
National Park Service
U.S. Department of the Interior

Katmai National Park and Preserve
Alaska



Brooks River Area Communications Upgrade and Bear Viewing Web Camera Installation Environmental Assessment

May 2008



Note to Reviewers

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1.0 INTRODUCTION

1.1 Purpose of and Need for Action

The National Park Service (NPS) is proposing to upgrade the existing Brooks Camp communications system and install a real-time web camera at the Brooks Falls viewing platform within Katmai National Park and Preserve (KATM) (Figures 1.1 and 1.2).

The purpose of this project is divided into two parts. First, the project would provide a reliable backbone communications infrastructure to the Brooks Camp facility within KATM for the benefit of staff and visitors. The NPS currently employs hand-held radio and satellite-based communications at Brooks Camp. The radio system is the primary method of communication within Brooks Camp and the surrounding backcountry areas of KATM for park management, law enforcement, emergency response, and search and rescue operations. Within the Brooks Camp area, employees and volunteers occasionally need to relocate their position in order to effectively communicate using the radio communications station on Dumpling Mountain (Figure 1.2) due to terrain, vegetative cover, and weather. Employees and volunteers also communicate to others outside of Brooks Camp via email over the Internet using a commercial satellite system. The satellite system does not provide enough bandwidth for multiple simultaneous Internet connections or the transmission of existing and future video and audio communications. The proposed project would provide backup voice communications between Brooks Camp and King Salmon in the event of primary radio system failure. The communications system would also allow more staff and volunteers to simultaneously access the Internet and communicate outside of Brooks Camp via email with fewer interruptions and delays.

Second, the project would provide a remote link to an NPS partnership that is willing to fund high definition color video transmission of bears feeding at the Brooks Falls area. The partnership consists of the NPS, Pratt Museum, RealNetworks, and National Geographic Society. For the past two years, the National Geographic Magazine's *WildCam Grizzlies* project has been sited at the McNeil River State Game Sanctuary. However, increasing costs for air charters and difficult access make a McNeil-based camera too expensive to install and maintain. Since remote bear viewing has proven to be extremely popular with visitors to the Pratt Museum in Homer and the *WildCam Grizzlies* website, moving the remote camera to Brooks Falls in KATM would allow the partners to continue offering a unique virtual bear viewing experience. The web camera would transmit live high definition (HD) color video of brown bears from Brooks Camp to the Pratt Museum (<http://www.prattmuseum.org>) and onto the Internet through the *WildCam Grizzlies* website (<http://video.nationalgeographic.com/video/wildcamgrizzlies>). Interaction between audience and staff at the Pratt Museum would be improved through a more reliable video/audio transmission and a high definition video output. The partnership has agreed to share the financial requirements of providing broadband connections between the Brooks River area and the park headquarters in King Salmon.

The NPS and other partners would share the initial equipment purchase and installation costs. The Pratt Museum would coordinate the operation of the remote video system, provide museum facilities, and staff time. KATM would provide staff time for program development and interpretation of the video feed at the Museum and for equipment monitoring and maintenance. National Geographic and RealNetworks would provide in-kind staff, software, and hardware associated with Internet programming. National Geographic would also fund the required Internet Service Provider (ISP) bandwidth and related costs.



Figure 1.1. Location of King Salmon and the Brooks Camp Area of Katmai National Park and Preserve and Project Areas 1 to 5 of the Proposed Action.

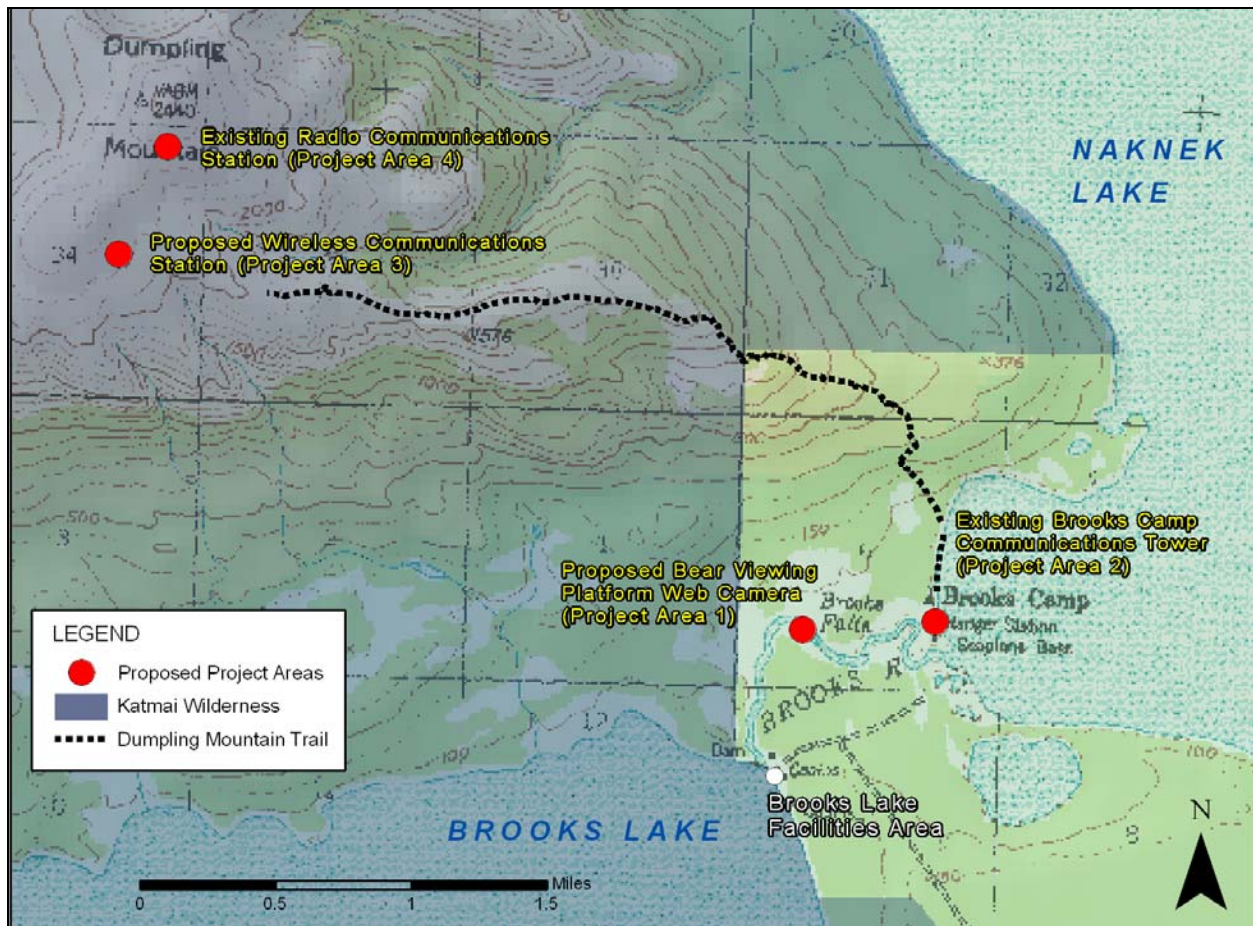


Figure 1.2. Locations of Existing and Proposed Web Camera and Communication Sites within the Brooks Camp Area.

1.2 Background

1.2.1 Park Purpose and Significance

Katmai National Park and Preserve (KATM), encompassing approximately 4.3 million acres, is located at the head of the Alaska Peninsula, about 290 miles southwest of Anchorage. Established as a National Monument in 1918 to preserve the Valley of Ten Thousand Smokes and the landscape associated with the cataclysmic volcanic eruption of 1912, it was expanded over the years by four presidential proclamations, then enlarged and re-designated a National Park and Preserve by the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 (Public Law (P.L.) 96-487). The implementation language of ANILCA stated that KATM is to be managed for the following purposes, among others: to protect habitats for, and populations of, fish and wildlife, including, but not limited to, high concentrations of brown/grizzly bears and their denning areas; to maintain unimpaired the water habitat for significant salmon populations; and to protect scenic, geological, cultural, and recreational features.

1.2.2 Brooks River Area Purpose Statements

Stemming from the ANILCA legislation, the NPS identified three primary purposes for the Brooks River area within the 1996 *Brooks River Area Development Concept Plan* (DCP): (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)

1.3 Laws, Regulations, and Policies

The following laws and associated regulations provide guidance for the development of this EA, design of the Preferred Alternative and alternatives, analysis of impacts, and creation of mitigation measures to be implemented as part of the preferred alternative.

1.3.1 NPS Organic Act and General Authorities Act

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

1.3.2 Wilderness Act

The Wilderness Act of 1964 (P.L. 88-577) was enacted “to establish a National Wilderness Preservation System for the good of the whole people, and for other purposes.” It provided for the review of every roadless area of 5,000 or more acres and every roadless island within National Wildlife Refuge and National Park Systems, and for recommendations about the suitability of these areas for inclusion in the National Wilderness Preservation System. The Act lists criteria for determining suitability of lands for wilderness designation and provides restrictions on activities within a designated wilderness area. ANILCA established seven designated wilderness areas in Alaska, including the Katmai Wilderness, and required the study of non-designated land for wilderness suitability. ANILCA also provided specific use and restriction requirements to designated Wilderness areas within Alaska.

NPS 2006 *Management Policies* provides guidance related to the placement of administrative structures within wilderness. Section 6.3.10.1 of the policies states the NPS may allow park administrative facilities, such as radio and/or cellular telephone antennas, radio repeater sites, and associated storage or support structures in wilderness only if they are determined to be the minimum requirement necessary to carry out the wilderness management objectives and are specifically addressed within the Park’s wilderness management plan or other appropriate planning documents. (NPS, 2006a)

1.3.3 Wireless Communications Policies

Department of the Interior Departmental Manual (DM) Part 375, Chapter 12 (375 DM 12) provides requirements and guidelines for the Information Resources Standards Program. The program coordinates the development, adoption, implementation, and review of information management, automated data processing, and telecommunications standards. The program seeks the most efficient and cost-effective means of standardizing technology for creating, acquiring, cataloging, maintaining, storing, using, processing, disseminating, and disposing of information and the sharing of that information among bureaus, with other Federal agencies, and with the public.

NPS 2006 *Management Policies* provides requirements for the placement of telecommunications sites and the installation of miscellaneous park management facilities. Section 9.4.5 of *Management Policies* states miscellaneous park management facilities will be located and designed to minimize their impact on resources and their intrusion on the visitor experience. Whenever possible and practicable, such installations will be located within developed park areas or outside park boundaries. (NPS, 2006a)

1.4 Relationship of the Proposal to Other Park Planning

The proposed project is related to the roles and functions of park interpretation. The 1986 *KATM General Management Plan* (GMP) states: "Interpretation provides an understanding of the resources of the park and preserve and helps increase visitor awareness and enjoyment. Interpretation and education activities are important to the protection and use of the natural and cultural values of the park and preserve. Professionals and volunteers will carry out these important functions of interpretation and education by using a variety of media to reach park and preserve visitors and the general public." (NPS, 1986)

The proposed project is also related to specific visitor experience and interpretation objectives provided in the 1996 *Brooks River Area DCP*. These objectives include the encouragement of visitors to learn and experience the Brooks River area natural, cultural and scenic resource values and the focusing of visitor use and development in specific areas to minimize resource disturbance. (NPS, 1996)

To improve concession-related communications, the Brooks Camp concessioner, Katmailand, was permitted to install a satellite dish on the Brooks Lodge trading post building in 2007. The satellite service allows the concessioner to communicate directly with their reservation office in Anchorage. This enables the concessioner to better plan for staffing, food deliveries, and lodging services.

The NPS Southwest Alaska Network (SWAN) Inventory and Monitoring Program is proposing to install and maintain a remote weather station on Dumpling Mountain in 2008 as part of a multi-park climate monitoring program in Southwest Alaska. An EA was recently completed and has undergone public review. The EA describes and analyzes a No-Action and Preferred alternative (NPS, 2008). A Finding of No Significant Impact (FONSI) was approved by the Alaska Regional Director in April of 2008.

1.5 Issues

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

1.5.1 Issues Selected for Detailed Analysis

Soils and Vegetation

Small areas of soil and vegetation may be removed during the placement and anchoring of equipment at the new Dumpling Mountain communication site. Section 9.1.3.1 of 2006 *Management Policies* directs the NPS to carefully control ground disturbance and site management to prevent undue damage to vegetation and soils (NPS, 2006a).

Wildlife and Wildlife Habitat

Terrestrial wildlife such as brown bears, small mammals, and passerine birds and their habitats could be affected from the installation and presence of a web camera and communications equipment within the Brooks River and Dumpling Mountain areas of KATM. Section 4.4.1 of 2006 *Management Policies* directs the NPS to minimize human impacts on native plants, animals, populations, communities, and ecosystems, and the process that sustain them (NPS, 2006a).

Cultural Resources

The banks of the Brooks River and its associated series of ancient beach ridges and river terraces are located within the Brooks River Archeological District National Historic Landmark. The NPS is responsible for protecting these resources from physical damage. The National Historic Preservation Act (P.L. 89-665), National Environmental Policy Act (NEPA) (P.L. 91-190), the NPS Organic Act (39 Stat. 535), NPS 2006 *Management Policies*, and NPS 28 – Cultural Resource Management Guideline, require the NPS to consider effects of their actions on cultural resources.

Visitor Experience and Visitation

The most popular bear viewing areas within KATM are along the Brooks River at Brooks Falls and near the mouth of the river where it flows into Naknek Lake. The Brooks River area offers visitors the opportunity to observe large concentrations of Alaskan brown bears in a natural setting and is one of the principal reasons visitors travel to KATM. The Dumpling Mountain area also receives a small number of visitors each year who wish to view the panoramic KATM landscape. Web camera and communications equipment installation activities could temporarily affect the satisfaction of visitors within the Brooks River and Dumpling Mountain areas. The presence of the equipment may also affect visitor experience at Brooks Falls and Dumpling Mountain.

For the purposes of this EA visitation is divided into two parts: physical visitation and virtual visitation. Physical visitation relates to the number of visits to a physical location, such as KATM, Pratt Museum, and McNeil River State Game Sanctuary. Virtual visitation relates to the number of visits to a remote camera viewing station or a specific website, such as the Pratt Museum's McNeil River exhibit in Homer or the National Geographic *Wildcam Grizzlies* website. Each type of visitation may be affected and have an effect on each alternative.

Visual Resources

The placement of a web camera and communications equipment at the Brooks Falls bear viewing platform and the installation of a new communications station on the southeast slope of Dumpling Mountain may affect the visual resources within the Brooks River and Dumpling Mountain areas.

Soundscapes

Section 4.9 of NPS 2006 *Management Policies* directs the NPS to take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural soundscape or other park resources or values. The installation and maintenance of communications equipment on Dumpling Mountain would be accomplished through the use of a helicopter. Helicopter activity noise and additional

sounds created by the proposed project would affect the natural soundscape within the Dumpling Mountain and Brooks River areas.

Wilderness Values

Dumpling Mountain is part of the 3.47 million acre Katmai Wilderness, an area designated by ANILCA in 1980. Section 6.3.5 of NPS 2006 *Management Policies* requires all management decisions affecting wilderness to be consistent with the minimum requirements concept. This concept is a documented process used to determine if administrative actions, projects, or programs undertaken by NPS or its agents and affecting wilderness character, resources, or the visitor experience are necessary, and if so how to minimize impacts (NPS, 2006a). Since the installation and maintenance of communications equipment on Dumpling Mountain would occur within Designated Wilderness and may affect wilderness values, a Wilderness minimum requirements analysis was completed to assess these effects (see Appendix B).

Park Operations

Park staff provides the full scope of functions and activities to accomplish management objectives and meet requirements in law enforcement, emergency services, public health and safety, science, resource protection and management, visitor services, interpretation and education, commercial services, maintenance, housing, and administration. The Park's radio system is a critical component necessary for managing and protecting park resources, in providing for public and employee health and safety, and in accomplishing all park management activities. Park operations may be affected by the proposed project.

1.5.2 Issues Dismissed from Detailed Analysis

Air Resources

The Clean Air Act (P.L. 88-206), NEPA, and NPS 2006 *Management Policies* require consideration of impacts on air resources. Web camera and communications equipment installations and maintenance would require the use of a helicopter to access Dumpling Mountain. Small motor vehicles would also be used to transport equipment and personnel within the Brooks River area. The proposed methanol fuel cells used to power the equipment would produce a minute level of carbon dioxide. The emissions from the use of helicopters, vehicles, and methanol fuel cells would be negligible.

Threatened, Endangered, and Other Special Status Species

The NPS has obtained concurrence with the USFWS that this project would have no effect on federal endangered, threatened or candidate species. Steller's eider (*Polysticta stelleri*) is the only listed species with the potential to occur in the project area. The USFWS has evidence indicating that Steller's eiders, listed as threatened under the Endangered Species Act in 1997, migrate through the region, as some have collided with a road power line off the west end of Naknek Lake. They are thought to migrate through the region, probably flying at night. The USFWS has requested that mitigation be followed so that if Steller's eiders are seen in the project areas, the project would not proceed while they are present.

Floodplains and Wetlands

The proposed web camera installation would be part of the existing Brooks River elevated bear-viewing boardwalk and platform structure. This structure is located within the Brooks River 100-year floodplain, which is defined by Executive Order 11988 – Floodplain Management, as an area that may be inundated at least once within a 100-year period. The structure is associated with day-use only activities and therefore is considered as an excepted action under Executive Order 11988 and NPS Procedural Manual 77-2: Floodplain Management Guidelines. The Dumpling Mountain and King Salmon project areas are not located within a 100-year floodplain. No wetlands are located within any of the project areas.

Socioeconomics

Equipment and materials would be purchased from sources outside of the King Salmon area. Local aircraft would provide transportation of equipment and personnel from King Salmon to Brooks Camp and Dumping Mountain. Any related impacts on the local economy would likely be short-term, negligible, and beneficial due to the small size and duration of the project.

Subsistence

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

ANILCA Section 1306

ANILCA Section 1306 calls for locating NPS administrative facilities on Native land in the vicinity of NPS units when practicable and desirable. The proposed web camera installation and communications upgrade project requires site-specific locations (Brooks Falls and Dumping Mountain) within the Brooks River area of KATM. Since no adjacent Native lands meet these site-specific requirements, the proposed project would occur within KATM (ANILCA Section 1306(a)(1)).

Minority and Low-Income Populations

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

1.6 Permits and Approvals Needed to Implement the Project

National Telecommunications and Information Administration (NTIA)

Under the Communications Act of 1934 (47 USC 151 et seq.), the Federal Communications Commission (FCC) licenses spectrum use within the United States by all parties except Federal Government agencies. NTIA, through its Office of Spectrum Management, assigns frequencies to Federal Government spectrum (radio and wireless) users under authority delegated from the President, through the Secretary of Commerce. The NPS would follow NTIA Wireless Communications and Radio Spectrum Policy and receive spectrum use approval for the proposed wireless communications upgrade prior to installation and use.

State of Alaska Coastal Management Program

The NPS would consult with the State of Alaska Coastal Management Program (ACMP) to ensure the proposed project is consistent with ACMP standards and would have no effects on the uses or resources of the coastal zone.

2.0 ALTERNATIVES

2.1 Introduction

This chapter describes two reasonable alternatives, the Proposed Action alternative and the No Action alternative. Table 2.1 provides a summary and comparison of the No-Action and the Proposed Action alternatives and their environmental impacts.

The NPS selected suitable locations for the upgrade and maintenance of wireless communication and web camera infrastructure using a systematic process to maximize operational capability and minimize adverse environmental impacts. The process is based on a “line of sight” requirement between the web camera and wireless communications antennas within KATM and King Salmon (Figures 1.1 and 1.2). Additional site considerations included the assessment of existing communication infrastructure within the Brooks Camp area, site topography, equipment installation and maintenance responsibilities, web camera and communications power supply alternatives, and impacts the equipment would have on brown bears, Wilderness values, and other environmental resources.

2.2 Alternative A: No-Action (Environmentally Preferred Alternative)

Under the No-Action alternative, upgrading the existing Brooks Camp communications system and the installation of a web camera at the Brooks Falls bear viewing platform would not occur. Brown bears within the Brooks Falls viewing platform area would not be viewed remotely on the Internet. Park staff would continue to use the existing satellite-based communications system. This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the Proposed Action. Chapter 3 - “Affected Environment” describes existing Brooks Camp communications infrastructure and functions.

2.3 Alternative B: Proposed Action – Upgrade Existing Brooks Camp Communications System and Install and Maintain Web Camera and Associated Equipment at the Brooks Falls Bear Viewing Platform.

Under the Proposed Action alternative, the NPS would upgrade the existing Brooks Camp communications system and install and maintain a real-time web camera at the Brooks Falls viewing platform within KATM. Initial equipment installations would occur during a one to two-day period in June of 2008. After the equipment is installed, live video from the web camera would be sent directly to the Pratt Museum in Homer, Alaska and the RealNetworks headquarters in Seattle, Washington. RealNetworks would send the video feed to the National Geographic *Wildcam Grizzlies* website.

2.3.1 Web Camera and Communications System Installation Components

The proposed web camera and wireless communications system installations and upgrades would occur within four areas of KATM and at the King Salmon park headquarters. The system would consist of a compact microwave link optimized for data and voice communications with a maximum transfer rate of 45 megabytes per second (mbs).

The Brooks Falls bear viewing platform, Brooks Camp headquarters communications system, and the King Salmon headquarters communications system are located outside of Designated Wilderness. The proposed Dumpling Mountain communications station and existing Dumpling Mountain radio repeater station are located within Designated Wilderness (Figure 1.2).

2.3.1.1 Brooks Falls Bear Viewing Platform Web Camera Installation (Project Area 1)

The web camera installation at the Brooks Falls bear viewing platform would consist of three major components: web camera, antenna, and power supply. Installation components, tools, and personnel would be transported from King Salmon to Brooks Camp by fixed-winged aircraft, then by small vehicle to the entrance of the boardwalk/viewing platform. Transport of installation components and tools to the falls bear viewing platform project area would occur on foot (Figure 2.1). The installation of the web camera, antenna, and power supply would avoid or minimize possible impacts to wildlife, visitors, and visual resources within the Brooks Falls area.

Web Camera

The web camera, which is capable of transmitting high quality color video images with zoom, pan, and tilt capabilities. The camera would be located at the northeast corner of the Brooks Falls bear viewing platform at a minimum height of 10' above the ground (Figure 2.2). The camera would be attached to a support bracket and mounted on the platform's railing supports. If necessary, a protective enclosure approximately 12" by 12" by 12" in size would be constructed of materials matching the color of the existing bear viewing platform and installed around the camera. The enclosure would not obstruct the camera's zoom, pan, and tilt capabilities. Electrical power and communications cables would be connected to the camera and secured under the elevated boardwalk leading to the covered assembly area for an approximate distance of 400 feet (Figures 2.1 and 2.3).

Antenna

The antenna would consist of one 24" by 24" square antenna attached to a 10' to 15' high pole. The antenna would transmit video from the web camera to the Brooks Camp wireless communications system (Project Area 2) while web camera control functions would be transmitted in the opposite direction. The antenna pole would be mounted to and extend above the covered assembly area (Figure 2.3). The antenna would be connected to the power supply and web camera communications cable. The wireless signal transmitted by the communications equipment would consist of a Super High Frequency (SHF) microwave signal within a 5 gigahertz (GHZ) range. This signal would not interfere with existing Brooks Camp radio communications, which transmits on a Very High Frequency (VHF) radio signal between 148 and 175 megahertz (MHZ). (Gillett, 2008).

Power Supply

The web camera and antenna would be powered primarily by a methanol fuel cell system. Solar panels would provide backup power. The methanol fuel system would consist of a 17" by 8" by 11" fuel cell, multiple fuel cartridges totaling 15 to 20 gallons of methanol, and eight lead-gel batteries. The fuel cell would convert liquid methanol to energy and release carbon dioxide as a by-product. The methanol fuel system would be installed in the covered assembly area (Figure 2.3) within a labeled fire-resistant enclosure (approximately 3' x 2' x 2' in size) and include a spill containment system. The methanol fuel cartridges would be placed in a sealed fire-resistant compartment within the enclosure. The enclosure would be installed in a location which avoids pedestrian traffic flow and emergency egress within the covered assembly area. A dry-chemical fire extinguisher would be mounted and made accessible within the covered assembly area. The 15 to 20 gallons of methanol would power the web camera and antenna continuously throughout the bear viewing season (June to September) without the need of refueling. The power supply enclosure would be designed, installed, and maintained in accordance with NPS health and safety and structural fire protection regulations and policies.

One to two solar panels, each approximately 47" by 21" in size, would be installed on the roof of the covered assembly area (Figures 2.1 and 2.3). The solar panels would be positioned to maximize solar

power collection and minimize possible reflection and glare impacts on wildlife and visitors. The solar panels would be wired to the same lead-gel batteries used in the methanol fuel cell system.



Figure 2.1 Brooks Falls Bear Viewing Platforms.

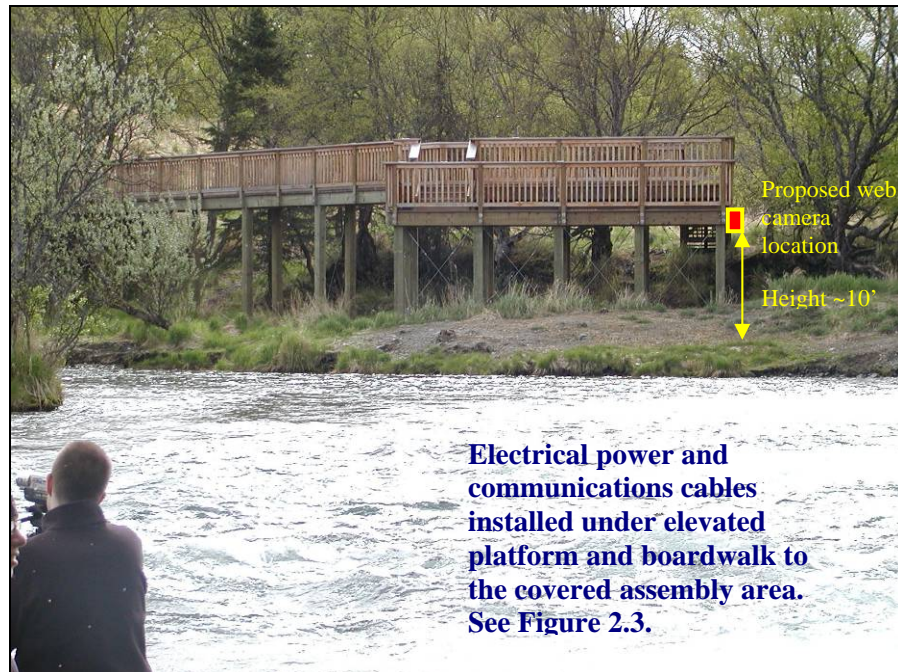


Figure 2.2. Proposed Location of Web Camera Placement on the Brooks Falls Platform.



Figure 2.3. Elevated Boardwalk Covered Assembly Area.

2.3.1.2 Brooks Camp Communications Systems Upgrades (Project Area 2)

To accommodate the wireless signal being transmitted to and from the Brooks Falls bear viewing platform web camera and to allow for more reliable and faster Brooks Camp communications, a 24" by 24" square antenna or a 36" diameter dish antenna would be installed on the communications tower located on the existing Brooks Camp maintenance, bath house, and laundry room facility. The antenna would be powered by the existing Brooks Camp electrical system. Installation components, tools, and personnel would be transported from King Salmon to Brooks Camp by fixed-winged aircraft, then by either small vehicle or on foot to the communications system project area.

2.3.1.3 Dumpling Mountain Communications Station Installation (Project Area 3)

In order to successfully receive and transmit wireless web camera video and communications between Brooks Camp and the existing Dumpling Mountain radio repeater communications station, a relay station would need to be installed within Designated Wilderness below the summit of Dumpling Mountain on the slope overlooking the Brooks River area (Figure 1.2). The existing radio repeater communications station is not located within a required "line of sight" for wireless communications to be successfully transmitted.

The communications station would consist of a 4' by 4' footprint positioned at an approximate elevation of between 2,000 and 2,400 feet on the southeast facing slope of Dumpling Mountain. The station would consist of a bear-resistant metal enclosure 4' by 4' by 4' in size, two 10- to 15-foot antenna towers attached to each side of the enclosure, and two 85-watt solar panels attached to the top of the enclosure (Figure 2.4). The enclosure and antennas would be secured to the ground using four duckbill earth anchors attached to steel cables. Each anchor would be inserted approximately two feet into the ground. The enclosure would hold eight lead-gel batteries. Two 24" by 24" square antennas or one 24" by 24" square antenna and one 36" diameter dish antenna would be attached to the tower. Installation components, tools, and personnel would be transported from King Salmon to the project area on Dumpling Mountain by helicopter.

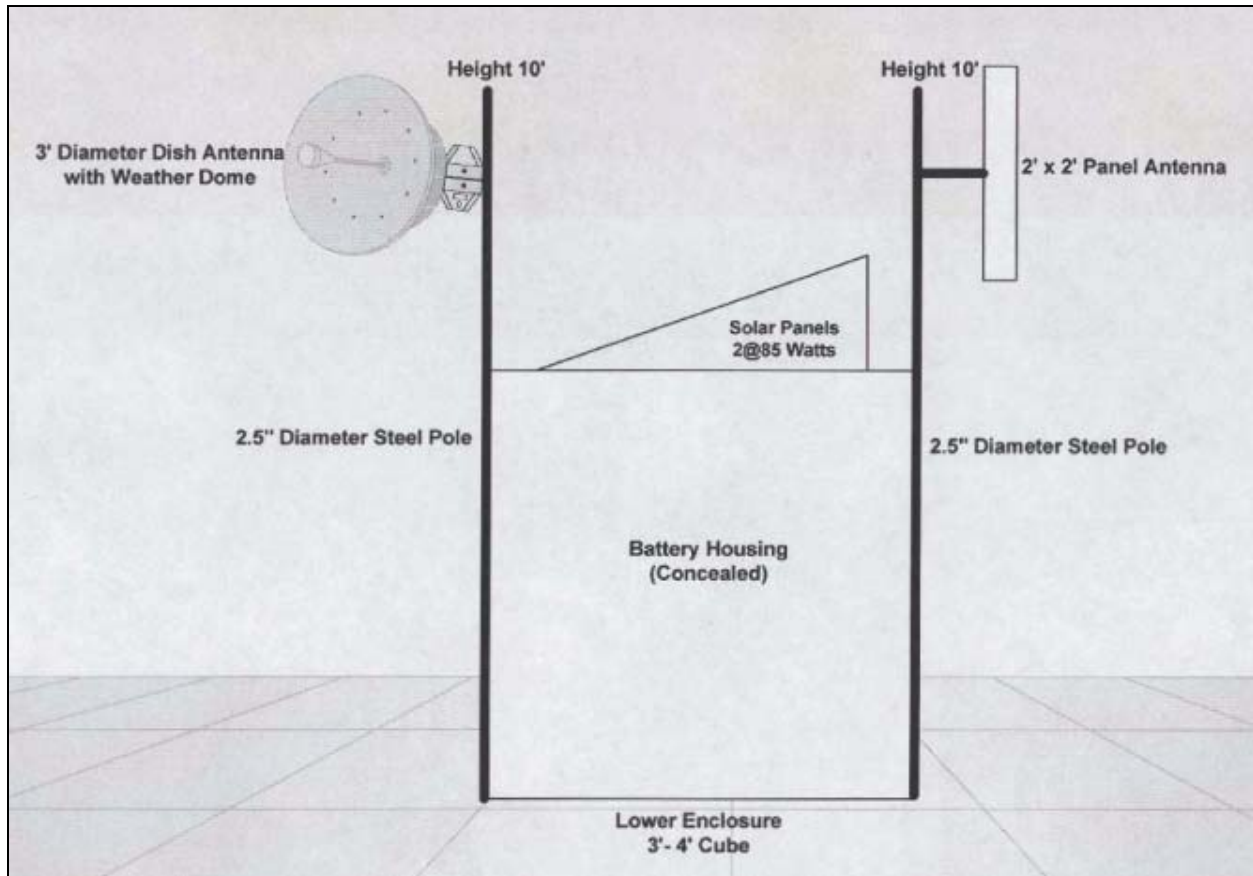


Figure 2.4. Diagram of Proposed Dumpling Mountain Communications Station.

2.3.1.4 Dumpling Mountain Radio Repeater Station Upgrades (Project Area 4)

The existing Dumpling Mountain radio repeater communications station would be upgraded to accommodate the transmission of wireless web camera video and communications between Brooks Camp and King Salmon. The station is located within Designated Wilderness near the summit of Dumpling Mountain at an elevation of approximately 4,400 feet (Figure 2.5). The existing station consists of solar panels and antennas mounted on a large walk-in enclosure. The enclosure contains four lead-gel batteries and radio repeater equipment and is secured by anchor poles and cables.

Upgrades would consist of extending the height of the existing communications tower by 10' to 15' and installing one 24" by 24" square antenna and one 36" diameter dish antenna on the existing tower. An additional four lead-gel batteries would be placed within the existing enclosure. All proposed activities would occur within the existing radio repeater communications station footprint.

Installation components, tools, and personnel would be transported from King Salmon to the project area on Dumpling Mountain by helicopter.



Figure 2.5. Dumpling Mountain Radio Communications Station (NPS).

2.3.1.5 King Salmon Headquarters Communications System Upgrades (Project Area 5)

The communications station at the KATM King Salmon headquarters would relay the web camera signal and wireless communications. To eliminate possible bandwidth conflict between park-related wireless communications and the web camera signal, the Pratt Museum in Homer, Alaska and RealNetworks headquarters in Seattle, Washington would each receive the web camera images via separate dedicated network circuits. To accomplish this, one 36" diameter dish antenna would be installed in King Salmon on existing structures. One or more additional dedicated network circuits would be installed at the King Salmon park headquarters building to accommodate the transfer of web camera images from Brooks Camp to Homer and Seattle. Power would be supplied by the existing electrical system.

2.3.2 Web Camera and Communications System Maintenance Requirements

The Pratt Museum would coordinate the operation of the remote video system, provide museum facilities, and staff time. The NPS would provide staff time for program development and interpretation of the video feed at the museum; methanol purchasing and fixed-winged aircraft or boat transport to Brooks Camp; and annual installation and removal of the web camera, power supply, and antenna from the Brooks Falls area. National Geographic and RealNetworks would provide in-kind staff, software, and hardware associated with Internet programming. National Geographic would pay for required Internet Service Provider (ISP) bandwidth and related costs.

The equipment at the Brooks River and Dumpling Mountain areas would be monitored and maintained by NPS staff. The web camera and communication sites located away from established electrical power supplies (Brooks Falls and the two Dumpling Mountain stations) would be designed and installed to be maintenance-free and provide enough electrical power for the duration of the field season (June to September). The proposed web camera, antenna, and power supply location at Brooks Falls would be designed and installed to allow for its removal at the end of the visitation season in September.

2.3.3 Mitigations Associated with the Proposed Action

Employee and Visitor Safety. Wireless communication signals transmitted by the web camera and communications would not interfere with park radio communications. All infrastructure and equipment associated with the Proposed Action would be properly secured to avoid possible injuries.

Wildlife and Wildlife Habitat. All infrastructure, equipment, and fuels associated with the Proposed Action would be protected and secured from brown bears and other wildlife species and installed to allow for unproblematic maintenance access away from concentrated brown bear habitats, particularly at the Brooks Falls brown bear viewing platform (described in Section 2.3.1.1). Access under and adjacent to the elevated boardwalk and platform would take place before June 15 to avoid adverse impacts to brown bears and their habitat. Solar panels would be placed to avoid glare and reflection effects on wildlife. Methanol would be secured in a bear-proof and fire-resistant enclosure. Battery conductance material would be composed of a gel-like material to reduce possible rupture and spillage of batteries used to power equipment. Helicopter flights would maintain a minimum altitude of 2,000 feet to reduce adverse impacts to wildlife and wildlife habitats, including denning areas located on Dumpling Mountain.

Cultural Resources. Should previously unknown cultural resources be identified during project implementation, work would be stopped in the discovery area and the NPS would perform consultations in accordance with federal regulations (36 CFR 800). NPS would abide by provisions of the Native American Graves Protection and Repatriation Act of 1992. Any artifacts recovered during the implementation of the project at any of the project sites would be accessioned, cataloged, preserved, and stored in compliance with the *NPS Cultural Resources Management Guidelines*.

Helicopter Activities. Helicopter activities would require the issuance of a Special Use Permit from the park Superintendent. Helicopter flights would be scheduled with KATM NPS staff in advance, travel in the most direct route from King Salmon to Dumpling Mountain, avoid the Brooks River and Brooks Camp areas of KATM by approaching Dumpling Mountain from the north, and maintain a minimum altitude of 2,000 feet to reduce adverse impacts to wildlife and park visitors.

Viewsheds and Aesthetic Values. The web camera, antennas, poles, towers, enclosures, and other structures associated with the Proposed Action would be located and colored to match surrounding infrastructure and natural landscapes as much as possible. Solar panels would be strategically placed to reduce possible adverse impacts to viewsheds and aesthetic values.

2.4 Environmentally Preferred Alternative

The No-Action alternative is the environmentally preferred alternative because it would cause no damage to the biological and physical environment from the installation of the web camera at the Brooks Falls bears viewing platform and the upgrade of communications at Brooks Camp, Dumpling Mountain, and King Salmon. The No-Action alternative represents a continuation of the existing situation without a communications upgrade.

2.5 Description of an Alternative and Action Considered but Eliminated from Detailed Study

Four alternatives were considered but dismissed from further analysis based primarily on factors relating to whether the alternatives are feasible or reasonable.

2.5.1 Installation of Communications Station Outside of Wilderness at the Brooks Lake Facilities Area

An alternative was considered to install the new communications station within the Brooks Lake facilities area (Figure 1.2). NPS staff studied various location alternatives to place the station outside of Wilderness while achieving a successful “line of sight” communication requirement between the Brooks Falls bear viewing platform web camera, Brooks Camp, and the existing Dumpling Mountain radio communications station. The Brooks Lake facilities area would not meet these “line of site” requirements.

2.5.2 Installation of a Radio and Wireless Communications Station at the Existing Dumpling Mountain Radio Communications Station

An alternative was considered to combine the radio and wireless communications at the existing Dumpling Mountain radio communications site (Figures 1.2 and 2.5). In order for the current Dumpling Mountain site to meet acceptable “line of sight” requirements to Brooks Camp, both the Dumpling Mountain radio communications tower and Brooks Camp tower would need to be a minimum of 150 feet in height. This tower height would require a substantial amount of ground work to properly anchor the tower bases. A 150-foot tower on Dumpling Mountain would likely incur greater damage and tower failure from the result of high winds and ice loading. The 150-foot tower would require additional maintenance and additional helicopter activity. A higher tower on Dumpling Mountain would be visible from a greater distance and would have greater impact on wilderness values than the existing Dumpling Mountain radio communications tower.

2.5.3 Installation of a Radio and Wireless Communications Station at a New Dumpling Mountain Site and Removal of the Existing Dumpling Mountain Radio Communications Station

An alternative was considered to combine the radio and wireless communications stations at a new site on Dumpling Mountain and remove the existing radio communications station on top of the mountain (Figure 2.6). The current Dumpling Mountain site houses the NPS park radio system, which is connected to two additional radio repeater stations, one located in KATM and the other located on Kodiak Island. Relocating the existing station would break the vital radio communications link with the two NPS radio repeater stations and NPS staff would no longer be able to communicate by radio within the backcountry and wilderness areas of KATM.

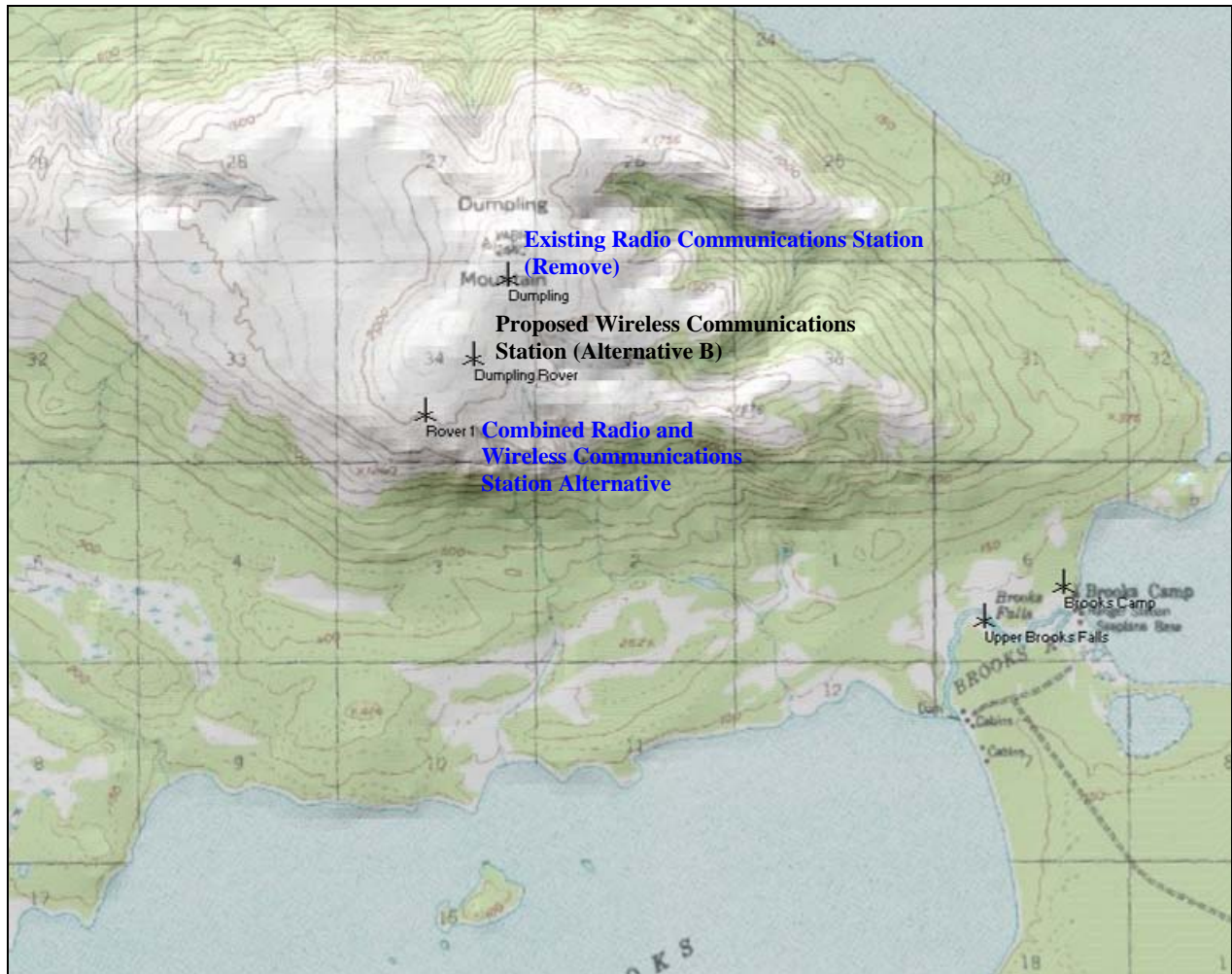


Figure 2.6. Alternative Dumpling Mountain Radio and Wireless Communication Station Location

2.5.4 Installation of a Wireless Communication Repeater Station within Designated Wilderness Southeast of Brooks Camp

An alternative location for the new wireless communication station has been identified approximately 4 miles southeast of Brooks Camp (Figure 2.7). This location would be able to achieve “line of sight” with Brooks Camp and the current Dumpling Mountain site. The path length to Dumpling Mountain would be approximately twice as long resulting in a less robust signal than would occur under Alternative B. The alternative site is located within Designated Wilderness. Substantial ground and vegetation disturbance may be required to install the communications equipment. This installation would affect wilderness values and may be visible from the Valley of Ten Thousand Smokes Road.

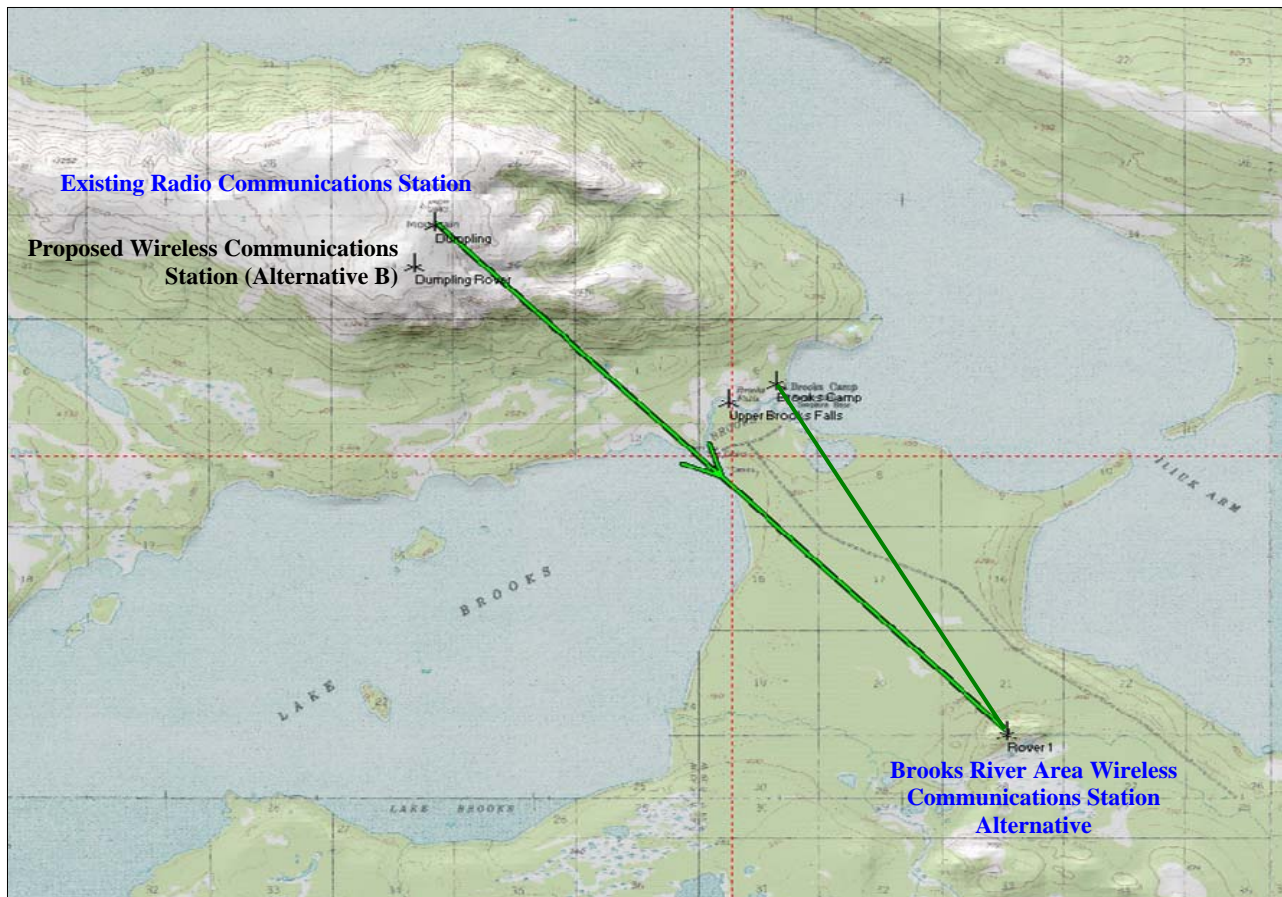


Figure 2.7. Alternative Brooks River Area Radio and Wireless Communication Station Location

2.6 Summary and Comparison of Alternatives

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

Table 2.1. Summary and Comparison of Alternatives

Impact Topics	Alternative A: No Action	Alternative B: Web Camera Installation and Communications Upgrade (NPS Preferred Alternative)
Soils and Vegetation	Short-term – no impact. Long-term – no impact.	Short-term – negative, negligible impact during the installation of the web camera and communications equipment within the Brooks Falls bear viewing platform and Dumpling Mountain areas. Long-term – no impact.
Wildlife and Wildlife Habitat	Short-term – no impact. Long-term – no impact.	Short-term – negative, minor impact during the installation and maintenance of the web camera and communications equipment within the Brooks Falls bear viewing platform and Dumpling Mountain areas. Long-term – negative, minor impact from direct loss of approximately 0.01 acre of habitat due to the presence of a second communications station on Dumpling Mountain.
Cultural Resources	Short-term – no impact. Long-term – no impact.	Short-term – no impact if mitigation measures are followed to protect cultural resources (see Section 2.3.3). Long-term – no impact if mitigation measures are followed to protect cultural resources (see Section 2.3.3).
Visitor Experience and Visitation	Short-term – no impact. Long-term – no impact .	Short-Term – positive, minor impact to visitors viewing bears at Brooks Falls from the Pratt Museum (physical and virtual visitation) and the National Geographic <i>Webcam Grizzlies</i> website (virtual visitation). Negative, negligible impact from installation and maintenance activities. Long-Term – positive, minor impact to visitors viewing bears remotely from Pratt Museum and the <i>Wildcam Grizzlies</i> website.
Visual Resources	Short-term – no impact. Long-term – no impact.	Short-Term – negative, negligible impact from use of helicopters and equipment installations on Dumpling Mountain and installation of equipment at the Brooks Falls bear viewing platform. Long-Term – negative, negligible impact from presence of equipment at the Brooks Falls bear viewing platform and Dumpling Mountain.
Soundscapes	Short-term – no impact. Long-term – no impact.	Short-Term – negative, minor impact from use of helicopters on Dumpling Mountain and installation of equipment at all proposed site locations. Long-Term – negative, negligible impact from operation of methanol fuel cell system.
Wilderness Values	Short-term – no impact. Long-term – no impact.	Short-term – negative, minor impact from helicopter activity and communication stations installations/upgrades on Dumpling Mountain. Long-term – negative, minor impact from presence of communications stations on Dumpling Mountain.
Park Operations	Short-term and Long-term – negative, minor impact from use of existing Brooks Camp communications system.	Short-term and Long-term – positive, moderate impact from upgrading existing communications system. Wireless communications speed and reliability would improve. Upgraded system would provide a backup means to communicate with park headquarters in the event of radio system failure.

3.0 AFFECTED ENVIRONMENT

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

3.1 Project Areas

The Proposed Action alternative would take place within five specific areas. One area is located on the south side of the Brooks River adjacent to the Brooks Falls upper bear viewing platform (Project Area 1), a second area is located within Brooks Camp (Project Area 2), two areas are located near the summit of Dumpling Mountain (Project Areas 3 and 4), and a fifth area is located within the KATM King Salmon administrative site (Project Area 5).

Brooks Camp is located approximately 30 air miles east of KATM park headquarters and gateway visitor center in King Salmon, Alaska. Access to Brooks Camp is primarily from King Salmon by floatplane or boat. The natural topography within and surrounding the camp slopes gently to the east-southeast, from Dumpling Mountain towards Naknek Lake. Elevations at the camp range from 42 to 62 feet above mean sea level. The Brooks Camp area is interspersed with and surrounded by a mixed forest of white spruce and birch and an understory vegetation of alder, grasses, and forbs. Most Brooks Camp facilities are located north of the mouth of the Brooks River, near the shore of Naknek Lake. Additional facilities are located south of the river, near the shore of Brooks Lake. Brooks Camp consists of a visitor and staff facilities, park employee housing, maintenance infrastructure, concessioner facilities, and a campground connected by a series of foot paths. Upgrades to the Brooks Camp communications system would take place on the existing antenna tower located on the Brooks Camp maintenance building (Project Area 2).

Visitors and staff access the south side of the Brooks River and the bear viewing platforms by a floating bridge. Three elevated viewing platforms are located adjacent to the river. One is located near the mouth of the river adjacent to the floating bridge crossing (“Lower River Platform”). The other two platforms are located above (“Falls Platform”) and below (“Riffles Platform”) Brooks Falls and are connected by an elevated walkway. This area near the Brooks Falls is predominantly characterized by a closed canopy of white spruce and Kenai birch, with an understory of various species of cranberry, willow, and alder (Figure 2.1). Elevation at the “Falls Platform” is approximately 100 feet. Web camera, antenna, and power supply installation activities would occur on the “Falls Platform” and connecting boardwalk (Project Area 1).

Dumpling Mountain is located approximately 3.5 miles northwest of Brooks Camp. The vegetative cover of the summit and southeast slope of Dumpling Mountain is divided into three classes based on topography and aspect: spruce and birch forest to an approximate elevation of 800 feet, alder and willow shrubs between an approximate elevation of 800 and 1,500 feet, and dwarf shrubs and bryophytes between an approximate elevation of 1,500 feet and the summit of Dumpling Mountain at an approximate elevation of 2,500 feet. Installation of the proposed wireless communications station and upgrades to the existing radio repeater communications station would occur above the Dumpling Mountain tree and shrub line on the southeast facing slope at an approximate elevation between 2,200 and 2,500 feet (Project Areas 3 and 4).

The KATM King Salmon administrative site is the maintenance, housing, and floatplane operations area for the park and preserve. The 11.43-acre developed site is located on the north bank of the Naknek River, consists of several buildings and storage areas, and has an elevation range of 11 to 37 feet. The site is interspersed with and surrounded by native alder, spruce, willow, lichens, grasses, and mosses; maintained lawns; and small wetlands. Upgrades to the communications system would occur on an existing antenna tower located within the administration site (Project Area 5).

3.2 Resource Impact Topics

3.2.1 Soils and Vegetation

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 the lakeshores attest to past volcanic activity on the area. The combination of coarse gravels, ash, and organic matter has resulted in well-drained soils with minimal surface runoff. The soils on the upper elevations of Dumpling Mountain are typically composed of a thin layer of dry to moderately moist sand, litter, or organic matter.

The south shore of the Brooks River is predominantly characterized by a closed canopy of white spruce and Kenai birch, with an understory of various species of cranberry, willow, and alder. Grassy meadows create small openings in the forests. The upper elevations of Dumpling Mountain (1,800 feet above sea level and greater) contain a mixture of dwarf shrubs, sedges, lichens, and exposed rock.

3.2.2 Wildlife and Wildlife Habitat

The Brooks River area is noted for its outstanding wildlife resources. The salmon runs annually attract more than 65 brown bears. The majority of bears remain on the Brooks River typically through the later part of July when they disperse to other streams with later-timed runs. Bears return to the river again in September to catch spawning salmon, particularly in the lower section of Brooks River and along the Naknek Lake shoreline adjacent to Brooks Camp.

Other wildlife species that utilize the Brooks River area and lower elevations of Dumpling Mountain include moose, river otter, mink, short-tailed weasel, porcupine, beaver, wolf and wolverine. Red squirrels, voles, shrews, foxes, lynx and snowshoe hares inhabit the surrounding forest. The upper slopes and summit of Dumpling Mountain provides additional wildlife habitat for smaller species of animals, including marmots and shrews. The NPS has documented multiple brown bear den sites on the southern slope of Dumpling Mountain. Bird species known to frequent the area include bald eagle, common merganser, Arctic tern and a variety of passerine birds.

3.2.3 Cultural Resources

The Brooks River area is located within the Brooks River Archeological District National Historic Landmark. This landmark was determined to be nationally significant for its potential to yield scientific information regarding the prehistoric human occupation of Alaska from approximately 4,500 B.P. (before present). The landmark is comprised of abundant surface and subsurface cultural remains from 22 well-preserved archeological sites located along the banks of the Brooks River and its associated series of ancient beach ridges and river terraces. The Brooks Falls area contains evidence of the earliest habitation by humans, including depressions left from semi-subterranean houses, cache pits, artifacts, and possible burial sites.

The ethnographic importance of the Brooks River corridor has not been afforded the same level of recognition as the archeological values. The ethnographic resources overlap many of the archeological deposits, but the heart of the ethnographic resources is located near the Brooks River mouth and immediate shoreline on the north side of the river and the shoreline south of the river mouth to a point beyond which the “Beaver Pond” comes closest to Naknek Lake. The ethnographic resources associated with Brooks Camp are rich, varied and include the traditional harvest of redfish or the taking of spawned

out red salmon in the Naknek drainage by those Alaska Natives traditionally associated with the area. The Brooks River corridor contains numerous burials that are of extreme ethnographic importance to contemporary peoples traditionally associated with this site. The preliminary information that has been recorded suggests that Qit'rwik, or Brooks Camp, is a potential candidate for the National Register of Historic Places as a Traditional Cultural Property.

3.2.4 Visitor Experience

Brooks Camp is the most popularly visited site in KATM. The summer visitor season in the Brooks Camp area begins in early June and continues through September. Brooks River is a world-class sport fishing area for rainbow trout and red salmon, as well as a world-class wildlife photography area. Today, many private lodges and hotels outside the park, as well as major tour companies, fly visitors to the Brooks River for sport fishing and bear viewing. Concessions and NPS development in the area support a range of visitor activities, including lodging, camping, dining, sightseeing, canoeing/kayaking, hiking, fishing, and wildlife photography. The majority of visitors to Brooks Camp experience Dumpling Mountain from a distance. A small fraction of Brooks Camp visitors take advantage of the 3.2-mile foot trail that ascends the mountain from Brooks Campground.

3.2.5 Visual Resources

The Brooks Falls bear viewing platform provides an unobstructed view of the falls and the surrounding landscape (Figure 2.3). The falls platform is one of the most popularly visited areas of Brooks Camp, particularly during the month of July when brown bears are easily seen catching fish. The southeast slope of Dumpling Mountain is visible from most of the Brooks Camp area. From the upper elevations of Dumpling Mountain Trail panoramic views of lakes, mountains, and the Brooks River area are visible, including most of the development associated with Brooks Camp.

3.2.6 Soundscapes

Within the Brooks River area, human voices and occasional shouts are heard in areas receiving higher visitation levels (particularly where recreational visitors occur such as Brooks Camp and the Brooks River corridor). Other common human sounds heard within the Brooks River area are float planes, small transport vehicles, and motor boat engines.

More specifically, the soundscape at the Brooks Falls bear viewing platform consists primarily of rushing water from Brooks Falls and secondarily of human voices from recreational visitors. Other sounds include vocalizations from wildlife and wildlife activities, such as bears feeding on fish.

The natural soundscape on the upper elevations of Dumpling Mountain consists primarily of wind and the effect wind has on vegetation. Other natural sounds include vocalizations from birds and mammals. On occasion, human caused sounds would consist of recreational visitors ascending and descending the mountain, fixed-winged aircraft flyovers, and helicopter activities (flyovers and occasional landings to maintain the existing communications station and future weather station installations).

3.2.7 Wilderness Values

The Brooks River area is located outside and adjacent to the Katmai Wilderness. With the exception of the lower southeast slopes, Dumpling Mountain is located within the Katmai Wilderness (Figure 1.2). Due to the adjacent location of the Brooks Camp development, the Wilderness values associated with the Dumpling Mountain area are not similar to those values experienced by visitors in more remote parts of

the Katmai Wilderness. These values, such as outstanding opportunities for solitude, recreation, and unconfined exploration in a setting of naturalness, are currently affected by the proximity of the Brooks Camp development, increased number of visitors, and the presence of an existing communications station and future weather station.

3.2.8 Park Operations

Park operations refer to the quality and effectiveness of park infrastructure (including communication) and management activities in protecting and preserving park resources and providing for a quality visitor experience. Park staff provides the full scope of functions and activities to accomplish management objectives and meet requirements in law enforcement, emergency services, public health and safety, science, resource protection and management, visitor services, interpretation and education, commercial services, maintenance, housing, and administration.

The Park's communication system is a critical component necessary for managing and protecting park resources, in providing for public and employee health and safety, and in accomplishing park management activities. NPS staff and volunteers use the Park's radio system to verbally communicate to others within Brooks Camp, backcountry areas within KATM, and park headquarters in King Salmon. Radio communications within certain areas of Brooks Camp are currently limited by topography, vegetative cover, and weather conditions.

Park staff and volunteers also correspond to others through email which is sent through the Internet on a commercial satellite signal from Brooks Camp. The existing communications system has a limited bandwidth which limits the number of individuals who are able to simultaneously access the Internet.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

For each issue selected for detailed analysis (see section 1.5) and for which the subject resources are described in chapter 3, the direct, indirect, and cumulative effects are analyzed. The effects to the subject resources are analyzed on the basis of the duration, extent, and intensity of the impacts. Summary impact levels (characterized as negligible, minor, moderate, or major) are given for each issue topic in the analyses. Definitions of impact terms are provided below. Table 4-1 presents a summary of impact level thresholds.

Table 4-1. Summary Impact Levels

Negligible	Minor	Moderate	Major	Impairment
Effects would generally be low intensity, temporary, and would not affect unique resources.	Effects would tend to be low intensity and short duration, but common resources may sustain medium intensity and long-term effects.	Common resources would be affected by higher intensity and longer term impacts while important and unique resources are affected by medium to low intensity and shorter-term to temporary impacts, respectively.	Effects are generally medium to high intensity, long-term to permanent and affect important to unique resources.	Impairment occurs when a resource no longer fulfills the specific purposes in the enabling legislation or its role in maintaining the Park's natural integrity.

4.2 Cumulative Impacts Analysis Information

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

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

- Past construction, conversion and expansion of numerous NPS and private structures within the Brooks River area of KATM, including offices, storage facilities, maintenance facilities, a visitor center, commercial lodge, employee and concessions residences, a campground, utilities, roads, elevated bear viewing platforms, trails, and the Dumpling Mountain radio communications.
- Installation of the Dumpling Mountain Remote Automated Weather Station (NPS, 2008).
- Past, present and future operation of the above facilities and infrastructures.
- Future possible actions such as (1) implementing projects related to housing, visitor services, sanitation and utility services described and analyzed in the 2006 *Rehabilitation and Replacement of Brooks Camp Facilities Environmental Assessment* (NPS, 2006b); (2) construction of NPS facilities (e.g., replacing the existing Brooks Lake maintenance facility (NPS, 2007)); (3) moving the bulk fuel storage facility inland, away from the shore of Brooks Lake; (4) concessioner facility repairs and improvements associated with a new 2008 Katmailand concessions contract; and (5) implementing the Brooks Camp move as specified in Alternative 5 of the 1996 DCP (NPS, 1996).

4.3 Alternative A: No-Action (Environmentally Preferred Alternative)

4.3.1 Soils and Vegetation

No impacts to soil and vegetation would occur under the No-Action alternative.

Cumulative Impacts. Construction and related ground disturbance activities from past, present and future NPS projects would be expected to result in minor, negative short-term impacts to soils and vegetation in the Brooks River and Dumpling Mountain areas. To mitigate impacts, the NPS would pursue best management practices and revegetation to conserve soils and prevent erosion, resulting in a long-term, minor negative impact. The no-action alternative would not change these cumulative effects.

Conclusion. Under this alternative, no new impacts to soils and vegetation would occur. The level of impacts on soils and vegetation anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.2 Wildlife and Wildlife Habitat

No impacts to wildlife and wildlife habitat would occur under the No-Action alternative.

Cumulative Impacts. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility and Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create minor, negative, short-term and long-term impacts to wildlife due to disturbance and habitat loss in the area. The no-action alternative would not change these cumulative effects.

Conclusion. No impacts to wildlife would occur in the Brooks Camp or Dumpling Mountain areas under this alternative. The level of impacts on wildlife anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.3 Cultural Resources

Cultural resources in the Brooks Camp and Dumpling Mountain areas would be unaffected with this alternative, since no new ground disturbance would occur.

Cumulative Impacts. No impacts would be expected from future actions to the Brooks River and Dumpling Mountain areas, as any projects would be regulated under state and federal requirements for cultural resource protection. Any impacts to cultural resources in un-surveyed areas would need to be evaluated on a site and project-specific basis by cultural resource professionals.

Conclusion. No impacts would occur under this alternative. The level of impacts on cultural resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.4 Visitor Experience

No impacts to visitor experience would occur under the No-Action alternative.

Cumulative Effects. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create minor, negative, short-term impacts to the visitor experience and visitation. These activities would be scheduled to avoid or minimize the impact on visitor experience and visitation.

Conclusion. No impacts to visitor experience and visitation would occur in the Brooks Camp or the Dumpling Mountain area under the no-action alternative.

4.3.5 Visual Resources

No impacts to visual resources would occur under the No-Action alternative.

Cumulative Effects. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create minor, negative, short-term and long-term impacts to visual resources due to the placement of new infrastructure.

Conclusion. No impacts to visual resources would occur in the Brooks Camp or Dumpling Mountain areas under this alternative. The level of impacts on visual resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.6 Soundscapes

No impacts to soundscapes would occur under the No-Action alternative.

Cumulative Effects. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create minor, negative, short-term impacts to soundscapes from construction and project implementation activities.

Conclusion. No impacts to soundscapes would occur in the Brooks Camp or Dumpling Mountain areas under this alternative. The level of impacts on visual resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.7 Wilderness Values

The No-Action alternative would not have new impacts to designated wilderness or areas eligible for wilderness designation.

Cumulative Effects. The KATM Wilderness is affected by existing and proposed remote installations. Specifically within the Dumpling Mountain area of KATM, a radio repeater station currently exists and a weather monitoring station is scheduled to be installed in 2008. Each of these human developments is

located within a small footprint (less than 100 square feet) and the cumulative effects on the resources and values in relation to the KATM Wilderness are considered to be minor.

Conclusion. No impacts would occur under this alternative. The level of impacts on wilderness values anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.3.8 Park Operations

The No-Action alternative would have minor adverse long-term impacts on park operations. The NPS currently employs hand-held radio and satellite-based communications at Brooks Camp. The radio system is the primary method of communication within Brooks Camp and the surrounding backcountry areas of KATM for law enforcement, emergency response, and search and rescue operations. Within the Brooks Camp area, employees and volunteers occasionally need to relocate their position in order to effectively communicate using the radio communications station on Dumpling Mountain (Figure 1.2) due to terrain, vegetative cover, and weather. Employees and volunteers also communicate to others outside of Brooks Camp via email over the Internet using a commercial satellite system. The satellite system does not provide enough bandwidth for multiple simultaneous connections.

Cumulative Effects. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create minor, negative, short-term impacts to park operations from construction and project implementation activities.

Conclusion. The No-Action alternative would have a minor short- and long-term adverse impact on park operations from use of the existing radio and satellite-based communications system. The No-Action alternative would not affect existing park radio communications.

4.4 Alternative B: Proposed Action – Upgrade Existing Brooks Camp Communications System and Install and Maintain Web Camera and Associated Equipment at the Brooks Falls Bear Viewing Platform.

4.4.1 Soils and Vegetation

Within the Brooks Falls area, the web camera, antenna, and power supply would be installed on the existing Brooks Falls bear viewing platform and elevated boardwalk to avoid impacts to soils and vegetation. Within the Dumpling Mountain area, limited surface and subsurface disturbance would occur during the installation of the new communications station on the southeast slope of the mountain. A surface area of approximately 16 square feet would be cleared of vegetation. Soil disturbance would be limited to the placement of approximately six to ten duckbill anchors in order to secure the station enclosure and antenna tower. No soil or vegetation disturbance would occur at the Brooks Camp communications tower, existing Dumpling Mountain radio repeater station, or the King Salmon park headquarters communications tower from installation activities.

Maintenance activities would include helicopter landings on Dumpling Mountain and foot travel within all of the proposed installation sites up to two times each year. This negligible surface ground disturbance would not have any substantive negative impact on soils or vegetation.

Cumulative Effects. Construction and related ground disturbance activities from past, present and future NPS projects would be expected to result in minor, negative short-term impacts to soils and vegetation in the Brooks River and Dumphling Mountain areas. To mitigate impacts, the NPS would pursue best management practices and revegetation to conserve soils and prevent erosion, resulting in a long-term, minor negative impact. Alternative B would negligibly increase these cumulative effects by approximately 0.01 acre.

Conclusion. The impacts to soils and vegetation would be negligible. The level of impacts on soils and vegetation anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.2 Wildlife and Wildlife Habitat

Under Alternative B, installation of the web camera and communications equipment may temporarily displace certain wildlife species in the immediate vicinity of each project area. Disturbance would be minor as installation would require only one to two days of helicopter use and foot travel at each site. Installation activities requiring access on the ground adjacent to the Brooks Falls platform would occur before June 15 to avoid disturbing brown bears using the falls area. Within the Dumphling Mountain area, wildlife would be disturbed temporarily by helicopters accessing the sites and by the presence of people. All equipment would be secured and protected from brown bears and other wildlife. The methanol fuel cell system would be enclosed in a fire-resistant enclosure equipped with a spill containment system. This enclosure would be placed away from brown bears and other wildlife on the covered assembly area platform. Solar panels and other equipment would be positioned to avoid bird injury and glare/reflection impacts on wildlife.

Routine maintenance activities would require the use of a helicopter and foot travel on Dumphling Mountain and the use of small vehicles and foot travel within the Brooks River area. Wildlife disturbances from these routine activities would be minor.

The maximum direct impacts to wildlife habitat from the installation of communications equipment would be approximately 0.01 acre at the new Dumphling Mountain communications site. No wildlife habitat would be impacted from installation and maintenance activities occurring at Brooks Camp or King Salmon.

Cumulative Impacts. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility and Brooks Camp relocation, and installation of the Dumphling Mountain weather station would create minor, negative, short-term and long-term impacts to wildlife due to disturbance and habitat loss in the area. Alternative B would negligibly increase the cumulative effects of wildlife disturbances over a one- to two-day period annually from initial installation and routine maintenance activities at each of the project areas. Alternative B would also negligibly increase the cumulative effects of habitat loss by approximately 0.01 acre.

Conclusion. The adverse impacts to wildlife and wildlife habitat would be minor and long-term. The level of impacts on wildlife and wildlife habitat anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the Park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.3 Cultural Resources

Should any unknown cultural resources be uncovered during project implementation at any of the project areas, work would be stopped in the discovery area. The NPS would perform consultations according to 36 CFR 800 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1992. A Determination of Eligibility would be conducted. If adjustments could not be made to the project to avoid cultural resource disturbance, a Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office that incorporates comments from consulting parties would be executed. The MOA would specify measures to mitigate adverse effects. Any artifacts recovered from park property at the project site would be accessioned, cataloged, preserved and stored in compliance with NPS Cultural Resource Management Guidelines.

Cumulative Impacts. For future projects within the Brooks River and Dumpling Mountain areas, construction activities on non-surveyed sites would be regulated by state and federal requirements for cultural resource protection. Any impacts to non-surveyed areas would need to be evaluated on a site and project-specific basis by cultural resources experts. If the discovery of cultural resources is reported as required, Alternative B would not be expected to have any impacts on cultural resources and, therefore, would not contribute to the cumulative impacts of other construction projects and activities within the Brooks River and Dumpling Mountain areas.

Conclusion. Alternative B would not result in any impacts to cultural resources in the Brooks River and Dumpling Mountain areas of KATM. The level of impacts on cultural resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.4 Visitor Experience and Visitation

Under Alternative B, visitor experience would be adversely impacted from the installation and routine maintenance of the web camera and communications equipment at each of the project areas. This impact would be short-term (one to two days per year) and negligible. Installation and maintenance activities would be scheduled to avoid or minimize possible impacts to visitor experience and visitation.

The remote web camera system would allow visitors to the Pratt Museum and the National Geographic *Wildcam Grizzlies* website the opportunity to view brown bears at Brooks Falls on a real-time basis and have an enjoyable positive experience. The web camera system would allow people who may never have the opportunity to visit KATM to view bears interacting at the falls. This opportunity would be open to an unlimited number of individuals throughout the world via the Internet.

Cumulative Impacts. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create minor, negative, short-term impacts to visitor experience and visitation. Alternative B would negligibly increase the cumulative effects of visitor experience over a one-to-two-day period annually from initial installation and routine maintenance activities at each of the project areas.

Conclusion. Alternative B would allow visitors to the Pratt Museum and the National Geographic *Wildcam Grizzlies* website the opportunity to view brown bears at Brooks Falls on a real-time basis and have an enjoyable positive experience. The positive visitor experience achieved from the implementation of the remote web camera system would be a minor, long-term impact. Physical visitation numbers at

KATM and the Pratt Museum may negligibly increase while virtual visitation numbers at the Pratt Museum and *Wildcam Grizzlies* websites may increase to some extent. Alternative B would have negative, minor, short-term impacts to visitor experience during web camera and communications system installations and routine maintenance activities at the Brooks River and Dumpling Mountain areas of KATM.

4.4.5 Visual Resources

Implementation of Alternative B would have a negative, minor, long-term impact on the visual resources of the Brooks River and Dumpling Mountain areas of KATM and no impact on the King Salmon park headquarters area. The web camera and communications equipment may be visible to park staff and visitors at each of the project areas. To minimize adverse impacts to visual resources, the web camera and communications equipment would be positioned and installed to match the surrounding structures and natural landscapes as much as possible.

Cumulative Impacts. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create a minor, negative, long-term impact on visual resources. Alternative B would increase the cumulative effects of visual resources from the installation of the web camera and communications equipment at each of the project areas.

Conclusion. Alternative B would have negative, minor, short-term impacts to visual resources during web camera and communications system installation and routine maintenance activities at the Brooks River and Dumpling Mountain areas of KATM. The level of impacts on visual resources anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.6 Soundscapes

Helicopter access to Dumpling Mountain and small vehicle access within the Brooks River area required for initial web camera and communications equipment installations would affect the natural soundscape for a period of one to two days each year. The use of power tools to install the equipment may cause additional impacts to the natural soundscape. Based on product information, the fuel cell would emit a decibel level equivalent to a whispered conversation between two individuals during its operation (23 to 39 decibels).

Cumulative Impacts. Construction and operations activities from past, present and future projects such as the Brooks Lake maintenance facility, Brooks Camp relocation, and installation of the Dumpling Mountain weather station would create a minor, negative, short-term impact on soundscapes. Alternative B would negligibly increase the cumulative effects of soundscapes from the installation and operation of the web camera and communications equipment at each of the project areas.

Conclusion. Alternative B would have negative, minor, short-term impacts to soundscapes during web camera and communications system installation activities at the Brooks River and Dumpling Mountain areas of KATM. The operation of the methanol fuel cell system would have a negligible long-term impact on the natural soundscape at and adjacent to the covered assembly area, especially at times when no human activity is present. The level of impacts on soundscapes anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.7 Wilderness Values

Wilderness resource values would experience minor, negative, short-term impacts from helicopter activities to install, upgrade, and/or maintain the two Dumpling Mountain communications stations. Since each station would occupy a small footprint of approximately 0.01 acre over an period of several years, wilderness characteristics involving the untrammelled, undeveloped, and outstanding opportunities for solitude and a primitive type of recreation would experience a minor, negative, long-term impact. To minimize adverse effects on wilderness values, the installation of the communications equipment on Dumpling Mountain would be positioned and colored to match the surrounding landscape.

Cumulative Impacts. Based on the Wilderness Minimum Requirements/Minimum Tools Analysis in Appendix B, the KATM Wilderness is currently affected by the existing Dumpling Mountain radio communications station and would be affected by the proposed installations of an additional communications station and remote automated weather station. In comparison with the entire KATM Wilderness, Alternative B would have a negative, minor, long-term impact on wilderness values.

Conclusion. Alternative B would have negative, minor, long-term impacts to wilderness values from the installation and presence of the two communications stations within Dumpling Mountain areas of KATM. The level of impacts on wilderness values anticipated from this alternative would not result in impairment of park resources that fulfill specific purposes identified in the park's enabling legislation or that are crucial to the natural and cultural integrity of the park and preserve.

4.4.8 Park Operations

Under Alternative B, park operations would be positively affected by the communications system upgrade. The system would improve visitor safety and emergency response by providing backup communications between Brooks Camp and King Salmon in the event of primary radio failure. Park staff and volunteers would be able to access the Internet and communicate via email faster with fewer interruptions.

Cumulative Impacts. The installation and maintenance of the web camera and communications equipment would be scheduled to avoid possible impacts to park operations. The wireless signal transmitted by the communications equipment would consist of a Super High Frequency (SHF) microwave signal within a 5 gigahertz (GHZ) range. This signal would not interfere with existing Brooks Camp radio communications, which transmits on a Very High Frequency (VHF) radio signal between 148 and 175 megahertz (MHZ).

Conclusion. Alternative B would have positive, moderate, long-term impacts to park operations from the upgrade of Brooks Camp communications.

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APPENDIX A

Alaska National Interest Land Conservation Act (ANILCA)

Section 810(a) 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 install a bear viewing web camera and upgrade the communications system within the Brooks River area of Katmai National Park and Preserve (KATM). Since the ANILCA made no provisions to allow subsistence activities in Katmai National Park, this analysis will only address potential impacts of proposed NPS activities in Katmai National Preserve. The *Environmental Assessment for the Brooks River Area Bear Viewing Web Camera Installation and Communications Upgrade* describes a no-action and a proposed action for consideration.

II. EVALUATION PROCESS

Section 810(a) of ANILCA states:

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

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

(C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.”

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

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

III. PROPOSED ACTION ON FEDERAL PUBLIC LANDS

The NPS is proposing to install a bear viewing web camera and upgrade the existing communications system within the Brooks River area of KATM and at the King Salmon park headquarters site. The Brooks River area is located approximately 30 air miles east of King Salmon and is accessed by either floatplane or boat. Specific installations and upgrades would include: (1) a web camera, communications antenna, and power supply at the Brooks Falls bear viewing platform; (2) an antenna on the existing Brooks Camp communications tower; (3) a new communications station on Dumpling Mountain containing two antennas, power supply, and small boxed enclosure; and (4) a tower extension, two antennas, and power supply at the existing Dumpling Mountain communications station.

The purposes of the proposed project are to continue the remote bear viewing partnership between the NPS, Pratt Museum, and National Geographic and provide a reliable wireless digital broadband communications system to the Brooks Camp area. Relocating the remote camera from McNeil River State Game Sanctuary to Brooks Falls in KATM would allow the partners to continue offering a unique virtual bear viewing experience. The communications system would allow more staff and volunteers to simultaneously access the and communicate outside of Brooks Camp via email with fewer interruptions and delays. The system would also provide backup voice communications between Brooks Camp and King Salmon in the event of primary radio system failure. A detailed discussion of the proposed project and the no-action and preferred alternatives are provided in Chapter 2 of the Environmental Assessment (EA).

IV. AFFECTED ENVIRONMENT

The installation of the web camera and communications equipment within KATM would affect a small area of land near the Brooks Falls bear viewing platform (4 ft by 4 ft) and the proposed new communications station on the southeast slope of Dumpling Mountain (4 ft by 4 ft). The web camera and communications installation and upgrade areas are located entirely within Katmai National Park. For

comprehensive descriptions and locations of each of the four proposed locations, refer to Chapter 2 of the EA.

Subsistence activities are not permitted in Katmai National Park in accordance with the ANILCA Title II Section 203; Title VIII Section 816(a); and Title XIII Section 1314(c). However, subsistence uses are allowed within Katmai National Preserve in accordance with the ANILCA Title II Section 203 and provisions of Title VIII. Katmai National Preserve, encompassing 308,000 acres, is located on the northern end of the Alaska Peninsula in Game Management Unit 9C and contains geologic features, scenery, wildlife and cultural resources of national significance. The ANILCA also authorized subsistence uses on adjacent federal public lands managed by the Bureau of Land Management (BLM) and the US Fish and Wildlife Service (USFWS).

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

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

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

V. SUBSISTENCE USES AND NEEDS EVALUATION

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

The evaluation criteria are:

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

1. The Potential to Reduce Populations:

(a) Reduction in Numbers

The proposed web camera and communications installations, upgrades, and maintenance within Katmai National Park are not expected to reduce wildlife species populations. The negligible disturbances to wildlife while the field team is installing/upgrading and maintaining the web camera and

communications system would be highly localized to the four site locations (Brooks Falls viewing platform, Brooks Camp, and two sites on Dumpling Mountain) and temporary in duration (one to two days during initial installations and one day during annual maintenance activities). Web camera and communications equipment would be installed in such a manner as to ensure wildlife individuals or groups that come into contact with the installations are not injured. Natural wildlife population and migratory cycles would continue and the ongoing regional subsistence pattern would remain unchanged.

(b) Redistribution of Resources

The proposed action is not expected to redistribute, displace, or stress subsistence wildlife resources. To avoid disturbing wildlife populations within the project areas, helicopter and field activities would take place when wildlife populations do not inhabit these locations. New installations at the Brooks Falls bear viewing platform and southeast slope of Dumpling Mountain would utilize a small footprint (4 ft by 4 ft) and would not cause wildlife populations to become redistributed, displaced, or stressed.

(c) Habitat Loss

The proposed action is not expected to cause the loss of beneficial or critical habitat for subsistence species such as salmon, caribou, moose, furbearers, grouse, and waterfowl. The small footprint area required for the installation of the Brooks Falls web camera and Dumpling Mountain communication station would not manipulate subsistence habitats or have any measurable impacts on subsistence resources. Provisions of the ANILCA, the Federal Subsistence Board, and NPS regulations and policies provide the tools for adequate protection of fish and wildlife populations within Katmai National Preserve while ensuring a subsistence priority for local rural residents. In addition, the superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

2. Restriction of Access:

The proposed action would not limit or restrict current subsistence use patterns within Katmai National Preserve. All rights of access for subsistence harvest on NPS lands are granted by Section 811 of ANILCA. The superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

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 the ANILCA, the Federal Subsistence Board, and NPS regulations provide the tools for adequate protection of fish and wildlife populations while ensuring a subsistence priority for local rural residents. The superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

VI. AVAILABILITY OF OTHER LANDS

The bear viewing web camera is currently located at the McNeil River State Game Sanctuary. Increasing costs for air charters and difficult access to the Kamishak Bay area make a McNeil-based camera too expensive to maintain. Since remote bear viewing has proven to be extremely popular with visitors to the Pratt Museum in Homer and the National Geographic Magazine's *WildCam Grizzlies* website, moving the remote camera to Brooks Falls in KATM would allow NPS, Pratt Museum, and National Geographic to continue offering a unique virtual bear viewing experience. Upgrading the existing Brooks Camp communications system is site-specific to the Brooks River and Dumpling Mountain areas of KATM.

VII. ALTERNATIVES CONSIDERED

A No-Action Alternative was considered in preparing this analysis. Under the No-Action Alternative, no web camera or communications system would be installed, upgraded, or maintained. This alternative would not meet the goals and objectives of the Katmai General Management Plan and the NPS, Pratt Museum, and National Geographic partnership.

FINDINGS

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

Appendix B

Wilderness Minimum Requirements/Minimum Tools Analysis

Step 1: Determine if any action is necessary.

Description: Briefly describe the situation that may prompt action.

The National Park Service (NPS) currently employs hand-held radio and satellite-based communications at Brooks Camp. The radio system is the primary method of communication within Brooks Camp and the surrounding backcountry areas of KATM for law enforcement and search and rescue operations. Within the Brooks Camp area, employees and volunteers occasionally need to relocate their position in order to effectively communicate using the radio communications station on Dumpling Mountain (Figure 1.2) due to terrain, vegetative cover, and weather. Employees and volunteers also communicate to others outside of Brooks Camp via email over the Internet using a commercial satellite system. The satellite system does not provide enough bandwidth for multiple simultaneous connections.

For the past two years, the National Geographic *WildCam Grizzlies* project has been sited at the McNeil River State Game Sanctuary, which is located adjacent to Katmai National Park and Preserve (KATM) near Kamishak Bay, Alaska. However, increasing costs for air charters and difficult access make a McNeil-based camera too expensive to install and maintain. The NPS has the opportunity to continue the *WildCam Grizzlies* partnership with the Pratt Museum and National Geographic by offering a unique virtual bear viewing experience at Brooks Camp. However, the existing communications system is not adequate to stream live video from Brooks Camp.

A. Describe Options Outside of Wilderness

Is action necessary within Wilderness?

Yes: ☒

No: ☐

Not Applicable: ☐

Explain:

NPS staff studied various location alternatives to place the communications station outside of Wilderness while achieving a successful “line of sight” communication requirement between the Brooks Falls bear viewing platform web camera, Brooks Camp, and the existing Dumpling Mountain radio repeater communications station. None of the site alternatives outside of Wilderness could achieve the “line of sight” communications requirements needed for a successful communications link.

B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Are there valid existing rights or is there a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of action involving Section 4(c) uses? Cite law and section.

Yes: ☐

No: ☒

Not Applicable: ☐

Explain:

No special provision within the Wilderness Act or Alaska National Interest Lands Conservation Act (ANILCA) specifically allows the installation of communications site within the Katmai Wilderness.

C. Describe Requirements of Other Legislation

Is action necessary to meet the requirements of other laws?

Yes: ☐

No: ☒

Not Applicable: ☐

Explain:

No other laws specifically require action for the installation of a communications site within the Katmai Wilderness.

D. Describe Other Guidance

Does action conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes: ☒

No: ☐

Not Applicable: ☐

Explain:

National Park Service 2006 Management Policies

The upgrade of an existing communications station and the installation of a new communication station within the Dumpling Mountain area of the Katmai Wilderness would conform to specific NPS Management Policies (2006):

Section 6.3.10.1 – Administrative Facilities within Wilderness

Administrative facilities (for example, ranger stations, and/or patrol cabins, fire lookouts, radio and/or cellular telephone antennas, radio repeater sites, associated storage or support structures, drift fences, and facilities supporting trail stock operations) may be allowed in wilderness only if they are determined to be the minimum requirement and are specifically addressed within the park's wilderness management plan or other appropriate planning documents.

Katmai National Park and Preserve General Management Plan

The KATM General Management Plan (1986) provides additional guidance for the proposed project:

Visitor Use – Information and Interpretation (page 31): Interpretation provides an understanding of the resources of the park and preserve and helps increase visitor awareness and enjoyment. Interpretation and education activities are important to the protection and use of the natural and cultural values of the park and preserve. Professionals and volunteers will carry out these important functions of interpretation and education by using a variety of media to reach park and preserve visitors and the general public.

Brooks River Area Development Concept Plan

The proposed project is also related to specific visitor experience and interpretation objectives provided on page 11 of the *Brooks River Area Development Concept Plan*. These objectives include the encouragement of visitors to learn and experience the Brooks River area natural, cultural and scenic resource values and the focusing of visitor use and development in specific areas to minimize resource disturbance.

E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, or unique components that reflect the character of this wilderness area?

Untrammeled: **Yes:** ☐ **No:** ☒

Explain: The Dumpling Mountain communications stations would not contribute to nor adversely effect the preservation of the untrammeled quality of the Katmai Wilderness. The ecological systems of the Dumpling Mountain area would not be controlled or manipulated.

Undeveloped: **Yes:** ☐ **No:** ☒

Explain: The Dumpling Mountain communication stations would not contribute to the preservation of the undeveloped quality of the Katmai Wilderness. However, the presence of the stations may adversely affect the undeveloped quality of the Katmai Wilderness when visitors on foot or flying overhead in a plane observe the stations.

Natural: **Yes:** ☐ **No:** ☒

Explain: The Dumpling Mountain communication stations would not directly contribute to the natural quality of the Katmai Wilderness.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

Yes: ☐ No: ☒

Explain: The presence of the Dumping Mountain communication stations would not contribute to outstanding opportunities for solitude or a primitive and unconfined type of recreation within the Katmai Wilderness. Accessing the stations would require the use of a helicopter. Helicopter use and the presence of the stations may adversely affect a Wilderness visitor's opportunity to experience solitude and/or a primitive and unconfined type of recreation. To reduce these adverse effects, a minimal number of trips would be scheduled to install and maintain the two stations. In addition, each station would be constructed of materials that blend with the surrounding landscape.

Other unique components that reflect the character of this wilderness:

Yes: ☐ No: ☒

F. Describe Effects to the Public Purpose of Wilderness

Is action necessary to support one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: Yes: ☐ No: ☒ Not Applicable: ☐

Scenic: Yes: ☐ No: ☒ Not Applicable: ☐

Scientific: Yes: ☐ No: ☒ Not Applicable: ☐

Education: Yes: ☒ No: ☐ Not Applicable: ☐

Explain: One of the primary educational/interpretive themes of Wilderness within the National Park System is to promote and perpetuate public awareness and appreciation for wilderness character, resources, and ethics, while providing for acceptable use limits (2006 NPS *Management Policies*, Section 6.4.2). The proposed project would support the educational purpose of Wilderness through KATM interpretive programs, educational programs and exhibits at the Pratt Museum, and educational information provided on the National Geographic *Wildcam Grizzlies* website.

Conservation: Yes: ☐ No: ☒ Not Applicable: ☐

Historic Use: Yes: ☐ No: ☐ Not Applicable: ☒

Step 1 Decision: Is the administrative action <u>necessary</u> in wilderness?
--

Yes: ☒

No: ☐

More Information Needed: ☐

Explain: In order to achieve the “line of sight” communications requirements between Brooks Camp and King Salmon, the proposed installation of a new communications station and upgrade to the existing radio repeater station within Wilderness would be necessary. The proposed project would meet National Park Service policies related to administrative facilities within the Katmai Wilderness. Although the proposed project would not contribute to the preservation of the untrammeled, undeveloped, and outstanding opportunities for solitude or a primitive and unconfined type of recreation within the Katmai Wilderness, the project would benefit the educational purposes of Wilderness by interpreting to visitors the importance brown bears, salmon, and other animals have on the KATM ecosystem and the Wilderness resource.

Step 2: Determine the minimum activity.

Description of Alternatives

For each alternative, describe what methods and techniques would be used, when the activity would take place, where the activity would take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

Alternative #1 – No action

Description:

Under the No-Action alternative, upgrading the existing Brooks Camp communications system and the installation of a web camera at the Brooks Falls bear viewing platform would not occur. Brown bears within the Brooks Falls viewing platform area would not be viewed remotely on the Internet. Park staff would continue to use the existing satellite-based communications system. The existing Dumpling Mountain radio communications station would remain in place and would not be upgraded.

Effects:

Wilderness Character

- **Untrammeled** – the ecological systems within the Katmai Wilderness would not be controlled or manipulated.
- **Undeveloped** – the level of development within the Dumpling Mountain areas of the Katmai Wilderness would remain unchanged. The radio communications and weather stations would remain in place.
- **Natural** – the natural conditions and biological diversity within the Katmai Wilderness would continue to be protected.

- **Outstanding opportunities for solitude or a primitive and unconfined type of recreation** – visitors would continue to notice the radio communications and weather stations at Dumping Mountain.

Heritage and Cultural Resources

Heritage and cultural resources within the Katmai Wilderness would not be affected. Historic and pre-historic artifacts, sites, structures, and landscapes would continue to be protected and managed.

Maintaining Contrast and Skills

The contrast between Wilderness and areas adjacent to the Wilderness would not be altered. The use of primitive and traditional skills, tools, and travel methods would remain unchanged.

Special Provisions

No special provisions would be affected from the implementation of the No-Action alternative.

Safety of Visitors, Personnel, and Contractors

There would be no safety concerns or risks to visitors, personnel, and others within the Katmai Wilderness directly associated from the implementation of the No-Action alternative.

Economic and Time Constraints

The economic and time constraints from using the existing Brooks Camp communications system as part of routine government operations would remain unchanged. Internet capabilities would continue to be slow and intermittent depending on the number of simultaneous users.

Alternative #2 – Upgrade Brooks Camp Communications System

Description:

Under the Proposed Action alternative, the NPS would upgrade the existing Brooks Camp communications system and install and maintain a real-time web camera at the Brooks Falls viewing platform within KATM. The remote bear viewing web camera would allow NPS, National Geographic, and the Pratt Museum to continue offering a unique virtual bear viewing experience. The proposed communications upgrade would provide backup voice communications between Brooks Camp and King Salmon in the event of primary radio system failure and would allow more NPS staff and volunteers at Brooks Camp to simultaneously access the Internet and communicate with others outside of Brooks Camp with fewer interruptions and delays.

A detailed description of the Proposed Action is located within Section 2.3 of the Environmental Assessment (EA).

Effects:

Wilderness Character

- **Untrammelled** – The Dumpling Mountain communication stations would not control or manipulate the ecological systems within the Katmai Wilderness.
- **Undeveloped** – The level of development within the Dumpling Mountain area would increase by approximately 16 sq ft from the installation of a new communications station on the southeast facing slope of the mountain. Although no additional footprint development would occur at the existing station, the station would require a tower extension of between 10 and 15 feet and an additional antenna installation. All equipment associated with the weather stations would be placed in such a manner as to minimize the developed appearance of the Dumpling Mountain area.
- **Natural** – the natural conditions and biological diversity within the Katmai Wilderness would continue to be protected. The number and duration of helicopter flights over and on Dumpling Mountain would be minimized. Helicopter flights and ground activities would not disturb breeding, nesting, feeding, and other important wildlife habitats. Ground disturbance activities would be limited to the communication station footprints.
- **Outstanding opportunities for solitude or a primitive and unconfined type of recreation** – With the exception of a few days during the year and within and adjacent to the proposed communication station locations, visitors to the Dumpling Mountain area would continue to experience opportunities for solitude and/or a primitive and unconfined type of recreation. During the one-time installation and subsequent annual maintenance of the communication stations, visitors may observe helicopter activities over and on Dumpling Mountain. The number and duration of helicopter flights would be minimized to mitigate any possible adverse effects the proposed project may have on visitors to the Katmai Wilderness.

Heritage and Cultural Resources

Historic and pre-historic artifacts, sites, structures, and landscapes would continue to be protected and managed. If any archeological or historic resources are discovered during the installation/upgrade and maintenance of the communication stations, the activity would be halted and the Katmai Superintendent or Chief of Cultural Resources would be notified as soon as possible. No further action would take place until the NPS has had the opportunity to consult with the State Historic Preservation Office (SHPO) and affected Native communities.

Maintaining Contrast and Skills

The use of a helicopter to assist with the transportation of equipment and personnel would provide little contrast between Wilderness and non-Wilderness areas. The use of primitive and traditional skills and tools would not be utilized. However, installation and maintenance activities would utilize some foot travel from a specified helicopter drop-off point.

Special Provisions

No special provisions would be affected from the implementation of the Proposed Alternative.

Safety of Visitors, Personnel, and Contractors

Installing and maintaining the communications stations would involve field personnel flying in a helicopter and hiking on remote uneven terrain while carrying equipment. Interactions with wildlife are possible. All aircraft activity would be safely implemented. Field personnel would be in radio and/or satellite phone contact with park dispatch, aircraft pilots, and/or other key personnel while conducting field activities. Field crew personnel would be properly equipped to survive one or more nights within remote areas. Trained field crew personnel would carry an approved firearm and/or bear spray canister for personal protection and, if necessary, would be used on aggressive bears and other large mammals posing an immediate threat to an individual or group of individuals. No potential public safety hazards would result from installing and maintaining the weather stations.

The result of the proposed project would improve the safety to visitors, personnel, and contractors within the Wilderness areas of KATM. The proposed communications system would be used as a backup voice communication system within the Brooks Camp area in the event the primary park radio system is not operable.

Economic and Time Constraints

The cost for installing/upgrading the Brooks Camp web camera and communications system is approximately \$100,000. Annual maintenance costs for each station are approximately \$10,000. Each station would be installed during a one- to two-day period. Annual maintenance activities would occur during a one- to two-day. These costs and timing requirements would be the minimum required to successfully accomplish the Proposed alternative.

Step 2 Decision: What is the Minimum Activity?

The selected alternative is:

Alternative #2.

Rationale for selecting this alternative:

The selected alternative conforms to NPS 2006 Management Policies and the Katmai GMP. The selected alternative would provide a reliable wireless digital broadband communications infrastructure to the Brooks Camp area which would enable NPS, the Pratt Museum, and National Geographic to continue offering a unique virtual bear viewing experience through the Internet. The upgraded system would allow more NPS staff and volunteers to simultaneously access the Internet and communicate outside of Brooks Camp via email with fewer interruptions and delays. In addition, the upgraded system would provide backup voice communications between Brooks Camp and King Salmon in the event of primary radio system failure.

The selected alternative would partially mitigate adverse impacts to the Wilderness resource by minimizing the number and duration of field activities, minimizing ground disturbance to the smallest practicable footprint, and installing communications equipment in such a manner as to ensure its appearance would not adversely affect Wilderness character.

Monitoring and reporting requirements:

The NPS would be responsible for maintaining and monitoring the communications equipment on Dumlupınar Mountain. Helicopter activities would be coordinated with KATM dispatch operations in advance.

Check any Wilderness Act Section 4(c) uses approved in this alternative:

- | | |
|--|---|
| <input checked="" type="checkbox"/> mechanical transport | <input checked="" type="checkbox"/> landing of aircraft |
| <input checked="" type="checkbox"/> motorized equipment | <input type="checkbox"/> temporary road |
| <input type="checkbox"/> motor vehicles | <input checked="" type="checkbox"/> structure or installation |
| <input type="checkbox"/> motorboats | |

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency procedures.

Approvals	Signature	Name	Position	Date
Prepared by:		Daniel Noon	KATM NEPA Biologist	
Recommended:		Helen Lons	KATM Chief of Environmental Planning and Compliance	
Recommended:				
Approved:		Ralph Moore	KATM Superintendent	