequently heard throughout the entire Brooks Camp area.

Brooks Camp is open seasonally from June 1 to mid-September with many man-made sounds present in the area during this period. The long days encourage 24-hour activity from staff and visitors, resulting in constant summer noise in this very silent natural area. The most common sounds are produced by floatplanes, buses, boats, generators, and the visitors themselves. Most visitors access the remote location by floatplane, with a small number arriving by motorized boat (NPS, 2009b). Supplies are delivered to the camp both by floatplane and boat. Brooks Lodge and cabins host up to 64 visitors a night, while an additional 70 staff (44 NPS and 26 concessioners) are lodged in camp buildings (NPS, 2009c). The campground can accommodate approximately 60 people. The area sees many more day visitors (at peak levels approximately 300 per day), with most using the trail network to explore the area on foot. Both tourist and maintenance vehicles travel the road from Brooks Camp out towards the Valley of Ten Thousand Smokes regularly throughout the day (one bus out and back). Maintenance and construction activities occur seasonally during the summer period, although with less regularity than normal tourist-related activities. Power for the camp is currently provided by generators at Brooks Camp and at Lake Brooks, which produce noise that can be heard in the vicinity. New diesel generators are being installed at the VRAA and are slated to be in use by 2011 (Coffman Engineers, 2009).

The project area is generally quieter in the winter months: bears are hibernating, migratory songbirds have flown south, lakes are typically frozen, and deciduous vegetation is leafless. The relative inactivity and quiet in the winter months is also an integral aspect of the natural sound atmosphere and auditory variance of the area. Ice groaning and cracking during the winter months does produce sounds that are unique to the season. Some mammals (i.e., moose and lynx) and birds (i.e., chickadees) remain throughout the seasons and continue to produce sounds in the area, but the differences in sound levels and variety between the winter and summer months are readily apparent.

3.4 Vegetation and Soils

3.4.1 Vegetation

Katmai lies within the Aleutians Meadow major bioclimatic group, and is more narrowly categorized in the Alaska Peninsula ecoregion (Nowacki *et al*., 2001).

Most of the project area is primarily boreal forest and characterized by a closed or open mixed needleleaf and deciduous forest of white spruce (*Picea glauca*) and Kenai birch (*Betula papyrifera* var. *kenaica*) with an understory of various species of willow (*Salix* spp.) and alder (*Alnus* spp.), as well as high bush cranberry (*Viburnum edule*) (Viereck *et al*., 1992).

In Katmai, an estimated 128,000 acres of open and closed canopy white spruce forest exists, 31,400 acres of which is within a 12-mile radius of the Brooks River. Spruce bark beetles have altered vegetation in the area. Many large spruce trees between employee housing units have been killed in recent years, and there are also many dead spruce trees standing throughout the project area (Coffman Engineers, 2009). Hazard trees are removed by NPS staff each spring.

Introduced species found in the area include shepherd's purse, narrowleaf hawksbeard, pineapple weed, common plantain, prostrate knotweed, white clover, and dandelion. Most invasive plant species found at the Brooks River area may have become established as a result of inadvertent importation by visitors' footwear and other soil-disturbing projects.

<u>Valley Road Administrative Area</u>

This project component would occur in upland habitat, within primarily closed mixed needleleaf and deciduous forest of white spruce, Kenai birch, and black cottonwood (*Populus balsamifera* ssp. *trichocarpa*). Common understory shrub species include Bebb willow, highbush cranberry, and Labrador tea (*Ledum palustre* spp. *decumbens*). Ground cover species include low bush cranberry (*Vaccinium vitis-idaea*), black crowberry (*Empetrum nigrum*), and a thick mat of common mosses (URS, 2009).

<u>Utility Line Route</u>

In addition to passing through upland habitat similar to the VRAA, this project component would also occur outside of and adjacent to open patches of palustrine emergent wetlands (wet meadow) in the western portion of the project along the road to Brooks Camp. These wetlands are dominated by herbaceous species such as bluejoint reed-grass (*Calamagrostis canadensis*), longawn sedge (*Carex macrochaeta*), and Northwest Territory sedge (*Carex utriculata*). Common shrubs in these wetlands include diamondleaf willow (*Salix planifolia*) and Barclay willow (*Salix barclayi*) (URS, 2009).

Shrub communities occur primarily in riparian areas along the Brooks River and at the edges of wetlands. Dominant species include the diamondleaf willow and Bebb willow (*Salix bebbiana*) and thinleaf alder (*Alnus tenuifolia*) (URS, 2009).

3.4.2 Soils

The Brooks River area lies on a low, flat area bounded by Naknek Lake and Lake Brooks, to the east and west. Dumpling Mountain rises 2,440 feet in elevation 3 miles northwest of the Brooks River. A low lying plain extends approximately 5 miles to the south, where the foothills and outlying peaks of the

Aleutian range begin, separating the Brooks River area from the Shelikof Strait Coast. This range contains numerous peaks over 6,000 feet in elevation, many with glaciers and permanent snowfields (NPS, 1996).

The Brooks River area is underlain by largely unconsolidated, surficial deposits, composed primarily of alluvial and glacial gravels. Ash layers throughout the soil horizons and pumice deposits along lakeshores attest to the influence of volcanic activity in the area. The combination of coarse gravels, ash, and organic matter has resulted in well drained soils with minimal surface runoff (NPS, 1996). Simplified geologic maps of the Brooks Camp area of Katmai show mainly unconsolidated river, beach and glacial deposits including till, outwash, and glacial-lake deposits, as well as occasional outcroppings of the Talkeetna formation. This formation consists of interbedded quartz sandstone, volcanic sandstone siltstone, and volcanic tufts and breccia. These formations may be slightly altered and metamorphosed by younger Alaska-Aleutian Range Batholiths (Riehle, 2002).

Ash up to about 30 centimeters (cm) thick forms a surficial layer of soil below the organic mat across the Brooks Camp site. It has high levels of available phosphorous and very small amounts of organic material and nitrogen. Underneath the Katmai ash is the pre-eruption organic layer, 1-2 cm thick. The layer provides excellent material for salvage for revegetation because it has adequate nutrient levels. The layer contains a fine textured (similar to the Katmai ash) deposit from a 1750 eruption (NPS, 2007).

North of Brooks River, the organic mat is generally up to 15 cm thick with a 30 cm of Katmai ash immediately below (NPS, 2007).

The earliest, most deeply buried ash layer is sandy, but is 12 percent organic material and has adequate levels of available phosphorous and total nitrogen. Soils in the project area are well-drained and there is very little evidence of erosion (NPS, 2007).

Naknek and Brooks lakes are the result of glacially-scoured basins. Local glaciation in the Brooks Camp area has had dramatic influence on the lake structures and current arrangement. Glacial moraine damming and sediment-laden waters have contributed to the current structure of the Brooks and Naknek lakes.

3.5 Visitor Experience

The Brooks River area is the most heavily visited site in Katmai, receiving approximately 10,000 visitors annually. The three primary visitor activities that occur in the Brooks River area are observing/photographing bears, sportfishing, and tours to the Valley of Ten Thousand Smokes. Other visitor activities include birdwatching, hiking, and boating, though to a lesser extent than the three primary activities. The summer visitor season begins June 1st and extends through mid-September. 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. The visitor experience is carefully managed to protect the resources that contribute to the quality of that experience. It is estimated the visitor capacity is 260 people per day, though it is estimated at peak levels there are approximately 300 visitors per day. Improving visitor experience is one of the main objectives of the DCP/EIS.

Day visitation has been responsible for the greatest increase in human use of the Brooks River area. Many private lodges, some from as far away as Lake Clark National Park and Preserve, fly a large number of guests to Brooks River for sportfishing and bear viewing opportunities. Moreover, the involvement of major tour companies, 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 into 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.

The Lake Brooks facilities are primarily for administrative and maintenance purposes. However, some visitors use this area for floatplane access. Visitors arriving and departing from Lake Brooks pass through the administrative area, including the vehicle fueling area.

3.6 Water Resources

Brooks Camp is located on the 1.5-mile long Brooks River, which flows from Lake Brooks to Naknek Lake. A fault line (Bruin Bay Fault) bisects the river approximately half way down its length, creating the Brooks Falls, a major visitor attraction for salmon and bear viewing. The Brooks and Naknek lakes and Brooks River form a portion of the Naknek River system, draining 2,660 square miles of the park, eventually flowing into Bristol Bay on the Bering Sea side of the Alaska Peninsula (NPS, 1996).

Water quality of Lake Brooks and the main body of Naknek Lake is clear with clean, gravelly sediments. During an ordinary summer, Naknek Lake does not stratify chemically and thermal stratification is weak. Strong coastal winds generally keep the lake well mixed. Rainwater and snowmelt surface runoff from the areas above the campground and nearby Lake Brooks pit privies could be expected to reach lake waters. The Brooks River area lies within the coastal management zone of the Lake and Peninsula Borough (L&PB) which encompasses all lands and waters within the borough, except for glaciers, active volcanic peaks, and perennially snow-capped mountains (L&PB, 2007).

Naknek Lake is the largest freshwater lake in Katmai. The lake is high in oxygen, and is supported by an abundance of blue-green algae, diatoms, and protozoa. Total dissolved solids are generally higher in relation to other Katmai park lakes, due to nearby glacial and volcanic inputs. Naknek Lake levels increase by as much as 9 vertical feet between summer and fall months, due to receding glaciers, melting snowpack, and frequent precipitation events (NPS, 2009d).

Several large meadows and marshes are located along the lower reach of the Brooks River. Wetlands are common throughout the park and preserve and may be important to water quality of the lakes and streams to which they are hydrologically connected (NPS, 1996).

Brooks Camp obtains drinking water through a nearby well, located approximately 500 feet west of Naknek Lake. Drinking water meets U.S. Environmental Protection Agency and ADEC standards and is routinely treated and tested (NPS, 2009d). Based on the well drained soil types in this area (Section 3.3), groundwater may be hydraulically connected to Lake Brooks, located about 800 feet downslope from the proposed project site.

3.7 Wildlife Habitat

3.7.1 Mammals

The Brooks River area is noted for its outstanding wildlife resources. Salmon runs annually attract large numbers (65-100) of brown bears (*Ursus arctos*) (NPS, 2009b) which take advantage of this abundant food supply. Typically, 40-70 sub-adults and adults are present along with 25-30 cubs. The bears generally remain on the Brooks River during the month of July to feed on migrating salmon before dispersing to other streams. They return in September to feed on spawning and spawned out salmon concentrated in the river. While up to 100 independent bears use the Brooks River annually, some of them are present during only one of these two peak periods while others are present during both. Other mammals in the Brooks River area include bats, moose (*Alces alces*), river otter (*Lutra canadensis*), mink (*Mustela vison*), short-tailed weasel (*Mustela erminea*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), wolf (*Canis lupis*), and wolverine (*Gulo gulo*). Other small mammals inhabiting the surrounding forest and shrublands include red squirrels (*Tamiasciurus hudsonicus*), voles (*Clethrionomys* sp. or *Microtus* sp.), shrews (*Sorex* sp.), red foxes (*Vulpes vulpes*), lynx (*Lynx canadensis*), and showshoe hares (*Lepus americanus*).

3.7.2 Birds

Bird species known to frequent the area are varied and include birds of prey such as bald eagles (*Haliaeetus leucocephalus*), northern goshawks (*Accipiter gentilisi*), and osprey (*Pandion haliaetus*). Common waterfowl species include the common merganser (*Mergus merganser*), the harlequin duck (*Histrionicus histrionicus*), and Barrow's goldeneye (*Bucephala islandica*). Shorebirds include Wilson's snipe (*Gallinago delicate*), spotted sandpipers (*Actitus macularia*), and lesser (*Tringa flavipes*), and greater yellow legs (*Tringa melanoleuca*). Other common bird species include: spruce grouse (*Falcipennis canadensis*); gray jays (*Perisoreus canadensis*), golden-crowned sparrows (*Zonotrichia atricapilla*); American robins (*Turdus migratorius*); varied thrush (*Ixoreus naevius*), and hermit thrush (*Catharus guttatus*); black-capped (*Poecile atricapillus*) and boreal (*Poecile hudsonicus*) chickadees; and dark eyed juncos (*Junco hyemalis*).

Existing Maintenance Facility Under Development at the VRAA

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 1.3.1, 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 intensity (magnitude), duration, and context (extent) of the impact. Summary impact levels (negligible, minor, moderate, or major) are given for each issue. Definitions are provided below.

Intensity

Low:	A change in a resource condition is perceptible, but it does not noticeably alter the resource's function in the park's ecosystem, cultural context, or visitor experience.
Medium:	A change in a resource condition is measurable or observable, and an alteration to the resource's function in the park's ecosystem, cultural context, or visitor experience is detectable.
High:	A change in a resource condition is measurable or observable, and an alteration to the resource's function in the park's ecosystem, cultural context, or visitor experience is clearly and consistently observable.

Duration

Temporary:	Impacts would last only a single visitor season or for the duration of discreet activity, such as construction of a trail (generally less than two years).
Long-term:	Impacts would extend from several years up to the life of the plan.
Permanent:	Impacts are a permanent change in the resource that would last beyond the life of the plan even if the actions that caused the impacts were to cease.

Context

Common:	The affected resource is not identified in enabling legislation and is not rare either within or outside the park. The portion of the resource affected 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 resource affected 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 resource affected uniquely fills a role within the park or its region of the park.

Overall Summary Impact Levels

Summaries about the overall impacts on the resource synthesize information about context, intensity, and duration, which are weighed against each other to produce a final assessment. While each summary reflects a judgment call about the relative importance of the various factors involved, the following descriptors provide a general guide for how summaries are reached.

Negligible:	Impacts are generally extremely low in intensity (often they cannot be measured or observed), are temporary, and do not affect unique resources.
Minor:	Impacts tend to be low intensity or of short duration, although common resources may have more intense, longer-term impacts.
Moderate:	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.
Major:	Impacts are generally medium or high intensity, long-term or permanent in duration, and affect important or unique resources.

Impairment

Impairment of a park resource(s) occurs when a resource would no longer fulfill the specific purposes identified in the park's establishing legislation (or proclamation) or its role in maintaining the natural or cultural integrity of the park, as described in the park's GMP, foundation document, or other significant guiding plan.

Cumulative Impacts

Cumulative impacts are the additive or interactive effects that would result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). Interactive impacts may be either *countervailing* – where the net cumulative impact is less than the sum of the individual impacts or *synergistic* – where the net cumulative impact is greater than the sum of the individual impacts. Cumulative impacts were assessed by combining the potential environmental impacts of the alternatives with the impacts of projects that have occurred in the past, are currently occurring, or are proposed in the future within the Brooks River area. Historically, these cumulative impacts have mainly been due to increased visitor use, in conjunction with the development of administrative and visitor services.

Brooks Camp is the primary visitor use site in the project area. The site receives approximately 10,000 visitors per year, and includes a concessioner-operated lodge, a campground, and housing for park and concessioner employees. In addition, Brooks Camp is at the beginning of the 23-mile road to the Valley of Ten Thousand Smokes – the feature for which the park was created. The approximate number of visitors on the Valley Road is 1,500 a year (2008 concession statistics, plus the estimated number of staff/visitors who do not utilize the bus service). All power, heat, fuel, water, sewer, and road maintenance is provided by the park, and most of the support for these services is based at the Lake Brooks maintenance facilities.

Current maintenance facilities at Lake Brooks consist of several small sheds totaling approximately 2,300 square feet of buildings, and 32,000 square feet of yard space, all located immediately adjacent to the 1-mile road from Lake Brooks to Brooks Camp. Some of these facilities were constructed as early as the 1940s, when the Bureau of Fisheries conducted work in the area. Thus, some structures are potentially eligible for the NRHP.

A bulk fuel storage plant consisting of 5,000 gallons of diesel storage and 4,000 gallons of gasoline storage, as well as a 70- kW power generation facility, are all located within 20 feet of the north shore of

Lake Brooks. All vehicles and road maintenance equipment are parked in the immediate vicinity of these facilities while being serviced or when not in use. Other maintenance equipment and supplies are also stored in this area. While the Lake Brooks facilities are primarily intended for administrative uses, the entire area is visible to the visiting public as they either access floatplanes or hike the area for fishing and bear-watching activities.

Recent Past Actions

Valley Road Administrative Area – Installation of Gravel Pad for Maintenance Facility

In 2007, environmental compliance for the installation of the gravel pad for the new maintenance facility was completed and the site was cleared. During 2008, the access road and gravel pad were constructed. The gravel pad is approximately 250 feet by 200 feet (cover photo), has a 400 foot long access road, and when completed will support the new maintenance facilities.

Present Actions

Maintenance Facility Relocation and Construction

In recent years, as funding has allowed, NPS has taken several steps to address the relocation of park facilities and some maintenance facility operations to the south side of the river to address implementation goals identified in the DCP/EIS (NPS, 1996). In 2008, site development for the new maintenance building area within the VRAA was initiated. This will allow for the planned relocation of the Brooks Camp auto shop and maintenance facilities. The area is intended to eventually serve as the core area for electrical, water and sewer line utilities for the south side of Brooks Camp. In addition, the Lake Brooks generators and fuel storage will be relocated to the new maintenance facility area in an effort to prevent potential problems with lake contamination that exists at the current location. When completed, the new maintenance facility building is expected to be approximately 3,500 square feet. This project is expected to be completed in 2013.

Reasonably Foreseeable Future Actions:

Replacement of the Floating Bridge and Access Trail

The NPS is considering replacing the existing floating bridge and trails to improve access at the Brooks River. As part of this project, NPS is also considering relocating the existing barge landing and access road away from the Brooks River. A new elevated bridge would improve safety and access for visitors and staff and further protect natural and cultural resources of the area. An elevated bridge would be a long-term solution to facilitate the phased move of Brooks Camp facilities from the north side to the south side of the Brooks River, as called for in the 1996 DCP/EIS. A new location for barge and boat landing is proposed as part of this project. At present, barges land on the south side of the Brooks River, at the mouth. Three new landing areas are being considered, all located on the south side of the current landing location along the shore of Naknek Lake. These barge landing locations would be located in less resource sensitive areas away from bears and out of the view of visitors. Construction for this project could begin in 2013 – 2014.

Construction of two Duplexes at the Valley Road Administrative Area

These two new buildings will replace tent frame structures that have been used well past their life expectancy for seasonal employee housing. These structures will be located near the maintenance facility. This will be the first phase of moving NPS residences from the north side to the south side of the river. Preparation for construction is scheduled to begin in 2010.

4.2 Analysis of Impacts

4.2.1 Cultural Resources

Alternative 1 – No Action Alternative

Utilities would not be relocated under Alternative 1 (No Action Alternative) and the project purpose and need would not be met (Section 1.1). Utility replacement needs would not be addressed and would likely continue at a present level, or worsen over time as facilities infrastructure age and degrade. This alternative is not consistent with the 1996 DCP/EIS that calls for replacement facilities to be relocated to the south side of the Brooks River. The existing condition of cultural resources would not be directly altered from implementation of Alternative 1; no soil would be disturbed, and no facilities to support utility replacement would be altered, constructed, or removed. There would be no direct impacts to cultural resources. There would be continued impacts to this resource under the No-Action alternative, especially to cultural landscapes, if structures remain and management activities continue at Brooks Camp. Sites continue to be impacted by facility development and maintenance in the National Historic Landmark (NPS, 1996). Since the No Action Alternative would not result in the relocation of utilities to the south of the Brooks River, this could increase the likelihood of failure of the existing aging and deteriorating utility systems, including the leach field and then potentially cause indirect impacts of high intensity to cultural resources in the vicinity. A permanent loss of cultural resources could potentially occur within the impacted area. The context of this impact is unique as this resource is identified in enabling legislation and the portion of the resource affected uniquely fills a role within the park.

Cumulative Impacts

Past and present actions have likely impacted cultural resources in the project area. Since these past actions and present actions have occurred in one of the richest archaeological areas in Alaska, it is likely that some cultural resources and/or artifacts were impacted. Moreover, many of these past actions occurred on or near lakeshores, which are often culturally sensitive sites. Past and persistent impacts related to these activities include lost opportunities for archaeological survey and cataloguing of some sites. In addition there would be continued impacts to the cultural landscape from the existence of non-conforming structures and continued impacts to archeological resources from the buildings overlaying dwellings and possible burial sites.

Reasonably foreseeable future actions that could occur in the project area are described in Section 4.1. The reasonably foreseeable future action with the most potential influence to cultural resources would be the removal of all facilities north of the Brooks River as set forth in the 1996 DCP. The removal of these facilities would be beneficial and would decrease the impact on an area known to be culturally sensitive. While the removal of these structures could impact the soils and associated cultural resources, archaeological surveys and consultation would likely minimize potential impacts. Replacement of the existing floating bridge and relocation of the barge landing sites could affect cultural resources by further protecting cultural resources that are located along the river banks and at the mouth of the river.

Adverse impacts from prior disturbance to cultural resources from past, present, and reasonably foreseeable future actions would be considered minor to moderate, depending on the magnitude of potential future disturbances. Beneficial impacts to cultural resources from future bridge and barge landing improvements would have a minor countervailing contribution to cumulative impacts (where adverse impacts are offset by beneficial impacts). Indirect effects that could be expected under Alternative 1 would represent a minor to moderate contribution to cumulative impacts that would depend on the magnitude of future utility failures.

Conclusion

Implementation of Alternative 1 would likely have a minor indirect impact to cultural resources depending on the magnitude of potential failure of the aging utility systems. When considered with past,

present, and reasonably foreseeable future actions, the cumulative impact to cultural resources would be minor to moderate under this alternative.

Under the no action alternative there could be potential impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai (e.g., protection of cultural resources) and that are key to the natural integrity of the park and preserve.

Alternative 2 (Single Loop) and Alternative 3 (Double Loop)

Direct and Indirect Impacts

Both Alternatives 2 and 3 meet the objectives of the 1996 DCP/EIS which calls for relocation of all facilities and infrastructure to the south side of the Brooks River area. Implementation of both Alternatives 2 and 3 would likely result in no direct impacts to cultural resources. Utilities would be removed or abandoned in place from areas on the north side of the river that are known to be rich in archeological resources. New utility infrastructure would be located in an area that has a low probability for archeological resources. Prior to construction activities, field surveys of the new facility area would be completed and consultation would occur. Planning efforts in the vicinity of the VRAA area have indicated that archeological resources in this area are minimal in comparison to the north side of the Brooks River. Plans to relocate utilities and installation of buried utility systems along the central spine would not likely penetrate the Katmai ash layer, which acts as a protective layer to cultural resources below. Indirect beneficial impacts of both of these alternatives could include a reduced level of human activity in the vicinity of the relocated utility infrastructure, thereby decreasing impacts to cultural resources on the north side of the river. Relocation of utilities would reduce future threats to cultural resources by relocating infrastructure and eventually housing units to the south side of the river. These indirect impacts to cultural resources would be medium in intensity, but would not change the overall character of the park. The duration of the impacts would be long-term and extend from several years up to the life of the plan. The context of the impact to cultural resources is unique as this resource is identified in enabling legislation and the portion of the resource affected uniquely fills a role within the park.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have had, and will continue to have, moderate impacts to cultural resources in the area. These impacts are described under Alternative 1. The implementation of Alternatives 2 and 3 would result in beneficial indirect impacts to cultural resources as there would be a reduction of human activity near cultural sites on the north side of the river.

The cumulative impacts attributable to the implementation of Alternatives 2 and 3 would be minor and long-term. Due to the reduction in the risk of utility failure at Brooks Camp, indirect beneficial impacts to cultural resources under Alternatives 2 and 3 could represent a minor to moderate countervailing contribution to cumulative impacts.

Conclusion

Implementation of Alternative 2 or Alternative 3 would result in overall minor beneficial indirect impacts to cultural resources from the removal of aging utilities near Brooks Camp. The countervailing (beneficial) effects to cultural resources under both these alternatives would be minor overall. Cultural landscapes would be improved through the removal of non-compatible structures from the north side of the river. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

4.2.2 Natural Soundscape

Alternative 1 – No Action Alternative

Direct and Indirect Impacts

Under implementation of Alternative 1, there would be no direct or indirect impacts to the natural soundscape as no new noise would be introduced or obscured. Therefore, the overall natural soundscape would not change.

Cumulative Impacts

Past, present and future park management actions would continue to affect the soundscape within the Brooks River area. These adverse impacts would be negligible to minor in intensity and short-term in duration depending on the scale of the specific park management action (ex. routine park operations, construction projects).

Conclusion

Implementation of Alternative 1 would not impact the natural soundscape. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

Alternative 2 – Single Loop and Alternative 3 – Double Loop

Direct and Indirect Impacts

Implementation of either Alternative 2 or Alternative 3 would result in nearly identical impacts to the natural soundscape. Both alternatives would result in a temporary increase in noise during the construction period. Additional temporary generators, construction equipment, and construction activities generate noises, which would exist for the duration of the construction phase. Sounds produced in the VRAA would be buffered by forested vegetative cover and would therefore be less intrusive than those produced along the road corridor, where wetlands are present and longer open stretches enable greater propagation of sound. Once installed, the utilities would produce a negligible amount of noise, as transmission lines/pipes would be buried in conduit. The installation of generators at the VRAA would result in a permanent increase in noise levels throughout the otherwise silent area. As facilities are moved and existing generators are phased out, there is potential for a decrease in noise impacts from existing sources. The direct and indirect effects on the natural soundscape would be moderate, due to the medium intensity and long-term duration of the effects on common resources.

Cumulative Impacts

Negligible to minor adverse impacts to the natural soundscape would continue from current and future management activities within the Brooks River area. Past actions have impacted the natural soundscape in the area primarily consisting of increasing human use. The creation and maintenance of administrative and visitor facilities at Lake Brooks and Brooks Camp brought an increased human presence to the area. The majority of human noises in the area are a result of this development. Infrastructure and transportation noises are created by generators, floatplane traffic, shuttle bus traffic, and boat traffic. Visitors frequenting the area generate noise through activities such as hiking, camping, and bear viewing.

Present actions and reasonably foreseeable future actions that contribute to or are likely to contribute to the overall natural soundscape include all current and planned construction activities listed in Section 4.1. These construction activities incorporate the use of construction equipment and require an increased human presence, resulting in a temporary increase in noise. The relocation of accommodations from the existing Brooks Camp to the proposed VRAA could achieve a long-term net decrease in noise at the Brooks Camp area, but a long-term net increase in noise at the VRAA as typical residential noises would accompany any staff migration. Vehicle use associated with transporting people and supplies between the

VRAA and Brooks Camp would result in increased noise levels along the road corridor as well as at both facilities.

The cumulative impacts on the natural soundscape resulting from past actions, present actions, and reasonably foreseeable future actions are considered moderate but temporary during the construction period, and moderate and long-term for areas of increased human use. The impacts anticipated from implementation of Alternative 2 or Alternative 3 would have a minor contribution to cumulative impacts.

Conclusion

Implementation of Alternative 2 or Alternative 3 would result in moderate impacts to the natural soundscape. Impacts would be medium in intensity and long-term in duration. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

4.2.3 Vegetation and Soils

Vegetation

Alternative 1 – No Action Alternative

Direct and Indirect Impacts

Under implementation of Alternative 1, no direct or indirect impacts to vegetation would occur on the south side of the river since no excavation or ground disturbance would take place within the project area. The current developed area on the north side would not be available for revegetation and restoration.

Cumulative Impacts

As no direct or indirect effects to vegetation are expected under Alternative 1, there would be no contribution to cumulative impacts on this resource on the south side of the river. Ongoing impacts to the sensitive habitat on the north side of the river would continue.

Conclusion

Implementation of Alternative 1 would have no impact on vegetation to the south side of the river; however, ongoing impacts would continue on the north side of the river. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

Alternative 2 – Single Loop and Alternative 3 – Double Loop

Direct and Indirect Impacts

Implementation of Alternative 2 or Alternative 3 would cause direct impacts on vegetation. Excavation and construction for the new utility lines would result in the loss of approximately 6.1 or 5.8 acres of vegetation, respectively. Included in this acreage is the area to be cleared for future construction of buildings planned for the VRAA. Vegetation and organic matter would be stripped as required for the construction of the loop road and utility corridor/foot trail. A short stretch of wetlands vegetation would also be disturbed alongside the Valley Road on the south side of the Brooks River, where the utilities would be buried adjacent to the road instead of directly underneath the existing roadbed. The impacts on terrestrial vegetation from the utility upgrades would include: direct loss of native plant cover and a potential reduction in ecological function, such as wildlife habitat, biomass production or carbon dioxide sequestration.

Indirect impacts resulting from this activity include the creation of an area suitable for establishment and propagation of invasive, exotic plant species. Introduction of invasive plant species would be minimized by following best management practices, including power washing and inspection of all equipment

brought to Brooks Camp. Where feasible, topsoil would be conserved for redistribution post-construction; native plant seeds would be collected from the Brooks River area for sowing; and a nursery area would be created on site for temporary storage of vegetation removed from disturbed areas to be replanted following construction. Trampling of surrounding vegetation could also occur during construction activities and beyond due to increased accessibility.

Localized impacts to vegetation would be high, as they would result in the permanent loss of vegetation within the project footprint for the life of the project. However, considering the small amount of regionally common vegetation impacted relative to the size of the region, the impact would be minor.

Areas on the north side of the river would be revegetated and restored once their current functions are relocated to the VRAA.

Cumulative Impacts

Multiple past actions have impacted vegetation in the project area, particularly in the vicinity of Lake Brooks and Brooks Camp. Development of the campground, Brooks Lodge, visitor center, restrooms, store, and guest cabins at Brooks Camp have all required clearing of vegetation. The Valley Road, which allows visitors to access the Valley of Ten Thousand Smokes, and the trail to Brooks Falls have also required clearing. Additional impacts related to these activities have included the creation of social trails and trampling of vegetation, placement of fill in vegetated areas, and unintentional introduction of invasive species. Reasonably foreseeable future actions that could occur within the project area are described in Section 4.1. Any further construction activities would likely result in the loss of additional vegetation and trampling of vegetation surrounding newly cleared areas.

The implementation of Alternative 2 or Alternative 3 would result in a further loss of approximately 6 acres of regionally common vegetation; however, restoration of 3.1 acres is possible north of the river. The cumulative impacts attributable to the implementation of this action would be minor but persistent.

Conclusion

Implementation of Alternative 2 or Alternative 3 would result in direct and indirect impacts to vegetation and soils that would be minor, but long-term. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

Soils

Alternative 1 – No Action

Direct and Indirect Impacts

Under implementation of Alternative 1, no direct impacts to soils would occur since no new excavation or ground disturbance/alteration is proposed. However, indirect effects on soils could occur. Since this alternative would not result in the relocation of existing utilities, this could increase the likelihood of failure of these aging and deteriorating utility systems, including the leach field and fuel tanks, which could potentially cause impacts to soils in the vicinity of Brooks Camp. The risk of soils being impacted by aging utilities would continue to grow with time. These effects could range from low to high in intensity depending on the magnitude of future failures, would be of long-term duration, and common in context.

Cumulative Impacts

Past actions that have impacted soils include the facilities and trails constructed at Lake Brooks and Brooks Camp for administrative, maintenance, and visitor service purposes. Other activities that resulted in loss of vegetation and soil cover include the road connecting Brooks Camp and Lake Brooks, the Valley Road, and Brooks Falls Trail. Impacts related to these activities include creation of social trails

and trampling of soil cover (vegetation), soil compaction, placement of fill in vegetated areas, and channelization of runoff from impervious surfaces and subsequent erosion of soils. The recent construction of the gravel pad and access road for the maintenance facility caused additional disturbance and clearing of top soils.

Reasonably foreseeable future actions that could impact soils include construction of the elevated Brooks River bridge and new buildings associated with the VRAA. These impacts would likely include the direct loss of vegetation or soil cover, and gravel fill placement for building and structural support members. Impacts from these activities would be highest during construction phases.

Impacts on soils resulting from past, present and reasonably foreseeable future actions would be considered minor. They are low in intensity and likely to persist in the long-term, but do not noticeably alter soil function in the park's ecosystem. Indirect effects to soils expected under Alternative 1 could represent a minor to moderate contribution to cumulative impacts, depending on the magnitude of future utility failures. When considered together, cumulative impacts on soils would be minor to moderate under this alternative.

Conclusion

Implementation of Alternative 1 would have indirect impacts to soils ranging from minor to moderate, due to potential failure of aging utilities and fuel tanks. When considered together with past, present, and reasonably foreseeable future actions, impacts on soils would be minor to moderate under this alternative.

There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

Alternative 2 – Single Loop and Alternative 3 – Double Loop

Direct and Indirect Impacts

Implementation of Alternative 2 or Alternative 3 would disturb approximately 6.1 and 5.8 acres of vegetation and shallow subsurface soils, respectively, during excavation and construction for the new facilities and utility lines. Direct impacts on soils would include compaction and direct loss of soil cover in the area of the new facilities, and exposure of soils to localized erosion. Installation of a septic tank and soil absorption system could potentially cause indirect impacts to local subsurface soils over time if overused or not properly maintained. Indirect beneficial effects on soils would occur under these alternatives, however, from the removal of the risk of failure of aging utilities from the Brooks Camp area (such as the existing leach field and fuel tanks) that could otherwise impact soils with time.

Direct impacts from the initial project activities would be highest during construction, but would be reduced by completing the project in phases as proposed. Direct and indirect impacts to soils would be low in intensity, of long-term duration, and common in context. Indirect beneficial impacts to soils from removal of aging utilities could be considered to range from low to high in intensity depending on the magnitude of future failures that might have been expected, would be of long-term duration, and common in context.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions that have had and will continue to have minor impacts to soils in the area are previously described under Alternative 1. The implementation of Alternative 2 or Alternative 3 would directly result in the loss of ground cover on about 6 acres of regionally common soils. The soils that are or would be impacted as a result of past, present, and reasonably foreseeable future actions are a small fraction of those contained in the 4.3 million-acre park. Thus, the implementation of either of these alternatives would contribute a relatively small increase to the soils park-wide. The cumulative impacts attributable to implementation of these alternatives would be minor and long-term. Because of the reduction in risk of utility failure at Brooks Camp, however, indirect

beneficial effects to soils expected under Alternative 2 or Alternative 3 could represent a minor to moderate beneficial contribution to cumulative impacts.

Conclusion

Implementation of Alternative 2 or Alternative 3 would result in roughly the same level of direct and indirect impacts to soils from topsoil removal/excavation and sewage system installation, that are minor overall. However, both alternatives would offer indirect beneficial impacts to soils from removal of aging utilities near Brooks Camp that could be considered minor to moderate overall. The countervailing (beneficial) impacts to soils under these alternatives would be minor.

There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

4.2.4 Visitor Experience

Alternative 1 - No Action Alternative

Direct and Indirect Impacts

Utilities would not be relocated under Alternative 1; utility replacement needs would not be addressed and would likely continue at a present level, or worsen over time as facilities infrastructure age and degrade. The current Brooks Camp facilities and utility infrastructure are in various degrees of deterioration; they are considered to be failing or expected to fail in the future at current use levels, if stop-gap measures are not implemented. Failure of utility systems and infrastructure would directly impact visitor experiences, detracting from enjoyment of the park resources. If visitor use, particularly day trips, increases, this would further load the water, sewage, and electrical systems.

Failure of existing sewer systems (i.e., leach field) would be a threat to public health, impacting visitors as well as park employees and concessioner staff. Sewage system leakage or failure could attract brown bears into the camp and present an increased risk of human-bear encounters. A failure of the electrical system, which had a design life of 20 years and has now been in service for 30 years, also poses a risk to visitor and employee safety and health. A lack of electricity would seriously compromise operations of sewage lift stations and electric fences around visitor and employee cabins, the campground, and the leach field. Overloaded circuits and electrical panels increase the potential risk of short circuiting, meltdowns, and fire. Fire damage could affect unique structures within Brooks Camp.

NPS may have to lower the visitor use levels of the park as utility infrastructure deteriorates. This could adversely affect the park concessioner and local businesses that provide day trips to Katmai. The intensity of this impact to visitor experience could be high and could alter the function of recreation and visitor experience in this area of the park. The duration of such impacts ranges from temporary to long-term, depending on the extent of the utility failure. The context of this impact is unique as visitor experience is identified in enabling legislation and the portion of the resource affected uniquely fills a role within the park.

Cumulative Impacts

Past and present actions have impacted visitor experience in the vicinity of Lake Brooks and Brooks Camp. Development of the campground, Brooks Lodge, visitor center, restrooms, store, and guest cabins at Brooks Camp have accommodated increases in both overnight and day use visitors to the area. The Valley Road, which allows visitors to access the Valley of Ten Thousand Smokes, and the trail to Brooks Falls have increased visitor interest, accessibility, and use of this area of the park. Impacts from construction associated with these actions were temporary disturbances. Day trips to the area have been accommodated primarily by bus tours and fishing or wildlife viewing operations. The impacts associated with past and present actions on visitor use are localized and the integrity of the resource remains. Indirect effects of development have allowed for increased numbers of visitors to be accommodated.

Reasonably foreseeable future actions that could occur are described in Section 4.1. The construction of the elevated bridge across Brooks River and relocation of the barge landing areas would likely have an impact on visitor experience. Impacts during construction would be minor and could include temporary disruptions such as noise, delays, and dust. Upon completion, the replacement bridge would allow for safe and dependable access across the Brook River. The new barge landing area would move administrative activity away from visitor use areas and views.

While many of the past, present, and reasonably foreseeable future actions have provided enhanced visitor services at Katmai, implementation of Alternative 1 would likely reduce visitor services in the area due to the potential for infrastructure failure.

Conclusion:

Implementation of the No Action Alternative would have a direct impact to visitor experience that could be considered moderate, depending upon the magnitude of the potential failure of the aging utility systems. When considered with the past, present, and reasonably foreseeable future actions, the overall impact to visitor experience would be considered moderate and adverse.

The No Action Alternative could potentially impact visitor experience as failure of the deteriorating utility systems could result in impairment of these park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural and cultural integrity of the park and preserve.

Alternative 2 – Single Loop and Alternative 3 – Double Loop

Direct and Indirect Impacts

Implementation of Alternative 2 and Alternative 3 would result in a direct beneficial impact to visitor experience. Construction and excavation activities that would be most disruptive to visitors would be scheduled during low use periods or the shoulder seasons. However, relocation of utility infrastructure and facilities would result in a beneficial impact to visitor experience though more reliable, updated, and safer utilities infrastructure that supports visitor activities. Administrative functions would be gradually phased to move away from the primary visitor use areas. Currently, housing units on the north side of the river are visible, particularly to campers, who walk past these units daily. The proposed construction would be out of the public eye and fewer remaining buildings would give a less developed look to the north side. The impact to visitor experience would be of medium intensity and would extend from several years to the life of the plan. The context of the impact is unique, as visitor experience is identified by enabling legislation and the portion of the resource affected uniquely fills a role within the park.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions that have had and will continue to have impacts to the visitor experience in the area are described under Alternative 1. The implementation of Alternative 2 or Alternative 3 would increase to the amount of developed area in the park by approximately 6 acres. Clearing for development of new utility infrastructure and administrative area would generally be in an area not used by visitors to the Brooks River area. The cumulative impacts attributable to implementation of these alternatives would be minor; the reduction in risk of utility failure and the separation of administrative and visitor use areas would directly benefit park visitors.

Conclusion

Alternative 2 and Alternative 3 meet the objectives of the 1996 DCP/EIS for visitor experience, which calls for relocation of facilities and infrastructure to the south side of the Brooks River area. The overall impact to visitor experience would be a moderate impact to visitor experience, and would be considered to be beneficial. There would be no impairment of park resources that fulfill specific purposes identified

in enabling legislation of Katmai, or that are key to the natural and cultural integrity of the park and preserve.

4.2.5 Water Resources

Alternative 1 – No Action

Direct and Indirect Impacts

Under implementation of Alternative 1, no direct impacts to water resources would occur since no new activities are proposed. However, indirect effects on water resources could occur, related to potential failure of existing facilities. The failing sanitation facilities could contaminate local water quality in the event of a heavy storm or flood. The risk of surface water being impacted by aging utilities would continue to grow with time.

Brooks River is considered a significant park resource, as it serves as an important salmon spawning area and provides a unique area of convergence for brown bear feeding and easy access to viewing by the public. Impacts of the No Action Alternative could range from low to high in intensity (depending on the magnitude of potential future infrastructure failures), would be of long-term duration, and important in context.

Cumulative Impacts

Past and present actions that have or could impact water resources include the facilities, trails, and roads constructed at Lake Brooks, Brooks Camp, and elsewhere in the park for administrative, maintenance, and visitor service purposes; continued use of the floating bridge and barge/boat landing at Brooks River; and the use of Brooks and Naknek lakes by floatplanes and boats. Impacts related to these activities include channelization of runoff from impervious surfaces, soil erosion, possible introduction of contaminants from restrooms, fish cleaning areas, vehicle activity on the bridge, and barge/boat and floatplane traffic. Small amounts of fuel have leaked into both Naknek and Brooks lakes from planes and boats, causing introduction of pollutants such as petroleum hydrocarbons and bioaccumulation of these contaminants in fish. Contaminants in small quantities have had, and would likely continue to have temporary to long-term impacts on area water quality and fisheries resources. Increased numbers of fishermen put additional pressure on these resources.

Reasonably foreseeable future actions that could impact water resources include replacement of the floating bridge across Brooks River with a new elevated bridge, and moving the current barge/boat landing at the Brooks River mouth to a location south along Naknek Lake. Impacts could include the introduction of contaminants or increased sedimentation during construction of structural support members and emplacement of fill, which would be balanced by beneficial impacts from improved protection of natural resources by the new designs and locations further removed from direct contact with the areas of highest concentration of fish and wildlife activity.

Impacts on water resources from past, present, and reasonably foreseeable future actions would be considered minor to moderate, depending on the magnitude of potential future spills from planes and boats. Impacts on water resources from future bridge and barge landing improvements would have a countervailing minor impact. Indirect effects expected under Alternative 1 represent a minor to moderate contribution to cumulative impacts, depending on the magnitude of future utility failures. When considered together, cumulative impacts on water resources would be adverse and minor to moderate under this alternative.

Conclusion

Implementation of Alternative 1 would have indirect impacts to water resources that could be considered minor to moderate overall, depending on the magnitude of potential failure of the aging leach field. Under the No Action Alternative, there could be potential impairment of park resources that fulfill

specific purposes identified in enabling legislation of Katmai (e.g., Brooks River habitat protection) and that are key to the natural integrity of the park and preserve.

Alternative 2 – Single Loop and Alternative 3 - Double Loop

Direct and Indirect Impacts

Implementation of Alternatives 2 and 3 would have negligible direct impacts to surface water in the area of new utilities construction, due to the lack of nearby surface water bodies. The proposed project location lies within a forested area about 800 feet up a gentle slope from Lake Brooks, with no channelized flow in between (Figures 2 to 4). Impacts from construction would include minimal changes to local surficial runoff and drainage patterns. Installation of a septic tank and soil absorption system could potentially cause indirect impacts to groundwater over time if overused or not properly maintained. Installation of new fuel tanks could cause indirect impacts to surface water or groundwater in the event of a large spill, although the likelihood of this occurring is expected to be low due to their dual wall, self-diked design. However, the possibility of fuel spills at Brooks Camp would be reduced after electricity is provided to Brooks Camp from the new VRAA and the existing Brooks Camp generator fuel tanks are removed. Although groundwater beneath the proposed project area may be hydraulically connected to Lake Brooks, the likelihood that future groundwater impacts at the site would reach the lake is low due to proper design and maintenance incorporated into the project plan. Beneficial effects on water resources would occur under these alternatives from the reduced demands on the aging and deteriorating utilities in the Brooks Camp area (particularly the leach field) that could otherwise impact important water resources with time. Direct and indirect impacts to surface water and groundwater would be roughly the same for both Alternatives 2 and 3, and are expected to be low in intensity, temporary to long-term in duration, and important in context.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions that have had and will continue to have impacts to water resources in the area are described under Alternative 1. Impacts on water resources from past, present, and reasonably foreseeable future actions would be considered minor to moderate, depending on the magnitude of potential future spills from planes and boats; and beneficial impacts on water resources from future bridge and barge landing improvements would have a minor countervailing impact. The implementation of Alternative 2 or Alternative 3 would have a minor to moderate, countervailing (beneficial) contribution to cumulative impacts on water resources, due to the reduced risk of leach field failure.

Conclusion

Implementation of Alternative 2 or Alternative 3 would result in roughly the same level of direct and indirect impacts on water resources, which would be considered beneficial, and minor to moderate overall. There would be no impairment of this significant park resource that fulfills specific purposes identified in enabling legislation of Katmai, and that is key to the natural integrity of the park and preserve.

4.2.6 Wildlife

Alternative 1 – No Action Alternative

Direct and Indirect Impacts

Under Alternative 1, no new activity would take place, but existing activities would continue. Brown bears and other wildlife would continue to be impacted in the vicinity of Brooks Camp if housing and infrastructure remained at that location. The potential for bear-human interactions would not be reduced, and the impacts resulting from having residences within prime bear habitat would not be mitigated. Maintaining bear-free areas in the midst of prime bear habitat poses significant challenges which would

persist, and the opportunity for habituation of bears to human activity would continue at the same level. Other wildlife, less tolerant of humans, would continue to avoid the area, as nesting bald eagles have in the past (NPS 1996). The impacts resulting from the No Action Alternative would be medium in intensity, long-term in duration, and important in context.

Cumulative Impacts

Multiple past actions have impacted wildlife habitat in the project area, particularly in the vicinity of Lake Brooks and Brooks Camp. Development of the campground, Brooks Lodge, visitor center, restrooms, store, and guest cabins at Brooks Camp have undergone various levels of wildlife habitat impacts from vegetation removal and facility placements. The Valley Road, which allows visitors to access the Valley of Ten Thousand Smokes, and the trail to Brooks Falls have also required clearing, and contribute to habitat fragmentation. These linear habitat openings create gaps in the continuity of wildlife corridors. Roads and trails also increase the likelihood and interactions between humans and wildlife, which could result in increased wildlife mortality.

Present actions and reasonably foreseeable future actions would likely contribute to wildlife impacts in the area. Removing maintenance facilities near the shores of Lake Brooks would decrease the impact on prime brown bear habitat. The replacement of the floating bridge with an elevated bridge and boardwalk would be designed to reduce bear-human interactions. The implementation of Alternative 1 would have a minor contribution to cumulative impacts.

Conclusion

Implementation of Alternative 1 would continue to have a moderate impact on wildlife in the vicinity of Brooks Camp. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

Alternative 2 – Single Loop and Alternative 3 – Double Loop

Direct and Indirect Impacts

Construction of the new utility and housing area would disturb approximately 6 acres of wildlife habitat. Outdoor construction activities at the proposed project site would primarily occur between April and October. Brush and trees in the previously undisturbed area would be cut after July 15th and before April 10th to avoid impacts to nesting birds and potential violations of the Migratory Bird Treaty Act. If an active nest was encountered at any time, neither the nest nor the young would be destroyed.

Project components would also be scheduled to avoid impacts to bears. Mitigation measures would be implemented (Section 2.5) to minimize bear-human interactions. Activities and vehicular traffic would be limited outside of the direct project site. For example, the transport of materials, equipment, and personnel would avoid periods of high bear activity at the Naknek Lake barge landing and Lake Brooks. All materials and equipment would be transported from boats and planes to the project site in advance and staged immediately within the new maintenance area in order to avoid possible wildlife damage or destruction. Work within the project area could conceivably occur throughout the summer and fall months, so long as standard bear protection measures were followed.

Pedestrian and vehicular traffic flows across the Brooks River floating bridge would increase as a result of relocating park and concession housing to the new VRAA. The primary facilities such as the lodge, campground and primary floatplane landing site would remain on the north side of the river initially, requiring employees to cross the bridge at least four times daily on their commute to and from work and for lunch. The proposed phased nature of the housing relocation would result in a gradual increase in traffic as more housing was relocated to the new site.

Bears, small mammals, and other wildlife such as passerines and raptors could be temporarily displaced due to noise and activities associated with material and equipment transport and facility construction,

causing a short-term adverse impact. Displaced wildlife would not likely have difficulty utilizing adjacent or nearby habitats, as no prime or unique habitat would be lost. Some known wildlife trails would be impacted, as established bear trails exist within and adjacent to the project site (Olsen 2009). However, the abundance of trails and similar habitat in the area would allow bears to find alternate transportation routes.

Common wildlife habitat would be affected for utility relocation, aiding in management of the unique wildlife habitat in the immediate vicinity of the Brooks River. Implementation of Alternative 2 or Alternative 3 would assist in meeting goals identified in the DCP/EIS to relocate facilities and infrastructure to the south side of the Brooks River to decrease impacts on unique wildlife habitat. Impacts to wildlife are expected to be minor in intensity and extent, but would likely persist from several years to the life of the plan.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions that have had and will continue to have impacts to wildlife in the area are described under Alternative 1. Additionally, the implementation of Alternative 2 or Alternative 3 would disturb slightly more than 6 acres of wildlife habitat, a small increase to the amount already being impacted by other activities.

Conclusion

Implementation of Alternative 2 or Alternative 3 would result in impacts to wildlife that would be minor, but long-term. Common wildlife habitat would be affected for utility relocation, aiding in management of the unique wildlife habitat in the immediate vicinity of the Brooks River. There would be no impairment of park resources that fulfill specific purposes identified in enabling legislation of Katmai or that are key to the natural and cultural integrity of the park and preserve.

5.0 CONSULTATION AND COORDINATION

5.1 Agency Consultation and Coordination

The NPS is the lead agency in the development of this EA.

There was no public scoping in the development of this document. NPS policies do not require public scoping during draft document preparation below the EIS level.

This EA will be available for public review and comment for a minimum of 30 days. Following the public review period, all the public comments will be considered.

A final decision by the NPS Alaska Regional Director may come in the form of a Finding of No Significant Impact (FONSI), which would take into account any new information and public comment, and select an alternative to implement. If a FONSI is approved, it would be sent to those individuals and organizations that commented during the public review period, and it would be available on the park's web site (http://www.nps.gov/katm) and the NPS park planning web site (http://parkplanning.nps.gov/).

The NPS has determined that there are no T&E Species expected in the immediate project area; therefore Section 7 consultation with the USFWS is not required.

5.2 List of Preparers

This EA was developed under an NPS contract by URS Group, Inc. of Anchorage, Alaska. The NPS holds final responsibility for all content.

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APPENDIX A

SUBSISTENCE ANALYSIS, ANILCA 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 subsistence uses that could result from the proposed action by the National Park Service (NPS) to construct replacement utility systems and housing units for the new VRAA on the south side of the Brooks River within Katmai National Park. The proposed project would facilitate the relocation of Brooks Camp as described in the 1996 Brooks River Area Development Concept Plan. An environmental assessment was prepared to describe and analyze a no-action and two action alternatives.

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. The monument was increased by Presidential Proclamation in 1931 to include Brooks Lake, Grosvenor Lake, Lake Coville and part of Naknek Lake; in 1942 to include offshore islands within five miles of the monument coastline; in 1969 to include the remainder of Naknek Lake; and in 1978 to include Kukaklek Lake, Nonvianuk Lake, Kulik Lake, Battle Lake, Hammersley Lake, American Creek, Moraine Creek, Funnel Creek, Strike Creek, Kamishak River, and Douglas River.

With the passage of the ANILCA in 1980 the designation of approximately 3.7 million acres of the monument was designated as a national park, and approximately 308,000 acres was designated 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 den 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 Action (EA Alternative 2), a new housing area would be constructed on the south side of the Brooks River at the new VRAA. The housing would be located on a single loop road (EA Figure 3). The project site would be cleared of the existing trees and stripped of the organic materials only as required for the construction of the gravel access and loop road. The existing gravel pit along the Valley of Ten Thousand Smokes Road (Valley Road) would be used as a gravel source. A utility corridor/footpath would connect the maintenance facility with the new housing area (EA Figure 3).

Under this alternative, all maintenance facilities and employee housing identified in EA Table 2-1 would be replaced or relocated from Brooks Camp and Lake Brooks to the new administrative area in a long-term sequential process when funding and staff time are available. This process would consider the operational needs of park management and the concessioner for the time period when facilities are divided between the north and south sides of the river.

Alternative 2 would include the installation of several utility components: water, wastewater, power, heat, fuel, and fire suppression. A detailed description of these systems is located in Section 2.2 of the EA.

IV. AFFECTED ENVIRONMENT

The Brooks River provides spawning habitat for 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/Lake Brooks section of this system. Harvest of salmon generally occurs in the Naknek River downstream of the park boundary.

Subsistence activities are not permitted in Katmai National Park in accordance with ANILCA Title II Section 203; Title VIII Section 816(a); and Title XIII Section 1314(c). However, a limited traditional fishery for "red fish" or spawned-out sockeye salmon by local inhabitants who are descendants of Katmai residents who lived in the Naknek Lake and River Drainage is permitted. This specific traditional activity is authorized under separate legislation, subsequent to ANILCA, in Section 1035 of the Omnibus Parks

and Public Lands Management Act of 1996 (Public Law 104-333) and codified in Section 36 Code of Federal Regulations §13.1204.

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 project, 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 is not expected to reduce wildlife species populations. To protect migratory nesting birds, no tree clearing activities would occur between April 10 and July 15 (U.S. Fish and Wildlife Service advisory).

(b) Redistribution of Resources

The proposed action may temporarily redistribute, displace, or stress subsistence wildlife resources while land clearing and construction activities occur (EA Alternative 2). The minor disturbances to wildlife would be localized within the immediate project area. Impacts from initial land clearing and construction would be relatively short in duration (three to six months during the late spring, summer, and early fall seasons over a period of one to two years - excluding the removal of trees between April 10 and July 15). The transport of labor, equipment, and materials may cause minor disturbances to wildlife inhabiting areas adjacent to the access road between Naknek Lake and the project area (approximately 0.5 mile in length). The relocation and construction of housing units and other facilities (EA Tables 2.1 and 2.2) would occur over a period of 10 to 20 years. This may cause additional minor short-term disturbances to wildlife within the areas previously described.

(c) Habitat Loss

Spruce forests provide suitable habitat for a number of wildlife species, including brown bear, moose, red fox, lynx, coyote, gray wolf, snowshoe hare, and grouse. Approximately 6 of the 95,600 acres of spruce forest within Katmai National Park and Preserve would be permanently loss due to the proposed project. This habitat loss would occur approximately 24 miles southeast of the Preserve.

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:

The proposed action would not limit or restrict current subsistence use patterns within Katmai National Preserve. The proposed action would not limit or restrict traditional red fish fishery activities occurring near the mouth of the Brooks River.

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 availability of other lands outside of Katmai National Park and Preserve has been considered in the 1996 Brooks River Area Development Concept Plan. The proposed action is consistent with NPS mandates. The proposed action would not affect the availability of federal land for subsistence use. No major impact on subsistence uses is expected under the proposed action.

VII. ALTERNATIVES CONSIDERED

Two other alternatives were considered and analyzed in the EA. Under EA Alternative 1(No Action), the NPS would continue to operate, administer, and maintain the existing facilities at Brooks Camp. Under this alternative, existing needs would not be addressed. Park and concession infrastructure and facilities would continue to degrade. Cultural and natural resources would continue to be threatened.

Under EA Alternative 3, a new camp would be constructed at the new VRAA and would consist of a double loop road. The NPS facilities would be located around the north loop and the concessioner facilities would be located along the south loop. The placement of buildings would follow the loops, with small access paths to the individual building sites. As with Alternative 2, the design is intended to provide physical and visual separation between park and concessioner facilities.

VIII. FINDINGS

This analysis concludes that Alternative 2 (proposed action) would not result in a significant impact on subsistence activities.

APPENDIX B

VALLEY ROAD ADMINISTRATIVE AREA FACILITIES

Previously Planned Facilities for the Valley Road Administrative Area (June 2007 Brooks Lake Maintenance Facility EA)

Planned Facility	Description
Maintenance shop (3,500 sq ft)	New construction replaces existing facilities near Lake Brooks. Non-historic facilities will be removed.
Two 35-kw diesel generators	Relocate from Lake Brooks
One 5,000-gal diesel tank and one 4,000-gal gasoline tank	Relocate from Lake Brooks
Utility corridor (electrical and communications)	New construction connects administrative area with remaining structures at Lake Brooks
Potable water well	New construction to provide water for administrative area
Two new cabins. Each cabin of duplex-style design (4 units).	Replace four existing Brooks Camp seasonal wall tents

Proposed Facilities for Valley Road Administrative Area (Current EA)

Facility	Overnight Occupancy	Description
Five housing units	14	Relocate or replace five Brooks Camp cabins. Relocation or replacement would depend on existing cabin condition and ability to move each cabin from Brooks Camp to the new administrative area.
Three housing units	10	Relocate or replace three Lake Brooks cabins. Relocation or replacement would depend on existing cabin condition and ability to move each cabin from Lake Brooks to the new administrative area. Existing historic Lake Brooks fisheries cabin would remain in place.
Bunkhouse	12	Replace Brooks Camp transient housing (existing Yurt and one seasonal wall tent).
Community building	0	Replace existing Brooks Camp community room and laundry room.
Trash storage	N/A	New construction provides a central location to store trash before removal or incineration.
Incinerator	N/A	New construction to incinerate solid waste (trash) at new administrative area
Resources lab	0	New construction provides NPS the ability to base research and resources management activities within the Brooks River area of KATM.
Ten concessioner housing units (no kitchens or bathrooms)	10	Relocate from Brooks Camp and convert 9 double occupancy cabins to single occupancy (one cabin is currently single occupancy)
Four concessioner housing units (8 duplex units)	16	New construction with kitchens and bathrooms to accommodate staff from former double occupancy cabins (see above)
Concessioner community building	0	Community building for concession staff.
Soil absorption system (leach field)	N/A	New construction to provide sewage treatment for administrative area
Vault toilet	N/A	New construction to provide sewage storage during “shoulder seasons” (spring and fall) when water and power are not available. Alternatively, a system that can be converted to a flush toilet during the summer.

Note: Total occupancy for NPS staff = 44; total occupancy for concession staff = 26

Additional Brooks Camp Maintenance and Housing Facilities Planned for Removal or Relocation under Current EA

Facility	Description
Primary generator building	Remove generators after VRAA power line is connected to Brooks Camp and rehabilitate building for water treatment functions.
Small generator building	Remove after VRAA power line is connected to Brooks Camp.
Diesel fuel tanks (electric generation)	Remove after VRAA power line is connected to Brooks Camp.
Ranger cache and community room	Remove after new community building is constructed and cache is relocated to another Brooks Camp building.
Outhouse	Remove after new Brooks Camp picnic area vault toilet is constructed.
Food and gear caches	Remove after new food and gear storage building are constructed at the Brooks Camp picnic area.
Historic food cache	Rehabilitate and relocate to appropriate site for visitor interpretation.
Maintenance shop, laundry room, and wash house	Convert to ranger cache and storage after maintenance facility and community building are constructed.
Incinerator	Remove after new incinerator is constructed and solid waste can be safely transported to the VRAA.
Propane, flammables, paint storage buildings/lockers, and other small ancillary structures	Remove after new maintenance facility is constructed.

Brooks Camp Facilities/Structures Not Scheduled for Removal or Relocation under Current EA

Facility	Description
Auditorium, ranger station (historic), and visitor center (historic)	Remain in place to provide visitor services
Leach field sand filter and pump building	Remain in place to operate the Brooks Camp leach field
Fish freezing building	Remain in place. Building also serves as the pump house for the leach field.
Spill response lockers	Remain in place to provide fuel spill response on Naknek Lake
Concession lodge, guest cabins, and associated structures	Remain in place. Relocation of concession-provided visitor services to be addressed in future environmental compliance.
Campground and associated structures	Remain in place. Relocation of campground to be addressed in future environmental compliance.

APPENDIX C

COASTAL ZONE MANAGEMENT

Consistency Determination for the Brooks River Area Utilities Replacement and Housing Relocation Plan Katmai National Park and Preserve

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 replace water, sewage, and electrical systems at Brooks Camp by relocating them to the new camp on the south side of the Brooks River of Katmai National Park (T. 19S, R. 39W, S. 7 Seward Meridian; 58° 32' 41.8" N / 155° 47' 11.94" 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 Katmai National Park, Brooks River Area Utilities Replacement and Housing Relocation Plan is provided in the attached environmental assessment. Alternative 2 is the NPS preferred alternative.

The following section details the NPS's Consistency Determination analysis by which it was determined that the Brooks River Area Utilities Replacement and Housing Relocation Plan 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 0.5 mile by road from Naknek Lake and Lake Brooks. The new facility would provide operational support to properly manage the Brooks River area of Katmai National Park.

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: The proposed project would not alter surface or ground water drainage patterns. A Storm Water Pollution Prevention Plan (SWPPP) would be completed in accordance with the Alaska Department of Transportation and Public Facilities Storm Water Contractor Guidance For Preparing and Executing Storm Water Pollution Prevention Plans*, which would comply with the National Pollution Discharge Elimination System General Permits for Storm Water Discharges from Construction Activities that are classified as* Associated with Industrial Activity. *The SWPPP would include project best management practices (BMPs) to reduce runoff and avoid water quality impacts. BMPs would include using clean fill material, minimum clearing distances, silt fences, and sediment basins to reduce erosion during construction, dust abatement, and roadside culverts to maintain natural drainage and surface water flow patterns.*

The proposed project would remove approximately six acres of wildlife habitat during construction of the housing facilities and utility lines. 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.

Existing access to the Brooks River area would not be blocked, implementation of the proposed project may temporarily impact visitor use patterns near a portion of the Valley of Ten Thousand Smokes Road adjacent to the proposed project area during construction and rehabilitation activities.

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: The policy would not be applicable since the project would not affect any habitats in the coastal area (The project site is located within an upland area about 0.5 mile from Naknek Lake and about 0.3 mile from Lake Brooks. The facility would be outside of the 100-foot minimum distance from the ordinary highwater mark of anadromous fish waters (Naknek Lake, Lake Brooks, and Brooks River) and would not have any effects on these waters.

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 areas have been surveyed and the National Park Service (NPS) has informally consulted with the SHPO. The NPS has determined that potential cultural resource impacts would not require formal consultation with SHPO beyond the existing Memorandum of Agreement (MOA).

LAKE AND PENINSULA CMP

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 above information the National Park Service finds that the Katmai National Park and Preserve Brooks River Area Utilities Replacement Plan would be consistent with the ACMP and affected coastal districts enforceable policies to the maximum extent practicable.